
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549**

FORM 10-Q

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

For the quarterly period ended September 30, 2017

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

(State or Other Jurisdiction of
Incorporation or Organization)

54-1560050

(I.R.S. Employer
Identification Number)

**301 First Street SW, Suite 200
Roanoke, VA 24011**

(Address of Principal Executive Offices)

(540) 769-8400

(Registrant's Telephone Number, Including Area Code)

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 (§232.405 of this chapter) 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 whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth 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

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). 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 November 9, 2017, there were 28,402,887 shares of the registrant's common stock outstanding.

LUNA INNOVATIONS INCORPORATED
QUARTERLY REPORT ON FORM 10-Q
FOR THE QUARTER ENDED SEPTEMBER 30, 2017

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PART I. FINANCIAL INFORMATION

ITEM 1. FINANCIAL STATEMENTS

Luna Innovations Incorporated
Consolidated Balance Sheets

	September 30, 2017	December 31, 2016
	(unaudited)	
Assets		
Current assets:		
Cash and cash equivalents	\$ 38,514,437	\$ 12,802,458
Accounts receivable, net	8,940,405	10,269,012
Inventory	7,300,035	6,848,835
Prepaid expenses and other current assets	924,196	1,375,659
Current assets held for sale	—	5,801,629
Total current assets	55,679,073	37,097,593
Property and equipment, net	3,145,769	3,482,687
Intangible assets, net	3,264,285	3,367,217
Goodwill	502,000	502,000
Long term receivable- sale of HSOR business	4,000,000	—
Other assets	18,024	38,194
Non-current assets held for sale	—	10,509,282
Total assets	\$ 66,609,151	\$ 54,996,973
Liabilities and stockholders' equity		
Liabilities:		
Current liabilities:		
Current portion of long-term debt obligations	\$ 1,833,333	\$ 1,833,333
Current portion of capital lease obligations	49,070	52,128
Accounts payable	2,188,776	2,954,742
Accrued liabilities	9,586,554	7,913,544
Deferred revenue	897,023	837,906
Current liabilities held for sale	—	2,376,703
Total current liabilities	14,554,756	15,968,356
Long-term deferred rent	1,221,170	1,319,402
Long-term debt obligations	1,057,263	2,420,032
Long-term capital lease obligations	79,246	114,940
Non-current liabilities held for sale	—	84,555
Total liabilities	16,912,435	19,907,285
Commitments and contingencies		
Stockholders' equity:		
Preferred stock, par value \$0.001, 1,321,514 shares authorized, issued and outstanding at September 30, 2017 and December 31, 2016	1,322	1,322
Common stock, par value \$0.001, 100,000,000 shares authorized, 28,402,887 and 27,988,104 shares issued, 27,815,060 and 27,541,277 shares outstanding at September 30, 2017 and December 31, 2016	29,074	28,600
Treasury stock at cost, 587,827 and 446,827 shares at September 30, 2017 and December 31, 2016	(746,007)	(517,987)
Additional paid-in capital	83,204,263	82,451,958
Accumulated deficit	(32,791,936)	(46,874,205)
Total stockholders' equity	49,696,716	35,089,688
Total liabilities and stockholders' equity	\$ 66,609,151	\$ 54,996,973

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

Luna Innovations Incorporated
Consolidated Statements of Operations

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
	(unaudited)		(unaudited)	
Revenues:				
Technology development	\$ 4,590,054	\$ 4,118,245	\$ 13,428,428	\$ 11,772,731
Products and licensing	7,052,094	7,066,908	19,593,648	18,301,631
Total revenues	<u>11,642,148</u>	<u>11,185,153</u>	<u>33,022,076</u>	<u>30,074,362</u>
Cost of revenues:				
Technology development	3,491,840	3,068,360	10,045,261	8,986,312
Products and licensing	3,617,547	3,758,765	10,201,459	9,954,987
Total cost of revenues	<u>7,109,387</u>	<u>6,827,125</u>	<u>20,246,720</u>	<u>18,941,299</u>
Gross profit	<u>4,532,761</u>	<u>4,358,028</u>	<u>12,775,356</u>	<u>11,133,063</u>
Operating expense:				
Selling, general and administrative	3,256,074	3,816,679	10,345,964	11,296,389
Research, development and engineering	833,811	812,050	2,581,473	2,789,801
Total operating expense	<u>4,089,885</u>	<u>4,628,729</u>	<u>12,927,437</u>	<u>14,086,190</u>
Operating income/(loss)	<u>442,876</u>	<u>(270,701)</u>	<u>(152,081)</u>	<u>(2,953,127)</u>
Other income/(expense):				
Other expense	(3,389)	(231)	(4,258)	(1,904)
Interest expense	(55,099)	(71,991)	(179,860)	(237,081)
Total other expense	<u>(58,488)</u>	<u>(72,222)</u>	<u>(184,118)</u>	<u>(238,985)</u>
Income/(loss) from continuing operations before income taxes	<u>384,388</u>	<u>(342,923)</u>	<u>(336,199)</u>	<u>(3,192,112)</u>
Income tax (benefit)/expense	(130,977)	44,797	(63,350)	(173,801)
Net income/(loss) from continuing operations	<u>515,365</u>	<u>(387,720)</u>	<u>(272,849)</u>	<u>(3,018,311)</u>
Income/(loss) from discontinued operations, net of income tax (benefit)/expense of \$(349,515), \$(35,095), \$(349,515), and \$209,678.	145,293	(57,358)	(644,241)	342,685
Gain on sale, net of \$1,508,373 of related income taxes	<u>15,096,666</u>	<u>—</u>	<u>15,096,666</u>	<u>—</u>
Net income/(loss) from discontinued operations	<u>15,241,959</u>	<u>(57,358)</u>	<u>14,452,425</u>	<u>342,685</u>
Net income/(loss)	<u>15,757,324</u>	<u>(445,078)</u>	<u>14,179,576</u>	<u>(2,675,626)</u>
Preferred stock dividend	33,699	28,941	97,331	74,731
Net income/(loss) attributable to common stockholders	<u>\$ 15,723,625</u>	<u>\$ (474,019)</u>	<u>\$ 14,082,245</u>	<u>\$ (2,750,357)</u>
Net income/(loss) per share from continuing operations:				
Basic	<u>\$ 0.02</u>	<u>\$ (0.01)</u>	<u>\$ (0.01)</u>	<u>\$ (0.11)</u>
Diluted	<u>\$ 0.02</u>	<u>\$ (0.01)</u>	<u>\$ (0.01)</u>	<u>\$ (0.11)</u>
Net income/(loss) per share from discontinued operations:				
Basic	<u>\$ 0.55</u>	<u>\$ 0.00</u>	<u>\$ 0.52</u>	<u>\$ 0.01</u>
Diluted	<u>\$ 0.47</u>	<u>\$ 0.00</u>	<u>\$ 0.52</u>	<u>\$ 0.01</u>
Net income/(loss) per share attributable to common stockholders:				
Basic	<u>\$ 0.57</u>	<u>\$ (0.02)</u>	<u>\$ 0.51</u>	<u>\$ (0.10)</u>
Diluted	<u>\$ 0.48</u>	<u>\$ (0.02)</u>	<u>\$ 0.51</u>	<u>\$ (0.10)</u>
Weighted average common shares and common equivalent shares outstanding:				
Basic	27,692,539	27,605,028	27,611,905	27,531,730
Diluted	32,714,389	27,605,028	27,611,905	27,531,730

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

Luna Innovations Incorporated
Consolidated Statements of Cash Flows

	Nine Months Ended September 30,	
	2017	2016
	(unaudited)	
Cash flows provided by/(used in) operating activities		
Net income/(loss)	\$ 14,179,576	\$ (2,675,626)
Adjustments to reconcile net income/(loss) to net cash used in operating activities		
Depreciation and amortization	2,241,867	2,759,877
Share-based compensation	476,428	665,354
Bad debt expense	40,753	255,522
Loss on disposal of fixed assets	3,640	—
Gain on sale of discontinued operations	(15,096,666)	—
Change in assets and liabilities		
Accounts receivable	2,127,794	(1,197,885)
Inventory	(2,251,236)	964,443
Other current assets	380,858	(381,632)
Accounts payable and accrued expenses	(1,581,608)	(1,055,060)
Deferred revenue	59,980	(120,871)
Net cash provided by/(used in) operating activities	<u>581,386</u>	<u>(785,878)</u>
Cash flows provided by/(used in) investing activities		
Acquisition of property and equipment	(893,698)	(1,433,260)
Intangible property costs	(392,485)	(317,287)
Proceeds from sale of property and equipment	3,000	—
Proceeds from sales of discontinued operations	28,026,528	—
Net cash provided by/(used in) investing activities	<u>26,743,345</u>	<u>(1,750,547)</u>
Cash flows provided by/(used in) financing activities		
Payments on capital lease obligations	(38,752)	(44,404)
Payments of debt obligations	(1,375,000)	(1,375,000)
Repurchase of common stock	(228,020)	(325,060)
Proceeds from the exercise of options	29,020	—
Net cash used in financing activities	<u>(1,612,752)</u>	<u>(1,744,464)</u>
Net increase in cash and cash equivalents	<u>25,711,979</u>	<u>(4,280,889)</u>
Cash and cash equivalents—beginning of period	12,802,458	17,464,040
Cash and cash equivalents—end of period	<u>\$ 38,514,437</u>	<u>\$ 13,183,151</u>
Supplemental disclosure of cash flow information		
Cash paid for interest	\$ 173,275	\$ 239,347
Cash paid for income taxes	\$ 41,131	\$ 203,305
Non-cash investing and financing activities		
Dividend on preferred stock, 59,469 shares of common stock issuable for the nine months ended September 30, 2017 and 2016	\$ 97,331	\$ 74,731
Capital expenditures funded by capital lease borrowings	\$ —	\$ 157,246

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

Luna Innovations Incorporated
Notes to Unaudited Consolidated Financial Statements

1. Basis of Presentation and Significant Accounting Policies

Nature of Operations

Luna Innovations Incorporated (“we,” “Luna Innovations” 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 are a leader in advanced optical technology, providing unique capabilities in high performance fiber optic test products for the telecommunications industry, distributed fiber optic sensing for the aerospace and automotive industries, and custom optoelectronic components and subsystems. We are organized into two reportable segments, which work closely together to turn ideas into products: our Technology Development segment and our Products and Licensing segment. Our business model is designed to accelerate the process of bringing new and innovative technologies to market. We have a history of net losses from operations beginning in 2005. We have historically managed our liquidity through cost reduction initiatives, debt financings, capital markets transactions and the sale of assets.

Unaudited Interim Financial Information

The accompanying unaudited consolidated financial statements have been prepared in accordance with accounting principles generally accepted in the United States of America (“U.S. GAAP”) for interim financial statements and Article 10 of Regulation S-X of the Securities Exchange Act of 1934, as amended. Accordingly, they do not include all of the information and footnotes required by U.S. GAAP for annual financial statements. The unaudited consolidated financial statements have been prepared on the same basis as the annual financial statements and in the opinion of management reflect all adjustments, consisting of only normal recurring accruals considered necessary to present fairly our financial position at September 30, 2017, results of operations for the three and nine months ended September 30, 2017 and 2016, and cash flows for the nine months ended September 30, 2017 and 2016. The results of operations for the three and nine months ended September 30, 2017, are not necessarily indicative of the results that may be expected for the year ending December 31, 2017.

The consolidated interim financial statements, including our significant accounting policies, should be read in conjunction with the audited Consolidated Financial Statements and the notes thereto for the year ended December 31, 2016, included in our Annual Report on Form 10-K as filed with the Securities and Exchange Commission (“SEC”) on March 20, 2017.

Fair Value Measurements

Fair value is defined as the price that would be received to sell an asset or paid to transfer a liability in the principal or most advantageous market in an orderly transaction between marketplace participants. Various valuation approaches can be used to determine fair value, each requiring different valuation inputs. The following hierarchy classifies the inputs used to determine fair value into three levels:

- 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 all significant inputs and significant value drivers are observable in active markets
- Level 3—Valuations derived from valuation techniques in which one or more significant inputs or 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 our debt approximates fair value, as we consider the floating interest rate on our credit facilities with Silicon Valley Bank (“SVB”) to be at market for similar instruments. Certain non-financial assets and liabilities are measured at fair value on a nonrecurring basis in accordance with U.S. GAAP. This includes items such as non-financial assets and liabilities initially measured at fair value in a business combination and non-financial long-lived asset groups measured at fair value for an impairment assessment. In general, non-financial assets including intangible assets and property and equipment are measured at fair value when there is an indication of impairment and are recorded at fair value only when any impairment is recognized.

Net Loss Per Share

Basic per share data is computed by dividing our net loss by the weighted average number of shares outstanding during the period. Diluted per share data is computed by dividing net income, if applicable, 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 shares of common stock 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 5.0 million common stock equivalents (which include outstanding warrants, preferred stock and stock options) are included for the diluted per share data for the three months ended September 30, 2017. The effect of 5.6 million common stock equivalents are not included for the three months ended September 30, 2016 as they are anti-dilutive to earnings per share due to our net loss from continuing operations. The effect of 4.9 million and 5.7 million common stock equivalents are not included for the nine months ended September 30, 2017 and 2016, respectively, as they are considered anti-dilutive to earnings per share due to our net loss from continuing operations.

Recently Issued Accounting Pronouncements

Effective January 1, 2017, we adopted Accounting Standards Update ("ASU") No. 2016-09, *Improvements to Employee Share-Based Payment Accounting*. These amendments apply to several aspects of accounting for share-based compensation including the recognition of excess tax benefits and deficiencies and their related presentation in the statement of cash flows as well as accounting for forfeitures. The adoption of ASU No. 2016-09 did not have a significant impact on our financial condition, results of operations or cash flows.

Effective January 1, 2017, we adopted ASU No. 2015-17, *Balance Sheet Classification of Deferred Taxes*, which simplifies the presentation of deferred taxes by requiring that deferred tax assets and liabilities be classified as noncurrent in any classified balance sheet rather than being separated into current and non-current amounts. The adoption of ASU No. 2015-17 did not have a significant impact on our consolidated financial statements.

In January 2017, the Financial Accounting Standards Board ("FASB") issued ASU No. 2017-04, *Intangibles—Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*. This update simplifies the subsequent measurement of goodwill. The guidance removes Step 2 of the goodwill impairment test, which requires a hypothetical purchase price allocation. A goodwill impairment will now be the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. The accounting standard will be effective for reporting periods beginning after December 15, 2019. We do not expect ASU 2017-04 will have a material impact on our financial statements.

In August 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows (Topic 230)*, which addresses eight specific cash flow issues with the objective of reducing the existing diversity in practice in how cash receipts and cash payments are presented in the statement of cash flows. ASU 2016-15 is effective for public entities for fiscal years beginning after December 15, 2017, and interim periods within those fiscal years, with early adoption permitted. The amendments should be applied retrospectively to all periods presented. We do not expect ASU 2016-15 will have a material impact on our financial statements.

In April 2016, the FASB issued ASU 2016-10, *Revenue from contracts with customers: Identifying Performance Obligations and Licensing*, to clarify certain aspects of the existing standard specific to how an entity should recognize revenue to depict the transfer of promised goods or services to customers. Certain other ASUs have been issued specific to Topic 606 and our disclosure below includes our assessment of all ASUs specific to Topic 606 in the aggregate. In accordance with this update, we will adopt the requirements of the new standard effective January 1, 2018.

We are finalizing our assessment of the financial impact of Topic 606. To date we have reached the following conclusions specific to the impact of Topic 606. Contracts in our Technology Development segment primarily provide research services. We have concluded that revenue specific to this segment will not be materially impacted upon the adoption of Topic 606 as revenue will continue to be recognized over time using an input model. Contracts in our Products and Licensing segment generally provide for the following revenue sources: standard product sales, custom product development and sales, product rental, extended warranties, training/service, and certain royalties. We expect revenue for this segment to be recognized using either "point in time" or "over time" based on the revenue source. Based on our analysis to date we expect the pattern of recognition of the customized products to potentially change from "point in time" to "over time" upon the adoption of Topic 606. Our revenue recognized specific to customized products approximates \$10 million annually. This change will result in the acceleration of revenue when compared to existing standards with the cumulative adjustment relating to contracts that are not complete as of December 31, 2017 recognized as an adjustment to opening retained earnings on January 1, 2018. We are continuing to assess the impact of this potential change, or other changes which may be subsequently identified, on our financial statements and current processes and controls. We intend to adopt the standard using the modified retrospective transition method. Under the modified retrospective approach, the new standard

will, for the period beginning January 1, 2018, apply to net contracts and those that were not completed as of January 1, 2018. For those contracts not completed as of January 1, 2018, this method will result in a cumulative catch-up adjustment to retained earnings. Prior periods will not be retrospectively adjusted, but we will maintain dual reporting for the year of initial application in order to disclose the effect on revenue of adopting the new guidance.

In February 2016, the FASB issued ASU No. 2016-02, *Leases*, which requires a lessee to recognize in its statement of financial position an asset and liability for most leases with a term greater than 12 months. Lessees should recognize a liability to make lease payments and a right-of-use asset representing the lessee's right to use the underlying asset for the lease term. The amendment is effective for fiscal years ending after December 15, 2018, including interim periods within those fiscal years. We are currently evaluating the impact the adoption of this standard will have on our consolidated financial statements.

2. Discontinued Operations

On August 9, 2017, we completed the sale of our high speed optical receivers ("HSOR") business, which was part of our Products and Licensing segment, to an unaffiliated third party for an initial purchase price of \$33.5 million, of which \$29.5 million in cash has been received, and \$4.0 million was placed into escrow until December 15, 2018 for possible working capital adjustments to the purchase price and potential satisfaction of certain post-closing indemnification obligations (the "Transaction"). The purchase price is subject to adjustment in the future based upon a determination of final working capital, as defined in the asset purchase agreement. The HSOR business was a component of the operations of Advanced Photonix, Inc., which we acquired in May 2015. As part of the Transaction, the buyer also hired approximately 49 of our employees who were engaged in the development, manufacture, and sale of HSOR products in addition to certain corporate administrative functions. The buyer will provide certain transition services to us with respect to infrastructure and administration for which we will pay \$0.3 million per month for a period of five months, for a total of \$1.5 million, following the date of the Transaction. We have recorded this obligation as a reduction of the value of the purchase price. In assessing the fair value of the services expected to be received by us versus those we expect to deliver to the buyer, we concluded that the transition service payments were more closely aligned with the fair value of the assets sold versus the services received and thus should be part of the consideration reconciliation versus operating activities. As of September 30, 2017, \$0.6 million has been paid to the buyer and the remaining \$0.9 million is included in accrued liabilities at September 30, 2017. Our HSOR business accounted for 8.2% of revenues and 10.1% of our cost of revenues for the three months ended September 30, 2017, and 16.1% of revenues and 18.5% of our costs of revenues for the nine months ended September 30, 2017.

We have reported the results of operations of our HSOR business as discontinued operations in our consolidated financial statements. We allocated a portion of the consolidated tax (benefit)/expense to discontinued operations based on the ratio of the discontinued business's loss/(income) before allocations.

The following table presents a summary of the transactions related to the sale.

	September 30, 2017
	(unaudited)
Sale price	\$ 33,500,000
Less: transition services payments	(1,500,000)
Adjusted purchase price	32,000,000
Assets held for sale	(16,851,540)
Liabilities held for sale	2,330,052
Transaction costs	(873,473)
Income tax expense	(1,508,373)
Gain on sale of discontinued operations	\$ 15,096,666

Assets and liabilities held for sale as of December 31, 2016 were as follows:

December 31, 2016

Assets	
Current assets:	
Accounts receivable, net	\$ 4,028,713
Inventory	1,521,400
Prepaid expenses and other current assets	251,516
Total current assets	5,801,629
Property and equipment, net	3,298,151
Intangible assets, net	5,314,046
Goodwill	1,846,331
Other assets	50,754
Total non-current assets	10,509,282
Total assets held for sale	\$ 16,310,911
Liabilities	
Current liabilities:	
Accounts payable	\$ 1,511,450
Accrued liabilities	753,556
Deferred revenue	111,697
Total current liabilities	2,376,703
Long-term deferred rent	84,555
Total non-current liabilities	84,555
Total liabilities held for sale	\$ 2,461,258

The key components of income from discontinued operations were as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
	(unaudited)		(unaudited)	
Net revenues	\$ 1,041,310	\$ 3,433,767	\$ 6,356,237	\$ 13,178,475
Cost of revenues	797,678	2,182,495	4,599,042	8,687,783
Operating expenses	447,854	1,342,117	2,750,951	3,901,685
Other expenses	—	(1,608)	—	(36,644)
(Loss)/income before income taxes	(204,222)	(92,453)	(993,756)	552,363
Allocated tax (benefit)/expense	(349,515)	(35,095)	(349,515)	209,678
Operating income/(loss) from discontinued operations	145,293	(57,358)	(644,241)	342,685
Gain on sale, net of related income taxes	15,096,666	—	15,096,666	—
Net income/(loss) from discontinued operations	<u>\$ 15,241,959</u>	<u>\$ (57,358)</u>	<u>\$ 14,452,425</u>	<u>\$ 342,685</u>

For the nine months ended September 30, 2017 and 2016, cash flows (used in)/provided by operating activities for discontinued operations were \$(0.8) million and \$0.2 million, respectively. For the nine months ended September 30, 2017 and 2016, cash flows provided by/(used in) investing activities for discontinued operations were \$27.1 million and \$(1.4) million, respectively.

3. Inventory

Inventory consists of finished goods, work-in-process and raw materials valued at the lower of cost (determined on the first-in, first-out basis) or market. We write down inventory for estimated obsolescence or unmarketable inventory in an amount

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 were as follows:

	September 30, 2017	December 31, 2016
	(unaudited)	
Finished goods	\$ 2,234,828	\$ 1,952,885
Work-in-process	844,083	714,867
Raw materials	4,221,124	4,181,083
Total inventory	<u>\$ 7,300,035</u>	<u>\$ 6,848,835</u>

4. Accrued Liabilities

Accrued liabilities at September 30, 2017 and December 31, 2016 consisted of the following:

	September 30, 2017	December 31, 2016
	(unaudited)	
Accrued compensation	\$ 4,377,850	\$ 4,742,760
Income tax payable	1,027,687	—
Claims reserve	1,727,123	1,577,123
Transition services	900,000	—
Accrued sub-contracts	581,544	483,477
Accrued professional fees	70,308	67,719
Deferred rent	141,500	155,138
Royalties	263,625	345,895
Warranty reserve	212,849	185,125
Accrued liabilities - other	284,068	356,307
Total accrued liabilities	<u>\$ 9,586,554</u>	<u>\$ 7,913,544</u>

5. Debt

Silicon Valley Bank Facility

We currently have a Loan and Security Agreement with SVB (the "Credit Facility") under which, as amended on May 8, 2015, we have a term loan with an original borrowing amount of \$6.0 million (the "Original Term Loan"). The Original Term Loan is repayable in 48 monthly installments of \$125,000, plus accrued interest payable monthly in arrears, and unless earlier terminated, is scheduled to mature in May 2020. The Original 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 Original Term Loan at any time, subject to an early termination fee of up to 2% of the amount of prepayment.

In September 2015, we entered into the Waiver and Seventh Loan Modification Agreement, which provided an additional \$1 million of available financing for purchases of equipment through December 31, 2015, which we fully borrowed in December 2015 (the "Second Term Loan" and, together with the Original Term Loan, the "Term Loans"). The Second Term Loan also bears interest at a floating prime rate plus 2% and is to be repaid in 35 monthly installments of \$27,778 plus accrued interest.

The Credit Facility requires us to maintain a minimum cash balance of \$4.0 million and to maintain at each month end a ratio of cash plus 60% of accounts receivable greater than or equal to 1.5 times the outstanding principal of the Term Loans. The Credit Facility also requires us to observe a number of additional operational covenants, including protection and registration of intellectual property rights, and certain customary negative covenants. As of September 30, 2017, we were in compliance with all covenants under the Credit Facility.

Amounts due under the Credit Facility are secured by substantially all of our assets, including intellectual property, personal property and bank accounts. In addition, the Credit Facility contains 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 Facility and foreclose on the collateral. Furthermore, an event of default under the Credit Facility would result in an increase in the interest rate on any amounts outstanding. As of September 30, 2017, there were no events of default on the Credit Facility.

The aggregate balance under the Term Loans at September 30, 2017 and December 31, 2016, was \$2.9 million and \$4.3 million, respectively. The effective rate of our Term Loan at September 30, 2017 was 6.25%.

The following table presents a summary of debt outstanding as of September 30, 2017 and December 31, 2016:

	September 30, 2017	December 31, 2016
	(unaudited)	
Silicon Valley Bank Term Loan	\$ 2,916,666	\$ 4,291,666
Less: unamortized debt issuance costs	26,070	38,301
Less: current portion	1,833,333	1,833,333
Total long-term debt	\$ 1,057,263	\$ 2,420,032

The schedule of remaining principal payments under our Term Loans as of September 30, 2017 was as follows:

2017	\$ 458,333
2018	1,833,333
2019	625,000
	<u>\$ 2,916,666</u>

6. Capital Stock and Share-Based Compensation

We recognize share-based compensation expense based upon the fair value of the underlying equity award on the date of the grant. For restricted stock awards and restricted stock units, we recognize expense based upon the price of our underlying stock at the date of the grant. We have elected to use the Black-Scholes-Merton option pricing model to value any option or warrant awards granted. We recognize share-based compensation for such awards on a straight-line basis over the requisite service period of the awards. 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. The expected life and estimated post-employment termination behavior is based upon historical experience of homogeneous groups within our company. We also assume an expected dividend yield of zero for all periods, as we have never paid a dividend on our common stock and do not have any plans to do so in the future.

A summary of the stock option activity for the nine months ended September 30, 2017 is presented below:

	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, January 1, 2017	2,857,114	\$0.61 - \$6.83	\$ 1.89	\$ 107,063	2,367,630	\$ 1.93	\$ 101,071
Granted	80,000	\$1.51 - \$1.54	\$ 1.53				
Exercised	(31,953)	\$0.82 - \$1.38	\$ 0.95				
Canceled	(170,590)	\$1.40 - \$6.83	\$ 2.27				
Balance, September 30, 2017	2,734,571	\$0.61 - \$6.55	\$ 1.87	\$ 585,292	2,619,914	\$ 1.88	\$ 555,926

- (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-the-money options only. The aggregate intrinsic value is based on the closing price of our common stock on the NASDAQ Capital Market, as applicable, on the respective dates.

At September 30, 2017, the outstanding stock options to purchase an aggregate of 2.7 million shares had a weighted-average remaining contractual term of 4.4 years, and the exercisable stock options to purchase an aggregate of 2.6 million shares had a weighted-average remaining contractual term of 4.3 years.

For the nine months ended September 30, 2017 and 2016 we recognized \$0.5 million and \$0.7 million in share-based compensation expense, respectively, which is included in our selling, general and administrative expense in the accompanying consolidated financial statements. We expect to recognize \$0.1 million in share-based compensation expense over the weighted-average remaining service period of 1.8 years for stock options outstanding as of September 30, 2017.

The following table summarizes the value of our unvested restricted stock awards:

	Number of Unvested Shares	Weighted Average Grant Date Fair Value	Aggregate Value of Unvested Shares
Balance, January 1, 2017	829,998	\$ 1.19	\$ 988,763
Granted	428,865	\$ 1.54	660,752
Vested	(442,498)	\$ 1.20	(531,853)
Repurchased	—	\$ —	—
Forfeitures	(51,667)	\$ 1.14	(58,917)
Balance, September 30, 2017	764,698	\$ 1.38	\$ 1,058,745

Restricted Stock Units

We issue restricted stock units ("RSUs"), to our non-employee directors for service on our board of directors. Under our non-employee director compensation policy, continuing non-employee directors receive an annual RSU grant at the time of our annual meeting of stockholders, which grant vests on the earlier of the one year anniversary of the grant or the following annual meeting of stockholders. Under our non-employee director deferred compensation plan, as amended (the "NEDCP") non-employee directors may also elect to receive their annual cash retainers for board and committee service in RSUs which are issued quarterly and vest immediately upon their issuance, subject to deferred settlement in accordance with the NEDCP.

The following is a summary of our RSU activity for the nine months ended September 30, 2017:

	Number of RSUs		Weighted Average Grant Date Fair Value per Share	Intrinsic Value	
	Issued	Unvested		Outstanding	Unvested
Balance, January 1, 2017	393,012	—	\$1.37	\$ 577,728	\$ —
Granted	55,748	—	\$1.57		
Vested	—	—	\$0.00		
Forfeitures	—	—	\$0.00		
Converted	—	—	\$0.00		
Balance, September 30, 2017	448,760	—	\$1.39	\$ 758,404	\$ —

The following details our equity transactions during the nine months ended September 30, 2017:

	Preferred Stock		Common Stock		Treasury Stock		Additional Paid-in Capital
	Shares	\$	Shares	\$	Shares	\$	\$
Balance, January 1, 2017	1,321,514	1,322	27,541,277	28,600	446,827	(517,987)	82,451,958
Exercise of stock options	—	—	31,953	32	—	—	819
Share-based compensation	—	—	299,000	299	—	—	476,128
Non-cash compensation	—	—	135,497	136	—	—	178,035
Stock dividends to Carilion Clinic ⁽¹⁾	—	—	—	59	—	—	97,271
Forfeitures of restricted stock grants	—	—	(51,667)	(52)	—	—	—
Repurchase of common stock	—	—	(141,000)	—	141,000	(228,020)	52
Balance, September 30, 2017	1,321,514	1,322	27,815,060	29,074	587,827	(746,007)	83,204,263

(1) The stock dividends payable in connection with Carilion Clinic's Series A Preferred Stock will be issued subsequent to September 30, 2017. For the period from January 12, 2010, the original issue date of the Series A Preferred Stock, through September 30, 2017, the Series A Preferred Stock issued to Carilion has accrued \$1,110,773 in dividends. The accrued and unpaid dividends as of September 30, 2017 will be paid by the issuance of 611,870 shares of our common stock upon Carilion's written request.

Stock Repurchase Program

In May 2016, our board of directors authorized us to repurchase up to \$2.0 million of our common stock through May 31, 2017. As of May 31, 2017, we had repurchased a total of 205,500 shares for an aggregate purchase price of \$0.2 million under this stock repurchase program, after which this stock repurchase program expired.

In September 2017, our board of directors re-instituted the stock repurchase program and authorized us to repurchase up to \$2.0 million of our common stock through September 19, 2018. Our stock repurchase program does not obligate us to acquire any specific number of shares. Under the program, shares may be repurchased in privately negotiated or open market transactions, including under plans complying with Rule 10b5-1 under the Securities Exchange Act of 1934, as amended. As of September 30, 2017, we had repurchased a total of 50,100 shares for an aggregate purchase price of \$0.1 million under this stock repurchase program. We currently maintain all repurchased shares under these stock repurchase programs as treasury stock.

7. Operating 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 revenues primarily from services.

The Products and Licensing segment derives its revenues from product sales, funded product development and technology licenses.

Through September 30, 2017, our Chief Executive Officer and his direct reports collectively represented our chief operating decision makers, and they evaluated segment performance based primarily on revenues and operating income or loss. The accounting policies of our segments are the same as those described in the summary of significant accounting policies (see Note 1 to our Financial Statements, "Organization and Summary of Significant Accounting Policies," presented in our Annual Report on Form 10-K as filed with the SEC on March 20, 2017).

The table below presents revenues and operating income/(loss) for reportable segments:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2017	2016	2017	2016
	(unaudited)		(unaudited)	
Revenues:				
Technology development	\$ 4,590,054	\$ 4,118,245	\$ 13,428,428	\$ 11,772,731
Products and licensing	7,052,094	7,066,908	19,593,648	18,301,631
Total revenues	\$ 11,642,148	\$ 11,185,153	\$ 33,022,076	\$ 30,074,362
Technology development operating income/(loss)	\$ 182,776	\$ 139,134	\$ (77,323)	\$ (253,833)
Products and licensing operating income/(loss)	260,100	(409,835)	(74,758)	(2,699,294)
Total operating income/(loss)	\$ 442,876	\$ (270,701)	\$ (152,081)	\$ (2,953,127)
Depreciation, technology development	\$ 87,389	\$ 87,884	\$ 267,282	\$ 264,549
Depreciation, products and licensing	\$ 117,219	\$ 300,530	\$ 688,700	\$ 827,661
Amortization, technology development	\$ 28,935	\$ 23,651	\$ 95,540	\$ 141,490
Amortization, products and licensing	\$ 247,522	\$ 486,209	\$ 1,178,113	\$ 1,526,177

Products and licensing depreciation includes amounts from discontinued operations of \$0.1 million and \$0.2 million for the three months ended September 30, 2017 and 2016, respectively. Products and licensing amortization includes amounts from discontinued operations of \$0.1 million and \$0.4 million for the three months ended September 30, 2017 and 2016, respectively. Products and licensing depreciation includes amounts from discontinued operations of \$0.4 million and \$0.5 million for the nine months ended September 30, 2017 and 2016, respectively. Products and licensing amortization includes amounts from discontinued operations of \$0.9 million and \$1.2 million for the nine months ended September 30, 2017 and 2016, respectively.

The table below presents assets for reportable segments:

	September 30, 2017	December 31, 2016
	(unaudited)	
Total segment assets:		
Technology development	\$ 30,738,481	\$ 16,923,090
Products and licensing	35,870,670	38,073,883
Total assets	\$ 66,609,151	\$ 54,996,973
Property plant and equipment, and intangible assets, technology development	\$ 2,427,556	\$ 2,602,803
Property plant and equipment, and intangible assets, products and licensing	\$ 4,484,498	\$ 4,749,144

There are no material inter-segment revenues for any period presented. Total assets for September 30, 2017 include proceeds from the sale of HSOR in the amount of \$33.5 million (which includes a long term receivable of \$4.0 million) allocated evenly between the two segments. For December 31, 2016, the products and licensing segment assets include assets held for sale in the amount of \$16.3 million. Property plant and equipment, and intangible assets excludes HSOR amounts for September 30, 2017 and December 31, 2016.

The U.S. government accounted for 45% and 39% of total consolidated revenues for the three months ended September 30, 2017 and 2016, respectively, and for 45% and 42% of total consolidated revenues for the nine months ended September 30, 2017 and 2016, respectively.

International revenues (customers outside the United States) accounted for 19% and 15% of total consolidated revenues for the three months ended September 30, 2017 and 2016, respectively, and 20% and 18% of the total consolidated revenues for the nine months ended September 30, 2017 and 2016, respectively. No single country, outside of the United States, represented more than 10% of total revenues in the three and nine months ended September 30, 2017 and 2016.

8. Contingencies and Guarantees

We are from time to time involved in certain legal proceedings in the ordinary course of conducting our business. While the ultimate liability pursuant to these actions cannot currently be determined, we believe it is not reasonably possible that these legal proceedings will have a material adverse effect on our financial position or results of operations.

In September 2014, we received a preliminary audit report from the Defense Contract Audit Agency (the "DCAA"), with respect to our 2007 incurred cost submission and questioning \$0.8 million of claimed costs that the DCAA believes are expressly unallowable under the Federal Acquisition Regulations and, therefore, subject to potential penalty. In June 2015, we received from the Defense Contract Management Agency ("DCMA") a final determination and demand for payment of penalties, interest, and over billing in the aggregate amount of \$1.1 million. In July 2015, we filed an appeal with the Armed Services Board of Contract Appeals ("ASBCA"). In January 2017, a hearing was held before the ASBCA. No ruling has yet been issued with respect to our appeal. In April 2017, we made a settlement offer of \$150,000 to the DCMA, and we have accrued that amount in our financial statements as of September 30, 2017. The DCMA notified us in May 2017 that it has declined our settlement offer. The appeals process remains ongoing.

In the third quarter of 2016 we executed two non-cancelable purchase orders totaling \$1.4 million for multiple shipments of tunable lasers to be delivered over an 18-month period. At September 30, 2017, approximately \$0.3 million of this commitment remained and is expected to be delivered by February 28, 2018.

We have entered into indemnification agreements with our officers and directors, to the extent permitted by law, pursuant to which we have agreed to reimburse the officers and directors for legal expenses in the event of litigation and regulatory matters. The terms of these indemnification agreements provide for no limitation to the maximum potential future payments. We have a directors and officers insurance policy that may, in certain instances, mitigate the potential liability and payments.

ITEM 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS**CAUTIONARY NOTE REGARDING FORWARD LOOKING STATEMENTS**

This Quarterly Report on Form 10-Q, including the sections entitled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and "Quantitative and Qualitative Disclosures About Market Risk" under Items 2 and 3, respectively, of Part I of this report, and the section entitled "Risk Factors" under Item 1A of Part II of this report, may 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 fact are "forward-looking statements" for purposes of these statutes, 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 and 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 Quarterly Report on Form 10-Q and elsewhere within this report.

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.

Overview of Our Business

We are a leader in advanced optical technology, providing unique capabilities in high performance fiber optic test products for the telecommunications industry, distributed fiber optic sensing for the aerospace and automotive industries, and custom optoelectronic components and subsystems. Our distributed fiber optic sensing products provide critical stress, strain and temperature information to designers and manufacturers working with advanced materials. Our custom optoelectronic products are sold to scientific instrumentation manufacturers for various applications such as metrology, missile guidance, flame monitoring, and temperature sensing. In addition, we provide applied research services, typically under research programs funded by the U.S. government, in areas of advanced materials, sensing, and healthcare applications. 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 for government funded projects. We continue to invest in product development and commercialization, which we anticipate will lead to increased product sales growth.

We are organized into two main business segments, the Products and Licensing segment and the Technology Development segment. Our Products and Licensing segment develops, manufactures and markets fiber optic sensing products, as well as test & measurement products, and also conducts applied research in the fiber optic sensing area for both corporate and government customers. We are continuing to develop and commercialize our fiber optic technology for strain and temperature sensing applications for the aerospace, automotive, and energy industries. Our Products and Licensing segment revenues represented 61% and 63% of our total revenues for the three months ended September 30, 2017 and 2016, respectively, and 59% and 61% of our total revenues for the nine months ended September 30, 2017 and 2016, respectively. The change in revenue mix was primarily a result of continued growth of our Technology Development business segment. The approximate value of our Products and Licensing segment backlog was \$6.9 million at September 30, 2017 and \$7.2 million at December 31, 2016.

The Technology Development segment performs applied research principally in the areas of sensing and instrumentation, advanced materials and health sciences. This segment comprised 39% and 37% of total revenues for the three months ended September 30, 2017 and 2016, respectively, and 41% and 39% of our total revenues for the nine months ended September 30, 2017 and 2016, respectively. Most of the government funding for our Technology Development segment is derived from the Small Business Innovation Research ("SBIR") program coordinated by the U.S. Small Business Administration ("SBA"). The Technology Development segment revenues have historically accounted for a large portion of total revenues, and we expect that they will continue to represent a significant portion of total revenues for the foreseeable future. The Technology Development segment revenues were \$4.6 million and \$4.1 million for the three months ended September 30, 2017 and 2016, respectively, and \$13.4 million and \$11.8 million for the nine months ended September 30, 2017 and 2016, respectively. 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. government 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 \$27.3 million at September 30, 2017 and \$17.6 million at December 31, 2016.

Revenues from product sales have historically been mostly derived from the sales of our optoelectronic components and from the sales of 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 revenues in the near term. 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 & 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, as we develop and commercialize new products, we expect these revenues will reflect a broader and more diversified mix of products.

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.

Reductions in government spending may impact the availability of new program awards in the future. For example, the Budget Control Act commits the U.S. government to reduce the federal deficit by \$1.2 trillion over ten years through a combination of automatic, across-the-board spending cuts and caps on discretionary spending, or sequestration. Automatic across-the-board cuts required by sequestration could have a material adverse effect on our Technology Development segment revenues and, consequently, our results of operations. While the exact manner in which sequestration will impact our business is unclear, funding for programs in which we participate could be reduced, delayed or canceled. Our ability to obtain new contract awards also could be negatively affected.

Recent Developments

On August 9, 2017, we sold our assets associated with the high speed optical receiver ("HSOR") business to a third party, for total cash consideration of \$33.5 million, including \$29.5 million received at closing and \$4.0 million placed into escrow until December 15, 2018 for possible working capital adjustments to the purchase price and potential satisfaction of certain post-closing indemnification obligations. As part of the transaction, the buyer also hired 49 of our employees who were engaged in the development, manufacture, and sale of HSOR products in addition to certain corporate administrative functions. The buyer will provide certain transition services to us with respect to infrastructure and administration for which we will pay \$0.3 million per month for a period of five months following the date of the transaction. We have recorded this obligation as a reduction of the value of the purchase price. As of September 30, 2017, \$0.6 million has been paid to the buyer and the remaining \$0.9 million is included in our accrued liabilities.

Our revenues recognized related to the HSOR business were \$1.0 million and \$3.4 million for the three months ended September 30, 2017 and 2016, respectively, and \$6.4 million and \$13.2 million for the nine months ended September 30, 2017 and 2016, respectively.

Our sale of the HSOR business has significantly increased our capital resources, and we currently intend to use a portion of the proceeds from the sale to invest in expanding our fiber optic sensing business. However, the sale of the HSOR business is expected to result in lower revenues, primarily from reduced product sales, than we have experienced in prior periods until, if

ever, we can increase revenues from our remaining businesses significantly. As a result, we may incur greater net losses and reduced cash flows from operations than we have in recent periods.

Description of Revenues, Costs and Expenses

Revenues

We generate revenues from technology development, product sales and commercial product development and licensing activities. We derive Technology Development segment 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. The Technology Development segment revenues represented 39% and 37% of total revenues for the three months ended September 30, 2017 and 2016, respectively, and 41% and 39% of our total revenues for the nine months ended September 30, 2017 and 2016, respectively.

The Products and Licensing segment revenues reflect amounts that we receive from sales of our products or development of products for third parties and, to a lesser extent, fees paid to us in connection with licenses or sub-licenses of certain patents and other intellectual property, and represented 61% and 63% of our total revenues for the three months ended September 30, 2017 and 2016, respectively, and 59% and 61% of our total revenues for the nine months ended September 30, 2017 and 2016, respectively. Product and licensing revenues decreased as a percentage of our total revenues primarily a result of continued growth of our Technology Development business segment during the three and nine months ended September 30, 2017 compared to the three and nine months ended September 30, 2016.

Cost of Revenues

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

Cost of revenues associated with our Products and Licensing segment 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 Expense

Interest expense is composed of interest paid under our term loans as well as interest accrued on our capital lease obligations.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition and results of operations are based on our consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these financial statements requires us to make estimates, assumptions and judgments that affect the amounts reported in our financial statements and the accompanying notes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances. Actual results may differ from these estimates under different assumptions or judgments.

Our critical accounting policies are described in the Management's Discussion and Analysis section and the notes to our audited consolidated financial statements previously included in our Annual Report on Form 10-K for the year ended December 31, 2016, as filed with the Securities and Exchange Commission ("SEC") on March 20, 2017. Effective January 1, 2017, we adopted Accounting Standards Update ("ASU") No. 2016-09, *Improvements to Employee Share-Based Payment Accounting*. The amendments apply to several aspects of accounting for share-based compensation including the recognition of excess tax benefits and deficiencies and their related presentation in the statement of cash flows as well as accounting for forfeitures. The adoption of ASU No. 2016-09 did not have a significant impact on our financial condition, results of operations or cash flows. There have been no other material changes to the description of our critical accounting policies as described in our Form 10-K as filed with the SEC on March 20, 2017.

Results of Operations

Three Months Ended September 30, 2017 Compared to Three Months Ended September 30, 2016

Revenues

	Three Months Ended September 30,		\$ Difference	% Difference
	2017	2016		
Revenues:				
Technology development	\$ 4,590,054	\$ 4,118,245	\$ 471,809	11 %
Products and licensing	7,052,094	7,066,908	(14,814)	0 %
Total revenues	<u>\$ 11,642,148</u>	<u>\$ 11,185,153</u>	<u>\$ 456,995</u>	<u>4 %</u>

Revenues from our Technology Development segment for the three months ended September 30, 2017 increased \$0.5 million, or 11%, to \$4.6 million compared to \$4.1 million for the three months ended September 30, 2016. The increase in Technology Development segment revenues continues a growth trend experienced throughout 2016 and into 2017 largely driven by successes in Phase 2 SBIR awards. The increase for the three months ended September 30, 2017 compared to the three months ended September 30, 2016 was realized primarily in our intelligent systems research group. As Phase 2 contracts generally have a performance period of a year or more, we currently expect revenues to remain at a similar level for the near term.

Our Products and Licensing segment included revenues from sales of test & measurement systems, primarily representing sales of our ODiSI, Optical Vector Analyzer, and Optical Backscatter Reflectometer platforms, optical components and sub-assemblies and sales of Terahertz sensing systems. Products and Licensing segment revenues remained substantially unchanged at \$7.1 million for the three months ended September 30, 2017 and 2016.

Cost of Revenues and Gross Profit

	Three Months Ended September 30,		\$ Difference	% Difference
	2017	2016		
Cost of revenues:				
Technology development	\$ 3,491,840	\$ 3,068,360	\$ 423,480	14 %
Products and licensing	3,617,547	3,758,765	(141,218)	(4)%
Total cost of revenues	<u>7,109,387</u>	<u>6,827,125</u>	<u>282,262</u>	<u>4 %</u>
Gross profit	<u>\$ 4,532,761</u>	<u>\$ 4,358,028</u>	<u>\$ 174,733</u>	<u>4 %</u>

The cost of Technology Development segment revenues for the three months ended September 30, 2017 increased \$0.4 million, or 14%, to \$3.5 million compared to \$3.1 million for the three months ended September 30, 2016. The increase in cost of Technology Development segment revenues was attributable to additional headcount and the increased utilization of subcontractors to support the growth in our research contracts.

The cost of revenues associated with our Products and Licensing segment decreased by \$0.1 million, or 4%, to \$3.6 million for the three months ended September 30, 2017 compared to \$3.8 million for the three months ended September 30, 2016. This slight decrease in cost of revenues resulted from lower manufacturing overhead costs associated with our optoelectronic components products. Our overall gross margin remained substantially unchanged at 39% for the three months ended September 30, 2017 and 2016.

Operating Expense

	Three Months Ended September 30,		\$ Difference	% Difference
	2017	2016		
Operating expense:				
Selling, general and administrative	\$ 3,256,074	\$ 3,816,679	\$ (560,605)	(15)%
Research, development and engineering	833,811	812,050	21,761	3 %
Total operating expense	\$ 4,089,885	\$ 4,628,729	\$ (538,844)	(12)%

Our selling, general and administrative expense decreased \$0.6 million, or 15%, to \$3.3 million for the three months ended September 30, 2017 compared to \$3.8 million for the three months ended September 30, 2016. The decrease in selling, general and administrative expense was primarily due to a \$0.2 million decrease in bad debt expense and a \$0.2 million decrease in sales and marketing expenses resulting from lower headcount in 2017.

Research, development and engineering expense remained substantially unchanged at \$0.8 million for the three months ended September 30, 2017 and 2016.

Interest Expense

Interest expense was \$0.1 million during each of the three months ended September 30, 2017 and 2016. During the three months ended September 30, 2017, our average outstanding balance on our term loans was \$3.1 million as compared to \$4.9 million for the three months ended September 30, 2016.

Income Tax (Benefit)/Expense From Continuing Operations

The income tax benefit for the three months ended September 30, 2017 was \$0.1 million, which resulted in an effective tax rate from continuing operations of (34.0%), as compared to an immaterial income tax expense, based on an effective tax rate of 13.1%, from continuing operations for the three months ended September 30, 2016. The decrease in our effective tax rate resulted from the cumulative impact of the tax benefit associated with continuing operations for the nine months ended September 30, 2017, as the intraperiod allocation of income taxes from discontinued operations resulted from the sale of the HSOR business during the three months ended September 30, 2017, and accordingly, the year-to-date value was recognized in the current period.

Net Income/(Loss) From Continuing Operations

During the three months ended September 30, 2017, we recognized income from continuing operations before income taxes of \$0.4 million compared to a loss from continuing operations before income taxes of \$0.3 million for the three months ended September 30, 2016. After tax, our net income from continuing operations was \$0.5 million for the three months ended September 30, 2017, compared to a net loss from continuing operations of \$0.4 million for the three months ended September 30, 2016.

Net Income/(Loss) From Discontinued Operations

For the three months ended September 30, 2017, we recognized net income from discontinued operations of \$15.2 million compared to a net loss from discontinued operations of \$0.1 million for the three months ended September 30, 2016. For the three months ended September 30, 2017, our net income from discontinued operations included \$0.1 million associated with the operations of the HSOR business prior to its sale in addition to a \$15.1 million after tax gain recognized on the sale of the HSOR business. For the three months ended September 30, 2016, our net loss from discontinued operations included a \$0.1 million loss associated with the operations of the HSOR business.

Nine Months Ended September 30, 2017 Compared to Nine Months Ended September 30, 2016
Revenues

	Nine Months Ended September 30,		\$ Difference	% Difference
	2017	2016		
Revenues:				
Technology development	\$ 13,428,428	\$ 11,772,731	\$ 1,655,697	14%
Products and licensing	19,593,648	18,301,631	1,292,017	7%
Total revenues	<u>\$ 33,022,076</u>	<u>\$ 30,074,362</u>	<u>\$ 2,947,714</u>	10%

Technology Development segment revenues increased \$1.7 million, or 14%, to \$13.4 million for the nine months ended September 30, 2017 compared to \$11.8 million for the nine months ended September 30, 2016. The increase for the nine months ended September 30, 2017 compared to the nine months ended September 30, 2016 was realized primarily in our intelligent systems, nanomaterials and biomedical technologies groups.

Products and Licensing segment revenues increased \$1.3 million, or 7%, to \$19.6 million for the nine months ended September 30, 2017 compared to \$18.3 million for the nine months ended September 30, 2016. The increase in Products and Licensing segment revenues was primarily driven by an increase in our sales of optical backscatter reflectometer instruments and optoelectronic components.

Cost of Revenues and Gross Profit

	Nine Months Ended September 30,		\$ Difference	% Difference
	2017	2016		
Cost of revenues:				
Technology development	\$ 10,045,261	\$ 8,986,312	\$ 1,058,949	12%
Products and licensing	10,201,459	9,954,987	246,472	2%
Total cost of revenues	20,246,720	18,941,299	1,305,421	7%
Gross profit	<u>12,775,356</u>	<u>\$ 11,133,063</u>	<u>\$ 1,642,293</u>	15%

Costs of Technology Development segment revenues increased \$1.1 million, or 12%, to \$10.0 million for the nine months ended September 30, 2017, compared to \$9.0 million the nine months ended September 30, 2016. This increase was primarily driven by increases in direct labor and subcontractor costs over the same period to support the growth in research projects.

Costs of Products and Licensing segment revenues increased \$0.2 million, or 2%, to \$10.2 million for the nine months ended September 30, 2017 compared to \$10.0 million for the nine months ended September 30, 2016. The increase in product and licensing costs is attributable to the component costs associated with increased volume of optical backscatter reflectometer instrument sales during the nine months ended September 30, 2017. Products and Licensing segment costs increased in accordance with the increase in Products and Licensing segment revenues over the same period, taking into account the gross margin effect of the product mix. Our overall gross margin for the nine months ended September 30, 2017 increased to 39% compared to 37% for the nine months ended September 30, 2016.

Operating Expense

	Nine Months Ended September 30,		\$ Difference	% Difference
	2017	2016		
Operating expense:				
Selling, general and administrative	\$ 10,345,964	\$ 11,296,389	\$ (950,425)	(8)%
Research, development and engineering	2,581,473	2,789,801	(208,328)	(7)%
Total operating expense	<u>\$ 12,927,437</u>	<u>\$ 14,086,190</u>	<u>\$ (1,158,753)</u>	(8)%

Selling, general and administrative expenses decreased \$1.0 million, or 8%, to \$10.3 million for the nine months ended September 30, 2017 compared to \$11.3 million for the nine months ended September 30, 2016. The decrease in selling, general and administrative expenses year to date is primarily related to a \$0.2 million decrease in bad debt expense, a \$0.2 million decrease in share based compensation expense, and a \$0.4 million decrease in sales and marketing costs in our Lightwave division driven by reduction in personnel and reduction in commissions related to a shift in sales to areas without distributors or salesmen.

Research, development and engineering expense decreased \$0.2 million, or 7%, to \$2.6 million for the nine months ended September 30, 2017 compared to \$2.8 million for the nine months ended September 30, 2016 due to decreased engineering costs in internal research for our Terahertz product as more engineering time was spent on externally funded research activities and, accordingly, included in Technology Development cost of revenues.

Interest Expense

Interest expense for each of the nine months ended September 30, 2017 and 2016 was \$0.2 million. During the first nine months of 2017, our average outstanding loan balance was \$3.5 million as compared to \$5.4 million for the nine months ended September 30, 2016.

Income Tax Benefit

The income tax benefit for the nine months ended September 30, 2017 was \$0.1 million, which resulted in an effective tax rate from continuing operations of 18.8%, as compared to an income tax benefit of \$0.2 million, reflecting an effective tax rate of 5.4%, from continuing operations for the nine months ended September 30, 2016. The increase in our effective tax rate for continuing operations for 2017 as compared to 2016, was primarily due to an increase in the intra-period allocation of tax benefit from discontinued operations.

Net Loss From Continuing Operations

During the nine months ended September 30, 2017 we incurred a loss from continuing operations before income taxes of \$0.3 million compared to a loss from continuing operations before income taxes of \$3.2 million during the nine months ended September 30, 2016. After tax, our net loss from continuing operations was \$0.3 million for the nine months ended September 30, 2017, compared to a net loss from continuing operations of \$3.0 million for the nine months ended September 30, 2016.

Net Income From Discontinued Operations

For the nine months ended September 30, 2017, we recognized net income from discontinued operations of \$14.5 million compared to \$0.3 million for the nine months ended September 30, 2016. Net income from discontinued operations for the nine months ended September 30, 2017 included an after tax gain of \$15.1 million recognized on the sale of the HSOR business offset by an after tax loss of \$0.6 million associated with the operations of the HSOR business prior to its sale. Net income from discontinued operations for the nine months ended September 30, 2016 included the after tax income of \$0.3 million associated with the operations of HSOR during the period.

Liquidity and Capital Resources

At September 30, 2017, our total cash and cash equivalents were \$38.5 million.

We currently have a Loan and Security Agreement with Silicon Valley Bank ("SVB") under which we have two term loans with an aggregate original borrowing amount of \$7.0 million. As of September 30, 2017, these term loans had an aggregate outstanding principal balance of \$2.9 million. One term loan, with a balance of \$4 million as of September 30, 2017, matures on December 1, 2018. The other term loan, with a balance of \$2.5 million as of September 30, 2017, matures on May 1, 2019. The term loans bear interest at a floating prime rate plus 2%. We may prepay amounts due under the term loans at any time, subject to prepayment penalties of up to 2% of the amount of prepayment. Amounts due under the term loans are secured by substantially all of our assets, including intellectual property, personal property and bank accounts. The term loans 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 facility and foreclose on the collateral. Furthermore, an event of default under the credit facility would result in an increase in the interest rate on any amounts outstanding. As of September 30, 2017, we were in compliance with all covenants under the Loan and Security Agreement.

We believe that our cash balance as of September 30, 2017 will provide adequate liquidity for us to meet our working capital needs over the next twelve months. Additionally, we believe that should we have the need for increased capital spending to support our planned growth, we will be able to fund such growth through either third-party financing on competitive market terms or through our available cash.

Discussion of Cash Flows

Recent Activity

	Nine Months Ended September 30,		
	2017	2016	\$ Difference
Net cash provided by/(used in) operating activities	\$ 581,386	\$ (785,878)	\$ 1,367,264
Net cash provided by/(used in) investing activities	26,743,345	(1,750,547)	28,493,892
Net cash used in financing activities	(1,612,752)	(1,744,464)	131,712
Net increase/(decrease) in cash and cash equivalents	\$ 25,711,979	\$ (4,280,889)	\$ 29,992,868

During the first nine months of 2017, operations provided \$0.6 million of cash, as compared to the same period in 2016 in which operations used \$0.8 million of cash. During the first nine months of 2017, net cash provided by operating activities consisted of our net income of \$14.2 million, which included a gain on the sale of our HSOR business, net of income tax, of \$15.1 million, non-cash charges for depreciation and amortization of \$2.2 million and share-based compensation of \$0.5 million, and a net cash outflow of \$1.3 million from changes in working capital (principally driven by a decrease in accounts payable and accrued expenses of \$1.6 million and an increase in inventory of \$2.3 million, partially offset by a reduction in accounts receivable of \$2.1 million).

During the first nine months of 2016, the \$0.8 million of cash used in operating activities consisted of our net loss of \$2.7 million which included charges for depreciation and amortization of \$2.8 million and share-based compensation of \$0.7 million. Additionally, changes in working capital resulted in a net cash outflow of \$1.8 million, principally driven by a reduction in accounts payable and accrued liabilities of \$1.1 million, a decrease in inventory of \$1.0 million, an increase in other current assets of \$0.4 million, and an increase of \$1.2 million in accounts receivable.

Our cash from investing activities for the nine months ended September 30, 2017 and 2016 included purchases of equipment, capitalized costs associated with the prosecution of patents as well as proceeds from the sale of our HSOR business in August 2017. Cash provided by investing activities for the nine months ended September 30, 2017 included proceeds from the sale of our HSOR business of \$28.0 million, partially offset by \$0.9 million of fixed asset additions and \$0.4 million of capitalized intellectual property costs. Cash used in investing activities for the nine months ended September 30, 2016 included fixed asset additions of \$1.4 million and capitalized intellectual property costs of \$0.3 million.

Net cash used in financing activities during the nine months ended September 30, 2017 and 2016 included the repayment of the long term debt and repayments of capital lease obligations. In the aggregate, these activities resulted in net cash outflows of \$1.6 million and \$1.7 million for the nine months of 2017 and 2016, respectively.

Off-Balance Sheet Arrangements

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

ITEM 3. 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 U.S. 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 immediately available liquidity or short-term nature of these financial instruments.

We are exposed to interest rate fluctuations as a result of our term loans with SVB having a variable interest rate. We do not currently use derivative instruments to alter the interest rate characteristics of our debt. For the principal amount of \$2.9 million outstanding under the term loans as of September 30, 2017, a change in the interest rate by one percentage point for one year would result in a change in our annual interest expense of \$29,167.

Although we believe that this measure is indicative of our sensitivity to interest rate changes, it does not adjust for potential changes in our credit quality, composition of our balance sheet and other business developments that could affect our interest rate exposure. Accordingly, no assurances can be given that actual results would not differ materially from the potential outcome simulated by this estimate.

Foreign Currency Exchange Rate Risk

As of September 30, 2017, all payments made under our research contracts have been denominated in U.S. dollars. Our product sales to foreign customers are also generally denominated in U.S. dollars, and we generally do not receive payments in foreign currency. As such, we are not directly exposed to significant currency gains or losses resulting from fluctuations in foreign exchange rates.

ITEM 4. 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 provide reasonable assurance 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 also include, without limitation, controls and procedures designed to provide reasonable assurance 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 principal executive officer and our principal 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 Quarterly Report. Based on this evaluation, our principal executive officer and our principal financial officer have concluded that, as of September 30, 2017, 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 three months ended September 30, 2017 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

In June 2015, we received a letter of final determination from the Defense Contract Management Agency ("DCMA") regarding the allowability of certain costs we included in our billings under cost-plus type research contracts during 2007. In conjunction with the DCMA's determination of those costs as expressly unallowable under the provisions of the Federal Acquisition Regulations, the DCMA assessed penalties and interest to us totaling \$1.1 million. In July 2015, we filed an appeal of the assessed penalties and interest with the Armed Services Board of Contract Appeals ("ASBCA"). A hearing was held with respect to this appeal in January 2017, and a decision has not yet been reached by ASBCA. In April 2017, we made a settlement offer of \$150,000 to DCMA, and we have accrued that amount in our financial statements as of September 30, 2017. In May 2017, the DCMA declined our settlement offer. The appeals process remains ongoing.

For additional information regarding our legal proceedings, please refer to our Annual Report on Form 10-K for the year ended December 31, 2016, as filed with the SEC on March 20, 2017.

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 SEC 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

Our technology is subject to a license from Intuitive Surgical, Inc., which is revocable in certain circumstances. Without this license, we cannot continue to market, manufacture or sell our fiber-optic products.

As a part of the sale of certain assets to Intuitive Surgical, Inc. ("Intuitive") in 2014, we entered into a license agreement with Intuitive pursuant to which we received rights to use all of our transferred technology outside the field of medicine and in respect of our existing non-shape sensing products in certain non-robotic medical fields. This license back to us is revocable if after notice and certain time periods, we were to (i) challenge the validity or enforceability of the transferred patents and patent applications, (ii) commercialize our fiber optical shape sensing and localization technology in the field of medicine (except to perform on a development and supply project for Hansen Medical, Inc.), (iii) violate our obligations related to our ability to sublicense in the field of medicine or (iv) violate our confidentiality obligations in a manner that advantages a competitor in the field of medicine and not cure such violation. Maintaining this license is necessary for us to conduct our fiber-optic products business, both for our telecom products and our ODiSI sensing products. If this license were to be revoked by Intuitive, we would no longer be able to market, manufacture or sell these products which would severely limit our ability to continue operations.

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 depend upon outside contract manufacturers for a portion of the manufacturing process for some of our products. Our operations and revenue related to these products could be adversely affected if we encounter problems with these contract manufacturers.

Many of our products are manufactured internally. However, we also rely upon contract manufacturers to produce the finished portion of some of our optoelectronic components and certain lasers. Our reliance on contract manufacturers for these products makes us vulnerable to possible capacity constraints and reduced control over delivery schedules, manufacturing yields, manufacturing quality control and costs. If the contract manufacturer for our products were unable or unwilling to manufacture our products in required volumes and at high quality levels or to continue our existing supply arrangement, we would have to identify, qualify and select an acceptable alternative contract manufacturer or move these manufacturing operations to internal manufacturing facilities. An alternative contract manufacturer may not be available to us when needed or may not be in a position to satisfy our quality or production requirements on commercially reasonable terms, including price. Any significant interruption in manufacturing our products would require us to reduce the supply of products to our customers, which in turn would reduce our revenue, harm our relationships with the customers of these products and cause us to forego potential revenue opportunities.

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 the inclusion of certain claimed costs deemed to be expressly unallowable, or 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 June 2015, we received a determination from the Defense Contract Management Agency ("DCMA") of expressly unallowable costs included in our claimed costs for the 2007 contract year. As a result of that determination, the DCMA assessed us penalties, interest and over billings of \$1.1 million. We have appealed that assessment, and our appeal is currently pending. In April 2017, we also made a settlement offer of \$150,000 to the DCMA, which the DCMA subsequently declined. Depending on the outcome of this appeal and the response to our settlement offer, we could be required to make payments that have a material adverse effect on our financial position.

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.

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. 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. For the nine months ended September 30, 2017 and 2016, revenues generated under the SBIR program represented 32% and 35%, respectively, of our total revenues.

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, under current SBA rules we must be more than 50% owned and controlled by individuals who are U.S. citizens or permanent resident aliens, and/or other small business concerns (each of which is more than 50% owned and controlled by individuals who are U.S. citizens or permanent resident aliens) or certain qualified investment companies. 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 and 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 September 30, 2017, we had approximately 190 full-time employees. In determining whether we are affiliated with any other entity, the SBA may analyze whether another entity controls or has the power to control us. Carilion Clinic is our largest institutional stockholder. Since early 2011, a formal size determination by the SBA that focused on whether or not Carilion is or was our affiliate has been outstanding. Although we do not believe that Carilion has or had the power to control our company, we cannot assure you that the SBA will interpret its regulations in our favor on this question. If the SBA were to make a determination that we are or were 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 contracts and 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. The loss of our eligibility to receive SBIR awards would have a material adverse impact on our revenues, cash flows and our ability to fund our growth.

Moreover, as our business grows, 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.

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 segment revenues, which consist primarily of government-funded research, accounted for 41% and 39% of our consolidated total revenues for the nine months ended September 30, 2017 and 2016, 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, the Budget Control Act commits the U.S. government to reduce the federal deficit by \$1.2 trillion over ten years through a combination of automatic, across-the-board spending cuts and caps on discretionary spending. This "sequestration" under the Budget Control Act, which is split equally between defense and non-defense programs, went into effect on March 1, 2013. Any spending cuts required by "sequestration" could have a material adverse effect on our Technology Development revenues and, consequently, our results of operations. While the exact manner in which this

“sequestration” may impact our business remains unclear, funding for programs in which we participate could be reduced, delayed or canceled. Our ability to obtain new contract awards also could be negatively affected.

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, SBIR regulations permit increased competition for SBIR awards from companies that may not have previously been eligible, such as those backed by venture capital operating companies, hedge funds and private equity 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 narrowed scope and focus may make it more difficult for us to achieve or maintain operating profitability

Through the recent sale of our HSOR business to a third party, we have reduced our overall size and narrowed our focus. Although we anticipate realizing cost savings as a result of the sale of the HSOR operations, we will continue to incur significant operating expenses associated with our public company infrastructure. Accordingly, we will need to significantly increase the revenue we generate from our remaining operations in order to achieve or maintain operating profitability. While we intend to use a portion of the proceeds from the sale of the HSOR business to invest in our fiber optic sensing business, there can be no guarantee that these efforts will result in increased revenues sufficient to achieve or maintain profitability.

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 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.

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.

Our business is subject to the cyclical nature of the markets in which we compete and any future downturn may reduce demand for our products and revenue.

Many factors beyond our control affect our business, including consumer confidence in the economy, interest rates, fuel prices and the general availability of credit. The overall economic climate and changes in Gross National Product growth have a direct impact on some of our customers and the demand for our products. We cannot be sure that our business will not be adversely affected as a result of an industry or general economic downturn.

Our customers may reduce capital expenditures and have difficulty satisfying liquidity needs because of continued turbulence in the U.S. and global economies, resulting in reduced sales of our products and harm to our financial condition and results of operations.

In particular, our historical results of operations have been subject to substantial fluctuations, and we may experience substantial period-to-period fluctuations in future results of operations. Any future downturn in the markets in which we compete could significantly reduce the demand for our products and therefore may result in a significant reduction in revenue or increase the volatility of the price of our common stock. Our revenue and results of operations may be adversely affected in the future due to changes in demand from customers or cyclical changes in the markets utilizing our products.

In addition, the telecommunications industry has, from time to time, experienced, and may again experience, a pronounced downturn. To respond to a downturn, many service providers may slow their capital expenditures, cancel or delay new developments, reduce their workforces and inventories and take a cautious approach to acquiring new equipment and technologies from original equipment manufacturers, which would have a negative impact on our business. Weakness in the global economy or a future downturn in the telecommunications industry may cause our results of operations to fluctuate from quarter-to-quarter and year-to-year, harm our business, and may increase the volatility of the price of our common stock.

Customer acceptance of our products is dependent on our ability to meet changing requirements, and any decrease in acceptance could adversely affect our revenue.

Customer acceptance of our products is significantly dependent on our ability to offer products that meet the changing requirements of our customers, including telecommunication, military, medical and industrial corporations, as well as government agencies. Any decrease in the level of customer acceptance of our products could harm our business.

Our products must meet exacting specifications, and defects and failures may occur, which may cause customers to return or stop buying our products.

Our customers generally establish demanding specifications for quality, performance and reliability that our products must meet. However, our products are highly complex and may contain defects and failures when they are first introduced or as new versions are released. Our products are also subject to rough environments as they are integrated into our customer products for use by the end customers. If defects and failures occur in our products, we could experience lost revenue, increased costs, including warranty expense and costs associated with customer support, delays in or cancellations or rescheduling of orders or shipments, product returns or discounts, diversion of management resources or damage to our reputation and brand equity, and in some cases consequential damages, any of which would harm our operating results. In addition, delays in our ability to fill product orders as a result of quality control issues may negatively impact our relationship with our customers. We cannot assure you that we will have sufficient resources, including any available insurance, to satisfy any asserted claims.

Rapidly changing standards and regulations could make our products obsolete, which would cause our revenue and results of operations to suffer.

We design products to conform to our customers' requirements and our customers' systems may be subject to regulations established by governments or industry standards bodies worldwide. Because some of our products are designed to conform to current specific industry standards, if competing or new standards emerge that are preferred by our customers, we would have to make significant expenditures to develop new products. If our customers adopt new or competing industry standards with which our products are not compatible, or the industry groups adopt standards or governments issue regulations with which our products are not compatible, our existing products would become less desirable to our customers and our revenue and results of operations would suffer.

The markets for many of our products are characterized by changing technology which could cause obsolescence of our products, and we may incur substantial costs in delivering new products.

The markets for many of our products are characterized by changing technology, new product introductions and product enhancements, and evolving industry standards. The introduction or enhancement of products embodying new technology or the emergence of new industry standards could render existing products obsolete, and result in a write down to the value of our inventory, or result in shortened product life cycles. Accordingly, our ability to compete is in part dependent on our ability to continually offer enhanced and improved products.

The success of our new product offerings will depend upon several factors, including our ability to:

- accurately anticipate customer needs;
- innovate and develop new technologies and applications;
- successfully commercialize new technologies in a timely manner;
- price products competitively and manufacture and deliver products in sufficient volumes and on time; and

- differentiate our product offerings from those of our competitors.

Some of our products are used by our customers to develop, test and manufacture their products. We therefore must anticipate industry trends and develop products in advance of the commercialization of our customers' products. In developing any new product, we may be required to make a substantial investment before we can determine the commercial viability of the new product. If we fail to accurately foresee our customers' needs and future activities, we may invest heavily in research and development of products that do not lead to significant revenues.

Our inability to find new customers or retain existing customers could harm our business.

Our business is reliant on our ability to find new customers and retain existing customers. In particular, customers normally purchase certain of our products and incorporate them into products that they, in turn, sell in their own markets on an ongoing basis. As a result, the historical sales of these products have been dependent upon the success of our customers' products and the future performance of our business is dependent upon our success in finding new customers and receiving new orders from existing customers.

In several markets, the quality and reliability of our products are a major concern for our customers, not only upon the initial manufacture of the product, but for the life of the product. Many of our products are used in remote locations for higher value assembly, making servicing of our products unfeasible. Any failure of the quality or reliability of our products could harm our business.

If our customers do not qualify our products or if their customers do not qualify their products, our results of operations may suffer.

Most of our customers do not purchase our optoelectronics products prior to qualification of the products and satisfactory completion of factory audits and vendor evaluation. Our existing products, as well as each new product, must pass through varying levels of qualification with our customers. In addition, because of the rapid technological changes in some markets, a customer may cancel or modify a design project before we begin large-scale manufacturing and receiving revenues from the customer. It is unlikely that we would be able to recover the expenses for cancelled or unutilized custom design projects. It is difficult to predict with any certainty whether our customers will delay or terminate product qualification or the frequency with which customers will cancel or modify their projects. Any such delay, cancellation or modification could have a negative effect on our results of operations.

In addition, once a customer qualifies a particular supplier's product or component, these potential customers design the product into their system, which is known as a design-in win. Suppliers whose products or components are not designed in are unlikely to make sales to that customer until at least the adoption of a future redesigned system. Even then, many customers may be reluctant to incorporate entirely new products into their new systems, as doing so could involve significant additional redesign efforts and increased costs. If we fail to achieve design-in wins in potential customers' qualification processes, we will likely lose the opportunity for significant sales to those customers for a lengthy period of time.

If the end user customers that purchase systems from our customers fail to qualify or delay qualifications of any products sold by our customers that contain our products, our business could be harmed. The qualification and field testing of our customers' systems by end user customers is long and unpredictable. This process is not under our control or that of our customers and, as a result, the timing of our sales may be unpredictable. Any unanticipated delay in qualification of one of our customers' products could result in the delay or cancellation of orders from our customers for products included in their equipment, which could harm our results of operations.

Customer demand for our products is difficult to accurately forecast and, as a result, we may be unable to optimally match production with customer demand, which could adversely affect our business and financial results.

We make planning and spending decisions, including determining the levels of business that we will seek and accept, production schedules, inventory levels, component procurement commitments, personnel needs and other resource requirements, based on our estimates of customer requirements. The short-term nature of commitments by many of our customers and the possibility of unexpected changes in demand for their products reduce our ability to accurately estimate future customer requirements. On occasion, customers may require rapid increases in production, which can strain our resources, cause our manufacturing to be negatively impacted by materials shortages, necessitate higher or more restrictive procurement commitments, increase our manufacturing yield loss and scrapping of excess materials, and reduce our gross margin. We may not have sufficient capacity at any given time to meet the volume demands of our customers, or one or more of our suppliers may not have sufficient capacity at any given time to meet our volume demands. Conversely, a downturn in the markets in which our customers compete can cause, and in the past have caused, our customers to significantly reduce or delay

the amount of products ordered or to cancel existing orders, leading to lower utilization of our facilities. Because many of our costs and operating expenses are relatively fixed, reduction in customer demand due to market downturns or other reasons would have a negative effect on our gross margin, operating income and cash flow.

Customer orders and forecasts are subject to cancellation or modification at any time which could result in higher manufacturing costs.

Our sales are made primarily pursuant to standard purchase orders for delivery of products. However, by industry practice, some orders may be canceled or modified at any time. When a customer cancels an order, they are responsible for all finished goods, all costs, direct and indirect, incurred by us, as well as a reasonable allowance for anticipated profits. No assurance can be given that we will receive these amounts after cancellation. Furthermore, uncertainty in customer forecasts of their demands and other factors may lead to delays and disruptions in manufacturing, which could result in delays in product shipments to customers and could adversely affect our business.

Fluctuations and changes in customer demand are common in our business. Such fluctuations, as well as quality control problems experienced in manufacturing operations, may cause delays and disruptions in our manufacturing process and overall operations and reduce output capacity. As a result, product shipments could be delayed beyond the shipment schedules requested by our customers or could be canceled, which would negatively affect our sales, operating income, strategic position at customers, market share and reputation. In addition, disruptions, delays or cancellations could cause inefficient production which in turn could result in higher manufacturing costs, lower yields and potential excess and obsolete inventory or manufacturing equipment. In the past, we have experienced such delays, disruptions and cancellations.

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.

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 net loss from continuing operations of \$0.3 million and \$3.0 million for the nine months ended September 30, 2017 and 2016, respectively. We expect to continue to incur significant expenses as we pursue our strategic initiatives, including increased expenses for research and development, sales and marketing and manufacturing. 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 may 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.

We have obtained capital by borrowing money under term loans and we might require additional capital to support and expand our business; our term loan has various loan covenants with which we must comply.

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 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 term loans with Silicon Valley Bank ("SVB"), which requires us to observe certain financial and operational covenants, including maintenance of a minimum cash balance of \$4.0 million, 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 term loans 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 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.

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 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. As we focus on developing marketing and selling fiber optic sensing products, we may also face substantial and entrenched competition in that market.

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 revenues may fail to increase or may decline.

Intense competition in our markets could result in aggressive business tactics by our competitors, including aggressively pricing their products or selling older inventory at a discount. If our current or future competitors utilize aggressive business tactics, including those described above, demand for our products could decline, we could experience delays or cancellations of customer orders, or we could be required to reduce our sales prices.

Decreases in average selling prices of our products may increase operating losses and net losses, particularly if we are not able to reduce expenses commensurately.

The market for optical components and subsystems continues to be characterized by declining average selling prices resulting from factors such as increased price competition among optical component and subsystem manufacturers, excess capacity, the introduction of new products and increased unit volumes as manufacturers continue to deploy network and storage systems. In recent years, we have observed a significant decline of average selling prices, primarily in the telecommunications market. We anticipate that average selling prices will continue to decrease in the future in response to product introductions by competitors or by us, or in response to other factors, including price pressures from significant customers. In order to sustain profitable operations, we must, therefore, reduce the cost of our current designs or continue to develop and introduce new

products on a timely basis that incorporate features that can be sold at higher average selling prices. Failure to do so could cause our sales to decline and operating losses to increase.

Our cost reduction efforts may not keep pace with competitive pricing pressures. To remain competitive, we must continually reduce the cost of manufacturing our products through design and engineering changes. We may not be successful in redesigning our products or delivering our products to market in a timely manner. We cannot assure you that any redesign will result in sufficient cost reductions enabling us to reduce the price of our products to remain competitive or positively contribute to operating results.

Shifts in product mix may result in declines in gross profit.

Our gross profit margins vary among our product platforms, and are generally highest on our test & measurement instruments. Our overall gross profit may fluctuate from period to period as a result of a variety of factors including shifts in product mix, the introduction of new products, and decreases in average selling prices for older products. If our customers decide to buy more of our products with low gross profit margins or fewer of our products with high gross profit margins, our total gross profits could be harmed.

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 revenues 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.

Failure to develop, introduce and sell new products or failure to develop and implement new technologies, could adversely impact our financial results.

Our success will depend on our ability to develop and introduce new products that customers choose to buy. The new products the market requires tend to be increasingly complex, incorporating more functions and operating at faster speeds than old products. If we fail to introduce new product designs or technologies in a timely manner or if customers do not successfully introduce new systems or products incorporating our products, our business, financial condition and results of operations could be materially harmed.

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

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 revenues or our product development efforts.

We may not be successful in identifying market needs for new technologies or in developing new products.

Part 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 also develop successful commercial products to address market needs. We face several challenges in developing successful new products. Many of our existing products and those currently under development 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 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 ("FCPA"); 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 may dispose of or discontinue existing product lines and technology developments, which may adversely impact our future results.

On an ongoing basis, we evaluate our various product offerings and technology developments in order to determine whether any should be discontinued or, to the extent possible, divested. For example, we recently sold our HSOR business to a third party. In addition, if we are unable to generate the amount of cash needed to fund the future operations of our business, we may be forced to sell one or more of our product lines or technology developments.

We cannot guarantee that we have correctly forecasted, or that we will correctly forecast in the future, the right product lines and technology developments to dispose or discontinue or that our decision to dispose of or discontinue various investments, products lines and technology developments is prudent if market conditions change. In addition, there are no assurances that the discontinuance of various product lines will reduce operating expenses or will not cause us to incur material charges associated with such decision. Furthermore, the discontinuance of existing product lines entails various risks, including the risk that we will not be able to find a purchaser for a product line or the purchase price obtained will not be equal to at least the book value of the net assets for the product line. Other risks include managing the expectations of, and maintaining good relations with, our historical customers who previously purchased products from a disposed or discontinued product line, which could prevent us from selling other products to them in the future. We may also incur other significant liabilities and costs associated with disposal or discontinuance of product lines, including employee severance costs and excess facilities costs.

We may be liable for damages based on product liability claims relating to defects in our products, which might be brought against us directly, or against our customers in their end-use markets. Such claims could result in a loss of customers in addition to substantial liability in damages.

Our products are complex and undergo quality testing as well as formal qualification, both by our customers and by us. However, defects may occur from time to time. Our customers' testing procedures may be limited to evaluating our products under likely and foreseeable failure scenarios and over varying amounts of time. For various reasons, such as the occurrence of performance problems that are unforeseeable in testing or that are detected only when products age or are operated under peak stress conditions, our products may fail to perform as expected long after customer acceptance. Failures could result from faulty components or design, problems in manufacturing or other unforeseen reasons. As a result, we could incur significant costs to repair or replace defective products under warranty, particularly when such failures occur in installed systems. In addition, we may in certain circumstances honor warranty claims after the warranty has expired or for problems not covered by warranty in order to maintain customer relationships. Any significant product failure could result in lost future sales of the affected product and other products, as well as customer relations problems, litigation and damage to our reputation.

In addition, many of our products are embedded in, or deployed in conjunction with, our customers' products, which incorporate a variety of components, modules and subsystems and may be expected to interoperate with modules produced by third parties. As a result, not all defects are immediately detectable, and, when problems occur, it may be difficult to identify the source of the problem. These problems may cause us to incur significant damages or warranty and repair costs, divert the attention of our engineering personnel from internal product development efforts and cause significant customer relations problems or loss of customers, all of which would harm our business.

Furthermore, many of our products may provide critical performance attributes to our customers' products that will be sold to end users who could potentially bring product liability suits in which we could be named as a defendant. The sale of these products involves the risk of product liability claims. If a person were to bring a product liability suit against one of our customers, this customer may attempt to seek contribution from us. A person may also bring a product liability claim directly against us. A successful product liability claim or series of claims against us in excess of our insurance coverage for payments, for which we are not otherwise indemnified, could have a material adverse effect on our financial condition or results of operations.

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 that we may be subjected to cyber-attack or cyber-intrusion as third parties seek to gain improper access to information regarding these capabilities and cyber-attacks or cyber-intrusion could compromise 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, compromise our confidential information and trade secrets, or damage our reputation among our customers and the public generally. Any of these developments could have a negative impact on our results of operations, financial condition and cash flows.

Risks Relating to our Regulatory Environment

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 operations, particularly 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 FCPA. The number of our various emerging technologies, the development of many of which has been funded by the Department of Defense, presents us with many regulatory challenges. 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.

Environmental regulations could increase operating costs and additional capital expenditures and delay or interrupt operations.

The photonics industry, as well as the semiconductor industry, are subject to governmental regulations for the protection of the environment, including those relating to air and water quality, solid and hazardous waste handling, and the promotion of occupational safety. Various federal, state and local laws and regulations require that we maintain certain environmental permits. While we believe that we have obtained all necessary environmental permits required to conduct our manufacturing processes, if we are found to be in violation of these laws, we could be subject to governmental fines and liability for damages resulting from such violations.

Changes in the aforementioned laws and regulations or the enactment of new laws, regulations or policies could require increases in operating costs and additional capital expenditures and could possibly entail delays or interruptions of our 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 revenues.

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 quality systems regulations. We are also required to comply with International Organization for Standardization ("ISO"), quality system standards in order to produce certain of our 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.

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

To be able to market and sell medical 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 revenues 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 and 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 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 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 been, and may in the future be, contacted by third parties, including patent assertion entities 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, 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 an issue exists as to whether such intellectual property was developed in the performance of a federal funding agreement or developed at private expense.

If we fail to obtain the right to use the intellectual property rights of others which are necessary to operate our business, and to protect their intellectual property, our business and results of operations will be adversely affected.

In the past, we have licensed certain technologies for use in our products. In the future, we may choose, or be required, to license technology or intellectual property from third parties in connection with the development of our products. We cannot assure you that third-party licenses will be available on commercially reasonable terms, if at all. Our competitors may be able to obtain licenses, or cross-license their technology, on better terms than we can, which could put us at a competitive disadvantage. Also, we often enter into confidentiality agreements with such third parties in which we agree to protect and maintain their proprietary and confidential information, including at times requiring our employees to enter into agreements protecting such information. There can be no assurance that the confidentiality agreements will not be breached by any of our employees or that such third parties will not make claims that their proprietary information has been disclosed.

RISKS RELATING TO OUR COMMON STOCK

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 Clinic holds approximately 3.5 million shares of our common stock (including approximately 1.3 million shares issuable to Carilion upon conversion of shares of Series A Convertible Preferred Stock that Carilion holds). All of these shares have been registered for sale on a Form S-3 registration statement and, accordingly, may generally be freely sold by Carilion at any time. Any sales of these shares, or the perception that future sales of shares may occur by Carilion or any of our other significant stockholders, may have a material 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.

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. Securities class litigation also often follows certain significant business transactions, such as the sale of a business division or a change in control transaction. 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.

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. One such requirement is that we maintain a minimum bid price of at least \$1.00 per share for our common stock. Although we currently comply with the minimum bid requirement, in the recent past, our minimum bid price has fallen below \$1.00 per share, and it could again do so in the future. If our bid price falls below \$1.00 per share for 30 consecutive business days, we will receive a deficiency notice from NASDAQ advising us that we have 180 days to regain compliance by maintaining a minimum bid price of at least \$1.00 for a minimum of ten consecutive business days. Under certain circumstances, NASDAQ could require that the minimum bid price exceed \$1.00 for more than ten consecutive days before determining that a company complies.

In the event that our common stock is not eligible for continued listing on NASDAQ or another national securities 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. 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:

- sales of our common stock by our significant stockholders, or the perception that such sales may occur;
- 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;
- 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;
- pending or threatened 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; 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 control over financial reporting is found not to be effective or if we make disclosure of existing or potential 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 General Corporation law that, in general, prohibit any business combination with a beneficial owner of 15% or more of our common stock for three years unless the holder's acquisition of our stock was approved in advance by our board of directors or certain other conditions are satisfied.

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.

ITEM 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS*(a) Unregistered Sales of Equity Securities during the Three Months Ended September 30, 2017***Common Stock Dividend Payable to Carilion**

We issued 1,321,514 shares of Series A Preferred Stock, par value \$0.001 per share, to Carilion Clinic in January 2010, which shares were issued in reliance on the exemptions from registration under the Securities Act provided by Sections 3(a)(9) and 4 (a)(2) thereof. The Series A Preferred Stock accrues dividends at the rate of \$0.2815 per share per annum, payable quarterly in arrears. Accrued dividends are payable in shares of our common stock, with the number of shares being equal to the quotient of (i) the cumulative aggregate balance of accrued but unpaid dividends on each share of Series A Preferred Stock divided by (ii) the conversion price of the Series A Preferred Stock, which is currently \$4.69159 per share. For the period from January 12, 2010, the original issue date of the Series A Preferred Stock, through September 30, 2017, the Series A Preferred Stock issued to Carilion has accrued \$1,110,773 in dividends. The accrued dividend as of September 30, 2017 will be paid by the issuance of 611,870 shares of our common stock, which we will issue at Carilion's written request. As the Series A Preferred Stock was issued in reliance on the exemption provided by Section 3(a)(9), the shares of common stock payable as dividends will also be exempt from registration in reliance on Section 3(a)(9) of the Securities Act.

(b) Use of Proceeds from Sale of Registered Equity Securities

Not applicable.

(c) Purchases of Equity Securities by the Registrant

On September 20, 2017, we announced that our board of directors re-instituted our stock repurchase program, authorizing the repurchase of up to \$2.0 million of our common stock. An aggregate purchase price of \$0.1 million had been expended under this program as of September 30, 2017. Unless extended, the stock repurchase authorization expires on September 19, 2018 and may be terminated, increased or decreased by our board of directors at any time.

The following table summarizes repurchases of our common stock during the three months ended September 30, 2017.

Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of a Publicly Announced Program	Approximate Dollar Value of Shares that May Yet be Purchased Under the Program
9/1/2017 - 9/30/2017	50,100	\$ 1.70	50,100	\$ 1,914,745

ITEM 3. DEFAULTS UPON SENIOR SECURITIES

None.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

ITEM 5. OTHER INFORMATION

None.

ITEM 6. EXHIBITS

<u>Exhibit Number</u>	<u>Description</u>
2.1+^	<u>Asset Purchase Agreement, dated as of August 9, 2017, by and among the Registrant, MACOM Technology Solutions Holdings, Inc., Advanced Photonix, Inc. and Picometrix, LLC.</u>
10.1+	<u>Transition Services Agreement, dated as of August 9, 2017, by and among Advanced Photonix, Inc., Picometrix, LLC and MACOM Technology Solutions Holdings, Inc.</u>
31.1	<u>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.</u>
31.2	<u>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.</u>
32.1*	<u>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.</u>
32.2*	<u>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.</u>
101	The following materials from the Registrant’s Quarterly Report on Form 10-Q for the quarter ended September 30, 2017, formatted in XBRL (eXtensible Business Reporting Language): (i) Consolidated Balance Sheets at September 30, 2017 and December 31, 2016, (ii) Consolidated Statements of Operations for the three and nine months ended September 30, 2017 and 2016, (iii) Consolidated Statements of Cash Flows for the nine months ended September 30, 2017 and 2016 and (iv) Notes to Unaudited Consolidated Financial Statements.
+	Confidential treatment has been requested with respect to portions of this exhibit, indicated by asterisks, which has been filed separately with the SEC.
^	Pursuant to Item 601(b)(2) of Regulation S-K promulgated by the SEC, certain exhibits and schedules to this agreement have been omitted. The Registrant hereby agrees to furnish supplementally to the SEC, upon its request, any or all of such omitted exhibits or schedules.
*	These certifications are being furnished solely to accompany this quarterly 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.

SIGNATURES

Pursuant to the requirements 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.

Date: November 13, 2017

Luna Innovations Incorporated

By: _____ /s/ Dale Messick

Dale Messick

Chief Financial Officer
(principal financial and accounting officer and duly authorized officer)

ASSET PURCHASE AGREEMENT

dated as of August 9, 2017,

among

MACOM TECHNOLOGY SOLUTIONS HOLDINGS, INC.,

ADVANCED PHOTONIX, INC.,

PICOMETRIX, LLC,

and, solely with respect to Section 8.14,

LUNA INNOVATIONS INCORPORATED

Confidential and Proprietary

CONFIDENTIAL TREATMENT HAS BEEN REQUESTED FOR PORTIONS OF THIS EXHIBIT. THE COPY FILED HERewith OMITs THE INFORMATION SUBJECT TO A CONFIDENTIALITY REQUEST. OMISSIONS ARE DESIGNATED [***]. A COMPLETE VERSION OF THIS EXHIBIT HAS BEEN FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION.

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EXHIBITS

- A Certain Defined Terms
- B Financial Statements
- C Products
- D Escrow Agreement
- E License Agreement
- F Sublease

ANNEXES

- I List of Retained Assets
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ASSET PURCHASE AGREEMENT

This Asset Purchase Agreement, dated as of August 9, 2017 (as amended or otherwise modified, the “Agreement”), is between MACOM Technology Solutions Holdings, Inc., a Delaware corporation (the “Buyer”), Advanced Photonix, Inc., a Delaware corporation (“API”), Picometrix, LLC, a Delaware limited liability company (“Picometrix” and, together with API, the “Sellers”), and, solely with respect to Section 8.14, Luna Innovations Incorporated, a Delaware corporation (“Luna”).

RECITALS

WHEREAS, the Sellers own and operate the Business; and

WHEREAS, the Sellers wish to sell and assign to the Buyer, and the Buyer wishes to purchase and assume from the Sellers, certain assets and liabilities specified herein which relate to the Business, in each case upon the terms and conditions set forth in this Agreement.

AGREEMENT

NOW THEREFORE, in consideration of the premises and mutual promises herein made, and in consideration of the representations, warranties and covenants herein contained, the Buyer and the Sellers hereby agree as follows:

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1. DEFINITIONS.

Capitalized terms used in this Agreement but not defined herein shall have the meanings given to them in Exhibit A.

2. PURCHASE AND SALE OF ASSETS; ASSIGNMENT AND ASSUMPTION OF LIABILITIES.

2.1. The Purchase and Sale; Assignment and Assumption.

2.1.1 Purchase and Sale. Upon the terms and subject to the conditions contained herein, at the Closing, the Sellers will sell, assign, transfer, convey and deliver to the Buyer, and the Buyer shall purchase from the Sellers, the Acquired Assets, free and clear of any Encumbrances other than Permitted Encumbrances, in exchange for the payment of the Purchase Price (as may be adjusted pursuant to this Agreement) and the assumption by the Buyer of the Assumed Liabilities.

2.1.2 Retained Assets. The Retained Assets shall be excluded from the Acquired Assets to be sold, assigned, transferred, conveyed and delivered to the Buyer hereunder and shall be retained by the Sellers.

2.1.3 Assumed Liabilities. Upon the terms and subject to the conditions contained herein, at the Closing, the Buyer will assume, effective as of the Closing, the Assumed Liabilities and no other Liabilities of the Sellers or any other Person. No assumption by the Buyer of any of the Assumed Liabilities shall relieve or be deemed to relieve the Sellers from any Liability under this Agreement with respect to any representations, warranties, covenants or other agreements made by the Sellers to the Buyer.

2.1.4 Excluded Liabilities. The Buyer will not assume or perform any Liabilities of the Sellers not specifically assumed by the Buyer under Section 2.1.3, and the Sellers shall retain and satisfy, and perform as and when due, all Excluded Liabilities. In furtherance of the foregoing, the Sellers shall repay any Debt at or prior to the Closing as may be necessary to release or remove any Encumbrances (other than Permitted Encumbrances and Encumbrances with respect to Taxes which shall be paid in accordance with applicable Law and which shall be apportioned in accordance with Section 7.5) with respect thereto on the Acquired Assets.

2.2. Purchase Price. The aggregate consideration payable by the Buyer to the Sellers for the Acquired Assets shall be (a) the assumption of the Assumed Liabilities by the Buyer and (b) \$33,500,000 in cash (subject to adjustment pursuant to Section 2.5 and Section 2.8) (the amounts described in clause (b), the "Purchase Price").

2.3. The Closing. Subject to the terms and conditions of this Agreement, the purchase and sale of the Acquired Assets and the assumption of the Assumed Liabilities (the "Closing") will take place on the date hereof. The title, ownership, rights and interest of the Acquired Assets shall vest in the Buyer on the Closing Date.

2.4. Closing Deliveries. The parties shall take the actions set forth in this Section 2.4 at the Closing.

2.4.1 The Buyer will deliver (a) to the Sellers the Purchase Price, less the Escrow Amount, and (b) to the Escrow Agent the Escrow Amount, in each case by wire transfer of immediately available funds to the accounts designated in writing to the Buyer.

2.4.2 The Sellers will execute one or more bills of sale with respect to all personal property included in the Acquired Assets (the "Bills of Sale") evidencing the parties' intents and agreement of sale and purchase, transfer, assignment and assumption of such personal property included the Acquired Assets.

2.4.3 The Buyer and the Sellers will execute (a) an Assignment of Trademarks, (b) an Assignment of Patents, (c) an Assignment of Copyrights, (d) an Assignment of Other Intellectual Property (collectively, the "IP Assignments"), and (e) any other forms and documents required by the intellectual property offices of such jurisdiction for completing the assignment and recordation of the Owned IP.

2.4.4 The Buyer and the Sellers will execute one or more instruments of assignment and assumption with respect to the Assumed Liabilities, Transferred Contracts, Transferred Leases and Transferred Permits, and such other instruments as shall be reasonably requested by the Buyer or the Sellers to vest in the Buyer title in and to the Acquired Assets and to consummate the assumption by the Buyer of the Assumed Liabilities, in accordance with the provisions hereof (the "Assignment and Assumption Agreements").

2.4.5 The Sellers shall deliver to the Buyer all books and records relating to the Business that are included in the Acquired Assets.

2.4.6 API shall deliver to the Buyer a certificate, in a form reasonably acceptable to the Buyer, dated as of the Closing Date, conforming to the requirements of Treasury Regulation Sections 1.1445-2(b)(2) and stating that API is not a foreign person for purposes of Section 1445 of the Code.

2.4.7 The Sellers shall deliver to the Buyer documentation evidencing the repayment of all Debt of the Business and the termination of all Encumbrances other than Permitted Encumbrances.

2.4.8 The Seller shall deliver to the Buyer the consents and approvals with respect to assignment of the Acquired Assets to the Buyer set forth on Schedule 2.4.8.

2.4.9 The Sellers shall deliver to the Buyer certificates of title or origin with respect to all Acquired Assets for which a certificate of title or origin is required to transfer the title to the Buyer.

2.4.10 The Buyer and the Sellers shall execute the Transition Services Agreement.

2.4.11 The Buyer and the Sellers shall execute the ETSA.

2.4.12 The Buyer and the Sellers shall execute the Escrow Agreement.

2.4.13 The Buyer and the Sellers shall execute the License Agreement.

2.4.14 The Buyer and Picometrix shall execute the Sublease.

2.4.15 The Buyer and the Sellers shall execute such other certificates, instruments or documents required pursuant to the provisions of this Agreement or otherwise necessary or appropriate to transfer the Acquired Assets and the Assumed Liabilities in accordance with the terms hereof and to consummate the Contemplated Transactions, as may be required to give effect to this Agreement, and to vest in the Buyer and its successors and assigns full, complete, absolute, legal and equitable title to the Acquired Assets, free and clear of all Encumbrances (other than Permitted Encumbrances).

2.5. Working Capital Adjustment.

2.5.1 Closing Balance Sheet and Closing Working Capital. Within ninety calendar days after the Closing Date, the Sellers shall prepare or cause to be prepared, and will provide to the Buyer, a balance sheet of the Business (the "Closing Balance Sheet") as of close of business on the Closing Date (the "Adjustment Time"), together with a written statement setting forth in reasonable detail its proposed final determination of the Working Capital as of the Adjustment Time as reflected on the Closing Balance Sheet (the "Closing Working Capital Statement"). The Closing Balance Sheet and the Closing Working Capital Statement shall be prepared in accordance with GAAP and consistent with the Seller's historical past practices (collectively, the "Accounting Principles"). Following the delivery of the Closing Balance Sheet and the Closing Working Capital Statement, the Buyer shall have, at its sole expense, reasonable access to the work papers used by the Sellers in the preparation of, and the personnel of the Sellers who participated in the preparation of, the Closing Balance Sheet and the Closing Working Capital Statement.

2.5.2 Dispute Notice. The Closing Balance Sheet and the Closing Working Capital Statement, and the determination of Working Capital thereon, shall be final, conclusive and binding on the parties unless the Buyer provides a written notice (a "Dispute Notice") to the Sellers no later than the thirtieth calendar day after delivery of the Closing Balance Sheet and the Closing Working Capital Statement setting forth in reasonable detail any item on the Closing Balance Sheet and/or the Closing Working Capital Statement which the Buyer believes has not been prepared in accordance with this Agreement or the Accounting Principles and the amount the Buyer believes to be the correct amount for such item. Any item or amount to which no dispute is raised in the Dispute Notice shall be final, conclusive and binding on the parties.

2.5.3 Resolution of Disputes.

(a) The Buyer and the Sellers shall attempt to resolve the matters raised in a Dispute Notice in good faith. Fifteen Business Days after delivery of the Dispute Notice, either the Buyer or the Sellers may provide written notice (an "Arbitration Notice") to

the other that it elects to submit the disputed items to nationally recognized independent accounting firm mutually agreeable to the Buyer and the Sellers (the "Neutral Arbitrator"). If the Sellers and the Buyer cannot agree on a Neutral Arbitrator within ten Business Days after an Arbitration Notice is provided, each of the Buyer and the Sellers shall promptly select an accounting firm and promptly cause such two accounting firms to mutually select a third independent accounting firm to act as the Neutral Arbitrator within twenty Business Days after such Arbitration Notice is provided. On the third Business Day following appointment of a Neutral Arbitrator, the Buyer shall submit the Closing Balance Sheet and Closing Working Capital Statement to the Neutral Arbitrator (if applicable, as amended following discussions with the Sellers) with a copy to the Sellers, and the Sellers shall submit the Dispute Notice (if applicable, as amended following discussions with the Buyer) to the Neutral Arbitrator with a copy to the Buyer.

(b) The Neutral Arbitrator will promptly review only those items and amounts specifically set forth and objected to in the Dispute Notice submitted to it and resolve the dispute in accordance with the Accounting Principles; provided, however, that the Neutral Arbitrator will be limited to determining whether the position of the Buyer or the Sellers is, with respect to each specific unresolved item, more accurate and calculated in accordance with the Accounting Principles and, based on such determination, adopting either the position set forth by the Buyer or the position set forth by the Sellers with respect to each specific unresolved item. In resolving such disputes, the Neutral Arbitrator's authority shall be limited to the correct nature and amount of each item remaining in dispute in accordance with the Accounting Principles, and any dispute among the parties regarding the interpretation of this Agreement and the terms hereof shall be resolved, including through appropriate judicial resolution if necessary, prior to the submission of the dispute to the Neutral Arbitrator. The Buyer and the Sellers must each be afforded an opportunity to provide a written submission in support of its position and to advocate for its position personally before the Neutral Arbitrator. Each of the parties to this Agreement agrees to use its commercially reasonable efforts to cooperate with the Neutral Arbitrator and to cause the Neutral Arbitrator to resolve any dispute as promptly as practicable and, in any event, no later than thirty Business Days after selection of the Neutral Arbitrator. The decision of the Neutral Arbitrator with respect to any such dispute will be final, conclusive and binding on the parties. The fees and expenses of the Neutral Arbitrator will be paid fifty-percent (50%) by the Sellers and fifty-percent (50%) by the Buyer.

2.5.4 Purchase Price Adjustment. Promptly, and in any event no later than the fifth Business Day after determination of the Final Working Capital:

(a) If the Final Working Capital exceeds the Upper Working Capital Target, then the Buyer will pay an amount equal to such excess to the Sellers by wire transfer of immediately available funds, in each case to an account or accounts designated by the Sellers in writing.

(b) If the Final Working Capital is less than the Lower Working Capital Target, then the Sellers will pay an amount equal to such shortfall to the Buyer by wire transfer of immediately available funds, in each case to an account or accounts designated by the Buyer in writing.

Any payment required pursuant to this Section 2.5.4 will be paid within ten Business Days after the Closing Balance Sheet becomes final, binding and non-appealable pursuant to this Section 2.5, by wire transfer of immediately available funds to the account designated by the receiving party in writing at least two Business Days prior to the expiration of such ten Business Day period.

2.6. Consents.

2.6.1 Notwithstanding anything in this Agreement to the contrary, this Agreement shall not constitute an agreement to assign or transfer any Transferred Contract, Transferred Lease, Transferred Permit or other Acquired Asset that is not assignable or transferable without the consent of any Person, other than the Sellers or the Buyer, to the extent that such consent shall not have been given prior to the Closing; provided, however, that the Sellers, at the Sellers' expense, shall give all notices to any Governmental Authority or other Person that are necessary to effectuate the assignment and transfer, and shall use reasonable best efforts to obtain, and the Buyer shall use its reasonable best efforts to assist and cooperate with the Sellers in connection therewith, all necessary consents to the assignment and transfer thereof as promptly as possible, it being understood that none of the Buyer, the Sellers or any of their Affiliates shall be required to pay money to any third party (other than with respect to the Sellers' expenses described above), commence any litigation or offer or grant any accommodation (financial or otherwise) to any third party. Upon obtaining the requisite third party consents thereto, such Transferred Contract, Transferred Lease, Transferred Permit and other Acquired Assets shall be transferred and assigned to the Buyer hereunder.

2.6.2 With respect to any Transferred Contract, Transferred Lease, Transferred Permit or other Acquired Assets that is not transferred or assigned to the Buyer at the Closing by reason of Section 2.6.1 (a "Nonassigned Asset"), after the Closing and until the requisite consent is obtained and the foregoing is transferred and assigned to the Buyer, the Sellers shall (or shall cause their Affiliates to) provide to the Buyer the benefits thereof (or substantially comparable benefits) and shall enforce, at the request of and for the account of the Buyer at the Buyer's expense, any rights of the Sellers or their Affiliates arising thereunder against any Person, including the right to elect to terminate in accordance with the terms thereof upon the direction of the Buyer. To the extent the Buyer is provided with the benefits of any Nonassigned Asset, the Buyer shall perform, at the direction of the Sellers, the obligations of the Sellers or their Affiliates thereunder. Notwithstanding anything to the contrary set forth herein, to the extent that any Assumed Liability relates to any Nonassigned Asset, Sellers shall bear one hundred percent (100%) of any costs arising from such Assumed Liability until such Nonassigned Asset is transferred and assigned to the Buyer or the Buyer obtains all the benefits of such Nonassigned Asset under this Section 2.6.2.

2.6.3 Without in any way limiting the Sellers' obligations under Sections 2.6.1 or 2.6.2, or Buyer's remedies, to the extent the Sellers cannot transfer and assign any of the Owned IP, or any portion thereof to the Buyer, as of the Closing, then the Sellers will assign and transfer such Owned IP to the Buyer at the first opportunity to do so. To the extent that any Owned IP cannot be assigned and transferred by the Sellers, then the Sellers hereby grant the Buyer an irrevocable, perpetual, worldwide, fully-paid up, royalty-free, exclusive license, with the right to sublicense through multiple tiers and to enforce, to make, have made, use, sell, offer to sell, import, export, improve, reproduce, distribute, perform, display, transmit, manipulate in any manner, create derivative works based upon, and otherwise practice, exploit or utilize in any manner the Owned IP. The Sellers shall cooperate with the Buyer in carrying out the provisions of this Section 2.6.3, including with the respect to the enforcement of the Buyer's rights hereunder and, to the extent requested by the Buyer, the Sellers shall execute any appropriate instrument to give effect to this Section 2.6.3.

2.7. Withholding. The Buyer and any other applicable withholding agent will be entitled to deduct and withhold from any amounts payable pursuant to this Agreement (and any other agreement entered into in connection with the Contemplated Transactions) any withholding Taxes or other amounts required under the Code or any applicable Law to be deducted and withheld. To the extent any such amounts are so deducted and withheld and properly paid over to the appropriate Governmental Authority or other appropriate Person, such amounts will be treated for all purposes of this Agreement (and any other agreement entered into in connection with the Contemplated Transactions) as having been paid to the Sellers or any other Person in respect of which such deduction and withholding was made.

2.8. Escrow Amount.

2.8.1 On the Closing Date, the Buyer shall deliver to the Escrow Agent, as a deposit to the Escrow Fund, cash in an amount equal to the Escrow Amount from the Purchase Price for the purpose of securing the obligations of the Sellers under Section 6 of this Agreement. The Escrow Fund shall be held by the Escrow Agent in accordance with the terms of this Agreement and the terms of the Escrow Agreement. Any amount of the Escrow Amount that is not subject to then outstanding indemnification claims shall be released to the Sellers within five Business Days following December 15, 2018 (the "Escrow Release Date").

2.8.2 Any income, gains, losses and expenses of the Escrow Fund shall be included by the Buyer as taxable income or loss of the Buyer, and any income and gains of the Escrow Fund shall be available to the Buyer as part of the Escrow Fund, but if not paid to the Buyer in connection with an indemnification claim in accordance with Section 6 shall ultimately be distributable to the Sellers in accordance with this Agreement and the Escrow Agreement. The Escrow Agent shall distribute to the Buyer forty percent (40%) of the taxable income on the Escrow Fund for each calendar quarter on or before the tenth (10th) calendar day after the end of such quarter (or, if earlier, the date on which all of the remaining Escrow Fund is disbursed to the Sellers), until such time as there is no cash or property in the Escrow Fund.

2.9. Allocation Schedule. No later than sixty (60) days following the Closing Date, the Buyer shall deliver to the Sellers an allocation of the purchase price (as determined for U.S. federal Tax purposes) among the Acquired Assets in accordance with the principles as indicated on Schedule 2.9 for all Tax purposes (the "Allocation Schedule"). In the event of any adjustment to the purchase price pursuant to the provisions of this Agreement, including in respect of an indemnification payment, the Buyer shall adjust the Allocation Schedule to reflect such adjustment or payment in accordance with the nature of each such adjustment or payment and in a manner consistent with Section 1060 of the Code, the regulations thereunder and the methodology reflected in the Allocation Schedule. The Buyer shall deliver the Allocation Schedule as so revised to the Sellers. The Allocation Schedule and any adjustment(s) thereto shall be final unless the Sellers object in writing within thirty (30) days of delivery of the Allocation Schedule or any adjustment(s) thereto. In the event of an objection, the Buyer and the Sellers shall work cooperatively to reach mutual agreement on the Allocation Schedule, or any adjustment(s) thereto. The Sellers and the Buyer and their respective Affiliates shall report, act and file all Tax Returns (including, but not limited to, Internal Revenue Service Form 8594) in all respects and for all purposes consistent with the Allocation Schedule (as such Allocation Schedule may be adjusted pursuant to this Section 2.9). Neither the Buyer nor the Sellers shall take any position in any Tax matter (whether in audit, Tax Returns, or otherwise with any Governmental Authority) that is inconsistent with such allocation unless required to do so by applicable Law.

3. REPRESENTATIONS AND WARRANTIES REGARDING THE BUSINESS.

The Sellers, jointly and severally, hereby represent and warrant to the Buyer as follows:

3.1. Organization. Each Seller is (a) duly organized, validly existing and in good standing under the laws of the State of Delaware and (b) is duly qualified to do business and in good standing in the jurisdictions where the nature of the activities conducted by it or the character of the property owned by it make such qualification necessary. The Sellers have delivered to the Buyer true, accurate and complete copies of the Organizational Documents of each Seller.

3.2. Power and Authorization. The execution, delivery and performance by each Seller of this Agreement and each Ancillary Agreement to which such Seller is a party and the consummation of the Contemplated Transactions are within the power and authority of such Seller and have been duly authorized by all necessary action by such Seller. This Agreement and each Ancillary Agreement to which any Seller is a party (a) has been duly executed and delivered by such Seller and (b) is a legal, valid and binding obligation of such Seller, Enforceable against such Seller in accordance with its terms. Each Seller has the requisite power and authority necessary to own, lease, operate and use its assets and carry on the Business.

3.3. Authorization of Governmental Authorities. Except as disclosed on Schedule 3.3, no action by (including any authorization, consent or approval), or in respect of, or filing with, any Governmental Authority is required for, or in connection with, the valid and lawful (a) authorization, execution, delivery and performance by any Seller of this Agreement and each Ancillary Agreement to which any Seller is a party or (b) the consummation of the Contemplated Transactions by any Seller.

3.4. Noncontravention. Except as disclosed on Schedule 3.4, none of the execution, delivery or performance by any Seller of this Agreement or any Ancillary Agreement to which such Seller is party nor the consummation of the Contemplated Transactions will:

(a) assuming the taking of any action by (including any authorization, consent or approval), or in respect of, or any filing with, any Governmental Authority, in each case, as disclosed on Schedule 3.3, violate any Law applicable to such Seller in any material respect;

(b) result in a breach or violation of, or default under, any Material Contract in any material respect or provide any third party the right to terminate, modify, accelerate or otherwise alter any right or obligations under any Material Contract;

(c) require any authorization, consent or approval of, or notice to, any Person;

(d) result in the creation or imposition of a material Encumbrance upon, or the forfeiture of, any Acquired Asset;
or

(e) result in a breach or violation of, or default under, the Organizational Documents of such Seller.

3.5. Litigation; Compliance with Laws; Business Restrictions.

3.5.1 There is no, and during the five (5) years prior to the date of this Agreement has not been any claim (whether or not commenced, brought, conducted or heard by or before, or otherwise involving, any Governmental Authority) or other action, suit, arbitration, mediation, audit, demand, hearing, petition, dispute, controversy, complaint, charge, inquiry, litigation, proceeding or administrative investigation (each, a "Legal Proceeding") pending, or to the Sellers' Knowledge, threatened, against the Sellers, to which any Seller is a party or concerning any of the Acquired Assets. No Seller is subject to any order, conciliation, settlement, stipulation, ruling, requirement, notice, legally imposed duty, directive, award, decree, judgment or other determination of any Governmental Authority (each, an "Order"), and there is no Order against the Sellers' officers, directors, managers or employees or any equityholder of the Sellers (in its capacity as such) that could prevent, enjoin or materially alter or delay any of the transactions contemplated hereunder. The Sellers are in compliance with all Orders and applicable Laws (including common law), statutes, ordinances, rules, regulations, codes, agency requirements and Permits of any Governmental Authority or other authority having jurisdiction over it or over any part of its operations or assets. The Business is not subject to any Encumbrance, Permit or Contract that would prevent the continued operation of the Business after the Closing on substantially the same basis as operated prior to the Closing.

3.5.2 No Seller, nor, to the Sellers' Knowledge, any employee, agent, Representative or independent contractor of a Seller has been (a) excluded from participation in any governmental program, (b) suspended or declared ineligible to participate in or voluntarily

excluded from any program by any Governmental Authority, or (c) subject to any disciplinary or similar Legal Proceeding or other form of monitoring or review by any Governmental Authority, trade association, professional review organization, accrediting board or certifying agency based upon any alleged improper activity on the part of such Seller or such individual. No Seller has: (a) received a cure notice, show cause notice, stop work notice, or notice of any administrative, civil or criminal investigation or audit by any Governmental Authority alleging any violation of Law, (b) been threatened with termination for default, or (c) received a claim, demand or request for equitable adjustment by any of its vendors, suppliers or subcontractors, in each case relating to a Government Contract currently or formerly associated with the Business, and, to the Sellers' Knowledge, no basis for any of the foregoing exists.

3.5.3 With respect to the Business, the Sellers have conducted their export transactions in accordance with applicable provisions of United States and other applicable export control Laws, including the Export Administration Act, the International Traffic in Arms Regulations (the "ITAR") and the Export Administration Regulations (the "EAR"). Without limiting the foregoing, with respect to the Business (a) the Sellers have obtained all export licenses and other approvals required for its exports of Products, Software and technologies from any applicable jurisdiction; (b) the Sellers are in compliance with the terms of all applicable export licenses or other approvals; (c) there are no pending or, to the Sellers' Knowledge, threatened claims or investigations against the Sellers with respect to such export licenses or other approvals; and (d) there are no actions, conditions or circumstances pertaining to the Sellers' export transactions that may reasonably be expected to give rise to any future claims or investigations. Schedule 3.5.3 contains a true, complete and correct list of all Products related to the Business which have been shipped in the last five (5) years or are currently under development (noting those currently in development as such), indicating for each such Product its jurisdictional classification (i.e., whether such product is subject to the ITAR or the EAR), as well as its Export Control Classification Number or United States Munitions List ("USML") Category, as applicable. With respect to the Business, all process technologies utilized by the Sellers in the manufacture of the Products to date or currently contemplated to be utilized by the Sellers in the future, whether owned, licensed, or obtained through supply agreements with third party providers (each, a "Seller Process Technology"), are commercial or dual-use technologies controlled by the EAR, and no Seller Process Technology is listed on the USML or otherwise controlled by the ITAR. In furtherance, and not in limitation, of the foregoing, no Seller Process Technology has been specifically designed, developed, configured, adapted or modified for a military, intelligence or space application.

3.6. Financial Statements.

3.6.1 Financial Statements. Attached as Exhibit B are copies of each of the following:

(a) the unaudited balance sheet of the Business as at June 30, 2016 (respectively, the "Most Recent Balance Sheet," and the "Most Recent Balance Sheet Date"), December 31, 2016 and December 31, 2015, the related unaudited statements of income

of the Business for (i) the fiscal year ended on the Most Recent Balance Sheet Date and (ii) the period from May 8, 2015, through December 31, 2016 (collectively, the “Unaudited Financials”); and

(b) the unaudited balance sheet of the Business as at June 30, 2017 and the related unaudited statement of income of the Business for the six (6) months then ended (the “Interim Financials”, and together with the Unaudited Financials, collectively the “Financials”).

3.6.2 Compliance with GAAP, etc. Except as disclosed on Schedule 3.6.2, the Financials (a) are complete and correct in all material respects and were prepared in accordance with the books and records of the Sellers, (b) have been prepared in accordance with GAAP, consistently applied and (c) fairly present in all material respects the financial position of the Business as at the respective dates thereof and the results of the operations of the Business, cash flows and changes in financial position for the respective periods covered thereby.

3.6.3 Accounts Receivable. All accounts and notes receivable reflected in the Most Recent Balance Sheet have arisen in the Ordinary Course of Business, represent legal, valid, binding and Enforceable obligations owed to the Sellers and subject to (a) consistently recorded reserves for bad debts set forth on the Most Recent Balance Sheet, and (b) commercially reasonable efforts by the Buyer following the Closing to collect such accounts and notes receivable, have been, or will be, collected or are, or will be, collectible in the aggregate recorded amounts thereof in accordance with their terms and, to the Sellers’ Knowledge, will not be subject to any contests, claims, counterclaims or setoffs.

3.7. Debt; Guarantees. The Sellers have no Liabilities in respect of Debt relating to the Business except as set forth on Schedule 3.7. For each item of Debt relating to the Business, Schedule 3.7 correctly sets forth the debtor, the principal amount of the Debt as the date of this Agreement, the creditor, the maturity date and the collateral, if any, securing the Debt. With respect to the Business, the Sellers have no Liability in respect of a Guarantee of any Liability of any other Person.

3.8. Absence of Undisclosed Liabilities. The Sellers have no Liabilities with respect to the Business required to be reflected on a balance sheet prepared in accordance with GAAP except for (a) Liabilities set forth on the face of the Most Recent Balance Sheet, or specifically disclosed in the notes thereto, (b) Liabilities incurred in the Ordinary Course of Business since the Most Recent Balance Sheet Date (none of which results from, arises out of, or relates to any breach or violation of, or default under, a Contract or Law) and (c) Liabilities that are Excluded Liabilities.

3.9. Absence of Certain Developments. Since the date of the Interim Financials, the Business has been conducted in the Ordinary Course of Business and, with respect to the Business, except for the matters disclosed Schedule 3.9:

(a) The Sellers have not entered into, or performed, any transaction with, or for the benefit of, any Affiliates of the Sellers (other than payments made to officers, directors and employees in the Ordinary Course of Business);

(b) There has been no material loss, destruction, damage or eminent domain taking (in each case, whether or not insured) affecting the Business or any Acquired Asset;

(c) Other than in the Ordinary Course of Business, the Sellers have not (i) increased the Compensation owed, payable or paid, whether conditionally or otherwise, to any Business Service Provider or Former Business Service Provider, (ii) made any material loan or advance to any Business Service Provider or Former Business Service Provider or forgiven or discharged in whole or in part any material loan or advance to any such Person; or (iii) hired or engaged, or terminated the employment or engagement of, any Business Service Provider or Former Business Service Provider.

(d) The Sellers have not entered into or amended any agreement or contract providing for the employment or engagement or termination thereof of any Person on a full-time or part-time basis, as an employee, independent contractor or otherwise providing Compensation to any Business Service Provider or Former Business Service Provider;

(e) The Sellers have not (i) made any material change in their methods of accounting or accounting practices (including with respect to reserves) or (ii) changed their policies or practices with respect to paying payables or billing and collecting receivables;

(f) The Sellers have not terminated or closed any facility, business or operation;

(g) The Sellers have not written up or written down any Acquired Asset, or revalued their Inventory;

(h) Except in the Ordinary Course of Business, the Sellers have not entered into or consented to the sale, assignment, license, conveyance or transfer to any third party of any tangible or intangible assets (including any Intellectual Property) of the Business;

(i) The Sellers have not failed to pay any fee or otherwise take any reasonable action necessary to maintain and protect its right, title and interest in and to the Owned IP, including in response to any actions taken by a Governmental Authority;

(j) The Sellers have not received any notice from any third party (including any manufacturing party) that such third party is the owner or purported owner of any Owned IP or that any Owned IP is invalid, unenforceable or has been misused;

(k) Except as disclosed on Schedule 3.11.2, the Sellers have not entered into, amended or terminated any lease or sublease of real property or any renewals thereof in connection with the Business;

(l) No event or circumstance has occurred which constitutes a Material Adverse Effect; and

(m) The Sellers have not entered into any Contract or agreement to do any of the things referred to elsewhere in this Section 3.9.

3.10. Title to and Condition of Assets.

3.10.1 The Sellers have good and valid title to, a valid leasehold interest in or a valid license to use, all of the Acquired Assets, free and clear of all Encumbrances other than Permitted Encumbrances.

3.10.2 With the exception of the Services (as defined in and contemplated by the ETSA), the services described in the schedules of the Transition Services Agreement and the Retained Assets listed on Schedule 3.10.2, the Acquired Assets constitute all of the properties and assets necessary to operate the Business in substantially the same manner as operated by the Sellers during the 12 months immediately preceding the date hereof. Each Acquired Asset that is tangible personal property is free from material defects, patent and latent, has been maintained in accordance with normal and applicable industry practice, is in good operating condition and repair, subject to normal wear and tear, and is suitable and sufficient for the purposes for which it is used, held for use and presently proposed to be used. To the Sellers' Knowledge, there are no facts or conditions that, individually or in the aggregate, materially interfere with the current use and operation of the Acquired Assets.

3.11. Real Property.

3.11.1 Schedule 3.11.1 sets forth a true and complete list of each parcel of real property owned by the Sellers relating to the Business (the "Seller Owned Real Property"). The Sellers have good and clear, record and marketable fee simple title in and to all of the Seller Owned Real Property, free and clear of all Encumbrances, including any Contract granting any other Person the right of use or occupancy of the Seller Owned Real Property. There is no pending or threatened condemnation, requisition or taking proceeding, lawsuit, or administrative action relating to any Seller Owned Real Property or other matter which would adversely affect the use, occupancy or value thereof.

3.11.2 Except as otherwise set forth on Schedule 3.11.2, the Sellers are not party to any Real Property Lease. There is no purchase option, right of first refusal, first option or other right held by the Sellers with respect to, or any real estate or building affected by, any Real

Property Lease that is not contained within such Real Property Lease. There is no forbearance arrangement in effect with respect to any Real Property Lease. The Sellers have not given any Person any estoppel certificate or similar instrument that would preclude assertion of any claim under any Real Property Lease, affect any right or obligation under any Real Property Lease or otherwise be binding upon any successor to the Sellers' position under any Real Property Lease. The Sellers have not exercised any option or right to terminate, renew or extend or otherwise affect any right or obligation of the tenant under any Real Property Lease or to purchase the real property subject to any Real Property Lease.

3.12. Products; Product Warranty and Liability. Except as set forth on Schedule 3.12, all Products have conformed in all material respects with all applicable Contracts and all applicable express and implied warranties, the published product specifications of the Business and all regulations, certification standards and other requirements of any applicable Governmental Authority or third party, and the Sellers have no Liability for replacement or repair thereof or other damages in connection therewith. There are no defects in the design or technology (including any Seller Process Technology) embodied in any Products that impair or are likely to impair the intended use of such Products. All Products are subject to standard terms and conditions of sale, license, lease or delivery (the "Standard Product Terms"), true, complete and correct copies of which have been delivered to Buyer and contain all applicable guaranty, warranty and indemnity provisions. No Product is subject to any guaranty, warranty or other indemnity beyond the applicable Standard Product Terms. The Sellers have no Liability for any injury to individuals or property as a result of the ownership, lease, license, delivery, possession, sale, distribution, resale or use of any Product.

3.13. Environmental, Health and Safety Matters.

3.13.1 Sellers and their predecessors and Affiliates and the Business are, and for the past five (5) years have been, in compliance in all material respects with all Environmental, Health and Safety Requirements. Neither the Sellers nor any of their Affiliates has received any notice, report or other information regarding any actual or alleged violation or breach of any Environmental, Health and Safety Requirement or any investigatory, remedial, corrective action or other Liabilities arising under any Environmental, Health and Safety Requirement. The Sellers have furnished to the Buyer all environmental audits and reports relating to the past and current properties, facilities and operations of the Business.

3.13.2 Except as otherwise set forth with particularity in the Phase I environmental site assessment made available by the Sellers to the Buyer, none of the following exists or formerly existed at any property or facility owned or operated in respect of the Business: (a) underground storage tanks; (b) asbestos-containing material in any form or condition; (c) materials or equipment containing polychlorinated biphenyls; or (d) landfills, surface impoundments or disposal areas. With respect to the Business, neither the Sellers nor any predecessor or Affiliate of the Sellers has treated, stored, disposed of, arranged for or permitted the disposal of, transported, handled, manufactured, distributed or released any substance, including any Hazardous Substance, or owned or operated any property or facility (and no such property or facility is contaminated by any such substance) so as to give rise

to any current or future Liabilities, including any Liability for fines, penalties, investigative costs, response costs, cleanup costs, corrective action costs, personal injury, property damage, natural resources damages or attorneys' fees pursuant to any Environmental, Health and Safety Requirements. The Sellers have not assumed, undertaken or otherwise become subject to any Liability relating to the Business, including any obligation for corrective or remedial action, of any other Person relating to Environmental, Health and Safety Requirements. Neither the Sellers (in respect of the Business) nor the Business has any ongoing obligations pursuant to any consent decree or other agreement or order resolving or settling any alleged violation of or Liability under any Environmental, Health and Safety Requirement.

3.13.3 Neither this Agreement nor the consummation of the transactions contemplated herein would reasonably be expected to result in any obligation for site investigation or cleanup, or notification to or consent of any Governmental Authority or third parties, pursuant to any of the so-called "transaction-triggered" or "responsible property transfer" Environmental, Health and Safety Requirements.

3.14. Intellectual Property & Information Technology.

3.14.1 Except as disclosed on Schedule 3.14.1, the Sellers solely and exclusively own all legal, equitable and beneficial right, title and interest in and to the Owned IP. The Sellers have not received notice of any allegation, claim or potential claim (a) challenging its sole and exclusive ownership of any Owned IP or (b) suggesting that any other Person has any claim of legal, equitable or beneficial ownership thereto or that any Owned IP is invalid, unenforceable or has been misused. Except as disclosed on Schedule 3.3, no Owned IP is subject to any outstanding or effective Order or Contract restricting the use, practice, licensing or exploitation thereof by the Sellers or restricting the sale, transfer or assignment thereof by the Sellers. Except as disclosed on Schedule 3.3, no funding, facilities or personnel of any educational institution or Governmental Authority were used, directly or indirectly, to develop or create, in whole or in part, any Owned IP.

3.14.2 The Sellers lawfully own, or otherwise have sufficient rights to, all Seller IP, and such Seller IP is all of the Intellectual Property that is required to conduct the Business in the manner in which it is currently being conducted. All Seller IP is free and clear of any Encumbrances. The execution and delivery of this Agreement and the consummation of the transactions contemplated hereby will not (a) result in the loss or impairment of any Seller IP, including the use, practice and exploitation of any Seller IP in the same manner in which it is currently being used, practiced or otherwise exploited by the Sellers or (b) give rise to any right of any Person to terminate any rights under any Inbound License or exercise any new or additional rights under any Seller IP.

3.14.3 Neither the Products (including use of the Products in a manner for which they were designed) nor the conduct of the Business in the manner in which it is currently being conducted interferes with, infringes, misappropriates or violates any Intellectual Property Rights of any Person. The Sellers have not received any charge, complaint, claim, demand, notice or other communication alleging any such infringement, misappropriation or violation

(including any notice that the Sellers must license or refrain from using any Intellectual Property of any other Person), and there is no basis therefor. To the Sellers' Knowledge, no Person has interfered with, infringed upon, misappropriated or violated any Seller IP.

3.14.4 Schedule 3.14.4 identifies: (a) each item of Registered IP (and for each such item, the full legal name of the owner/applicant of record, the jurisdiction in which it exists, the application or registration number, and the date of application, registration or issuance, as applicable, and all upcoming due dates and filing deadlines up to and including the date that is 12 months after the date hereof) and (b) all domain names owned or used by the Sellers in the Business (and for each such domain name, the full legal name of the owner and registrar of record). All Registered IP (1) is in full force and effect, (2) is valid, subsisting and enforceable, (3) has not been abandoned, passed into the public domain or permitted to lapse and (4) has been obtained and maintained in compliance with all Laws.

3.14.5 Schedule 3.14.5 identifies each (a) Inbound License (excluding commercially available, off-the-shelf licenses for Software with an acquisition cost of less than \$5,000 (or for access rights a fee of less than \$5,000 per year), other than licenses for Open Source Materials) and (b) Outbound License. The Sellers have delivered to the Buyer true, complete and correct copies of all IP Licenses. All IP Licenses are valid, binding and enforceable against all parties thereto, and there is no outstanding or threatened dispute or disagreement with respect to any IP License. There exists no event or condition that does or will result in a violation or breach of, or constitute (with or without due notice or lapse of time or both) a default under, any IP License by the Sellers or, to the Sellers' Knowledge, any other party thereto. Except as disclosed on Schedule 3.14.5, the Sellers do not owe any material royalties or other material payments to any Person for the use of Seller IP.

3.14.6 Schedule 3.14.6 lists all Software owned by the Sellers or exclusively licensed to the Sellers. Except as disclosed on Schedule 3.14.6, no source code for any Software that is owned by the Sellers or exclusively licensed to the Sellers have been delivered, licensed, or is subject to any source code escrow, delivery or similar obligation, whether contingent or otherwise, by the Sellers to any third party. The source code for all Software owned by the Sellers has been documented in a professional manner that is both (a) consistent with customary code annotation conventions and best practices in the software industry and (b) sufficient to independently enable a programmer of reasonable skill and competence to understand, analyze and interpret program logic, correct errors and improve, enhance, modify and support such Software. Except as disclosed on Schedule 3.14.6, no Open Source Materials are contained in, distributed with or used in the operation, support, development or compilation of, any Products.

3.14.7 Schedule 3.14.7 identifies (a) each Product and (b) any other Seller IP material to the conduct of the Business that is not otherwise identified in Schedule 3.14.4 Schedule 3.14.5 or Schedule 3.14.6.

3.14.8 Schedule 3.14.8 identifies each standards-setting organization, university or industry body, consortium, other multi-party special interest group and any other collaborative or other group in which the Sellers or any of their Affiliates is currently

participating, or in which the Sellers or any of their Affiliates have participated in the past or applied for future participation in, including any of the foregoing that may be organized, funded, sponsored, formed or operated, in whole or in part, by any Governmental Authority, in all cases, to the extent related to the Seller IP, and a listing and description of the membership agreements and other Contracts, bylaws, policies, rules and similar materials relating to such organizations, bodies and other groups, to which the Sellers or any of their Affiliates is bound, true, complete and correct copies of which have been delivered to the Buyer. Neither the Sellers nor any of their Affiliates is bound by, or has agreed to be bound by, any Contract, bylaw, policy, or rule of any Person that requires or purports to require the Sellers or any of their Affiliates (or, following the Closing Date, the Buyer or any of its Affiliates) to contribute, disclose or license any Intellectual Property to such Person or its other members.

3.14.9 Each current and former employee, officer, director, manager, consultant and contractor of the Sellers who is or has been involved in the development (alone or with others) of any Seller IP by or for the Sellers, or has or previously had access to any Trade Secrets, including Software source code, has executed a written, valid and enforceable Contract that (a) irrevocably and presently assigns to the Sellers, without an obligation of additional payment, sole ownership of and all right, title and interest in and to any such Seller IP and (b) reasonably protects such Trade Secrets. True, complete and correct copies of such Contracts have been delivered to the Buyer. The Sellers do not owe any Compensation or remuneration to any current or former employee, officer, director, manager, consultant or contractor of the Sellers in relation to any Seller IP, apart from their standard compensation. There is no Seller IP that is owned by a current or former employee, officer, director, manager, consultant or contractor of the Sellers.

3.14.10 In each case in which the Sellers have acquired ownership (or claimed or purported to acquire ownership) of any Owned IP from any Person (including any employee, officer, director, manager, consultant or contractor of the Sellers), the Sellers have obtained a valid and enforceable assignment sufficient to irrevocably and presently assign sole ownership of and all rights with respect to such Owned IP to the Sellers. All assignments of such Owned IP that are or may be required to be filed or recorded for such assignment to be valid or effective against bona fide purchasers without notice of such assignment have been duly executed and filed or recorded with the U.S. Patent and Trademark Office or the U.S. Copyright Office, as applicable, and any other applicable Governmental Authority. True, complete and correct copies of such assignments have been delivered to the Buyer.

3.14.11 All Patents are in compliance with all Laws, including payment of correct filing, examination and maintenance fees and proofs of working or use. All maintenance fees, annuities and the like due or payable on the Patents have been timely paid through the Closing Date. No Patent has been or is now involved in any interference, reissue, reexamination, opposition, post-grant review, derivation, or similar proceeding in the U.S. Patent and Trademark Office or any other Governmental Authority, and no such action has been threatened. Except as disclosed on Schedule 3.14.11, the Sellers have the sole, unrestricted right to sue for past, present and future infringement of its Patents and to recover

damages, costs and other remedies with respect thereto. Neither Seller nor its Affiliates owns or controls any patent or patent application that would be infringed by the Business or any Product other than the Patents. There are no existing Contracts, proposals, bids, offers or rights with, to or in any Person to acquire any right, title or interest in or to the Patents or related patent rights, whether implied or express, written or oral. Apart from any Outbound Licenses, no right, authorization, license, covenant, immunity, release, standstill or waiver has been granted or retained under the Patents or related patent rights (whether by the Sellers, any prior owner or any other Person), whether implied or express, written or oral, and there is no obligation imposed by or commitment made to a standards body, standard-setting organization or standards development organization to license or grant any rights to any of the Patents. None of the Outbound Licenses or other rights is exclusive or transferable, includes the right to grant sublicenses or is subject to any compulsory license. The Buyer is not and will not be or become subject to any covenant not to sue, release or similar limitation on its enforcement or enjoyment of the Patents as a result of any action taken or not taken by the Sellers or any prior owner of any Patents. Neither the Sellers, nor, to the Sellers' Knowledge, any prior owner of any Patent, has engaged in any conduct, or omitted to perform any necessary act, the result of which would invalidate any of the Patents or hinder their enforcement, including misrepresenting the Sellers' patent rights to a standard-setting organization or failing to disclose material prior art in connection with the prosecution of any Patent. Except as disclosed on Schedule 3.14.11, there are no patents that claim priority over or otherwise relate to the subject matter of the Patents that have been abandoned or withdrawn by the Sellers or any prior owner thereof. If any Patent is subject to a terminal disclaimer under 37 C.F.R. § 1.321, then all patents subject to the terminal disclaimer are included in the Patents.

3.14.12 Any mask works that are included in the Seller IP were (a) developed solely by employees of the Sellers acting within the scope of their employment who irrevocably and presently assigned any Intellectual Property Rights that they may have in or to such mask works to the Sellers pursuant to valid and enforceable written Contracts, or (b) developed by independent contractors who irrevocably and presently assigned any Intellectual Property Rights that they may have in or to such mask works to the Sellers pursuant to valid and enforceable written Contracts. No such mask works contain any design, documentation or other Intellectual Property that is owned (or claimed to be owned) by any Person other than the Sellers. True, complete and correct copies of documents relating to such mask works have been delivered to the Buyer.

3.14.13 (a) The Sellers have taken all necessary, appropriate and reasonable measures in accordance with Law to protect and preserve their rights in the Seller IP and to safeguard and maintain the secrecy and confidentiality of all of its Trade Secrets; (b) the Sellers have only disclosed Trade Secrets pursuant to the terms of a valid and enforceable Contract that requires the Person receiving such Trade Secrets to reasonably protect and not disclose such Trade Secrets; and (c) there has been no disclosure by the Sellers or, to the Sellers' Knowledge, any of their employees, officers, directors, managers, consultants or contractors of any Trade Secrets that would compromise the confidentiality of such Trade Secrets or their status or protectability under applicable Law. To the Sellers' Knowledge,

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Confidential and Proprietary

CONFIDENTIAL TREATMENT HAS BEEN REQUESTED FOR PORTIONS OF THIS EXHIBIT. THE COPY FILED HERewith OMITs THE INFORMATION SUBJECT TO A CONFIDENTIALITY REQUEST. OMISSIONS ARE DESIGNATED [***]. A COMPLETE VERSION OF THIS EXHIBIT HAS BEEN FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION.

there has been no misappropriation of any Trade Secrets by any Person or any breach of any obligation of confidentiality owed to the Sellers with respect to any Trade Secrets. The Sellers are in compliance with all Contracts relating to third party Trade Secrets to which the Sellers are party.

3.14.14 The Sellers have (a) complied with all Laws relating to data privacy, data protection and data security, including with respect to the collection, storage, transmission, transfer (including cross-border transfers), disclosure, destruction and use of Personally Identifiable Information; and (b) taken commercially reasonable measures to ensure that all data and information owned or held by the Sellers (including any Personally Identifiable Information) (collectively "Seller Data") is protected against loss, damage and unauthorized access, use, modification or other misuse. To Sellers' Knowledge, there has been no loss, damage or unauthorized access, use, modification or other misuse of any Seller Data. No Person has provided any notice, made any claim or commenced any Legal Proceeding with respect to loss, damage or unauthorized access, use, modification or other misuse of any Seller Data and, to Sellers' Knowledge, there is no reasonable basis for any such notice, claim or Legal Proceeding.

3.14.15 All Software that constitutes Seller IP is substantially free of any material defects, bugs and errors, and does not contain any disabling software, code or instructions, spyware, Trojan horses, worms, viruses or other software routines that permit or cause unauthorized access to, or disruption, impairment, disablement or destruction of, Software, data or other materials ("Contaminants").

3.14.16 The computer, information technology and data processing systems, facilities and services used by the Sellers in connection with the Business, including all Software, hardware, firmware, networks, communications facilities, platforms, servers, interfaces, applications, websites and related systems and services used or planned to be used by the Sellers (collectively, the "Systems"), are sufficient for the needs of the Business. The Systems are in good working condition to effectively perform all computing, information technology and data processing operations necessary for the operation of the Business in the manner in which it is currently being conducted. The Sellers have taken all commercially reasonable steps and implemented commercially reasonable safeguards to attempt to ensure that the Systems are substantially free from Contaminants. There has been no failure, breakdown or substandard performance of any Systems during the 12 months immediately preceding the date hereof that has caused a material disruption or interruption in or to any use of the Systems or the operation of the Business. The Sellers make back-up copies of data and information critical to the conduct of the Business at least once every day and conduct periodic tests (no less frequent than annually) to ensure the effectiveness of such back-up systems.

3.14.17 Apart from the Outbound Licenses disclosed on Schedule 3.14.17, there is no Contract, Order or other provision or requirement that obligates the Sellers to grant any license, covenant not to sue, immunity, release or right in the future with respect to any Seller IP. Neither the execution, delivery or performance of this Agreement by the Sellers,

nor the consummation of the transactions contemplated hereby or thereby, with or without notice or lapse of time, will result in or give any other Person the right or option to cause or declare (a) a loss or impairment of, or Encumbrance on, the release, disclosure, or delivery to any other Person of, or the grant, assignment or transfer to any other Person of any title to or any license or other right or interest under, to or in any Seller IP (including any source code to any Software owned, licensed, or leased by, or otherwise used in the business of, the Sellers) or any Intellectual Property owned or held by the Buyer or any of its Affiliates (including, from and after the Closing, the Sellers); (b) a breach or modification of or default under any IP License; (c) the Buyer or any of its Affiliate (including, from and after the Closing, the Sellers) to be (1) bound by any non-compete obligation or other restriction on the operation of any business by the Buyer or any of its Affiliates (including, from and after the Closing, the Sellers) or (2) obligated to pay any incremental royalties or other amounts, offer any incremental or other discounts, or be bound by any incremental or other “most favored pricing” terms to any third party. As used in this Section 3.14.17, an “incremental” royalty, amount, discount or “most favored pricing” term refers to a royalty, amount, discount or “most favored pricing” term, as applicable, in excess, whether by contractual term, contractual rate or scope, of those obligations that would have been required to be offered or granted, as applicable, had this Agreement or the transactions contemplated hereby or thereby not been executed or consummated, as applicable. Each item of Seller IP owned or exploited by the Sellers immediately prior to the Closing will be owned or available for exploitation by the Buyer on identical terms and conditions immediately after the Closing, apart from any license back granted by the Buyer to the Sellers in connection with this Agreement.

3.15. Insurance. Schedule 3.15 sets forth a true and complete list of all current policies or binders of fire, liability, product liability, umbrella liability, real and personal property, workers’ compensation, vehicular, fiduciary liability and other casualty and property insurance maintained by the Sellers or their Affiliates relating to the Business, the Acquired Assets or the Assumed Liabilities (the “Insurance Policies”). The Insurance Policies provide coverage of the type and in the amounts customarily carried by Persons conducting businesses or owning properties and assets similar to those of the Business.

3.16. Employees.

3.16.1 Schedule 3.16.1 sets forth a true, complete and correct list of all Business Service Providers as of the date hereof, including each such Business Service Provider’s title, status as an employee or independent contractor, date of hire or engagement, current base salary or wages, and if applicable, current classification status as an exempt or non-exempt, visa status (including type of visa), and current commission, bonus or any other Compensation opportunities. None of the Sellers nor any of their Affiliates is a party to, or is bound by, any collective bargaining agreement or other agreement with a Union, and no such agreement is being negotiated. None of the Sellers nor any of their Affiliates has, within the past three years, experienced any pending or, to the Sellers’ Knowledge, threatened strike, work slowdown, work stoppage, lockout, picketing or grievance, claim of unfair labor practices, or other collective bargaining or other labor dispute arising from or relating to any Business

Service Provider or former Business Service Provider. No Business Employee is represented by a Union. There is no organizational effort presently being made or, to the Sellers' Knowledge, threatened by or on behalf of any Union with respect to the Business Employees, and there have been no such efforts for the past three years. No petition has been filed or proceedings instituted by or on behalf of any Business Employee or group of Business Employees with any labor relations board or other Governmental Authority seeking recognition of a bargaining representative. None of the Sellers nor any of their Affiliates has received notice or any other communication from any Governmental Authority or other Person regarding any violation or alleged violation of any Law relating to hiring, recruiting, employing of (or continuing to employ) anyone not authorized to work in the United States, as applicable, and a Seller or its Affiliate, as applicable, has in its files a Form I-9 that is validly and properly completed in accordance with Law for each Business Employee with respect to whom such form is required under Law. There are no part-time or full-time employees, officers, directors or independent contractors of any Affiliates of the Sellers who are employed or engaged in connection with, or perform services for the benefit of, the Business.

3.16.2 The Sellers and their Affiliates are, and for the past five (5) years have been, in compliance in all material respects with all Laws with respect to employment, employment practices and terms and conditions of employment, including, without limitation, with respect to discrimination, harassment or retaliation in employment, pay, pay equity, withholdings, terms and conditions of employment, pay rates, termination of employment, wages, hours, overtime pay, unemployment compensation benefits, worker's compensation, vacation, occupational safety and health, employee whistle-blowing, immigration, data protection, employee privacy, employment practices and classification of employees, consultants and independent contractors. The Sellers have not engaged in any unfair labor practice, as defined in the National Labor Relations Act or similar Law. There are no charges, complaints, grievances, disciplinary matters or controversies pending or, to the Sellers' Knowledge, threatened, between the Sellers or any Affiliates and any Business Service Provider or Former Business Service Provider. The Sellers and their Affiliates have not received written notice from any Governmental Authority responsible for the enforcement of employment Laws indicating its intent to conduct an investigation or that any such investigation is in progress and, to the Sellers' Knowledge, no Governmental Authority is conducting or is planning to conduct such an investigation.

3.16.3 To the Sellers' Knowledge, no Business Service Provider or Former Business Service Provider is in violation of any term of any contract with respect to employment, engagement, invention assignment, patent disclosure, or non-competition, non-solicitation or any other restrictive covenant. To the Sellers' Knowledge, no executive Business Employee, key Business Employee or group of Business Employees has given notice of termination of employment or otherwise disclosed plans to terminate employment with the Sellers or any of their Affiliates or Buyer within the twelve month period following the date hereof. No executive or key Business Employee is employed under a non-immigrant work visa or other work authorization that is limited in duration.

3.17. Employee Benefits.

3.17.1 Schedule 3.17.1 sets forth a true, complete and correct list of all material Employee Benefit Plans.

3.17.2 The Sellers have made available to the Buyer with respect to each material Employee Benefit Plan (to the extent applicable): (a) all documents embodying such Employee Benefit Plan (including all amendments thereto) or a written summary of the material terms thereof if not written; and (b) the most recent determination or opinion letter, as applicable, issued by the IRS with respect to such Employee Benefit Plan.

3.17.3 With respect to each Employee Benefit Plan: (a) such Employee Benefit Plan is, and at all times since inception has been, maintained, administered, operated and funded in all material respects in accordance with its terms and in compliance with all Laws, including ERISA and the Code; (b) all material contributions, premiums and other payments due or required to be paid with respect to any Business Employee or otherwise with respect to) such Employee Benefit Plan have been paid in full; and (c) the Sellers have not incurred, and to the Sellers' Knowledge, there exists no condition or set of circumstances in connection with which the Sellers or any of their ERISA Affiliates could incur, directly or indirectly, any material Tax, penalty, fine, Liability or expense under ERISA, the Code or any other Law, or pursuant to any indemnification or similar agreement, with respect to such Employee Benefit Plan.

3.17.4 Each Employee Benefit Plan that is intended to be qualified under Section 401(a) of the Code is so qualified and its related trust or group annuity contract is exempt from taxation under Section 501(a) of the Code. Each such Employee Benefit Plan is the subject of an unrevoked favorable determination or opinion letter from the IRS and, to the Knowledge of the Sellers, nothing has occurred, or could reasonably be expected to occur, that could adversely affect such qualification or exemption.

3.17.5 There are no audits, investigations, actions, suits or claims (other than routine claims for benefits) pending or, to the Sellers' Knowledge, threatened with respect to any Employee Benefit Plan.

3.17.6 Neither the Sellers nor any ERISA Affiliate sponsors, maintains or contributes to or within the past six (6) years has sponsored, maintained or contributed to (or been obligated to sponsor, maintain or contribute to), or has or could have any Liability with respect to: (a) any "multiemployer plan," as defined in Section 3(37) of ERISA; (b) any multiple employer plan as defined in Section 413(c) of the Code; (c) any plan that is subject to Section 302 of ERISA, Title IV of ERISA or Section 412 of the Code; (d) any "multiple employer welfare arrangement," as defined in Section 3(40) of ERISA; or (e) any employee benefit plan, program, policy or arrangement covering Business Service Providers or Former Business Service Providers outside of the United States or subject to the Laws of any jurisdiction other than the United States.

3.17.7 No Employee Benefit Plan provides life insurance, medical or other welfare benefits to any Business Service Provider or Former Business Service Provider (or any dependent or beneficiary thereof) after his or her retirement or other termination of employment or service, except to the extent required by Section 4980B(f) of the Code and Part 6 of Subtitle B of Title I of ERISA or as would not result in Liability to the Buyer or any of its Affiliates.

3.17.8 No amount payable under any Employee Benefit Plan and no payment or benefit paid or provided, or that may be paid or provided, to any Business Service Provider or Former Business Service Provider, will constitute an “excess parachute payment” for purposes of Section 280G or Section 4999 of the Code. No Business Service Provider or Former Business Provider is entitled to any “gross up,” indemnity payment or other compensation with respect to any Taxes or interest imposed under Section 4999 of the Code.

3.17.9 Neither the execution and delivery of this Agreement by the Sellers nor the consummation of the transactions contemplated hereby (either alone or upon the occurrence of any other event) will (a) result in the payment of any severance, retention, or change of control payments or benefits or increase the amount of Compensation payable to any Business Service Provider or Former Business Service Provider, or (b) result in any benefit or right becoming established, or accelerate the time of payment or vesting of any payment or benefit under, or result in or require funding or segregation of assets under, any Employee Benefit Plan.

3.18. Permits. All Permits required for the Sellers to conduct the Business as currently conducted or for the ownership and use of the Acquired Assets have been obtained by the Sellers and are valid and in full force and effect. Schedule 3.18.1 lists all such Permits, and identifies whether or not each such Permit is a Transferred Permit.

3.19. Contracts and Commitments.

3.19.1 Schedule 3.19 lists each Contract to which either Seller or any of their Affiliates is a party that relates to the Business, including: (a) any Real Property Lease; (b) any Contract (or group of related Contracts) for the lease or license of personal property (including Intellectual Property) to or from any Person; (c) any Contract (or group of related Contracts) for the purchase or sale of raw materials, commodities, supplies, products or other personal property (including Intellectual Property) or for the furnishing or receipt of services; (d) any Contract concerning a partnership or joint venture; (e) any Contract (or group of related Contracts) under which the Sellers have created, incurred, assumed or guaranteed any Debt, or under which the Sellers have imposed or become subject to any material Encumbrance on any of its assets, tangible or intangible; (f) the title of any Contract concerning non-disclosure, confidentiality, non-competition or non-solicitation and a list of individuals who have signed any such document; (g) any Contract between the Sellers or any Affiliate of the Sellers; (h) any collective bargaining agreement; (i) any Contract under which the Sellers have made any advance or loan to any other Person; (j) any Contract under which the consequences of a default or termination could have a Material Adverse Effect; (k) any settlement, conciliation, or similar Contract; (l) any Contract that materially limits the right

of the Sellers to engage or compete in any line of business or to compete with any Person with respect to the Business; (m) any Contract which grants to any Person exclusive rights related to the Business or provides “most favored nation” or similar rights to any Person in connection with the Business; (n) any Contract that prohibits or limits, or would reasonably be expected to prohibit or limit, any acquisition or transfer of the Acquired Assets or the conduct of the Business as currently conducted and as currently proposed to be conducted; (o) any Contract that adversely affects or would reasonably be expected to adversely affect the right of the Sellers or the Buyer to use, market, import, sell, distribute, manufacture or otherwise exploit any Products or Seller IP or to purchase or otherwise obtain any Software, services, components, parts or subassemblies; and (p) any other Contract (or group of related Contracts) the performance of which involves consideration in excess of \$25,000 (each, a “Material Contract”).

3.19.2 The Sellers have delivered to the Buyer a true, complete and correct copy of each written Material Contract. With respect to each Material Contract: (a) such Contract is legal, valid, binding, enforceable and in full force and effect; (b) the Sellers are not, and, to the Sellers’ Knowledge, no other party is, in breach or default, and no event has occurred that with notice or lapse of time or both would constitute a breach or default or permit termination, modification or acceleration under such Contract; and (c) no party has threatened in writing to terminate such Contract.

3.19.3 Except as set forth on Schedule 3.19.3, in the past five (5) years, the Business has not been subject to any Government Contract. Except for audits by a Governmental Authority in the ordinary course, neither Seller nor any of its Affiliates is the subject of any audit, investigation or enforcement action by any Governmental Authority in connection with any Government Contract related to the Business. Neither Seller has been debarred, suspended or otherwise made ineligible from doing business with the United States government or any government contractor.

3.20. Tax Matters. Except as set forth on Schedule 3.20:

3.20.1 Each Seller has filed, or has caused to be filed on its behalf, all income and other material Tax Returns required to be filed by it or with respect to the Acquired Assets or the Business. All such Tax Returns were true, correct and complete in all material respects and were prepared in material compliance with applicable Laws. All income and other material Taxes owed by the Sellers with respect to the Acquired Assets or the Business (whether or not shown or required to be shown on any Tax Return) have been paid in full. In the past five (5) years, no written claim has been made by an authority in a jurisdiction where the Sellers do not file Tax Returns with respect to the Acquired Assets or the Business that the Sellers are or may be subject to taxation by or required to file income or other material Tax Returns in that jurisdiction with respect to the Acquired Assets or the Business. There are no Encumbrances with respect to Taxes upon any Acquired Asset other than for current Taxes not yet due and payable.

3.20.2 The Sellers have deducted, withheld and timely paid to the appropriate Governmental Authority all material Taxes required to be deducted, withheld or paid with

respect to the Acquired Assets or the Business in connection with amounts paid or owing to any employee, independent contractor, creditor, stockholder, partner or other third party, and the Sellers have complied in all material respects with related reporting and recordkeeping requirements, including the proper completion and timely filing of Forms W-2 and 1099.

3.20.3 There is no Action concerning any Tax Liability or Tax Return with respect to the Acquired Assets or the Business pending or being conducted, and no such Action has been asserted or threatened by a Governmental Authority in writing.

3.20.4 The Sellers have not waived any statute of limitations in respect of Taxes relating to the Business or the Acquired Assets, and are not the beneficiary of, any extension of time with respect to a Tax assessment or deficiency relating to the Business or the Acquired Assets. The Sellers have not executed any power of attorney with respect to any Tax or Tax Return relating to the Acquired Assets or the Business, other than powers of attorney that are no longer in force or powers of attorney executed in the ordinary course of business (such as to a payroll services provider). No closing agreements, private letter rulings, technical advice memoranda or similar agreements or rulings relating to Taxes have been entered into or issued by any Governmental Authority with respect to the Acquired Assets or the Business.

3.20.5 The Sellers are not party to any Contract relating to Tax sharing or Tax allocation affecting the Acquired Assets, the Business or the Sellers that would, in any manner, bind, obligate or restrict the Buyer, other than agreements entered into in the ordinary course of business the primary purpose of which was not Tax.

3.20.6 Since the date of the Interim Financials, the Sellers have not requested or consented to any extension or waiver of the limitations period applicable to any Action with respect to Taxes, settled or compromised any Action in respect of Taxes or entered into any Contract in respect of Taxes with any Governmental Authority, in each case, that relates to the Business or the Acquired Assets.

3.20.7 The Sellers have never participated in any listed transaction within the meaning of Treasury Regulation 1.6011-4(b)(2) with respect to the Acquired Assets or the Business.

3.21. Interested Party Transactions. No equityholder, officer, director, manager, employee, consultant or Affiliate of either Seller or any family member (whether by blood, marriage, domestic partnership or otherwise) of any of the foregoing owns or holds, directly or indirectly, any interest in (excepting holdings solely for passive investment purposes of securities of publicly held and traded entities constituting less than three percent of the equity of any such entity), or is an equityholder, officer, director, manager, employee or consultant of any Person that is a competitor, lessor, lessee, licensor, licensee, customer, supplier or distributor of the Sellers or conducts a business similar to the Business. No equityholder, officer, director, manager, employee or consultant of the Sellers or any family member (whether by blood, marriage, domestic partnership or otherwise) of any of the foregoing (a) owns or holds, directly or

indirectly, in whole or in part, any interest of any kind in any Seller IP or (b) has any material interest in any other property or asset used in or pertaining to the Business.

3.22. Propriety of Past Payments. No unrecorded fund or asset of or relating to the Business has been established for any purpose. No accumulation or use of funds of the Sellers in connection to the Business has been made without being properly accounted for in the books and records of the Sellers. No payment has been made by or on behalf of the Sellers with respect to the Business and with the understanding that any part of such payment is to be used for any purpose other than that described in the documents supporting such payment. Neither the Sellers nor any officer, director, manager, employee, or, to the Sellers' Knowledge, consultant or agent of the Sellers or other Person acting for or on behalf of the Sellers, has, directly or indirectly, offered, promised, authorized or made any illegal contribution, gift, bribe, rebate, payoff, influence payment, kickback or other payment to any Person, private or public, regardless of form, whether in money, property or services to (a) influence an act or decision of any Governmental Authority (including a decision not to act); (b) induce such a Person to use his or her influence to affect any Governmental Authority's act or decision; (c) obtain favorable treatment for the Sellers or any Affiliate of the Sellers in securing business; (d) pay for favorable treatment for business secured for the Sellers or any Affiliate of the Sellers; (e) obtain special concessions (or for special concessions already obtained) for the Sellers or any Affiliate of the Sellers; or (f) otherwise benefit the Sellers in violation of any Law (including the United States Foreign Corrupt Practices Act of 1977, as amended). Neither the Sellers nor any officer, director, manager, employee, or, to the Sellers' Knowledge, consultant, agent or other Person acting on behalf of the Sellers, has (1) used funds for unlawful contributions, gifts, entertainment or other unlawful expenses related to political activity or (2) accepted or received any unlawful contribution, payment, gift, kickback, expenditure or other item of value. No officer, director, manager, employee, or, to the Sellers' Knowledge, consultant, agent or other Person acting on behalf of the Sellers is a government official, a political party or a candidate for political office. Neither the Sellers nor any officer, director, manager, employee, or, to the Sellers' Knowledge, consultant, agent or other Person acting on behalf of the Sellers has been convicted of or pleaded guilty to an offense involving fraud or corruption, in any jurisdiction.

3.23. Inventory. The inventory of or relating to the Business, whether shown on the Most Recent Balance Sheet or thereafter acquired by the Sellers (the "Inventory"), consists of items of a quantity and quality usable or salable in the Ordinary Course of Business. Since the Most Recent Balance Sheet Date, the Sellers have continued to replenish the Inventory in the Ordinary Course of Business, except as requested by the Buyer. The Sellers have not received notice that they will experience, in the foreseeable future, any difficulty in obtaining, in the desired quantity and quality, at a reasonable price and upon reasonable terms and conditions, the raw materials, supplies or component products (including any Seller Process Technology) required for the manufacture, assembly or production of the Products. The value at which Inventory is carried reflects the inventory valuation policy of the Sellers, which is in accordance in all material respects with GAAP and consistent with the Sellers' historical past practices. Since the Most Recent Balance Sheet Date, due provision was made on the books of the Seller to provide for all slow-moving, obsolete or unusable inventory to its estimated useful or scrap values, and

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Confidential and Proprietary

CONFIDENTIAL TREATMENT HAS BEEN REQUESTED FOR PORTIONS OF THIS EXHIBIT. THE COPY FILED HERewith OMITs THE INFORMATION SUBJECT TO A CONFIDENTIALITY REQUEST. OMISSIONS ARE DESIGNATED [***]. A COMPLETE VERSION OF THIS EXHIBIT HAS BEEN FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION.

such Inventory reserves are adequate to provide for such slow-moving, obsolete or unusable Inventory and Inventory shrinkage.

3.24. Customers, Suppliers and Vendors. Schedule 3.24 sets forth a complete and accurate list of the Material Customers and the Material Suppliers. The relationships of the Sellers and the Business with the Material Customers and Material Suppliers are good commercial working relationships and none of such Material Customers or Material Suppliers has since the Most Recent Balance Sheet Date (a) canceled, terminated or otherwise materially altered its relationship with the Sellers or the Business (including any material reduction in the rate or amount of sales or purchases or material increase in the prices charged or paid, as the case may be) or (b) notified or otherwise threatened the Sellers or the Business of any intention to cancel, terminate or otherwise materially alter its relationship with the Sellers or the Business (including any material reduction in the rate or amount of sales or purchases or material increase in the prices charged or paid, as the case may be).

3.25. No Brokers. Except as disclosed on Schedule 3.25, the Sellers have no Liability of any kind to, or is subject to any claim of, any broker, finder or agent in connection with the Contemplated Transactions. The Sellers agree to satisfy in full any Liability required to be disclosed on Schedule 3.25.

3.26. No Other Representations. Except for the representations and warranties contained in this Agreement (including the related portions of the Disclosure Schedule), neither the Sellers nor any other Person has made or makes any other express or implied representation or warranty, either written or oral, on behalf of the Sellers, including any representation or warranty as to the accuracy or completeness of any information regarding the Business and the Acquired Assets furnished or made available to the Buyer and its Representatives (including any information, documents or material made available to the Buyer, management presentations or in any other form in expectation of the transactions contemplated hereby) or as to the future revenue, profitability or success of the Business, or any representation or warranty arising from statute or otherwise in law.

4. REPRESENTATIONS AND WARRANTIES OF THE BUYER.

The Buyer represents and warrants to the Sellers that:

4.1. Organization. The Buyer is duly organized, validly existing and in good standing under the laws of the State of Delaware.

4.2. Power and Authorization. The execution, delivery and performance by the Buyer of this Agreement and each Ancillary Agreement to which it is a party and the consummation of the Contemplated Transactions are within the power and authority of the Buyer and have been duly authorized by all necessary action on the part of the Buyer. This Agreement and each Ancillary Agreement to which the Buyer is a party (a) has been duly executed and delivered by the Buyer and (b) is a legal, valid and binding obligation of the Buyer, Enforceable against the Buyer in accordance with its terms.

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Confidential and Proprietary

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4.3. Authorization of Governmental Authorities. Except as disclosed on Schedule 4.3 or as would not reasonably be expected to have a material adverse effect on the ability of the Buyer to consummate the Contemplated Transactions on a timely basis, no action by (including any authorization, consent or approval), or in respect of, or filing with, any Governmental Authority is required for, or in connection with, the valid and lawful (a) authorization, execution, delivery and performance by the Buyer of this Agreement and each Ancillary Agreement to which it is a party or (b) the consummation of the Contemplated Transactions by the Buyer.

4.4. Noncontravention. Except as disclosed on Schedule 4.4, neither the execution, delivery and performance by the Buyer of this Agreement or any Ancillary Agreement to which it is a party nor the consummation of the Contemplated Transactions will:

(a) assuming the taking of any action by (including any authorization, consent or approval) or in respect of, or any filing with, any Governmental Authority, in each case, as disclosed on Schedule 4.3, violate any provision of any Law applicable to the Buyer;

(b) result in a breach or violation of, or default under, any Contract of the Buyer;

(c) require any authorization, consent or approval of, or notice to, any Person under any Contract; or

(d) result in a breach or violation of, or default under, the Buyer's Organizational Documents.

4.5. Sufficiency of Funds. The Buyer has sufficient cash on hand or other sources of immediately available funds to enable it to make payment of the Purchase Price and consummate the transactions contemplated by this Agreement.

4.6. Legal Proceedings. There are no Legal Proceedings pending or, to the Buyer's knowledge, threatened against or by the Buyer or any Affiliate of the Buyer that challenge or seek to prevent, enjoin or otherwise delay the transactions contemplated by this Agreement.

4.7. No Brokers. The Buyer has no Liability of any kind to any broker, finder or agent with respect to the Contemplated Transactions other than those which will be borne by the Buyer.

4.8. Independent Investigation. The Buyer has conducted its own independent investigation, review and analysis of the Business and the Acquired Assets. The Buyer acknowledges and agrees that: (a) in making its decision to enter into this Agreement and to consummate the transactions contemplated hereby, the Buyer has relied solely upon its own investigation and the express representations and warranties of the Sellers set forth in this Agreement (including related portions of the Disclosure Schedules); and (b) neither the Sellers nor any other Person has made any representation or warranty as to Sellers, the Business, the Acquired Assets or this Agreement, except as expressly set forth in this Agreement (including the related portions of the Disclosure Schedules).

5. COVENANTS.

5.1. Transaction Expenses. Except as otherwise expressly provided herein, with respect to the costs and expenses (including legal, accounting, consulting, advisory and brokerage) incurred in connection with the Contemplated Transactions (such costs and expenses, the "Transaction Expenses"), the Sellers will bear the Transaction Expenses of the Sellers and the Buyer will bear the Transaction Expenses of the Buyer.

5.2. Seller's Release; Covenant not to Sue. Effective as of the Closing, each Seller, on behalf of itself and its Affiliates, hereby releases, remises and forever discharges any and all rights and claims that they have had, now have or might now have against the Buyer and its Affiliates; provided, that the foregoing release shall not release, impair or diminish in any respect such party's rights under this Agreement or any Contract set forth on Schedule 5.2. Each Seller agrees that it will not bring, prosecute, assist or participate in any legal action against Buyer, its Representatives, Affiliates or customers before any Governmental Authority in any country alleging that (a) the design, development, manufacture, use, sale, offer for sale or importation of any Product infringes the Intellectual Property Rights of such Seller, or (b) any processes or methods used in the manufacture of such Products infringe any such Intellectual Property Rights.

5.3. Confidentiality. The Sellers acknowledge that the success of the Business after the Closing depends upon the continued preservation of the confidentiality of certain confidential information possessed by the Sellers involving or related to the Business, the Acquired Assets or the Assumed Liabilities (collectively, the "Confidential Information") and that the preservation of the confidentiality of such Confidential Information by the Sellers is an essential premise of the bargain between the Sellers on the one hand, and the Buyer on the other hand, and that the Buyer would be unwilling to enter into this Agreement in the absence of this Section 5.3. Accordingly, the Sellers hereby agree with the Buyer that the Sellers and its Representatives will not, and that the Sellers will cause their Affiliates not to, at any time on or after the Closing Date, directly or indirectly, without the prior written consent of the Buyer, disclose or use any Confidential Information (except as required by applicable Law or stock exchange requirement, regulation or legal process, and only after compliance with the remainder of this Section 5.3); provided, however, that Confidential Information will not include any information generally available to, or known by, the public (other than as a result of disclosure in violation hereof); and provided, further, that the provisions of this Section 5.3 will not prohibit any retention of copies of records or disclosure(s) required by any applicable Law so long as (i) reasonable prior notice is given of such disclosure and a reasonable opportunity is afforded to contest the same or (ii) such disclosure is made in connection with the enforcement of any right or remedy relating to this Agreement or the Contemplated Transactions. The Sellers agree that they will be responsible for any breach or violation of the provisions of this Section 5.3 by any of their Representatives or Affiliates. For the avoidance of doubt, nothing contained in this Section 5.3 limits, restricts or in any other way affects the Sellers (or any Representatives thereof) from communicating with any Governmental Authority, or communicating with any official or staff person of a Governmental Authority, concerning matters relevant to such Governmental Authority solely for purposes of reporting a violation of law. The Buyer acknowledges and agrees that the Confidentiality Agreement remains in full force and effect to the extent the

Confidentiality Agreement covers information of Luna and the Sellers other than information related to the Business.

5.4. Publicity. No public announcement or disclosure may be made by any party hereto with respect to the subject matter of this Agreement or the transactions contemplated hereby without prior written notice to the other parties hereto; provided, however, that the provisions of this Section 5.4 will not prohibit any disclosure required by applicable Laws or stock exchange requirement (in which case the disclosing party will provide the other parties with the opportunity to review the disclosure in advance) or any disclosure made in connection with the enforcement of any right or remedy relating to this Agreement or the transactions contemplated hereby.

5.5. Non-Competition and Non-Solicitation.

5.5.1 For a period of five years from and after the Closing Date (the "Restricted Period"), the Sellers will not, nor shall the Sellers permit, cause or encourage any of its Affiliates to engage in or compete with, or undertake any planning to engage in or compete with, directly or indirectly, whether as an owner, employee, consultant or otherwise, all or any portion of the Business as conducted or proposed to be conducted as of the Closing Date in any geographic area where the Business is conducted or proposed to be conducted as of the Closing Date; provided, however, that no passive owner of less than 2% of the outstanding stock of any publicly-traded corporation will be deemed, solely by reason thereof, to be so engaged in or in competition with the Business.

5.5.2 During the Restricted Period, the Sellers will not, nor shall the Sellers permit, cause or encourage any of its Affiliates to, directly or indirectly, (a) solicit or encourage any Person who has been a customer, member, client, vendor, supplier or other business partner of the Business as of the Closing Date or at any time within the twelve-month period immediately preceding the Closing Date to terminate or diminish its, his or her relationship with the Business, or with the Buyer or any of its Affiliates, or (b) hire or engage, or solicit for hiring or engagement (except, in the case of otherwise prohibited solicitation only and not hiring, pursuant to a general solicitation which is not directed specifically to any Person covered by this subsection (b)), any Business Service Provider, or anyone who was such at any time within the six month period immediately preceding the Closing Date, or seek to persuade any such Person to discontinue employment or engagement with the Buyer or any of its Affiliates.

5.5.3 The parties hereto agree that (a) their agreement to the covenants contained in Section 5.3 and Section 5.5 is a material condition of their willingness to enter into this Agreement and consummate the transactions contemplated hereby, (b) the covenants contained in Section 5.3 and Section 5.5 are necessary to protect the good will, confidential information, trade secrets and other legitimate interests of the parties hereto and their Affiliates, (c) in addition and not in the alternative to any other remedies available to it, each party hereto shall be entitled to seek preliminary and permanent injunctive relief against any breach or threatened breach by the other parties hereto of any such covenants, without having to post bond, together with an award of its reasonable attorneys' fees incurred in enforcing its rights hereunder, (d) the Restricted Period shall be tolled, and shall not run,

during the period of any breach by the Sellers of any such covenants, (e) no breach of any provision of this Agreement shall operate to extinguish a party's obligation to comply with Section 5.3 and Section 5.5 and (f) in the event that the final judgment of any court of competent jurisdiction declares any term or provision of Section 5.3 and Section 5.5 to be invalid or unenforceable by reason of its being extended over too great a time, too large a geographic area or too great a range of activities, that provision shall be deemed to be modified to permit its enforcement to the maximum extent permitted by law.

5.6. Employment.

5.6.1 With respect to each Business Employee who is employed by the Sellers immediately prior to the Closing and whose name is set forth on Schedule 5.6.1 (such Business Employees, the "Offer Employees"), the Buyer or one of its Affiliates shall, as soon as practicable following the Closing, but in any event during the term of the Employee Transition Services Agreement, dated as of the date hereof, between Buyer and Sellers (the "ETSA"), extend an offer of employment, effective no later than the end of the term of the ETSA; provided, that unless required by applicable Laws, any offer of employment to an Offer Employee who is not actively at work on such date due to an approved leave of absence shall be effective on the date on which such Offer Employee returns to active employment, so long as such date is within six months following the Closing; provided, further, that if such Offer Employee does not return to active employment within such six-month period, then such offer of employment will expire and the Buyer and its Affiliates will have no Liability or other obligation with respect to such Offer Employee hereunder. Each offer of employment will provide for an hourly wage rate or base salary no less favorable than the Offer Employee's hourly wage rate or base salary as in effect immediately prior to the date hereof, as set forth on Schedule 5.6.1. Offer Employees who accept the Buyer's (or its Affiliate's) offer of employment and who commence employment with Buyer (or such Affiliate) following the Closing Date (or upon such Offer Employee's return to active service to the extent provided for herein) are referred to as the "Transferring Employees." As of each Transferring Employee's date of hire with the Buyer or an Affiliate of the Buyer, the Sellers and their Affiliates shall and hereby do release such Transferring Employee from any existing non-competition, non-solicitation, no-hire or similar obligation owed to the Sellers or any of their Affiliates with respect to the Business or which would limit or prevent such Transferring Employees from providing services to Buyer or any of its Affiliates. To the extent necessary for any Transferring Employee to perform services in connection with such Transferring Employee's engagement or employment with the Buyer or any of its Affiliates, the Sellers and any of their Affiliates shall and hereby do release each Transferring Employee from any existing confidentiality and intellectual property ownership obligations with respect to any confidential information of the Business owed to the Sellers or any of their Affiliates or which would limit or prevent such Transferring Employee from providing services to Buyer or any of its Affiliates.

5.6.2 Schedule 5.6.2 sets forth a true and complete list of the number and site of employment of any employees of the Sellers or any of its Affiliates who have experienced an employment loss or layoff (as defined in the federal Worker Adjustment and Retraining

Notification Act or any similar state or local Law (collectively, the “WARN Act”)) within ninety days prior to the Closing Date, and who were located at a site of employment where Transferred Employees will be located following the Closing, along with the date of the employment loss or layoff. The Sellers shall bear any and all obligations and Liability under the WARN Act resulting from employment losses of any Business Employee who does not become a Transferred Employee pursuant to this Section 5.6.2.

5.6.3 Notwithstanding anything to the contrary herein, the Buyer and its Affiliates shall retain all rights to alter, amend or terminate any term or condition of employment, Compensation or benefits with respect to each Transferring Employee, in each case from and after the Closing. The Buyer (or its Affiliates) may terminate the employment of any Transferring Employee on or after the Closing Date for any reason.

5.6.4 No provision of this Section 5.6 or Section 5.7 shall create any third-party beneficiary rights in any Business Service Provider or other Person (including any heir, beneficiary, executor, administrator or Representative of any Business Service Provider or any Person claiming through any Business Service Provider), including any right to employment or continued employment for any period of time or any right to a particular term or condition of employment. Notwithstanding anything to the contrary in this Agreement, no provision of this Agreement is intended to, or does, constitute the establishment of, or an amendment or modification to, any employee benefit plan, policy, agreement or arrangement.

5.7. Transfer of Certain Funds Received Post-Closing. With respect to any and all amounts received or collected by the Sellers from and after the Closing (a) attributable to, or in respect of, the Business or any Acquired Asset and (b) which became the property of the Buyer as a result of the consummation of the Contemplated Transactions, the Sellers shall provide notice of such receipt or collection to the Buyer and pay promptly (and in any event within five (5) Business Days of their receipt or collection) to the Buyer any and all such amounts so received or collected by wire transfer of immediately available funds to an account specified by the Buyer or by other means acceptable to the Buyer.

5.8. Prohibition on the Use of Name. From and after the date that is three months after the Closing Date, the Sellers shall not use, and shall cause all of their Affiliates following the Closing to cease using, directly or indirectly, the names “Picometrix” and “Picotronix” in any trademark, trade name, domain name, address, corporate name, symbol or identifier or any derivatives thereof or any marks confusingly similar thereto. Within three months following the Closing, Picometrix shall file the necessary amendments to its Organizational Documents to change its name to a new name bearing no resemblance to its present name so as to make its present name available to the Buyer.

5.9. Access to Records and Employees after Closing. For a period of six years after the Closing Date, each party hereto shall afford the other parties and their respective Representatives reasonable access to all of the books and records related to the Business and its employees related to the Business to the extent that such access may reasonably be required by such other party in connection with Tax or litigation matters (excluding litigation between the Buyer or

any Affiliate of the Buyer, on the one hand, and the Sellers or any of their Affiliates, on the other hand) relating to the Business prior to the Closing Date. Such access shall be afforded upon receipt of reasonable advance notice and during normal business hours, and the party providing such access shall not be responsible for any costs or expenses incurred by it pursuant to this Section 5.9.

5.10. Bulk Sales. It is understood and agreed that the Sellers and the Buyer waive compliance with the provisions of the “bulk sales laws” or similar provisions of the Laws of any state insofar as they may be applicable to the transactions contemplated by this Agreement, and the parties each hereby waive, as among themselves, all rights and remedies relating to such noncompliance.

5.11. Further Assurances. From and after the Closing Date, upon the request of the Sellers or the Buyer, each of the parties hereto will do, execute, acknowledge and deliver all such further acts, assurances, deeds, assignments, transfers, conveyances and other instruments and papers as may be reasonably required or appropriate to carry out the Contemplated Transactions. The Sellers shall provide all cooperation reasonably requested by the Buyer in connection with any effort by the Buyer to establish, perfect, defend, or enforce its rights in or to the Acquired Assets, including executing further consistent assignments, transfers and releases, and causing their Representatives and agents to provide good faith testimony by affidavit, declaration, deposition or other means. The Sellers will refer all customer and member inquiries relating solely to the Business to the Buyer from and after the Closing. The Sellers shall, and shall cause their Affiliates and their respective Representatives and other agents to, cooperate and assist the Buyer with an orderly transition of the Business and Acquired Assets to the Buyer.

6. INDEMNIFICATION.

6.1. Indemnification by the Sellers.

6.1.1 Indemnification. Subject to the limitations set forth in this Section 6, the Sellers will jointly and severally indemnify and hold harmless the Buyer and each of its Affiliates, directors, officers, employees, consultants and advisors (each, a “Buyer Indemnified Person”), from, against and in respect of any and all Actions, Liabilities, losses, Taxes, damages, assessments, fines, penalties, fees, costs (including costs of enforcement of this Agreement), expenses or amounts paid in settlement (in each case, including reasonable attorneys’ and experts fees and expenses), whether or not involving a Third Party Claim (collectively, “Losses”), incurred or suffered by the Buyer Indemnified Persons or any of them as a result of, arising out of or relating to:

(a) any Fraud of the Sellers or any breach of, or inaccuracy in, any representation or warranty made by any Seller in this Agreement, any Ancillary Agreement (except for the Transition Services Agreement, ETSA or Sublease) or any Schedule delivered pursuant to this Agreement (in each case, as such representation or warranty would read if all qualifications as to materiality, including each reference to the defined term “Material Adverse Effect,” were deleted therefrom);

(b) any breach or violation of any covenant or agreement of the Sellers (including under this Section 6) in or pursuant to this Agreement or any Ancillary Agreement (except for the Transition Services Agreement, ETSA or Sublease);

(c) any Retained Asset or Excluded Liability;

(d) any accounts receivable as of the Closing (i) from [***] and its Affiliates with respect to which the Buyer has re-worked and shipped parts to [***] as agreed by the Sellers prior to Closing and used collection efforts with respect to such accounts receivable that are consistent with Buyer's ordinary practice for customers of a similar size or (ii) from [***] and its Affiliates with respect to which the Buyer used collection efforts with respect to such accounts receivable that are consistent with Buyer's ordinary practice for customers of a similar size, and in the case of each of (i) and (ii), that remain unpaid as of the Escrow Release Date; or

(e) any costs (not including overhead expenses or costs of non-operational employee time spent) in excess of \$227,000 in the aggregate incurred by Buyer and its Affiliates related to the matters set forth on Schedule 3.12.

6.1.2 Monetary Limitations. The Sellers will have no obligation to indemnify the Buyer Indemnified Persons pursuant to Section 6.1.1(a) unless the aggregate amount of all such Losses exceeds \$320,000 (in which event the Sellers shall only be required to pay or be liable for Losses in excess of such amount) (the "Indemnity Deductible"); provided, however, that the Indemnity Deductible will not apply to (a) claims for indemnification pursuant to Section 6.1.1(a) in respect of breaches of, or inaccuracies in the Seller Fundamental Representations or (b) claims based upon Fraud or willful misconduct. The Sellers' aggregate liability in respect of claims for indemnification arising from Section 6.1.1(a) will not exceed the Escrow Amount (the "Basic Cap"), provided, however, that the Basic Cap will not apply to (1) claims for indemnification pursuant to Section 6.1.1(a) in respect of breaches of, or inaccuracies in, the Seller Fundamental Representations or (2) claims based upon Fraud or willful misconduct. The Sellers' aggregate liability in respect of claims for indemnification arising from the breach of, or inaccuracy in, the Seller Fundamental Representations pursuant to Section 6.1.1(a) will not exceed the Purchase Price. Claims for indemnification pursuant to any other provision of Section 6.1.1 are not subject to the monetary limitations set forth in this Section 6.1.2.

6.1.3 Escrow Amount. Upon the termination of the Escrow Fund pursuant to the terms of the Escrow Agreement, the Escrow Agent shall pay any amounts remaining in the Escrow Fund to the Sellers as set forth in the Escrow Agreement.

6.2. Indemnity by the Buyer.

6.2.1 Indemnification. Subject to the limitations set forth in this Section 6, the Buyer will indemnify and hold harmless the Sellers and each of their Affiliates, directors, officers, employees, consultants and advisors (each, a "Seller Indemnified Person"), from, against

and in respect of any and all Losses incurred or suffered by the Seller Indemnified Persons or any of them as a result of, arising out of or relating to:

- (a) Any Fraud of the Buyer or any breach of, or inaccuracy in, any representation or warranty made by the Buyer in this Agreement (in each case, as such representation or warranty would read if all qualifications as to materiality were deleted therefrom);
- (b) any breach or violation of any covenant or agreement of the Buyer (including under this Section 6) in or pursuant to this Agreement; or
- (c) any Assumed Liability.

6.2.2 Monetary Limitations. The Buyer will have no obligation to indemnify the Seller Indemnified Persons pursuant to Section 6.2.1(a) unless the aggregate amount of all such Losses exceeds the Indemnity Deductible (in which event the Buyer shall only be required to pay or be liable for Losses in excess of such amount). The Buyer's aggregate liability in respect of claims for indemnification pursuant to Section 6.2.1(a) will not exceed the Basic Cap. The foregoing limitations will not apply to (a) claims for indemnification pursuant to Section 6.2.1(a) in respect of breaches of, or inaccuracies in, the Buyer Fundamental Representations (provided that such claims will not exceed the Purchase Price) or (ii) claims based upon Fraud or willful misconduct. Claims for indemnification pursuant to any other provision of Section 6.2.1 are not subject to the limitations set forth in this Section 6.2.2.

6.3. Time for Claims. No claim may be made or suit instituted seeking indemnification pursuant to this Section 6, unless a written notice is provided to the Indemnifying Party:

- (a) at any time prior to the thirtieth day following the expiration of the applicable statute of limitations (taking into account any tolling periods and other extensions), in the case of any claim pursuant to Sections 6.1.1(a) or 6.2.1(a) for any breach of, or inaccuracy in, the Seller Fundamental Representations or Buyer Fundamental Representations;
- (b) at any time prior to the expiration of the applicable statute of limitations (taking into account any tolling periods and other extensions), in the case of any claim or suit pursuant to (i) Sections 6.1.1(a) or 6.2.1(a) based upon Fraud or willful misconduct or (ii) Sections 6.1.1(b) or 6.2.1(b) for any breach or violation of any covenant or agreement of the Sellers or Buyer; and
- (c) at any time prior to the conclusion of the Escrow Release Date, in the case of any claim pursuant to Sections 6.1.1(a) or 6.2.1(a) for any breach of, or inaccuracy in, any other representation and warranty in this Agreement.

Claims for indemnification pursuant to any other provision of Sections 6.1.1 and 6.2.1 are not subject to the time limitations set forth in this Section 6.3 and written notice in respect of such claims may be made at any time.

6.4. Third Party Claims.

6.4.1 Notice of Claim. If any third party notifies an Indemnified Party with respect to any matter (a “Third Party Claim”) that may give rise to an Indemnity Claim against an Indemnifying Party under this Section 6, then the Indemnified Party will promptly give written notice to the Indemnifying Party; provided, however, that no delay on the part of the Indemnified Party in notifying the Indemnifying Party will relieve the Indemnifying Party from any obligation under this Section 6, except to the extent such delay actually prejudices the Indemnifying Party. Such notice by the Indemnified Party shall describe the Third Party Claim in reasonable detail, shall include copies of all material written evidence thereof and shall indicate the estimated amount, if reasonably practicable, of the Loss that has been or may be sustained by the Indemnified Party.

6.4.2 Assumption of Defense, etc. The Indemnifying Party will be entitled to participate in the defense of any Third Party Claim that is the subject of a notice given by the Indemnified Party pursuant to Section 6.4.1. In addition, the Indemnifying Party will have the right to defend the Indemnified Party against the Third Party Claim at its own expense with counsel of its choice reasonably satisfactory to the Indemnified Party so long as (a) the Indemnifying Party gives written notice to the Indemnified Party within fifteen calendar days after the Indemnified Party has given notice of the Third Party Claim that the Indemnifying Party will indemnify the Indemnified Party from and against the entirety of any and all Losses the Indemnified Party may suffer resulting from, arising out of or relating to the Third Party Claim, (b) the Indemnifying Party provides the Indemnified Party with evidence reasonably acceptable to the Indemnified Party that the Indemnifying Party will have adequate financial resources to defend against the Third Party Claim and fulfill its indemnification obligations hereunder, (c) the Third Party Claim involves only money damages and does not seek an injunction or other equitable relief against the Indemnified Party, (d) the Indemnified Party has not been advised by counsel that an actual or potential conflict exists between the Indemnified Party and the Indemnifying Party in connection with the defense of the Third Party Claim, (e) the Third Party Claim does not relate to or otherwise arise in connection with Taxes or any criminal or regulatory enforcement Action, (f) settlement of, an adverse judgment with respect to or the Indemnifying Party’s conduct of the defense of the Third Party Claim is not, in the good faith judgment of the Indemnified Party, likely to be adverse to the Indemnified Party’s reputation or continuing business interests (including its relationships with current or potential customers, members, suppliers or other parties material to the conduct of its business) and (g) the Indemnifying Party conducts the defense of the Third Party Claim actively and diligently. The Indemnified Party may retain separate co-counsel at its sole cost and expense and participate in the defense of the Third Party Claim; provided, however, that the Indemnifying Party will pay the fees and expenses of separate co-counsel retained by the Indemnified Party that are incurred prior to Indemnifying Party’s assumption of control of the defense of the Third Party Claim. The Sellers and the Buyer shall cooperate with each other in all reasonable respects in connection with the defense of any Third Party Claim, including making available (subject to the provisions of Section 5.3) records relating to such Third Party Claim and furnishing, without expense (other than reimbursement of actual out-of-pocket expenses) to the defending party,

management employees of the non-defending party as may be reasonably necessary for the preparation of the defense of such Third Party Claim.

6.4.3 Limitations on Indemnifying Party. The Indemnifying Party will not consent to the entry of any judgment or enter into any compromise or settlement with respect to the Third Party Claim without the prior written consent of the Indemnified Party (which consent shall not be unreasonably withheld, conditioned or delayed) unless such judgment, compromise or settlement (a) provides for the payment by the Indemnifying Party of money as sole relief for the claimant, (b) results in the full and general release of the Buyer Indemnified Persons or Seller Indemnified Persons, as applicable, from all liabilities arising or relating to, or in connection with, the Third Party Claim and (c) involves no finding or admission of any violation of laws or the rights of any Person and no effect on any other claims that may be made against the Indemnified Party.

6.4.4 Indemnified Party's Control. If the Indemnifying Party (a) does not deliver the notice contemplated by clause (a), or the evidence contemplated by clause (b), of Section 6.4.2 within fifteen calendar days after the Indemnified Party has given notice of the Third Party Claim, (b) is not permitted to defend the Indemnified Party against the Third Party Claim pursuant to Section 6.4.2, or (c) otherwise at any time fails to conduct the defense of the Third Party Claim actively and diligently, the Indemnified Party may defend the Third Party Claim in any manner it may deem appropriate. If the Indemnified Party has assumed the defense pursuant to this Section 6.4.4, it shall not agree to any settlement without the written consent of the Indemnifying Party (which consent will not be unreasonably withheld, conditioned or delayed). If such notice and evidence is given on a timely basis and the Indemnifying Party conducts the defense of the Third Party Claim actively and diligently but any of the other conditions in Section 6.4.2 is or becomes unsatisfied, the Indemnified Party may defend the Third Party Claim; provided, however, that the Indemnifying Party will not be bound by the entry of any such judgment consented to, or any such compromise or settlement effected, without its prior written consent (which consent will not be unreasonably withheld or delayed). In the event that the Indemnified Party conducts the defense of the Third Party Claim pursuant to this Section 6.4.4, the Indemnifying Party will remain responsible for any and all other Losses that the Indemnified Party may incur or suffer resulting from, arising out of or relating to the Third Party Claim to the fullest extent provided in this Section 6.

6.4.5 Consent to Jurisdiction Regarding Third Party Claim. The Buyer and each of the Sellers, each in its capacity as an Indemnifying Party, hereby consents to the non-exclusive jurisdiction of any court in which any Third Party Claim may be brought against any Indemnified Party for purposes of any claim which such Indemnified Party may have against such Indemnifying Party pursuant to this Agreement in connection with such Third Party Claim, and in furtherance thereof, the provisions of Section 8.10 are incorporated herein by reference, mutatis mutandis.

6.5. Insurance. Payments by an Indemnifying Party pursuant to this Section 6 in respect of any Loss shall be reduced by the amount of any insurance proceeds received in cash by the

applicable Indemnified Party in the applicable year of such Loss, net of the present value of any reasonably probable increase in insurance premiums or other charges paid or to be paid by such Indemnified Person resulting from such Loss and all costs and expenses incurred by such Indemnified Person in recovering such proceeds from its insurers; provided, however, that nothing in this Section 6.5 shall obligate any Indemnified Party to pursue any insurance claim with respect to any Loss.

6.6. Special Damages. In no event shall any Indemnifying Party be liable to any Indemnified Party for (a) any punitive, incidental, special or indirect damages or (b) any consequential damages, except to the extent such consequential damages are reasonably foreseeable and, in each case, except to the extent actually awarded to a Governmental Authority or other third party.

6.7. Escrow Amount. For as long as a portion of the Escrow Fund is remaining, any and all amounts payable by the Sellers as Indemnifying Parties to a Buyer Indemnified Person will be deducted first from the Escrow Fund, and thereafter paid in cash by the Sellers in accordance with payment instructions provided by the Buyer.

6.8. Exclusive Remedies. Except as provided in Sections 8.11 and 8.14, the parties acknowledge and agree that their sole and exclusive remedy with respect to any and all claims (other than claims arising from Fraud or willful misconduct) for any breach of any representation, warranty, covenant, agreement or obligation set forth herein or otherwise relating to the subject matter of this Agreement, shall be pursuant to the indemnification provisions set forth in this Section 6. In furtherance of the foregoing, each party hereby waives, to the fullest extent permitted under Law, any and all rights, claims and causes of action for any breach of any representation, warranty, covenant, agreement or obligation set forth herein or otherwise relating to the subject matter of this Agreement it may have against the other parties hereto and their Affiliates and each of their respective Representatives arising under or based upon any Law, except pursuant to the indemnification provisions set forth in this Section 6 and as provided in Sections 8.11 and 8.14.

6.9. Knowledge and Investigation. The Buyer's right to indemnification shall not be affected by any investigation conducted or knowledge acquired (or capable of being acquired) by the Buyer or any of its Affiliates at any time with respect to the accuracy or inaccuracy of, or the compliance with, any representation, warranty, covenant or obligation of the Sellers.

6.10. Tax Treatment. All indemnification and other payments under this Section 6 shall, to the extent permitted by applicable Laws, be treated for income Tax purposes as an adjustment to the purchase price.

7. TAX MATTERS

7.1. Tax Sharing Agreements. All Tax sharing agreements or similar agreements and all powers of attorney that relate in any way to the Acquired Assets shall be terminated prior to the Closing (other than agreements entered into in the Ordinary Course of Business the primary purpose of which was not Tax) and, after the Closing, no such agreement or power of attorney

will have any effect on the Acquired Assets and the Buyer and its Affiliates shall not have any liabilities or obligations with respect thereto.

7.2. Certain Taxes and Fees. All transfer, documentary, sales, use, stamp, registration, and other similar Taxes, and any conveyance fees or recording charges incurred in connection with the Contemplated Transactions ("Transfer Taxes"), will be paid fifty-percent (50%) by the Sellers and fifty-percent (50%) by the Buyer when due. The parties shall cooperate to file all necessary Tax Returns and other documentation with respect to all such Transfer Taxes and to obtain any exemption or refund of any such Transfer Tax.

7.3. Rev. Proc. 2004-53. The Buyer shall determine whether to implement either the standard or the alternate procedure set forth in Revenue Procedure 2004-53, and the Sellers shall cooperate in such implementation.

7.4. Cooperation on Tax Matters. The Buyer and the Sellers will cooperate fully, as and to the extent reasonably requested by the other party, in connection with any Tax matters relating to the Business, Acquired Assets and Assumed Liabilities (including by the provision of reasonably relevant records or information, but subject to the last sentence hereof). The party requesting such cooperation will pay the reasonable out-of-pocket expenses of the other party. Notwithstanding anything to the contrary in this Agreement, including Sections 5.9 and 6.4.2, and any other agreement entered into in connection with the Contemplated Transactions, in no event shall the Buyer be required to provide Tax Returns for the Buyer's Affiliated Group, or disclose any other Tax information in connection with the Buyer's Affiliated Group, to the Sellers, other than the portions of such that relate solely, in each case, to the Business or the Acquired Assets.

7.5. Apportionment of Ad Valorem Taxes.

7.5.1 All real property Taxes, personal property Taxes, and similar ad valorem obligations levied with respect to the Acquired Assets for a taxable period that includes (but does not end on) the Closing Date (collectively, the "Apportioned Taxes") will be apportioned between the Sellers and the Buyer based on the number of days of the taxable period ending on, and including, the Closing Date. The Sellers will be liable for the proportionate amount of Apportioned Taxes attributable to days before or on the Closing Date and the Buyer will be liable for the proportionate amount attributable to days after the Closing Date.

7.5.2 Apportioned Taxes will be timely paid and all applicable filings, reports and returns will be filed as provided by applicable Laws. The paying party will be entitled to reimbursement from the non-paying party in accordance with Section 7.5.1. Upon payment of Apportioned Taxes, the paying party will present a statement to the non-paying party setting forth the amount of the reimbursement to which the paying party is entitled under Section 7.5.1 together with such supporting evidence as is reasonably necessary to calculate the amount to be reimbursed. The non-paying party will reimburse the paying party no later than ten Business Days after the presentation of the statement. The parties hereto shall cooperate, including, without limitation, during audits by taxing authorities, to avoid payment of duplicate or inappropriate Apportioned Taxes, and each party shall furnish, at

the request of the other, proof of payment of any such Taxes that is a prerequisite to avoiding payment of a duplicate or inappropriate Apportioned Tax. In the event that any refund, rebate or similar payment is received by the Buyer or the Sellers for any Apportioned Tax, the parties hereto agree that such payment will be apportioned between the Sellers and the Buyer on the basis described in Section 7.5.1.

7.6. Tax Certificates. Subject to the application of Section 5.10, the Buyer and the Sellers agree, upon request, to use their commercially reasonable efforts to obtain any certificate or other documentation from any governmental authority or any other Person as may be necessary to mitigate, reduce or eliminate any Tax that could be imposed with respect to the transactions contemplated by this Agreement.

8. MISCELLANEOUS

8.1. Notices. All notices, requests, demands, claims and other communications required or permitted to be delivered, given or otherwise provided under this Agreement must be in writing and must be delivered, given or otherwise provided:

(a) by hand (in which case, it will be effective upon delivery);

(b) by transmission email (in which case it will be effective upon sending); or

(c) by overnight delivery by a nationally recognized courier service (in which case, it will be effective on the Business Day after being deposited with such courier service);

in each case, to the address (or email address) listed below:

If to the Sellers, to them at:

c/o Luna Innovations Incorporated
301 1st Street, SW, Suite 200
Roanoke, VA 24011
Telephone number: XXXXXXXX
Email Address: XXXXXXXX
Attention: Scott A. Graeff

with a copy to (which shall not constitute notice):

Cooley LLP
11951 Freedom Drive
Reston, VA 20190
Telephone number: (703) 456-8000
Email Address: ddestefano@cooley.com | abinstock@cooley.com
Attention: Darren DeStefano | Aaron Binstock

If to the Buyer, to it at:

100 Chelmsford Street
Lowell, Massachusetts 01851, U.S.A.
Telephone number: (978) 656-2500
Email Address: clay.simpson@macom.com
Attention: General Counsel

with a copy to (which shall not constitute notice):

Ropes & Gray LLP
Prudential Tower
800 Boylston Street
Boston, MA 02199
Telephone number: (617) 951-7980
Email Address: Marko.Zatylny@ropesgray.com
Attention: Marko Zatylny

Each of the parties to this Agreement may specify different address or email address by giving notice in accordance with this Section 8.1 to each of the other parties hereto.

8.2. Succession and Assignment; No Third-Party Beneficiary. Subject to the immediately following sentence, this Agreement will be binding upon and inure to the benefit of the parties hereto and their respective successors and permitted assigns, each of which such successors and permitted assigns will be deemed to be a party hereto for all purposes hereof. No party may assign, delegate or otherwise transfer either this Agreement or any of its rights, interests, or obligations hereunder without the prior written approval of the other parties; provided, however, that the Buyer may (a) assign this Agreement and any or all of its rights and interests hereunder to one or more of its Affiliates or designate one or more of its Affiliates to perform its obligations hereunder so long as the Buyer is not relieved of any liability or obligations hereunder, (b) assign this Agreement and any or all of its rights and interest hereunder to any purchaser of all or substantially all its assets or designate such purchaser to perform its obligations hereunder and (c) assign any or all of its rights and interests hereunder to one or more of its Affiliates or to any provider of financing as collateral security; and provided, further, that the Sellers may assign this Agreement and any or all of their rights and interests hereunder to Luna. Except as expressly provided herein and the rights set forth in Section 6 with respect to the Buyer Indemnified Persons and the Seller Indemnified Persons, this Agreement is for the sole benefit of the parties and their permitted successors and assignees and nothing herein expressed or implied will give or be construed to give any Person, other than the parties and such successors and assignees, any legal or equitable rights hereunder. For the avoidance of doubt, it is hereby acknowledged and agreed by the parties hereto that a Buyer Indemnified Person or Seller Indemnified Person that is not party hereto is intended to be an express third party beneficiary of this Agreement.

8.3. Amendments and Waivers. No amendment or waiver of any provision of this Agreement will be valid and binding unless it is in writing and signed, in the case of an amendment, by the Buyer and the Sellers, or in the case of a waiver, by the party against whom the waiver is to be effective. No waiver by any party of any breach or violation or, default under or inaccuracy in any representation, warranty or covenant hereunder, whether intentional or not,

will be deemed to extend to any prior or subsequent breach, violation, default of, or inaccuracy in, any such representation, warranty or covenant hereunder or affect in any way any rights arising by virtue of any prior or subsequent such occurrence. No delay or omission on the part of any party in exercising any right, power or remedy under this Agreement will operate as a waiver thereof.

8.4. Entire Agreement. This Agreement, together with the Confidentiality Agreement (as modified by Section 5.3), the other Ancillary Agreements and any documents, instruments and certificates explicitly referred to herein, constitutes the entire agreement among the parties hereto with respect to the subject matter hereof and supersedes any and all prior discussions, negotiations, proposals, undertakings, understandings and agreements, whether written or oral, with respect thereto.

8.5. Counterparts. This Agreement may be executed in any number of counterparts, each of which will be deemed an original, but all of which together will constitute but one and the same instrument. This Agreement will become effective when duly executed by each party hereto. Counterpart signature pages to this Agreement may be delivered by electronic delivery (*i.e.*, by email of a .pdf signature page) and each such counterpart signature page will constitute an original for all purposes.

8.6. Severability. Any term or provision of this Agreement that is invalid or unenforceable in any situation in any jurisdiction will not affect the validity or enforceability of the remaining terms and provisions hereof or the validity or enforceability of the offending term or provision in any other situation or in any other jurisdiction. In the event that any provision hereof would, under applicable Law, be invalid or unenforceable in any respect, each party hereto intends that such provision will be construed by modifying or limiting it so as to be valid and enforceable to the maximum extent compatible with, and possible under, applicable Law.

8.7. Headings. The headings contained in this Agreement are for convenience purposes only and will not in any way affect the meaning or interpretation hereof.

8.8. Construction. The parties have participated jointly in the negotiation and drafting of this Agreement. In the event an ambiguity or question of intent or interpretation arises, this Agreement will be construed as if drafted jointly by the parties and no presumption or burden of proof will arise favoring or disfavoring any party by virtue of the authorship of any of the provisions of this Agreement. The parties intend that each representation, warranty and covenant contained herein will have independent significance. If any party has breached or violated, or if there is an inaccuracy in, any representation, warranty or covenant contained herein in any respect, the fact that there exists another representation, warranty or covenant relating to the same subject matter (regardless of the relative levels of specificity) which the party has not breached or violated, or in respect of which there is not an inaccuracy, will not detract from or mitigate the fact that the party has breached or violated, or there is an inaccuracy in, the first representation, warranty or covenant.

8.9. Governing Law. This Agreement, the rights of the parties and all Actions arising in whole or in part under or in connection herewith, will be governed by and construed in accordance

with the domestic substantive Laws of the State of Delaware, without giving effect to any choice or conflict of law provision or rule that would cause the application of the laws of any other jurisdiction.

8.10. Jurisdiction; Venue; Service of Process.

8.10.1 Jurisdiction. Subject to the provisions of Section 6.4.5, each party to this Agreement, by its execution hereof, (a) hereby irrevocably submits to the exclusive jurisdiction of the state courts of the State of Delaware or the United States District Court located in the State of Delaware for the purpose of any Action between the parties arising in whole or in part under or in connection with this Agreement, (b) hereby waives to the extent not prohibited by applicable Law, and agrees not to assert, by way of motion, as a defense or otherwise, in any such Action, any claim that it is not subject personally to the jurisdiction of the above-named courts, that its property is exempt or immune from attachment or execution, that any such Action brought in one of the above-named courts should be dismissed on grounds of *forum non conveniens*, should be transferred or removed to any court other than one of the above-named courts, or should be stayed by reason of the pendency of some other proceeding in any other court other than one of the above-named courts, or that this Agreement or the subject matter hereof may not be enforced in or by such court, and (c) hereby agrees not to commence any such Action other than before one of the above-named courts. Notwithstanding the previous sentence, a party may commence any Action in a court other than the above-named courts solely for the purpose of enforcing an order or judgment issued by one of the above-named courts.

8.10.2 Venue. Each party agrees that for any Action between the parties arising in whole or in part under or in connection with this Agreement, any Ancillary Agreement or the Contemplated Transactions, such party bring Actions only in the state or federal courts of Delaware. Notwithstanding the previous sentence, a party may commence any Action in a court other than the above-named courts solely for the purpose of enforcing an order or judgment issued by one of the above-named courts. Each party further waives any claim and will not assert that venue should properly lie in any other location within the selected jurisdiction.

8.10.3 Service of Process. Each party hereby (a) consents to service of process in any Action between the parties arising in whole or in part under or in connection with this Agreement, any Ancillary Agreement or the Contemplated Transaction in any manner permitted by Delaware law, (b) agrees that service of process made in accordance with clause (a) or made by registered or certified mail, return receipt requested, at its address specified pursuant to Section 8.1, will constitute good and valid service of process in any such Action, and (c) waives and agrees not to assert (by way of motion, as a defense, or otherwise) in any such Action any claim that service of process made in accordance with clause (a) or (b) does not constitute good and valid service of process.

8.11. Specific Performance. Each of the parties acknowledges and agrees that the other parties would be damaged irreparably in the event any of the provisions of this Agreement are not performed in accordance with their specific terms or otherwise are breached or violated.

Accordingly, each of the parties agrees that, without posting bond or other undertaking, the other parties will be entitled to an injunction or injunctions to prevent breaches or violations of the provisions of this Agreement and to enforce specifically this Agreement and the terms and provisions hereof in any Action instituted in any court of the United States or any state thereof having jurisdiction over the parties and the matter in addition to any other remedy to which it may be entitled, at law or in equity. Each party further agrees that, in the event of any action for specific performance in respect of such breach or violation, it will not assert that the defense that a remedy at law would be adequate.

8.12. Waiver of Jury Trial. TO THE EXTENT NOT PROHIBITED BY APPLICABLE LAW THAT CANNOT BE WAIVED, THE PARTIES HEREBY WAIVE, AND COVENANT THAT THEY WILL NOT ASSERT (WHETHER AS PLAINTIFF, DEFENDANT OR OTHERWISE), ANY RIGHT TO TRIAL BY JURY IN ANY ACTION ARISING IN WHOLE OR IN PART UNDER OR IN CONNECTION WITH THIS AGREEMENT OR ANY OF THE CONTEMPLATED TRANSACTIONS, WHETHER NOW EXISTING OR HEREAFTER ARISING, AND WHETHER SOUNDING IN CONTRACT, TORT OR OTHERWISE. THE PARTIES AGREE THAT ANY OF THEM MAY FILE A COPY OF THIS PARAGRAPH WITH ANY COURT AS WRITTEN EVIDENCE OF THE KNOWING, VOLUNTARY AND BARGAINED-FOR AGREEMENT AMONG THE PARTIES IRREVOCABLY TO WAIVE ITS RIGHT TO TRIAL BY JURY IN ANY PROCEEDING WHATSOEVER BETWEEN THEM RELATING TO THIS AGREEMENT OR ANY OF THE CONTEMPLATED TRANSACTIONS WILL INSTEAD BE TRIED IN A COURT OF COMPETENT JURISDICTION BY A JUDGE SITTING WITHOUT A JURY.

8.13. Certain Rules of Construction. Except as otherwise explicitly specified to the contrary, (a) references to a Section, Article, Exhibit or Schedule means a Section or Article of, or Schedule or Exhibit to this Agreement, unless another agreement is specified, (b) the word “including” will be construed as “including without limitation,” (c) references to a particular statute or regulation include all rules and regulations thereunder and any predecessor or successor statute, rules or regulation, in each case as amended or otherwise modified from time to time, (d) words in the singular or plural form include the plural and singular form, respectively, (e) references to a particular Person include such Person’s successors and assigns to the extent not prohibited by this Agreement and (f) any reference to “\$” or “dollars” means United States dollars.

8.14. Parent Guarantee. Subject to the prior satisfaction of any conditions set forth herein, Luna unconditionally and irrevocably agrees to take any and all actions necessary to cause each Seller to perform all of its covenants, agreements and obligations under this Agreement and any Ancillary Agreement to which such Seller is a party, including with respect to the consummation of the Contemplated Transactions and the transfer of Acquired Assets, indemnification and other obligations relating to or arising hereunder, and Luna shall be liable for any breach by any Seller of any representation, warranty, covenant, agreement or obligation under this Agreement or any Ancillary Agreement.

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Confidential and Proprietary

CONFIDENTIAL TREATMENT HAS BEEN REQUESTED FOR PORTIONS OF THIS EXHIBIT. THE COPY FILED HERewith OMITs THE INFORMATION SUBJECT TO A CONFIDENTIALITY REQUEST. OMISSIONS ARE DESIGNATED [***]. A COMPLETE VERSION OF THIS EXHIBIT HAS BEEN FILED SEPARATELY WITH THE SECURITIES AND EXCHANGE COMMISSION.

IN WITNESS WHEREOF, each of the undersigned has executed this Agreement as an agreement as of the date first above written.

THE BUYER:

MACOM TECHNOLOGY SOLUTIONS HOLDINGS, INC.

By: /s/ John Croteau
Name: John Croteau
Title: President and Chief Executive Officer

THE SELLERS:

ADVANCED PHOTONIX, INC.

By: /s/ Dale Messick
Name: Dale Messick
Title: Chief Executive Officer

PICOMETRIX, LLC

By: /s/ Dale Messick
Name: Dale Messick
Title: Authorized Person

LUNA:

LUNA INNOVATIONS INCORPORATED, solely with respect to Section 8.14

By: /s/ My E. Chung
Name: My E. Chung
Title: Chief Executive Officer

Exhibit A

As used herein, the following terms will have the following meanings:

“Accounting Principles” is defined in Section 2.5.1.

“Action” means any claim, action, cause of action or suit (whether in contract or tort or otherwise), litigation (whether at law or in equity, whether civil or criminal), controversy, assessment, arbitration, mediation, examination, audit, investigation, hearing, charge, complaint, demand, notice or proceeding to, from, by or before any Governmental Authority.

“Acquired Assets” means all the business, properties, assets, goodwill and rights of or related to the Business of whatever kind and nature, real or personal, tangible or intangible, owned, leased, licensed, used or held for use or licensed by or on behalf of the Business, including, but not limited to:

(a) All rights of the Sellers under Contracts listed on Schedule 3.11.2 (the “Transferred Leases”) and on Schedule 3.19 (the “Transferred Contracts”), provided that the Transferred Contracts shall exclude for all purposes under this Agreement all Contracts solely in respect of Debt;

(b) All tangible personal property used primarily in the operation of the Business, wherever located, that is used or licensed, intended to be used, licensed or sold, or held for use, license or sale by or on behalf of the Sellers, including any epiwafer reactor and molecular beam epitaxy, atomic layer and/or thin film deposition equipment used by the Business, whether such tangible personal property is then held by the Sellers, is in transit or is in the possession of a subcontractor, licensee, bailee, consignee, agent or other Person;

(c) All Inventory, wherever located, including finished goods, supply inventory, goods in transit, work in process, bailed or consigned inventory, raw materials and other inventory;

(d) All rights of the Sellers to any real estate, including real estate subject to the Transferred Leases, together with all improvements, fixtures and fittings thereon, easements, rights-of-way and other appurtenant rights thereto;

(e) All Owned IP and IT Systems of the Sellers relating to the Business and all documentation and tangible materials embodying or disclosing the foregoing;

(f) All accounts receivable for the Business and all other rights of the Business to receive payment and all rights in respect of prepaid items however evidenced, whether by notes, instruments, chattel paper or otherwise;

(g) All rights of the Sellers under all Permits used primarily in connection with the operation of the Business and any and all pending applications relating to any of the foregoing (the “Transferred Permits”);

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(h) The Confidential Information;

(i) All rights of the Sellers to the extent related to the Business under all confidentiality agreements pursuant to which any third party has agreed not to disclose any confidential or proprietary information of the Business;

(j) All rights of the Sellers to and in respect of any telephone numbers, websites, email addresses and internet domain names used primarily in connection with the Business or any other names under which the Sellers conducts or has conducted the Business (including the names “Picometrix”, “Picotronix” and any variations or derivatives thereof);

(k) All claims, prepayments, refunds, causes of action, choses in action, rights of recovery, rights of set off, defenses, affirmative defenses, rights of defense, and rights of recoupment of the Sellers to the extent relating to the Business;

(l) Any security deposit with respect to any Transferred Contract or Transferred Lease;

(m) All business and financial records, correspondence, lists (including all customer, member, distributor, supplier, vendor and mailing lists), personnel and other records (including Forms I-9) related to Business Service Providers and Former Business Service Providers, drawings, notebooks, specifications and creative materials related to the Business, whether written or electronically stored or however otherwise recorded, maintained or stored (including in each case all copies thereof and all rights in and to the information contained therein); and

(n) All goodwill and other assets of the Sellers of every kind and description, tangible and intangible, or used or held for use primarily in the operation of the Business.

Notwithstanding anything to the contrary in this definition or Section 2.1.1, none of the foregoing property or assets described in this Section 2.1.1 shall include any Retained Assets.

“Adjustment Time” is defined in Section 2.5.1.

“Affiliate” means, with respect to any specified Person at any time, each Person directly or indirectly controlling, controlled by or under direct or indirect common control with such specified Person at such time. The term “control” (including the terms “controlled by” and “under common control with”) means the possession, directly or indirectly, of the power to direct or cause the direction of the management and policies of a Person, whether through the ownership of voting securities, by contract or otherwise.

“Affiliated Group” means any affiliated group within the meaning of Section 1504(a) of the Code filing a consolidated U.S. federal income Tax Return or any similar affiliated, consolidated, combined or unitary group for state, local, or foreign Tax Law purposes.

“Agreement” is defined in the Preamble.

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“Ancillary Agreements” means the Bills of Sale, the IP Assignments, the Assignment and Assumption Agreements, the Transition Services Agreement, the ETSA, the License Agreement, the Sublease and the Escrow Agreement.

“Apportioned Taxes” is defined in Section 7.5.1.

“Assignment and Assumption Agreements” is defined in Section 2.4.4.

“Assumed Liabilities” means (i) all Liabilities of the Sellers arising after the Closing Date under the Transferred Contracts, the Transferred Leases, the Transferred Permits and the other Acquired Assets, if and only if duly transferred or assigned to the Buyer, other than any Liability in respect of any Transferred Contract, Transferred Lease or Transferred Permit, as applicable, arising out of, or directly relating to, any breach or default of the Sellers occurring prior to the Closing, (ii) all Liabilities reflected in the Final Working Capital, and (iii) all liabilities and obligations for (x) Taxes relating to the Business, the Acquired Assets or the liabilities set forth in clause (i) above, in each case arising after the Closing Date (calculated in accordance with Section 7.5 with respect to the Apportioned Taxes) and (y) Taxes for which Buyer is liable pursuant to Section 7.2. For the avoidance of doubt, no other Liability of the Sellers, including without limitation the liabilities with respect to the Retained Assets and the Excluded Liabilities, is included in the definition of “Assumed Liabilities.”

“Basic Cap” is defined in Section 6.1.2.

“Bills of Sale” is defined in Section 2.4.2.

“Business” means the high-speed optical receiver operations of the Picometrix division of the Sellers, a business engaged in designing, developing, manufacturing, importing/exporting, storing, marketing, selling and distributing, on a world-wide basis, high-speed optical and opto-electronic semiconductors, components and devices for optical networking, telecommunications and datacenter infrastructure transmission and test and measurement applications, including the Products; provided, that the “Business” shall not include (a) the development, design, manufacture or sale of system-level solutions providing signal generation or detection functionality at frequencies ranging from 0.1 to 10 Terahertz and wavelengths ranging from 0.03 to 3 Millimeters, for use in test and measurement, sensing, imaging, security, spectroscopic analysis and material characterization applications, or (b) the design and manufacture of custom photodiodes and photodiodes based systems utilizing years of experience in the visible spectrum (Silicon devices) and infrared spectrum (Indium Gallium Arsenide) (InGaAs) devices serving the military & defense, medical and test & measurement markets, or (c) the design and manufacture of specialty application devices for the audio and flame detection markets (Cadmium Sulfide (CdS) devices) and low light detection market (LAAPD: Large Area Avalanche Photodiodes), where the product offering in (b) and (c) extends from 30 microns to 16mm diameter active areas and covering the photonic spectrum from Ultraviolet (UV); wavelength of 200nm; to Near Infrared; wavelength of 1,700 nm.

“Business Day” means any weekday other than a weekday on which banks in New York, New York are closed.

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“Business Employee” means each individual who is a current part-time or full-time employee of the Sellers and who is employed in connection with the Business.

“Business Service Provider” means each individual who is a current part-time or full-time employee, officer, director or independent contractor of the Sellers and who is employed or engaged in connection with, or performs services for the benefit of, the Business.

“Buyer” is defined in the Preamble.

“Buyer Fundamental Representations” means the representations and warranties of the Buyer contained in Sections 4.1 (Organization), 4.2 (Power and Authorization) and 4.6 (No Brokers).

“Buyer Indemnified Person” is defined in Section 6.1.1.

“Closing” is defined in Section 2.3.

“Closing Date” means the date on which the Closing actually occurs.

“Code” means the U.S. Internal Revenue Code of 1986, as amended.

“Compensation” means, with respect to any Person, all salaries, wages, commissions, consulting fees, compensation, bonuses, benefits, Tax reimbursement or gross-up or other remuneration of any kind or character whatever (including issuances or grants of Equity Interests), payable or paid directly or indirectly by the Sellers or any of their Affiliates to such Person.

“Confidential Information” is defined in Section 5.3.

“Confidentiality Agreement” means that certain Nondisclosure Agreement, dated May 3, 2017, by and between Luna and the Buyer.

“Contemplated Transactions” means, collectively, the transactions contemplated by this Agreement, including (a) the sale and purchase of the Acquired Assets and the assignment and assumption of the Assumed Liabilities and (b) the execution, delivery and performance of the Ancillary Agreements.

“Contract” means, with respect to any Person, any contract, agreement, deed, mortgage, lease, license, commitment, promise, undertaking, arrangement or understanding, whether written or oral and whether express or implied, or other document or instrument (including any document or instrument evidencing or otherwise relating to any Debt) to which or by which such Person is a party or otherwise legally subject or bound or to which or by which any property (including Intellectual Property), business, operation or right of such Person is legally subject or bound, in each case, other than an Employee Benefit Plan.

“Debt” means, with respect to any Person, all obligations (including all obligations in respect of principal, accrued interest, penalties, fees and premiums) of such Person (a) for borrowed money (including overdraft facilities), (b) evidenced by notes, bonds, debentures or similar Contracts, (c) for the deferred purchase price of property, goods or services (other than trade payables or accruals

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incurred in the Ordinary Course of Business), (d) under capital leases (in accordance with GAAP), I in respect of letters of credit and bankers' acceptances, (f) for Contracts relating to interest rate protection, swap agreements and collar agreements and (g) in the nature of Guarantees of the obligations described in clauses (a) through (f) above of any other Person; provided, however, that "Debt" shall not include Taxes.

"EAR" is defined in Section 3.5.3.

"Employee Benefit Plan" means any retirement, pension, profit sharing, deferred compensation, stock bonus, savings, bonus, incentive, cafeteria, medical, dental, vision, hospitalization, life insurance, accidental death and dismemberment, medical expense reimbursement, dependent care assistance, tuition reimbursement, disability, sick pay, holiday, vacation, retention, severance, change of control, Tax reimbursement or gross-up, stock purchase, stock option, restricted stock, phantom stock, stock appreciation rights, fringe benefit or other employee benefit plan, fund, policy, program, agreement, contract, or payroll practice of any kind (including any "employee benefit plan," as defined in Section 3(3) of ERISA, whether or not subject to ERISA), including any related trusts, insurance policies or other funding mechanisms, or any employment, consulting, independent contractor or personal services contract, in each case, whether written or oral, qualified or nonqualified, funded or unfunded, or domestic or foreign, currently sponsored, maintained or contributed to by the Sellers or any ERISA Affiliate for the benefit of any Business Service Provider or Former Business Service Provider (or any dependent or beneficiary of any such individual).

"Encumbrance" or "Encumbered" means any charge, claim, community or other marital property interest, condition, equitable interest, lien, license, option, pledge, security interest, mortgage, right of first offer or first refusal, buy/sell agreement, right of way, easement, encroachment, servitude and any other restriction or covenant with respect to, or condition governing the use, construction, voting (in the case of any security or equity interest), transfer, receipt of income or exercise of any other attribute of ownership.

"Enforceable" means, with respect to any Contract stated to be Enforceable by or against any Person, that such Contract is a legal, valid and binding obligation of such Person enforceable by or against such Person in accordance with its terms, except to the extent that enforcement of the rights and remedies created thereby is subject to bankruptcy, insolvency, reorganization, moratorium and other similar laws of general application affecting the rights and remedies of creditors and to general principles of equity (regardless of whether enforceability is considered in a proceeding in equity or at law).

"Environmental, Health and Safety Requirements" means all Laws, Orders and Contracts concerning public health and safety, worker health and safety, pollution or protection of the environment, including all those relating to the presence, use, production, generation, handling, transportation, treatment, storage, disposal, distribution, labeling, testing, processing, discharge, release, threatened release, investigation, abatement, control, remediation or cleanup of any Hazardous Substances.

"Equity Interests" means (a) any capital stock, share, partnership or membership interest, unit of participation or other similar interest (however designated) in any Person and (b) any option,

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warrant, purchase right, conversion right, exchange right or other contract or agreement which would entitle any Person to acquire any such interest in such Person or otherwise entitle any Person to share in the equity, profit, earnings, losses or gains of such Person (including stock appreciation, phantom stock, profit participation and other similar rights).

“ERISA” means the federal Employee Retirement Income Security Act of 1974, as amended.

“ERISA Affiliate” means any Person that, together with the Sellers, would at any relevant time be, treated as a single employer under Section 414(b), (c), (m) or (o) of the Code or Section 4001(a)(14) or 4001(b)(1) of ERISA.

“Escrow Agent” means Wilmington Trust, N.A.

“Escrow Agreement” means an escrow agreement, by and among the Sellers, the Buyer and the Escrow Agent, in substantially the form attached to this Agreement as Exhibit D.

“Escrow Amount” means \$4,000,000.

“Escrow Fund” means the fund established pursuant to the Escrow Agreement, including the Escrow Amount.

“Escrow Release Date” is defined in Section 2.8.1.

“ETSA” is defined in Section 5.6.1.

“Excluded Liabilities” means any Liabilities not specifically assumed by the Buyer under Section 2.1.3, including, but not limited to, the following Liabilities:

- (a) Any Liability of any Seller under this Agreement or any Ancillary Agreement;
- (b) Any Liability of any Seller arising out of, relating to or resulting from any Retained Asset;
- (c) Any Liability of any Seller arising out of, relating to or resulting from any Debt of the Sellers;

(d) any Liability for (i) Taxes arising out of, relating to, or in respect of the Business or the Acquired Assets for any taxable period (or portion thereof) ending on or prior to the Closing Date (calculated, with respect to the Apportioned Taxes, as provided in Section 7.5.1), (ii) Taxes of, or imposed on, the Sellers (or any Affiliates of the Sellers) that are not related to the Business or the Acquired Assets for any taxable period, (iii) Taxes imposed on any Seller by reason of such Seller being a member of an Affiliated Group, including under Treasury Regulation Section 1.1502-6 (or any similar provision of state, local or non-U.S. Law), (iv) all Taxes of a Person imposed on any Seller as successor or transferee, by Law, Contract or otherwise (other than Taxes with respect to any period beginning after the Closing Date imposed under agreements entered

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into in the ordinary course of business the primary purpose of which was not Tax) and (v) any Transfer Taxes for which any Seller is responsible pursuant to Section 7.2;

(e) any Liability of any Seller that becomes a Liability of the Buyer under any applicable bulk sales law (or similar law) of any jurisdiction, under any common law doctrine of de facto merger or successor liability, or otherwise by operation of law;

(f) Any Transaction Expenses of the Sellers;

(g) Any Liability of any Sellers for any breach or default by such Sellers under any of its Contracts, leases, insurance policies or Permits that occurred prior to the Closing;

(h) Any Liability of any Seller for any violation of, or non-compliance with, any Law by such Seller (including any violation of Environmental, Health and Safety Requirements) that occurred prior to the Closing;

(i) Any Liability of any Seller or its Affiliates to any present or former holder of such Seller's Equity Interests;

(j) Except as otherwise specifically provided in the ETSA with respect to Liabilities arising during the term of the ETSA only, any Liability of the Sellers or any of their Affiliates (i) to any current or former employee, officer, director, or independent contractor of any Sellers or any of its Affiliates in respect of employment or other service to a Seller or any of its Affiliates, including any Liability arising out of or relating to any Seller Plan or Employee Benefit Plan or (ii) for any Compensation or other amounts payable to any such Person in respect of employment or other service to a Seller or any of its Affiliates, including, in each case, for any Taxes related thereto;

(k) Except as otherwise specifically provided in the ETSA with respect to Liabilities arising during the term of the ETSA only, any Liability of Sellers or any of their Affiliates related to or arising out of their employment or engagement of any employees, directors, managers, officers or independent contractors (including any Business Employee or Business Service Provider) or the termination thereof (including in connection with any terminations as a result of the transactions contemplated by this Agreement);

(l) Any Liability of any Seller arising under, out of or with respect to any Contract, Real Property Lease, Permit, or insurance policy (other than Liabilities under the Transferred Contracts, Transferred Leases or Transferred Permits that are Assumed Liabilities);

(m) Any Liability of any Seller in respect of bodily injury, personal injury or property damage to the extent related to actions occurring prior to the Closing;

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(n) Any Liability of any Sellers to indemnify, defend or hold harmless any Person, or contribute to the damages suffered by any other Person for Liabilities arising out of events occurring prior to the Closing Date;

(o) Any Liability of any Seller to indemnify any third party in connection with the disposition of any formerly owned Subsidiary, operating business, material asset or property or discontinued operation;

(p) Any Liability of any Seller to any investment bank, broker, financial advisor, finder's agreement or other similar Person (including an obligation to pay any legal, accounting, brokerage, finder's, or similar fees or expenses in connection with this agreement or the Contemplated Transactions);

(q) Any Liability arising out of, relating to or resulting from any dividend or other distribution authorized or declared by any Seller with respect to its Equity Interests

(r) Any Liability arising out of, relating to or resulting from any defect in any Products, any claim for replacement or repair of any Products or any failure of any Products to meet required specifications, to the extent such Products were manufactured, distributed or sold prior to the Closing;

(s) Any Liability relating to or arising from any release of Hazardous Substances on, at or from the Leased Real Property or the

Seller Owned Real Property (or any other real property now or formerly owned or operated in connection with the Business) in connection with the Business or the Acquired Assets prior to the Closing Date; and

(t) Any other Liability that is not an Assumed Liability.

“FICA” means the Federal Insurance Contributions Act, as amended.

“Financials” is defined in Section 3.6.1.

“Final Working Capital” means the calculation of Working Capital as of the Adjustment Time reflected on the Closing Balance Sheet and Closing Working Capital Statement and finally determined in accordance with Sections 2.5.1 and 2.5.3.

“Former Business Service Provider” means each individual who was formerly a part-time or full-time employee, officer, director or independent contractor of the Sellers or one of their Affiliates and who was employed or engaged in connection with, or performed services for the benefit of, the Business.

“Fraud” means any intentional misrepresentation of a material fact in the representations or warranties contained in Section 3 or Section 4 of this Agreement with the intention of depriving a Person of property or legal rights or otherwise causing injury.

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“GAAP” means generally accepted accounting principles in the United States as in effect from time to time.

“Governmental Authority” means any United States federal, state or local or any foreign government, or political subdivision thereof, or any multinational organization or authority or any authority, agency or commission entitled to exercise any administrative, executive, judicial, legislative, police, regulatory or taxing authority or power, any court or tribunal (or any department, bureau or division thereof), or any mediator, arbitrator or arbitral body.

“Government Contract” means, individually or collectively as the context may require, (a) Contracts, including delivery orders, task orders, purchase orders and notices-to-proceed between the Sellers and any Governmental Authority and (b) Government Subcontracts.

“Government Order” means any order, writ, judgment, injunction, decree, stipulation, ruling, determination or award entered by or with any Governmental Authority.

“Government Subcontract” means a Contract between the Sellers and a Prime Contractor that is providing goods or services to a Governmental Authority, pursuant to a Contract with such Governmental Authority, regarding such goods or services (or a portion thereof).

“Guarantee” means, with respect to any Person, (a) any guarantee of the payment or performance of, or any contingent obligation in respect of, any Debt or other Liability of any other Person, (b) any other arrangement whereby credit is extended to any obligor (other than such Person) on the basis of any promise or undertaking of such Person (1) to pay the Debt or other Liability of such obligor, (2) to purchase any obligation owed by such obligor, (3) to purchase or lease assets under circumstances that are designed to enable such obligor to discharge one or more of its obligations or (4) to maintain the capital, working capital, solvency or general financial condition of such obligor and (c) any Liability as a general partner of a partnership or as a #PageNum#enture in a joint venture in respect of Debt or other obligations of such partnership or venture.

“Hazardous Substance” means any hazardous or toxic materials, substances or wastes (including toxic mold), chemical substances or mixtures, pesticides, pollutants, contaminants, toxic chemicals, petroleum products or byproducts or any fraction thereof, asbestos, polychlorinated biphenyls, noise or radiation.

“Inbound License” means any Contract, covenant not to sue, settlement, forbearance or other Contract pursuant to which either or both of the Sellers are authorized or otherwise permitted to access or exploit any other Person’s Intellectual Property in connection with the Business, including any software license, right to access or use data, Patent license, trademark license, or any Contract pursuant to which either or both of the Sellers obtain a right to access or exploit a Person’s Intellectual Property in connection with the Business in the form of services, such as a software as a service Contract or a cloud services Contract.

“Indemnity Claim” means a claim for indemnity under Section 6.1 or 6.2, as the case may be.

“Indemnity Deductible” is defined in Section 6.1.2.

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“Indemnified Party” means, with respect to any Indemnity Claim, the party asserting such claim under Section 6.1 or 6.2, as the case may be.

“Indemnifying Party” means, with respect to any Indemnity Claims, the Buyer Indemnified Person or the Seller Indemnified Person under Section 6.1 or 6.2, as the case may be, against whom such claim is asserted.

“Insurance Policies” is defined in Section 3.15.

“Intellectual Property” means all proprietary rights of every kind and nature however denominated in any jurisdiction throughout the world, whether registered or unregistered, with respect to the Business, including: (a) all inventions (whether patentable or unpatentable and whether or not reduced to practice), all improvements thereto, and all Patents, patent applications, and patent disclosures, together with all reissuances, continuations, continuations-in-part, revisions, extensions, substitutions and reexaminations thereof; (b) all trademarks, service marks, trade dress, logos, slogans, trade names, corporate names, Internet domain names, and rights in telephone numbers, together with all translations, adaptations, derivations, and combinations thereof and including all goodwill associated therewith, and all applications (including intent to use applications), registrations, and renewals in connection therewith; (c) all copyrightable works, all copyrights, including moral rights and industrial designs, and all applications, registrations, and renewals in connection therewith; (d) all mask works and all applications, registrations, and renewals in connection therewith; (e) all Trade Secrets and confidential business information (including ideas, research and development, know-how, formulas, compositions, manufacturing and production processes and techniques, technical data, technology, designs, drawings, specifications, customer and supplier lists and data, pricing and cost information, financial information, human resources data, and business and marketing plans and proposals); (f) all Software; (g) all material advertising and promotional materials; (h) rights of privacy or publicity; (i) all domain names and rights thereto; (j) all other proprietary rights and intellectual property rights now known or hereafter recognized; and (k) all copies and tangible embodiments thereof (in whatever form or medium).

“Intellectual Property Rights” means all rights (anywhere in the world, whether statutory, common law or otherwise) with respect to Intellectual Property, including any rights to pursue, recover or retain damages, costs or attorneys’ fees for past, present and future infringement or misappropriation of any Intellectual Property.

“Interim Financials” is defined in Section 3.6.1(b).

“Inventory” is defined in Section 3.23.

“IP Assignments” is defined in Section 2.4.3.

“IP Licenses” means, collectively, all Inbound Licenses and all Outbound Licenses.

“IT Systems” means the Software, hardware, firmware, networks, platforms, servers, interfaces, applications, websites, related information technology systems, and service agreements and service arrangements relating to any of the foregoing used by the Sellers primarily to operate the Business.

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“ITAR” is defined in Section 3.5.3.

“Law” means any statute, law, ordinance, regulation, rule, code, order, constitution, treaty, common law, judgment, decree, other requirement or rule of law of any Governmental Authority.

“Leased Real Property” means any real property that the Sellers use or occupy or have the right to use or occupy, now or in the future, pursuant to any Real Property Lease.

“Liabilities” means liabilities, obligations or commitments of any nature whatsoever, asserted or unasserted, known or unknown, absolute or contingent, accrued or unaccrued, matured or unmatured or otherwise.

“License Agreement” means a license agreement, by and among the Sellers and the Buyer, in substantially the form attached to this Agreement as Exhibit E.

“Losses” is defined in Section 6.1.1.

“Lower Working Capital Target” means \$4,180,000.

“Material Adverse Effect” means any event, occurrence, fact, condition or change that is, or would reasonably be expected to be, materially adverse to the assets, Liabilities, financial condition or results of operations of the Business, not including any event, occurrence, fact, condition or change, to the extent arising out of or attributable to: (a) a deterioration in the economy in general in any state or locality in which the Sellers conduct business, so long as any such deterioration does not have a disproportionate impact on the Business, (b) United States or global financial or securities markets or conditions or any act(s) of terrorism, similar calamity or war, so long as such market, condition or act does not have a disproportionate impact on the Business, (c) changes in applicable Laws or GAAP, so long as any such change does not have a disproportionate impact on the Business, (d) acts of war (whether or not declared), armed hostilities or terrorism, or the escalation or worsening thereof, (e) the execution and delivery of this Agreement or the announcement of the identity of the Buyer, including losses or threatened losses of employees, customers, suppliers, distributors or others having relationships with the Sellers and the Business, (f) any action taken by the Sellers with the Buyer’s written consent or the taking of any action expressly required by this Agreement or (g) any failure by the Business to meet any internal or published projections, forecasts or revenue or earnings predictions (provided that the underlying causes of such failures (subject to the other provisions of this definition) shall not be excluded); but only to the extent that such event, occurrence, fact, condition or change set forth in subsections (a) through (d) above do not have a disproportionate effect on the Business as compared to other industry participants.

“Material Contract” as defined in Section 3.19.1.

“Material Customer” means the top 10 customers of the Business, taken as a whole, by revenue for the fiscal years ended December 31, 2015 and December 31, 2016.

“Material Supplier” means the top 10 suppliers to the Business, taken as a whole, by expense for the fiscal years ended December 31, 2015 and December 31, 2016.

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“Most Recent Balance Sheet” is defined in Section 3.6.1.

“Most Recent Balance Sheet Date” is defined in Section 3.6.1.

“Nonassigned Asset” is defined in Section 2.6.2.

“Offer Employees” is defined in Section 5.6.1.

“Open Source Materials” means any material (a) that contains, or is derived in any manner (in whole or in part) from, any software or other material that is distributed as free, open source (e.g., a license now or in the future approved by the Open Source Initiative and listed at <http://www.opensource.org/licenses>, which licenses include all versions of the GNU GPL, the GNU LGPL, the GNU Affero GPL, the MIT license, the Eclipse Public License, the Common Public License, the CDDL, the Mozilla Public License, the Academic Free License, the BSD license and the Apache License), or pursuant to similar licensing and distribution models (as presently conducted and as proposed to be conducted) and (b) that requires as a condition of use, modification, hosting, or distribution of such software, or of other software used or developed with, incorporating, incorporated into, derived from, or distributed with such software, that such software or other software: (1) be disclosed or distributed in source code form; (2) be licensed for the purpose of making derivative works; (3) be redistributed, hosted or otherwise made available at no or minimal charge; or (4) be licensed, sold or otherwise made available on terms that (A) limit in any manner the ability to charge license fees or otherwise seek compensation in connection with marketing, licensing or distribution of such software or other software or (B) grant the right to decompile, disassemble, reverse engineer or otherwise derive the source code or underlying structure of such software or other software.

“Ordinary Course of Business” means an action taken by the Sellers in the ordinary course of conducting the Business which is consistent with the past customs and practices of the Sellers (including past practice with respect to quantity, amount, magnitude and frequency and standard employment policies and past practices with respect to management of cash and working capital) which is taken in the ordinary course of the normal day-to-day operations.

“Organizational Documents” means, with respect to any Person (other than an individual), (a) the certificate or articles of incorporation or organization and any joint venture, limited liability company, operating or partnership agreement and other similar documents adopted or filed in connection with the creation, formation or organization of such Person and (b) all by-laws, voting agreements and similar documents, instruments or agreements relating to the organization or governance of such Person, in each case, as amended or supplemented.

“Outbound License” means any Contract, covenant not to sue, settlement, or forbearance pursuant to which any Person has rights to access or exploit any Owned IP or either or both of the Sellers authorize or otherwise permit any other Person to access or exploit the Seller IP, including, in either case, any software license, right to access or use data, patent license, trademark license, or any Contract pursuant to which a Person obtains a right to access or exploit any such Intellectual Property in the form of services, such as a software as a service Contract or a cloud services Contract.

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“Owned IP” means all Seller IP other than Intellectual Property exploited by the Business pursuant to an Inbound License.

“Patents” means, in each case to the extent currently exploited by the Business, all (a) patents and patent applications; (b) patents and patent applications to which any of such patents or patent applications directly or indirectly claims, or forms the basis for, priority anywhere in the world; (c) all reissues, reexaminations, extensions, continuations, continuations in part, continuing prosecution applications and divisions of any of the items described in clause (a) or (b) of this definition; (d) all foreign counterparts to any of the items described in clause (a), (b) or (c) of this definition, including utility models, inventors’ certificates, industrial design protection and any other form of grant or issuance by any Governmental Authority; and I all patents that issue from any of the items described in (a) (b), (c), or (d) of this definition.

“Permits” means all permits, licenses, franchises, approvals, authorizations and consents required to be obtained from Governmental Authorities.

“Permitted Encumbrance” means (a) zoning, entitlement, building and other land use regulations imposed by governmental agencies having jurisdiction over any Leased Real Property which are not violated by the current use and operation of the Leased Real Property, (b) (b) covenants, conditions, restrictions, easements, encumbrances and other similar matters of record affecting title to but not adversely affecting current occupancy or use of the Leased Real Property, (c) restrictions on the transfer of securities arising under federal and state securities laws or other applicable Law, (d) liens for current Taxes not yet due and payable or (e) mechanics', carriers', workmen's, repairmen's or other like liens arising or incurred in the ordinary course of business consistent with past practice in amounts that are not delinquent and which are not, individually or in the aggregate, material to the Business or the Acquired Assets.

“Person” means any individual or corporation, association, partnership, limited liability company, joint venture, joint stock or other company, business trust, trust, organization, Governmental Authority, Union or other entity of any kind.

“Personally Identifiable Information” means any information that specifically identifies any employee, contractor, or any other Person, whether currently alive or deceased, who has provided information to the Sellers, including (a) any personally-identifiable information or any information that could be associated with such individual, such as addresses, telephone numbers, health information, drivers’ license numbers, and government issued identification numbers; and (b) any nonpublic personally identifiable financial information, such as information relating to a relationship between an individual person and a financial institution, or related to a financial transaction by such individual person with a financial institution.

“Prime Contractor” means any Person (other than the Sellers) that is a party to any Government Subcontract.

“Products” means each product sold or delivered, and each service provided, by the Sellers primarily in connection with the Business, including but not limited to the products listed on Exhibit C attached hereto.

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“Purchase Price” is defined in Section 2.2.

“Real Property Lease” means any Contract pursuant to which the Sellers use or occupy or have the right to use or occupy, now or in the future, any real property used in the Business.

“Registered IP” means any Owned IP that is the subject of an application or registration with any Governmental Authority, including any domain name registration and any application or registration for any Patent, copyright, mask work or trademark.

“Representative” means, with respect to any Person, any director, officer, employee, agent, consultant, advisor, or other representative of such Person, including legal counsel, accountants, and financial advisors.

“Restricted Period” is defined in Section 5.5.1.

“Retained Assets” means the following assets, properties and rights:

- (a) All Equity Interests of the Sellers and their Subsidiaries;
- (b) All rights of the Sellers under this Agreement and any Ancillary Agreement;
- (c) All assets listed on Annex I hereto;
- (d) All assets, properties and rights used by the Sellers solely in their businesses other than the Business, including the Sellers’ businesses described in the proviso to the definition of “Business” above;
- (e) Sponsorship of all Seller Plans and Employee Benefit Plans and all rights in, under and with respect to the assets, insurance policies, funding arrangements and contracts embodying or relating to all Seller Plans and Employee Benefit Plans;
- (f) All rights in and under Permits and insurance policies which are not transferrable to the Buyer;
- (g) All contracts with respect to any right of any Person to acquire any capital stock or other direct or indirect ownership interest in the Sellers;
- (h) All corporate seals, minute books, charter documents, corporate stock record books, registers of other securities, original Tax Returns and copies of original financial records (the originals of which will be delivered to the Buyer as part of the Acquired Assets to the extent solely related to the Acquired Assets) of the Sellers, and such other books and records as pertain only to the organization, existence, share capitalization or debt financing of the Sellers;
- (i) All insurance policies of the Sellers and all rights to applicable claims and proceeds thereunder;

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(j) All Tax refunds, credits and other Tax assets relating to the Acquired Assets or the Business that are attributable to a taxable period (or portion thereof) ending on or before the Closing Date; and

(k) All cash, cash equivalents, money market funds and mutual funds in the Sellers' bank and other depository accounts, including all interest and dividends receivable with respect thereto.

“Sellers” is defined in the Preamble.

“Seller Fundamental Representations” means the representations and warranties of the Sellers contained in Sections 3.1 (Organization), 3.2 (Power and Authorization), 3.10 (Title to and Condition of Assets), 3.20 (Tax Matters) and 3.25 (No Brokers).

“Seller Indemnified Person” is defined in Section 6.2.1.

“Seller IP” means all Intellectual Property and Intellectual Property Rights (i) that are owned or purported to be owned by the Sellers and (ii) that have been developed for, or used in, held for use in or related to, or that may be used in, held for use in, related or useful to the operation of, in each case, the Business or the Products.

“Seller Owned Real Property” is defined in Section 3.11.1.

“Seller Plan” means any retirement, pension, profit sharing, deferred compensation, stock bonus, savings, bonus, incentive, cafeteria, medical, dental, vision, hospitalization, life insurance, accidental death and dismemberment, medical expense reimbursement, dependent care assistance, tuition reimbursement, disability, sick pay, holiday, vacation, retention, severance, change of control, Tax reimbursement or gross-up, stock purchase, stock option, restricted stock, phantom stock, stock appreciation rights, fringe benefit or other employee benefit plan, fund, policy, program, agreement, contract, or payroll practice of any kind (including any “employee benefit plan,” as defined in Section 3(3) of ERISA, whether or not subject to ERISA), including any related trusts, insurance policies or other funding mechanisms, or any employment, consulting, independent contractor or personal services contract, in each case, whether written or oral, qualified or nonqualified, funded or unfunded, or domestic or foreign, that the Sellers or any of their Affiliates sponsors, maintains, contributes to or is obligated to contribute to, or under which the Sellers or any of their Affiliates has or may have any Liability, in each case, other than any Employee Benefit Plan.

“Seller Process Technology” is defined in Section 3.5.2.

“Sellers' Knowledge” means the actual knowledge, after reasonable investigation, of each of My Chung, Dale Messick, Scott Graeff, Rick Bylsma, Mike Bertan, Robert Sachs, Kim Keenan and Charu Gulati.

“Software” means computer software and databases, including any and all software implementations of algorithms, models and methodologies, together with object code, source code, firmware and embedded versions thereof, databases and compilations, including any and all data

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and collections of data, whether machine readable or otherwise, descriptions, flow-charts and other work product used to design, plan, organize and develop any of the foregoing, screens, user interfaces, report formats, firmware, development tools, templates, menus, buttons and icons, and documentation related thereto, in each case, as used in the Business.

“Standard Product Terms” is defined in Section 3.12.

“Sublease” means a sublease agreement, by and among Picometrix and the Buyer, in substantially the form attached to this Agreement as Exhibit F.

“Subsidiary” means, with respect to any specified Person, any other Person of which such specified Person will, at the time, directly or indirectly through one or more Subsidiaries, (a) own at least 50% of the outstanding capital stock (or other shares of beneficial interest) entitled to vote generally, (b) hold at least 50% of the partnership, limited liability company, joint venture or similar interests or (c) be a general partner, managing member or joint venture.

“Tax” or “Taxes” means any and all federal, state, local, or foreign income, gross receipts, license, payroll, employment, excise, severance, stamp, occupation, premium, windfall profits, environmental, customs duties, capital stock, franchise, profits, withholding, social security (or similar, including FICA), unemployment, disability, real property, personal property, sales, use, transfer, registration, escheat or unclaimed property obligation, value added, alternative or add-on minimum, estimated, or other tax of any kind or any charge of similar nature of taxes whatsoever, including any interest, penalty, or addition thereto, whether disputed or not.

“Tax Return” means any return, declaration, document, report, claim for refund or information return or statement relating to Taxes, including any schedule, supporting statement or attachment thereto, and including any amendment thereof.

“Third Party Claim” is defined in Section 6.4.1.

“Trade Secrets” means information and materials relating to the Business not generally known to the public, including trade secrets and other confidential or proprietary information.

“Transaction Expenses” is defined in Section 5.1.

“Transfer Taxes” is defined in Section 7.2.

“Transferred Contracts” is defined in the definition of “Acquired Assets”.

“Transferred Leases” is defined in the definition of “Acquired Assets”.

“Transferred Permits” is defined in the definition of “Acquired Assets”.

“Transferring Employees” is defined in Section 5.6.1.

“Transition Services Agreement” means that certain Transition Services Agreement to be entered into among the Buyer and the Sellers at the Closing.

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“Treasury Regulations” means the temporary or final regulations promulgated under the Code.

“Unaudited Financials” is defined in Section 3.6.1.

“Union” means any union, labor organization or other employee representative body.

“Upper Working Capital Target” means \$4,620,000.

“USML” is defined in Section 3.5.3.

“Working Capital” means (i) the current assets of the Sellers included in the Acquired Assets (consisting solely of the line item accounts specified on Annex II) less (ii) the current liabilities of the Sellers (consisting solely of the line item accounts specified on Annex II), in each case, as determined in accordance with the Accounting Principles and excluding any Tax assets and liabilities.

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TRANSITION SERVICES AGREEMENT

THIS TRANSITION SERVICES AGREEMENT, dated as of August 9, 2017 (this "Agreement"), is by and among MACOM Technology Solutions Holdings, Inc., a Delaware corporation ("Buyer"), Advanced Photonix, Inc., a Delaware corporation ("API"), and Picometrix, LLC ("Picometrix" and, together with API, the "Sellers"). Buyer and Seller are each a "Party" and are collectively the "Parties" to this Agreement. Capitalized terms used but not defined herein shall have the meaning given to them in the Purchase Agreement (as defined below).

W I T N E S S E T H:

WHEREAS, Buyer and Sellers have entered into that certain Asset Purchase Agreement, dated as of August 9, 2017 (the "Purchase Agreement").

WHEREAS, concurrently with the execution and delivery of this Agreement, the parties to the Purchase Agreement are consummating the transactions contemplated thereby.

WHEREAS, in connection with the transactions contemplated by the Purchase Agreement, Buyer and Sellers desire to provide one another with certain transition services after Closing with respect to the Business and the Products.

WHEREAS, each of Buyer and Sellers have agreed to provide to the other party the Transition Services (as herein defined) upon the terms and conditions set forth herein.

NOW, THEREFORE, in consideration of the mutual terms, conditions and agreements set forth herein, the Parties hereby agree as follows:

ARTICLE I

DEFINITIONS

1.1 Reference to Purchase Agreement. All capitalized terms used but not specifically defined in this Agreement have the meanings assigned to them in the Purchase Agreement.

ARTICLE II

SERVICES

2.1 Services to be Provided by Sellers. On the terms and subject to the conditions set forth herein, and in supporting the transfer of the Acquired Assets pursuant to the terms and conditions set forth in the Purchase Agreement, Sellers shall provide, independently or through other parties providing services to Sellers, to Buyer the transition services described in the Sellers Services Schedule (the "Sellers Services Schedule") in Schedule A attached hereto ("Sellers Transition Services"). Such Sellers Transition Services shall also include additional services reasonably requested by Buyer that Seller and/or its Affiliates had historically provided to the Business prior to the Closing that are reasonably needed to successfully transition the Business to Buyer.

2.2 Services to be Provided by Buyer. On the terms and subject to the conditions set forth herein, and in supporting the transfer of the Acquired Assets pursuant to the terms and conditions set forth in the

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Purchase Agreement, Buyer shall provide, independently or through other parties providing services to Buyer, to Sellers the transition services described in the Buyer Services Schedule (the "**Buyer Services Schedule**") in Schedule B attached hereto ("**Buyer Transition Services**" and together with the Sellers Transition Services, the "**Transition Services**"). Such Buyer Transition Services shall also include additional services reasonably requested by Seller that are reasonably needed to successfully transition the Business to Buyer.

2.3 Cooperation and Transitional Nature of Services. From the Closing Date until the expiration or termination of each of the Transition Services, each of the Parties agrees to use its reasonable good faith efforts to work together so that the provision of Transition Services may be transitioned to Buyer or Sellers as soon as is reasonably practicable. Buyer and Sellers shall cooperate with each other in all reasonable respects in the performance by Buyer or Sellers, as applicable, of the Transition Services.

2.4 Third Party Consents. Each Party acknowledges and agrees that the services provided by a Party through third parties or using third party intellectual property are subject to the terms and conditions of any applicable agreements between the provider of such service and such third parties. If a Party is not able to provide the services subject to the terms and conditions of any applicable agreements between the provider of such service and such third parties, the Parties shall use commercially reasonable efforts to identify a reasonable alternative arrangement to provide the relevant services sufficient for the purposes of the Party receiving the services. For the first six (6) months, all costs associated with the foregoing shall be borne by the Party providing the applicable Transition Service and following six (6) months, shall be borne subject to Row ERP on Schedule A hereto.

2.5 Monthly Payment. In consideration of the expenses incurred to date and to be incurred by Buyer in making provision for the Buyer Transition Services, Sellers will pay Buyer one million five hundred thousand dollars (\$1,500,000.00). Such payment will be made in five monthly equal installments of three hundred thousand dollars (\$300,000.00) each with an installment due no later than the end of the calendar month in August, September, October, November and December 2017.

2.6 Expenses. Except as set forth in Section 2.4 and 2.5 or as otherwise expressly specified on the Schedules hereto, each Party will be responsible for any costs and expenses incurred by such Party in connection with the provision of the respective Transition Services hereunder.

ARTICLE III

COVENANTS

3.1 Compliance with Laws. Each Party shall comply, at its own expense, with the provisions of all applicable municipal requirements and those state and federal laws that may be applicable to the performance of this Agreement, including the performance of the Transition Services hereunder. Notwithstanding anything to the contrary in this Agreement or in the Sellers Services Schedule or the Buyer Services Schedule attached hereto, nothing in this Agreement or the Schedules hereto shall require any Party to take any action not in compliance with all applicable laws.

3.2 Performance. The Transition Services shall be provided with the same degree of care, skill, and prudence that each Party uses in the operation of its own business and in a manner consistent with the same services provided in connection with the operation of the Business or its respective business, as

applicable, in the ordinary course during the year prior to the Closing, including with respect to the timing of such services.

3.3 Personnel. Each of the Parties agrees that the Transition Services to be performed by it or on its behalf will be performed by individuals in a manner providing quality at standards consistent with the provisions of Section 3.2.

3.4 Books and Records. All financial records regarding the Transition Services shall be maintained in accordance with generally accepted accounting principles consistently applied.

3.5 Disclaimer. EXCEPT AS EXPRESSLY STATED IN THIS AGREEMENT, (A) NEITHER PARTY MAKES ANY REPRESENTATIONS OR WARRANTIES, STATUTORY, EXPRESS OR IMPLIED, REGARDING THE TRANSITION SERVICES, (B) EACH PARTY EXPRESSLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY, NON-INFRINGEMENT, FITNESS FOR A PARTICULAR PURPOSE AND TITLE WITH RESPECT TO THE TRANSITION SERVICES, AND (C) NEITHER PARTY MAKES ANY REPRESENTATION OR WARRANTY THAT ACCESS TO ANY COMPUTER NETWORK OR SYSTEM OR THE TRANSITION SERVICES WILL BE UNINTERRUPTED, SECURE, COMPLETE, ACCURATE OR ERROR-FREE.

ARTICLE IV

TERM AND TERMINATION

4.1 Term of Provision of Transition Services and Access. The Parties shall provide the Transition Services through and until applicable date set forth on the Sellers Services Schedule or the Buyer Services Schedule. Each of the Parties, upon at least ten (10) business days prior written notice to the other, may eliminate one or more categories of Transition Services provided by the other. Upon the termination of all Transition Services by both Parties pursuant to this Section 4.1, this Agreement shall automatically terminate.

4.2 Termination by Mutual Consent. This Agreement may be terminated by the mutual written consent of Sellers and Buyer.

4.3 Other Termination.

(a) Either Sellers, on the one hand, or Buyer, on the other hand (the "Initiating Party") may terminate this Agreement with immediate effect by notice in writing to Buyer or Sellers, as the case may be, on or at any time after the other Party is in material breach of any of its obligations under this Agreement and (if the breach is capable of remedy) has failed to remedy the breach within fifteen (15) days of receipt of notice in writing from the Initiating Party giving particulars of the breach and requiring the other Party to remedy the breach. A failure to pay any amount hereunder when due shall be considered a material breach.

(b) All rights and obligations of Sellers and Buyer under this Agreement shall cease to have effect immediately upon termination of this Agreement except that termination shall not affect the accrued rights and obligations of Sellers and Buyer at the date of termination and Articles V, VI, VII and VIII shall survive expiration or termination of this Agreement.

ARTICLE V

INDEMNIFICATION

5.1 Indemnity for Third Party Claims. To the extent not prohibited by law, and except as otherwise provided in this Agreement, each Party shall indemnify and hold harmless the other Party and its Affiliates and its and their officers, directors, employees and agents (“**Indemnified Parties**”) from and against any and all third party claims, demands, money judgments, settlements, liabilities, costs and expenses (including reasonable attorneys’ fees) (collectively, “**Losses**”), in any way caused by or arising from an act or omission constituting fraud, gross negligence or willful misconduct of the indemnifying party or its Affiliates or their employees, agents or contractors.

5.2 Exclusive Remedies. The sole and exclusive remedies for any claim (whether such claim is framed in tort, contract or otherwise) arising out of a breach of any representation, warranty, covenant, agreement or undertaking in or pursuant to this Agreement shall be (i) a claim for actual damages and (ii) available equitable rights or remedies.

5.3 Limitation of Liability. IN NO EVENT SHALL ANY INDEMNIFYING PARTY IN ANY CASE BE LIABLE FOR INDIRECT, CONSEQUENTIAL, PUNITIVE, SPECIAL OR OTHER SIMILAR DAMAGES ARISING FROM ANY CLAIM RELATING TO BREACH OF THIS AGREEMENT OR OTHERWISE RELATING TO ANY OF THE TRANSITION SERVICES PROVIDED HEREUNDER AND IN NO EVENT SHALL A PARTY BE LIABLE HEREUNDER FOR ANY CLAIMS, DAMAGES OR LOSSES CAUSED BY COMPUTER VIRUS, TELECOMMUNICATION ERRORS, OTHER INTERRUPTIONS IN SERVICE, UNAUTHORIZED ACCESS TO OR USE OF ANY COMPUTER SYSTEM OR ANY DAMAGES, LOSSES OR CLAIMS ARISING FROM OR RELATING TO THE ACTS OR OMISSIONS OF THIRD PARTIES.

5.4 Limitation on Liability. Except for Losses involving fraud, intentional misrepresentation or willful misconduct or arising from a party’s indemnification obligations in Section 6.1, in no event shall the aggregate liability of a Party under this Agreement exceed one million five hundred thousand dollars (\$1,500,000.00).

ARTICLE VI

CONFIDENTIALITY

6.1 Confidentiality. Buyer and Sellers shall hold all confidential or proprietary information obtained in connection with the provision by a Party of the Transition Services or receipt by a Party of the Transition Services and relating to Sellers’ or Buyer’s business (“**Confidential Information**”) confidential. The receiving party shall not disclose any Confidential Information of the disclosing party to any third party unless the receiving party is legally compelled to disclose such information, in which event the disclosing party shall provide the receiving party with written notice of such legal compulsion to disclose.

ARTICLE VII

MISCELLANEOUS

7.1 Independent Entities. In providing the Transition Services hereunder, each of the Parties will act solely as an independent contractor and nothing in this Agreement will constitute or be construed to

be or create a partnership, joint venture, or principal/agent between Sellers, on the one hand, and the Buyer, on the other, and neither Party shall enter into any agreement or commitment which is binding on the other.

7.2 Headings. Article and Section headings in this Agreement are included herein for convenience of reference only and shall in no way restrict or affect the interpretation of any provision hereof.

7.3 Counterparts. This Agreement may be executed in one or more counterparts, each of which shall be deemed an original and all of which shall, taken together, be considered one and the same agreement.

7.4 Governing Law. This Agreement shall be governed by and construed in accordance with the laws of the State of Delaware, without giving effect to the choice-of-laws provisions thereof.

7.5 No Third Party Beneficiaries. This Agreement is not intended to confer upon any Person other than the parties hereto any rights or remedies hereunder.

7.6 Assignment. No Party may assign this Agreement without the express prior written consent of the other Party; provided, however, that either Party may assign this Agreement in connection with a merger, acquisition, or sale of all or substantially all of such Party's assets. This Agreement shall be binding upon and inure to the benefit of the Parties and their respective successors and permitted assigns.

7.7 Entire Agreement/Amendment. This Agreement and the Purchase Agreement constitute the entire agreement between the Parties with respect to the subject matter of this Agreement and supersedes all prior written and oral agreements between the Parties regarding the subject matter of this Agreement. No amendment or waiver of compliance with any provision hereof or consent pursuant to this Agreement shall be effective unless evidenced by an instrument in writing signed by the Party against whom enforcement of such amendment, waiver, or consent is sought.

7.8 Severability. If any provision of this Agreement is found to be illegal or unenforceable, the other provisions shall remain effective and enforceable to the greatest extent permitted by law.

7.9 Other Agreements. Nothing contained in this Agreement is intended to amend or modify in any respect the rights and obligations of the Parties to the Purchase Agreement and in the event of any conflict between this Agreement (including the Sellers Services Schedule and the Buyer Services Schedule), on the one hand, and the Purchase Agreement, on the other hand, the Purchase Agreement shall control; *provided* that nothing in the Purchase Agreement shall affect the rights or obligations of the Parties under Article V of this Agreement.

7.10 Force Majeure. A Party will not be liable to the other for any delay or failure of such Party to perform its obligations hereunder if such delay or failure arises from any cause or causes beyond its reasonable control. Such causes will include, but are not limited to, acts of God, floods, fires, loss of electricity or other utilities, technical disruptions or computer viruses, or delays by the other party in providing required resources or support.

7.11 Specific Performance. Each of the Parties acknowledges and agrees that the other Party would be damaged irreparably and suffer unreasonable hardship in the event that any term or provision of this Agreement is not performed in accordance with its specific terms or is otherwise breached or violated. Accordingly, each of the Parties agrees that, without posting bond or other undertaking, the other Party will be entitled to an injunction or injunctions to prevent breaches or violations of the provisions of this Agreement and to enforce specifically this Agreement and the terms and provisions hereof and thereof in any claim

instituted in any court with jurisdiction over the Parties or their assets in addition to any and all other rights and other remedies at law or in equity and all such rights and remedies will be cumulative. Each of the Parties further agrees that, in the event of any action for specific performance in respect of such breach or violation, it will not assert the defense that a remedy at law would be adequate or that the balance of hardships between the Parties makes an equitable remedy unwarranted.

[remainder of page intentionally left blank]

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IN WITNESS WHEREOF, the Parties have caused this Agreement to be duly executed as of the day and year first above written.

MACOM TECHNOLOGY SOLUTIONS HOLDINGS, INC.

By: /s/ John Croteau
Name: John Croteau
Title: President and Chief Executive Officer

ADVANCED PHOTONIX, INC.

By: /s/ Dale Messick
Name: Dale Messick
Title: Chief Executive Officer

PICOMETRIX, LLC

By: /s/ Dale Messick
Name: Dale Messick
Title: Authorized Person

[Signature Page to Transition Services Agreement]

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SCHEDULE A
SELLERS TRANSITION SERVICES

Service Description	Point of Contact	Estimated Duration
Financial Reporting		
Sellers will provide access to and copies of historical financial reporting data requested by the Buyer and, to the extent practicable, in an electronic format requested by Buyer.	Dale Messick	6 months
On a monthly basis, by the 4th day of the Buyer's subsequent month by 3:00 pm EST, (in accordance with Exhibit A hereto), Sellers will perform a closing of each calendar month end in a manner that is consistent with Sellers' current processes so as to be able to deliver a Trial Balance, Income Statement and Balance Sheet (Collectively the " <u>Monthly Financial Statements</u> ")	Dale Messick	6 months
Sellers will support Buyer's Quarterly SEC reporting requirements	Dale Messick	6 months
Sellers will provide supporting detailed schedules on a monthly basis by the 9th day of the Buyer's subsequent month by 3:00 pm EST (in accordance with Exhibit A hereto) as part of each month end, with respect to Inventory, Fixed Assets, Other Assets, Accounts Receivable, Accounts Payable, Accrued Liabilities and any other assets and liabilities acquired by Buyer pursuant to the Purchase Agreement and subject to transition (collectively the " <u>Account Reconciliations</u> "). System generated reports for Account Reconciliations must be converted to an Excel format before being delivered and Account Reconciliations must be in a format comparable to what is currently done for each account listed in Annex II of the Purchase Agreement	Dale Messick	6 months

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Sellers will provide month end reporting of sales revenue and the direct materials portion of the associated cost of goods sold. Such reporting shall include (but is not limited to) the following: i. "Gross Sales by Customer" (with each customer identified) ii. "Gross Sales and Cost by Product Family" (with each product family identified) Such month end reports will be required on 3 rd day of the Buyer subsequent month by 3:00 pm EST (in accordance with Exhibit A hereto) (collectively the "Monthly Sales and Cost Reports").	Dale Messick	6 months
Sellers will support Buyer's purchase accounting and opening balance sheet initiatives and will provide reasonable support to Buyer with respect to any audit requests.	Dale Messick	6 months
Sellers will maintain appropriate internal accounting controls and will not change any accounting policies and procedures, except to the extent approved in writing by Buyer.	Dale Messick	6 months
Sellers will conduct periodic physical inventories of the raw materials, finished goods, and other inventories.	Dale Messick	6 months
Sellers will provide weekly Orders, Sales, Backlog by Product by Customer Detail on a weekly basis.	Dale Messick	6 months
Billing, Receivables and Collection		
Sellers will ensure any changes (additions, credit limit updates, delivery terms, etc.) to customer master files are approved by the Buyer.	Dale Messick	6 months
Sellers will maintain all billing personnel and processes, any inbound call or other customer support group, and other billing, receivable and collection functions to assist with customer billing, questions and the resolution of all other billing, receivable and collection matters until such time that Buyers and Service Providers have transitioned customer master files, selling programs and related billing/collection practices.	Dale Messick	6 months

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<p>Sellers will provide the following additional services with respect to billing, receivables and collection:</p> <ul style="list-style-type: none"> i. Daily reporting of order entry and invoiced sales. Such reports are to be available by 3:00 pm EST for the previous day). ii. Post collections of cash against outstanding accounts receivable using data provided by such Service Provider's bank and/or Buyer as applicable. Such posting will be completed immediately upon receiving required information/payments. iii. Weekly, provide Buyer with an invoice level accounts receivable aging, noting the status of any past due items. Such reports are to be available by Monday at 3:00 pm EST for the previous week. iv. Provide access to customer files as requested by Buyer. v. Calculate monthly and quarterly sales commissions, rebates, discounts, promotional activity, royalty programs, etc. Provide detail of these calculations on a monthly basis. vi. Calculate and provide detailed monthly reports on sales tax billings and associated sales tax accruals. vii. Sellers will ensure established customer credit limits and shipment hold notifications are appropriately adhered to. 	Dale Messick	6 months
<p>Any changes in billing, receivables and collection policies and procedures existing as of the Closing Date must be mutually agreed upon by the Buyer.</p>	Dale Messick	6 months
Accounts Payable		
<p>Sellers will ensure any changes (additions, remit to addresses, names, banking info, etc.) to vendor master files are approved by Buyer.</p>	Dale Messick	6 months

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Sellers will maintain all accounts payable and, subject to the other provisions of this Agreement, other relevant accrued liability personnel and processes to assist with settlement of liabilities assumed by Buyer as of the Closing Date until such time that Buyer and Sellers have transitioned vendor master files and related accounts payable/disbursement practices.	Dale Messick	6 months
With respect to payments made after the Closing Date, upon receipt of supplier invoices related to purchasing activity, Seller shall forward such invoices or invoice summaries to Buyer who will provide approval for payment.	Dale Messick	6 months
With respect to trade payables and other liabilities outstanding as of the Closing Date and acquired by the Buyer at that time, Sellers will arrange and execute payment using funds on hand or collected by Sellers on behalf of Buyer or provided directly from Buyer pursuant to the instructions listed in the above Treasury section of this Agreement. Payment should be made in accordance with supplier payment terms existing at time of Closing Date, and should not precede payment due date by more than five days.	Dale Messick	6 months
Sellers will provide the following additional services with respect to accounts payable and procurement: <ul style="list-style-type: none"> i. Weekly, provide Buyer with an invoice level accounts payable aging as well as any documents requested in the Treasury section below. Such reports are to be available by Monday at 3:00 pm EST for the previous week. ii. Provide access to supplier files as requested. 	Dale Messick	6 months
Any changes in existing policies and procedures existing as of the Closing Date must be mutually agreed upon by the Service Providers and the Buyer.	Dale Messick	6 months
Treasury		

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<p>Sellers will maintain a daily spreadsheet detailing all inbound payments received on behalf of the Buyer and posted to accounts receivable in accordance with instructions provided in the above “Billing, Receivables and Collection” section. Resulting cash balances will be used to settle trade accounts payable and other liabilities assumed by Buyer as of the Closing Date. Recording of such disbursements should also be made within a spreadsheet that is furnished to Buyer using an Excel-based format mutually agreed upon by both parties (“<u>Receipt and Disbursement Schedules</u>”).</p>	Dale Messick	6 months
<p>Receipt and Disbursement Schedules will be provided to Buyer on a weekly basis each Wednesday at 3PM ET, and will include any other daily cash activity for any cash activity subsequent to the closing date not addressed by inbound payments and disbursements addressed above.</p> <p>Receivable postings and payable settlements will be supported by the invoice level accounts receivable aging reports and check/disbursement registers discussed in the Billing, Receivables and Collection and Accounts Payable sections above.</p>	Dale Messick	6 months
<p>The Receipt and Disbursement Schedules provided by the Sellers hereunder will reflect the net cash position relative to cash collected during the week versus cash demands created by liabilities assumed by the Buyer. Upon receipt of the Receipt and Disbursement Schedules, Buyer and Sellers will mutually determine amounts to be funded by Buyer to Sellers, with such payment to be initiated within one business day of such determination. Disputes with respect to such amounts will be determined in accordance with Section 2.5.4 of the Purchase Agreement.</p>	Dale Messick	6 months
Tax Reporting		
<p>Seller shall continue to report and pay any sales tax, use tax, value added tax, goods and services tax or similar tax required to be reported and paid by Seller in connection with the services provided hereunder.</p>	Dale Messick	6 months
Information Technology		

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Sellers will provide reasonable support in transferring information technology assets, including but not limited to physical assets, network and communications access, all system passwords, and vendor system contracts and access to Buyer's location.	Dale Messick	2 months
Human Resources		
Seller will make its human resource information systems, data and other records related to the employees of the Business available to Buyer HR personnel, provide requested reports regarding such information systems, data and other records, and facilitate data transfer related to employees of the Business where reasonably requested by Buyer.	Dale Messick	6 months
Purchasing		
Sellers will maintain purchasing activities subject to the other provisions of this Agreement, other relevant accrued liability personnel and processes to assist with procurement of certain items on behalf of the Buyer as of the Closing Date until such time that Buyer and Sellers have transitioned vendor master files and related accounts payable/disbursement practices.	Dale Messick	6 months
With respect to purchases made after the Closing Date, prior to making any commitment to purchase goods and services from vendors Seller shall ensure Buyer approves purchases.	Dale Messick	6 months
Customer Service		
Sellers shall provide reasonable customer service and sales support to Buyer upon request.	Dale Messick	6 months
Training		
Sellers will provide reasonable access to their existing personnel for on-the-job training with respect to the Business and any services contemplated hereby.	Dale Messick	6 months
ERP		

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<p>Sellers agree to continue to make the [***] software and related information available to the employees serving under the ETSA to the same degree it has been available to them prior to Closing for up to 6 months. Sellers will continue to provide the same service to any such employee who rolls off the ETSA and onto Buyer payroll during the 6 months. Sellers will also provide such services to any Buyer employee who is substituted, at Buyer's sole discretion, for an employee serving under the ETSA who declines to join Buyer or quits during such 6 month period.</p>	<p>Dale Messick</p>	<p>6 months with Buyer right to extend</p> <p>Buyer may provide 30 days' notice prior to end of initial 6 month period of need for this service to extend beyond 6 months and the Parties will (a) reasonably cooperate with each other to approach the software licensor for obtaining any needed right and (b) split associated costs 50/50 for any license period beyond the first 6 months.</p>
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SCHEDULE B
BUYER TRANSITION SERVICES

Service Description	Point of Contact	Estimated Duration
Financial Services		
Inventory Reconciliations; Slow/Obsolete; WIP costing; etc. Month end close standard entries, system reports, Bal Sheet recs, etc. Sales/Use Taxes Property tax returns	Jack Kober	Up to 6 months from Closing.
Information Technology		
Buyer will provide Sellers with reasonable access to data housed on servers acquired by Buyer as part of the Acquired Assets and will provide copies of such data to Sellers prior to the end of the term hereof, provided, however, that the Sellers will only be entitled to the services described above with respect to data that is outside of the Acquired Assets and that is owned by the Sellers following the Closing in respect of their retained businesses.	Bhaskar Banerjee	6 months
Buyer will provide the following additional support system access items related to the Acquired Assets: <ul style="list-style-type: none"> • Reasonable access to individuals at Buyer to help Seller support and transition the Acquired Assets, not to exceed 8 hours per week for any particular individual. • Reasonable support in transferring physical assets, including any servers, to Buyer's location. 	Bhaskar Banerjee	6 months
Human Resources		
Buyer will provide Sellers with reasonable access to the human resources manager of the Business, not to exceed 13 hours per week and solely for the purpose of supporting the Sellers' retained businesses in a manner and to the extent consistent with the support provided by such human resources manager to the Sellers during the 12 months prior to Closing.	Bill Van Anglen	Up to 3 months from Closing at no cost. Up to an additional 3 months thereafter upon request, but at a monthly price to Seller equivalent to one third (1/3) of Buyer's fully-loaded cost incurred in employing the human resources manager.

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Miscellaneous		
Buyer agrees to provide and/or otherwise make available office services to Seller to facilitate the orderly transition of the Acquired Assets, provided that the location(s) and scope of such services will be mutually agreed upon by the parties.	Bhaskar Banerjee	6 months
Epiwafer Supply		
Buyer to manufacture and deliver on a non-cancelable, non-returnable, as-is basis two (2) wafers of epitaxial material to Sellers for use in Sellers' Terahertz business within 12 weeks following the Closing Date.	Kimberly Conway	12 weeks

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EXHIBIT A

Fiscal Month	Month End Close date	3rd day Monthly Sales & Cost Reports Due Date	4th day Financial Statement Due Date	9th Day Account Reconciliation Due Date
August 2017	August 25, 2017	August 30, 2017	August 31, 2017	September 7, 2017
September 2017	September 29, 2017	October 4, 2017	October 5, 2017	October 12, 2017
October 2017	October 27, 2017	November 1, 2017	November 2, 2017	November 9, 2017
November 2017	November 24, 2017	November 29, 2017	November 30, 2017	December 7, 2017
December 2017	December 29, 2017	January 3, 2018	January 4, 2018	January 11, 2018
January 2018	January 26, 2018	January 31, 2018	February 1, 2018	February 8, 2018
February 2018	February 23, 2018	February 28, 2018	March 1, 2018	March 8, 2018
March 2018	March 30, 2018	April 4, 2018	April 5, 2018	April 12, 2018
April 2018	April 27, 2018	May 2, 2018	May 3, 2018	May 10, 2018
May 2018	May 25, 2018	May 30, 2018	May 31, 2018	June 7, 2018
June 2018	June 29, 2018	July 4, 2018	July 5, 2018	July 12, 2018

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**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO
SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Scott A. Graeff, certify that:

1. I have reviewed this quarterly report on Form 10-Q 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: November 13, 2017

/s/ Scott A. Graeff

Scott A. Graeff
President and Chief Executive Officer
(principal executive officer)

**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 quarterly report on Form 10-Q 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: November 13, 2017

/S/ DALE E. MESSICK

Dale E. Messick
Chief Financial Officer
(principal financial officer)

**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the quarterly report of Luna Innovations Incorporated (the "Company") on Form 10-Q for the quarter ended September 30, 2017 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Scott A. Graeff, 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/ Scott A. Graeff

Scott A. Graeff

**President and Chief Executive Officer
(principal executive officer)**

November 13, 2017

**CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the quarterly report of Luna Innovations Incorporated (the "Company") on Form 10-Q for the quarter ended September 30, 2017 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)

November 13, 2017