

Lightwave Logic, Inc.  
Form 10-Q  
November 14, 2017

**UNITED STATES**  
**SECURITIES AND EXCHANGE COMMISSION**

**Washington, D.C. 20549**

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**FORM 10-Q**

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**(Mark One)**

**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 0-52567

**Lightwave Logic, Inc.**

(Exact name of registrant as specified in its charter)

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**Nevada**

**82-049-7368**

(State or other jurisdiction of

(I.R.S. Employer Identification No.)

Incorporation or Organization)

**1831 Lefthand Circle, Suite C**

**Longmont, CO**

**80501**

(Address of principal executive offices)

(Zip Code)

**(720) 340-4949**

(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 Website, 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, 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

Smaller reporting company

*(Do not check if a smaller reporting company)*

Emerging growth company

If an emerging growth company, indicate by checkmark 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

The number of shares of the registrant's Common Stock outstanding as of November 13, 2017 was 73,028,519.

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### Forward-Looking Statements

This report on Form 10-Q contains, and our officers and representatives may from time to time make, "forward-looking statements" within the meaning of the safe harbor provisions of the U.S. Private Securities Litigation Reform Act of 1995. Forward-looking statements can be identified by words such as: "anticipate," "intend," "plan," "goal," "seek," "believe," "project," "estimate," "expect," continuing, ongoing, "strategy," "future," "likely," "may," "should," could, "will" and similar references to future periods. Examples of forward-looking statements include, among others, statements we make regarding expected operating results, such as anticipated revenue; anticipated levels of capital expenditures for our current fiscal year; our belief that we have sufficient liquidity to fund our business operations during the next 12 months; strategy for gaining customers, growth, product development, market position, financial results and reserves.

Forward-looking statements are neither historical facts nor assurances of future performance. Instead, they are based only on our current beliefs, expectations and assumptions regarding the future of our business, future plans and strategies, projections, anticipated events and trends, the economy and other future conditions. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict and many of which are outside of our control. Our actual results and financial condition may differ materially from those indicated in the forward-looking statements. Therefore, you should not rely on any of these forward-looking statements. Important factors that could cause our actual results and financial condition to differ materially from those indicated in the forward-looking statements include, among others, the following: lack of available funding; general economic and business conditions; competition from third parties; intellectual property rights of third parties; regulatory constraints; changes in technology and methods of marketing; delays in completing various engineering and manufacturing programs; changes in customer order patterns; changes in product mix; success in technological advances and delivering technological innovations; shortages in components; production delays due to performance quality issues with outsourced components; those events and factors described by us in Item 1.A Risk Factors in our most recent Annual Report on Form 10-K; other risks to which our Company is subject; other factors beyond the Company's control.

Any forward-looking statement made by us in this report on Form 10-Q is based only on information currently available to us and speaks only as of the date on which it is made. We undertake no obligation to publicly update any forward-looking statement, whether written or oral, that may be made from time to time, whether as a result of new information, future developments or otherwise.



**PART I FINANCIAL INFORMATION**

**Item 1**

**Financial Statements**

**LIGHTWAVE LOGIC, INC.**

**FINANCIAL STATEMENTS**

**SEPTEMBER 30, 2017**

**(UNAUDITED)**

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**LIGHTWAVE LOGIC, INC.****BALANCE SHEETS**

	<b>September 30, 2017 (Unaudited)</b>	<b>December 31, 2016 (Audited)</b>
<b>ASSETS</b>		
<b>CURRENT ASSETS</b>		
Cash and cash equivalents	\$ 2,879,656	\$ 1,956,844
Prepaid expenses and other current assets	212,031	136,942
	3,091,687	2,093,786
<b>PROPERTY AND EQUIPMENT - NET</b>	484,382	425,650
<b>OTHER ASSETS</b>		
Intangible assets - net	629,011	667,972
<b>TOTAL ASSETS</b>	<b>\$ 4,205,080</b>	<b>\$ 3,187,408</b>
<b>LIABILITIES AND STOCKHOLDERS' EQUITY</b>		
<b>CURRENT LIABILITIES</b>		
Accounts payable including current portion of equipment purchase	\$ 161,919	\$ 65,027
Accounts payable and accrued expenses - related parties	17,862	5,559
Accrued expenses	129,968	57,300
	309,749	127,886
<b>LONG TERM EQUIPMENT PURCHASE - NET OF CURRENT PORTION</b>	11,893	
<b>TOTAL LIABILITIES</b>	321,642	127,886
<b>STOCKHOLDERS' EQUITY</b>		
Preferred stock, \$0.001 par value, 1,000,000 authorized, No shares issued or outstanding		
Common stock \$0.001 par value, 250,000,000 authorized, 72,194,057 and 68,077,288 issued and outstanding at September 30, 2017 and December 31, 2016	72,194	68,078
Additional paid-in-capital	53,978,566	48,998,073
Accumulated deficit	(50,167,322)	(46,006,629)
<b>TOTAL STOCKHOLDERS' EQUITY</b>	3,883,438	3,059,522
<b>TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY</b>	<b>\$ 4,205,080</b>	<b>\$ 3,187,408</b>

See accompanying notes to these financial statements.



**LIGHTWAVE LOGIC, INC.****STATEMENTS OF OPERATIONS****FOR THE THREE MONTHS AND NINE MONTHS ENDING SEPTEMBER 30, 2017 AND 2016****(UNAUDITED)**

	<b>For the Three Months Ending September 30,</b>		<b>For the Nine Months Ending September 30,</b>	
	<b>2017</b>	<b>2016</b>	<b>2017</b>	<b>2016</b>
NET SALES	\$	\$	\$	\$
COST AND EXPENSE				
Research and development	821,331	589,038	2,388,861	1,784,871
General and administrative	384,601	354,288	1,643,462	1,257,096
	1,205,932	943,326	4,032,323	3,041,967
LOSS FROM OPERATIONS	(1,205,932)	(943,326)	(4,032,323)	(3,041,967)
OTHER INCOME (EXPENSE)				
Interest income	63	62	187	191
Commitment fee	(74,636)	(22,177)	(128,557)	(260,142)
NET LOSS	\$ (1,280,505)	\$ (965,441)	\$ (4,160,693)	\$ (3,301,918)
Basic and Diluted Loss per Share	\$ (0.02)	\$ (0.01)	\$ (0.06)	\$ (0.05)
Basic and Diluted Weighted Average Number of Shares	70,871,809	66,159,280	70,128,995	65,816,072

See accompanying notes to these financial statements.



**LIGHTWAVE LOGIC, INC.****STATEMENT OF STOCKHOLDERS EQUITY****SEPTEMBER 30, 2017****(UNAUDITED)**

	<b>Number of Shares</b>	<b>Common Stock</b>	<b>Additional Paid-in Capital</b>	<b>Accumulated Deficit</b>	<b>Total</b>
BALANCE AT DECEMBER 31, 2016 (AUDITED)	68,077,288	\$ 68,078	\$ 48,998,073	\$ (46,006,629)	\$ 3,059,522
Common stock issued to institutional investor	3,500,000	3,500	3,435,560		3,439,060
Common stock issued for additional commitment shares	111,772	112	128,445		128,557
Exercise of warrants	469,000	469	502,031		502,500
Common stock issued for services	35,997	35	44,215		44,250
Options issued for services			694,621		694,621
Warrants issued for services			175,621		175,621
Net loss for the nine months ending September 30, 2017				(4,160,693)	(4,160,693)
BALANCE AT SEPTEMBER 30, 2017 (UNAUDITED)	72,194,057	\$ 72,194	\$ 53,978,566	\$ (50,167,322)	\$ 3,883,438

See accompanying notes to these financial statements.



**LIGHTWAVE LOGIC, INC.****STATEMENTS OF CASH FLOW****FOR THE NINE MONTHS ENDING SEPTEMBER 30, 2017 AND 2016****(UNAUDITED)**

	<b>For the Nine Months Ending September 30,</b>	
	<b>2017</b>	<b>2016</b>
<b>CASH FLOWS FROM OPERATING ACTIVITIES</b>		
Net loss	\$ (4,160,693)	\$ (3,301,918)
Adjustment to reconcile net loss to net cash used in operating activities		
Warrants issued for services	175,621	73,804
Stock options issued for services	694,621	325,954
Common stock issued for services and fees	136,557	278,142
Depreciation and amortization and noncash patent expenses	214,573	145,658
Gain on disposal of property and equipment		(644)
(Increase) decrease in assets		
Prepaid expenses and other current assets	(38,839)	97,012
Increase in liabilities		
Accounts payable	19,591	87,076
Accounts payable and accrued expenses - related parties	12,303	2,882
Accrued expenses	72,668	20,309
Net cash used in operating activities	(2,873,598)	(2,271,725)
<b>CASH FLOWS FROM INVESTING ACTIVITIES</b>		
Cost of intangibles	(38,662)	(42,799)
Purchase of property and equipment	(88,649)	(97,805)
Sale of property and equipment		19,500
Net cash used in investing activities	(127,311)	(121,104)
<b>CASH FLOWS FROM FINANCING ACTIVITIES</b>		
Exercise of warrants	502,500	
Issuance of common stock, institutional investor	3,439,060	964,200
Repayment of equipment purchased	(17,839)	
Net cash provided by financing activities	3,923,721	964,200
NET INCREASE IN CASH AND CASH EQUIVALENTS	922,812	(1,428,629)
CASH AND CASH EQUIVALENTS - BEGINNING OF PERIOD	1,956,844	3,730,705
CASH AND CASH EQUIVALENTS - END OF PERIOD	\$ 2,879,656	\$ 2,302,076

**Supplemental Disclosure of Non-cash investing and financing activity:**

Equipment acquisition funded by liability	\$	107,033
Common stock for service, paid in advance		36,250

See accompanying notes to these financial statements.



**LIGHTWAVE LOGIC, INC.**

**NOTES TO FINANCIAL STATEMENTS**

**SEPTEMBER 30, 2017 AND 2016**

**NOTE 1 NATURE OF BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

**Financial Statements**

The accompanying unaudited financial statements have been prepared by Lightwave Logic, Inc. (the Company). These statements include all adjustments (consisting only of its normal recurring adjustments) which management believes necessary for a fair presentation of the statements and have been prepared on a consistent basis using the accounting policies described in the Summary of Accounting Policies included in the 2016 Annual Report. Certain financial information and footnote disclosures normally included in financial statements prepared in accordance with accounting principles generally accepted in the United States have been condensed or omitted pursuant to the rules and regulations of the Securities and Exchange Commission, although the Company firmly believes that the accompanying disclosures are adequate to make the information presented not misleading. The financial statements should be read in conjunction with the financial statements and notes thereto included in the Company's Annual Report on Form 10-K for the year ended December 31, 2016, as filed with the Securities and Exchange Commission. The interim operating results for the three and nine months ending September 30, 2017 may not be indicative of operating results expected for the full year.

**Nature of Business**

Lightwave Logic, Inc. is a technology company focused on the development of next generation photonic devices and non-linear optical polymer materials systems for applications in high speed fiber-optic data communications and optical computing markets. Currently the Company is in various stages of photonic device and materials development and evaluation with potential customers and strategic partners. The Company expects to obtain a revenue stream from datacom and telecom devices, sales of non-linear optical polymers, and product development agreements prior to moving into full-scale production.

The Company's current development activities are subject to significant risks and uncertainties, including failing to secure additional funding to operationalize the Company's technology now under development.

## Stock-based Payments

The Company accounts for stock-based compensation under the provisions of Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 718, "Compensation - Stock Compensation", which requires the measurement and recognition of compensation expense for all stock-based awards made to employees and directors based on estimated fair values on the grant date. The Company estimates the fair value of stock-based awards on the date of grant using the Black-Scholes model. The value of the portion of the award that is ultimately expected to vest is recognized as expense over the shorter of the vesting period or the requisite service periods using the straightline method. The Company accounts for stock-based compensation awards to nonemployees in accordance with FASB ASC 505-50, "Equity-Based Payments to Non-Employees ( ASC 505-50 )". Under ASC 505-50, the Company determines the fair value of the warrants or stock-based compensation awards granted as either the fair value of the consideration received or the fair value of the equity instruments issued, whichever is more reliably measurable. All issuances of stock options or other equity instruments to non-employees as consideration for goods or services received by the Company are accounted for based on the fair value of the equity instruments issued. Any stock options issued to non-employees are recorded as an expense and additional paid in capital in stockholders' equity over the applicable service periods. Non-employee equity based payments are recorded as an expense over the service period, as if the Company had paid cash for the services. At the end of each financial reporting period, prior to vesting or prior to the completion of the services, the fair value of the equity based payments will be re-measured and the non-cash expense recognized during the period will be adjusted accordingly. Since the fair value of equity based payments granted to non-employees is subject to change in the future, the amount of the future expense will include fair value re-measurements until the equity based payments are fully vested or the service completed.

**LIGHTWAVE LOGIC, INC.**

**NOTES TO FINANCIAL STATEMENTS**

**SEPTEMBER 30, 2017 AND 2016**

**NOTE 1 NATURE OF BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES  
(CONTINUED)**

**Loss per Share**

The Company follows FASB ASC 260, Earnings per Share, resulting in the presentation of basic and diluted earnings per share. Because the Company reported a net loss in 2017 and 2016, common stock equivalents, including stock options and warrants were anti-dilutive; therefore, the amounts reported for basic and dilutive loss per share were the same.

**Comprehensive Income**

The Company follows FASB ASC 220.10, Reporting Comprehensive Income. Comprehensive income is a more inclusive financial reporting methodology that includes disclosure of certain financial information that historically has not been recognized in the calculation of net income (loss). Since the Company has no items of other comprehensive income, comprehensive income (loss) is equal to net income (loss).

**Recently Issued Accounting Pronouncements Not Yet Adopted**

As of September 30, 2017, there are no recently issued accounting standards not yet adopted which would have a material effect on the Company's financial statements through 2017.

**Recently Adopted Accounting Pronouncements**

As of September 30, 2017 and for the period then ended, there were no recently adopted accounting pronouncements that had a material effect on the Company's financial statements.

**NOTE 2 MANAGEMENT'S PLANS**

As a technology company focusing on the development of the next generation photonic devices and non-linear optical polymer materials systems, substantial net losses have been incurred since inception. The Company has satisfied capital requirements since inception primarily through the issuance and sale of its common stock. The Company currently has a cash position of approximately \$3,200,000. Based upon the current cash position and expenditures of approximately \$465,000 per month, management believes the Company has sufficient funds to finance its operations through May 2018. In January 2016, the Company signed a purchase agreement ( Purchase Agreement ) with an institutional investor to sell up to \$20,000,000 of common stock. A registration statement related to the transaction filed with the U.S. Securities and Exchange Commission registering 5,000,000 shares of the Company's common stock went effective on April 7, 2016. The Company registered an additional 5,000,000 shares pursuant to a registration statement filed on April 19, 2017 which became effective June 15, 2017. Under the Purchase Agreement and at Company's sole discretion, the institutional investor has committed to invest up to \$20,000,000 in common stock over a 36-month period. The Company has raised \$4,992,250 as of September 30, 2017. The Company raised an additional \$1,060,300 under the Purchase Agreement during October and November 2017.

**LIGHTWAVE LOGIC, INC.****NOTES TO FINANCIAL STATEMENTS****SEPTEMBER 30, 2017 AND 2016****NOTE 3 PROPERTY AND EQUIPMENT**

Property and equipment consists of the following:

	<b>September 30, 2017</b>	<b>December 31, 2016</b>
Office equipment	\$ 79,841	\$ 55,817
Lab equipment	960,793	789,135
Furniture	32,693	32,693
Leasehold Improvements	231,859	231,859
	1,305,186	1,109,504
Less: Accumulated depreciation	820,804	683,854
	\$ 484,382	\$ 425,650

Depreciation expense for the nine months ending September 30, 2017 and 2016 was \$136,950 and \$133,740. Depreciation expense for the three months ending September 30, 2017 and 2016 was \$47,037 and \$44,113. During the nine months ended September 30, 2016, the company sold equipment for proceeds of \$19,500 and a gain of \$644.

**NOTE 4 INTANGIBLE ASSETS**

This represents legal fees and patent fees associated with the prosecution of patent applications. The Company has recorded amortization expenses on patents granted, which are amortized over the remaining legal life. Maintenance patent fees are paid to a government patent authority to maintain a granted patent in force. Some countries require the payment of maintenance fees for pending patent applications. Maintenance fees paid after a patent is granted are expensed, as these are considered ongoing costs to maintain a patent. Maintenance fees paid prior to a patent grant date are capitalized to patent costs, as these are considered patent application costs. No amortization expense has been recorded on the remaining patent applications since patents have yet to be granted.

Patents consists of the following:

	<b>September 30, 2017</b>	<b>December 31, 2016</b>
Patents	\$ 792,920	\$ 754,259
Less: Accumulated amortization	163,909	86,287
	<b>\$ 629,011</b>	<b>\$ 667,972</b>

Amortization expense for the nine months ending September 30, 2017 and 2016 was \$77,623 and \$11,918. Amortization expense for the three months ending September 30, 2017 and 2016 was \$14,722 and \$3,972. Expense for abandoned patents for the three months and nine months ending September 30, 2017 and 2016 was \$0.

**LIGHTWAVE LOGIC, INC.**

**NOTES TO FINANCIAL STATEMENTS**

**SEPTEMBER 30, 2017 AND 2016**

**NOTE 5 LONG TERM EQUIPMENT PURCHASE PAYABLE**

Outstanding long term equipment purchase payable is comprised of the following

<b>Final Year of Maturity</b>	<b>Interest Rate</b>	<b>September 30, 2017</b>	<b>December 31, 2016</b>
2018	0.00%	\$11,893	\$

**NOTE 6 INCOME TAXES**

There is no income tax benefit for the losses for the three and nine months ended September 30, 2017 and 2016 since management has determined that the realization of the net deferred tax asset is not assured and has created a valuation allowance for the entire amount of such benefits.

The Company's policy is to record interest and penalties associated with unrecognized tax benefits as additional income taxes in the statement of operations. As of January 1, 2017, the Company had no unrecognized tax benefits, or any tax related interest or penalties. There were no changes in the Company's unrecognized tax benefits during the period ended September 30, 2017. The Company did not recognize any interest or penalties during 2017 related to unrecognized tax benefits. With few exceptions, the U.S. and state income tax returns filed for the tax years ending on December 31, 2013 and thereafter are subject to examination by the relevant taxing authorities.

**NOTE 7 STOCKHOLDERS EQUITY**

**Preferred Stock**

Pursuant to the Company's Articles of Incorporation, the Company's board of directors is empowered, without stockholder approval, to issue series of preferred stock with any designations, rights and preferences as they may from time to time determine. The rights and preferences of this preferred stock may be superior to the rights and preferences of the Company's common stock; consequently, preferred stock, if issued could have dividend, liquidation, conversion, voting or other rights that could adversely affect the voting power or other rights of the common stock. Additionally, preferred stock, if issued, could be utilized, under special circumstances, as a method of discouraging, delaying or preventing a change in control of the Company's business or a takeover from a third party.

### **Common Stock Options and Warrants**

In May 2014, under the 2007 Employee Stock Option Plan the Company issued an option to a new director to purchase 200,000 shares of common stock at a purchase price of \$0.763 per share. The option was valued at \$122,515, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years with 50,000 vesting immediately and the remainder vesting in annual equal installments of 50,000 commencing on the one year anniversary of the date of grant. The option is expensed over the vesting term. In July 2016, the option to purchase 50,000 shares of common stock forfeited. In October 2016, the option to purchase 150,000 shares of common stock forfeited. For the three months ended September 30, 2017 the Company recognized \$0 of expense. During the nine months ending September 30, 2017, the Company reduced amortization by \$19,718.

During June 2014 through August 2014, the Company issued 4,207,600 shares of common stock and warrants to purchase 4,207,600 shares of common stock expiring five years from the date of purchase, for proceeds of \$3,140,000 in accordance to a private placement memorandum as amended on May 27, 2014. Pursuant to the terms of the offerings, up to 60 units were offered at the purchase price of \$50,000 per unit, with each unit comprised of 67,000 shares and a warrant to purchase 33,500 shares of common stock at \$1.00 per share and a warrant to purchase 33,500 shares of common stock at \$1.25 per share. During May 2017, warrants were partially exercised to purchase 469,000 shares of common stock for proceeds of \$502,500.



**LIGHTWAVE LOGIC, INC.**

**NOTES TO FINANCIAL STATEMENTS**

**SEPTEMBER 30, 2017 AND 2016**

**NOTE 7 STOCKHOLDERS EQUITY (CONTINUED)**

**Common Stock Options and Warrants (Continued)**

During August 2015, under the 2007 Employee Stock Option Plan, the Company issued an option to a new director to purchase 200,000 shares of common stock at a purchase price of \$0.69 per share. The option was valued at \$90,615, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years and vests 50,000 immediately and the remaining in equal annual installments of 50,000 over the next three years. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$5,648 and \$16,882 of expense. As of September 30, 2017, the option to purchase 200,000 shares of common stock is still outstanding.

During October 2015, under the 2007 Employee Stock Option Plan, the Company issued an option to a new employee to purchase 35,000 shares of common stock at a purchase price of \$0.74 per share. The option was valued at \$16,393, fair value, using the Black-Scholes Option Pricing Formula. The option expires October 12, 2025 with 4,375 shares vesting on the anniversary date of the third month of employment and the remaining vesting in seven equal installments of 4,375 at the end of every three month period thereafter. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$2,058 and \$6,147 of expense. As of September 30, 2017, the option to purchase 35,000 shares of common stock is still outstanding.

During November 2015, under the 2007 Employee Stock Option Plan, the Company issued an option effective January 1, 2016 to the Chief Executive Officer to purchase 100,000 shares of common stock at a purchase price of \$0.86 per share. The option expires November 9, 2025 with 12,500 shares vesting on January 1, 2016 and the remaining vesting quarterly in equal installments of 12,500 commencing April 1, 2016. The option was valued at \$33,108, fair value, using the Black-Scholes Option Pricing Formula. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$4,139 and \$12,416 of expense. As of September 30, 2017, the option to purchase 100,000 shares of common stock is still outstanding.

In January 2016, the Company signed a Purchase Agreement with an institutional investor to sell up to \$20,000,000 of common stock. The Company also entered into a registration rights agreement with the institutional investor whereby the Company agreed to file a registration statement related to the transaction with the U.S. Securities and Exchange

Commission registering 5,000,000 shares of the Company's common stock. The registration statement was filed on March 25, 2016. The registration statement became effective April 7, 2016. The Company registered an additional 5,000,000 shares pursuant to a registration statement filed on April 19, 2017 which became effective June 15, 2017. Under the Purchase Agreement and at Company's sole discretion, the institutional investor has committed to invest up to \$20,000,000 in common stock over a 36-month period. The Company issued 350,000 shares of restricted common stock to the institutional investor as an initial commitment fee valued at \$237,965, fair value, and 650,000 shares of common stock are reserved for additional commitment fees to the institutional investor in accordance with the terms of the Purchase Agreement. During the period August 2016 through September 30, 2017, the institutional investor purchased 5,900,000 shares of common stock for proceeds of \$4,992,250 and the Company issued 162,253 shares of common stock as additional commitment fee, valued at \$162,476, fair value, leaving 487,747 in reserve for additional commitment fees. For the three months ending September 30, 2017, the institutional investor purchased 1,500,000 shares of common stock for proceeds of \$1,782,300 and the Company issued 57,927 shares of common stock as additional commitment fee, valued at \$74,636, fair value. For the nine months ending September 30, 2017, the institutional investor purchased 3,500,000 shares of common stock for proceeds of \$3,439,060 and the Company issued 111,772 shares of common stock as additional commitment fee, valued at \$128,557, fair value. During October and November 2017, the institutional investor purchased 800,000 shares of common stock for proceeds of \$1,060,300 and the Company issued 34,462 shares of common stock as additional commitment fee, valued at \$47,423, fair value, leaving 515,266 in reserve for additional commitment fees.

**LIGHTWAVE LOGIC, INC.**

**NOTES TO FINANCIAL STATEMENTS**

**SEPTEMBER 30, 2017 AND 2016**

**NOTE 7 STOCKHOLDERS EQUITY (CONTINUED)**

**Common Stock Options and Warrants (Continued)**

In February 2016, under the 2007 Employee Stock Option Plan, the Company issued an option to an independent director purchase 50,000 shares of common stock at a purchase price of \$0.68 per share. The option was valued at \$21,475, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years and vests 20,000 immediately and the remaining in quarterly equal installments of 10,000 commencing April 1, 2016. The option is expensed over the vesting terms. In July 2016, the option to purchase 10,000 shares of common stock forfeited. For the three months ended September 30, 2017 the Company recognized \$0 of expense. During the nine months ending September 30, 2017, Company reduced amortization by \$4,295. As of September 30, 2017, the option to purchase 40,000 shares of common stock is still outstanding.

In May 2016, under the 2007 Employee Stock Option Plan, the Company issued an option to an employee to purchase 5,000 shares of common stock at a purchase price of \$0.60 per share. The option was valued at \$1,738, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years and vests in quarterly equal installments of 625 commencing August 4, 2016. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$217 and \$652 of expense. As of September 30, 2017, the option to purchase 5,000 shares of common stock is still outstanding.

In July 2016, under the 2016 Equity Incentive Plan, the Company issued an option to a new employee to purchase 15,000 shares of common stock at a purchase price of \$0.63 per share. The option was valued at \$6,216, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years and vests in quarterly equal installments of 1,875 commencing on September 27, 2016. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$777 and \$2,330 of expense. As of September 30, 2017, the option to purchase 15,000 shares of common stock is still outstanding.

During July 2016, the Company issued a warrant to purchase 150,000 shares of common stock at a purchase price of \$0.63 per share for accounting services to be rendered over a twelve month period commencing July 1, 2016. The warrant was valued at \$60,272, fair value, using the Black-Scholes Option Pricing Formula, vesting over the next twelve months with 12,500 vesting immediately, 12,500 vesting per month on the first day of the next ten months and

12,500 vesting on the first day of the twelfth month of the corresponding service agreement. The warrant expires in five years. The expense is being recognized based on service terms of the agreement over a twelve month period. For the three and nine months ending September 30, 2017, the Company recognized \$0 and \$40,238 of expense. As of September 30, 2017, the warrant to purchase 150,000 shares of common stock is still outstanding.

During November 2016, under the 2016 Equity Incentive Plan, the Company issued an option to an employee to purchase 15,000 shares of common stock at a purchase price of \$0.60 per share. The option was valued at \$5,674, fair value, using the Black-Scholes Option Pricing Formula. The option expires November 9, 2026 with 1,875 shares vesting on December 1, 2016 and the remaining vesting in seven equal quarterly installments of 1,875. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$717 and \$2,123 of expense. As of September 30, 2017, the option to purchase 15,000 shares of common stock is still outstanding.

**LIGHTWAVE LOGIC, INC.**

**NOTES TO FINANCIAL STATEMENTS**

**SEPTEMBER 30, 2017 AND 2016**

**NOTE 7 STOCKHOLDERS EQUITY (CONTINUED)**

**Common Stock Options and Warrants (Continued)**

In November 2016, under the 2016 Equity Incentive Plan, the Company issued an option effective January 9, 2017 to a director to purchase up to 100,000 shares of common stock at a purchase price of \$0.75 per share. The option was valued at \$44,789, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years and vests immediately. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$0 and \$44,789 of expense. As of September 30, 2017, the option to purchase 100,000 shares of common stock is still outstanding.

In December 2016, the Company issued a warrant effective January 1, 2017 to a senior advisor to purchase up to 275,000 shares of common stock at a purchase price of \$0.60 per share. The warrant was valued at \$102,222, fair value, using the Black-Scholes Option Pricing Formula. The warrant expires in 5 years and vests 181,250 immediately and the remaining in equal monthly installments of 9,375 over the next 10 months. In March 2017, the warrant was amended to vest 181,250 shares of common stock immediately and 92,750 shares of common stock on March 24, 2017. The warrant is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$0 and \$106,576 of expense. As of September 30, 2017, the warrant to purchase 275,000 shares of common stock is still outstanding.

In January 2017, under the 2016 Equity Incentive Plan, the Company issued options to the Company's five independent directors to each purchase 50,000 shares of common stock at a purchase price of \$0.85 per share. Each option was valued at \$26,547, fair value, using the Black-Scholes Option Pricing Formula. The options expire in 10 years with 20,000 vesting immediately and the remainder vesting in quarterly equal installments of 10,000 commencing April 1, 2017. The options are expensed over the vesting terms. For the three and nine months ending September 30, 2017, the Company recognized \$26,545 and \$132,440 of expense. As of September 30, 2017, the options to purchase 250,000 shares of common stock are still outstanding.

In March 2017, under the 2016 Equity Incentive Plan, the Company issued an option effective April 1, 2017 to an employee to purchase up to 15,000 shares of common stock at a purchase price of \$0.73 per share. Using the Black-Scholes Option Pricing Formula, the option was valued at \$6,243, fair value. The option expires in 10 years and

vests immediately. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$0 and \$6,243 of expense. As of September 30, 2017, the option to purchase 15,000 shares of common stock is still outstanding.

In March 2017, under the 2016 Equity Incentive Plan, the Company issued an option effective April 1, 2017 to a new director to purchase up to 200,000 shares of common stock at a purchase price of \$0.73 per share. Using the Black-Scholes Option Pricing Formula, the option was valued at \$92,516, fair value. The option expires in 10 years and vests 50,000 on April 1, 2017 and the remaining in equal annual installments of 50,000 commencing on April 1, 2018. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$5,830 and \$34,725 of expense. As of September 30, 2017, the option to purchase 200,000 shares of common stock is still outstanding.

**LIGHTWAVE LOGIC, INC.**

**NOTES TO FINANCIAL STATEMENTS**

**SEPTEMBER 30, 2017 AND 2016**

**NOTE 7 STOCKHOLDERS EQUITY (CONTINUED)**

**Common Stock Options and Warrants (Continued)**

In March 2017, under the 2016 Equity Incentive Plan, the Company issued an option effective May 1, 2017 to the new Chief Executive Officer to purchase up to 350,000 shares of common stock at a purchase price of \$0.70 per share. Using the Black-Scholes Option Pricing Formula, the option was valued at \$280,120, fair value. The option expires in 10 years and vests 87,500 on May 1, 2017 and the remaining in equal quarterly installments of 87,500 commencing on August 1, 2017. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$70,030 and \$186,493 of expense. As of September 30, 2017, the option to purchase 350,000 shares of common stock is still outstanding.

In May 2017, under the 2016 Equity Incentive Plan, the Company issued an option to an employee to purchase 20,000 shares of common stock at a purchase price of \$1.50 per share. The option was valued at \$17,353, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years and vests in quarterly equal installments of 5,000 commencing June 1, 2017. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$4,354 and \$10,107 of expense. As of September 30, 2017, the option to purchase 20,000 shares of common stock is still outstanding.

In May 2017, under the 2016 Equity Incentive Plan, the Company issued an option to an employee to purchase 10,000 shares of common stock at a purchase price of \$1.50 per share. The option was valued at \$8,677, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years and vests in quarterly equal installments of 2,500 commencing June 1, 2017. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$2,177 and \$5,053 of expense. As of September 30, 2017, the option to purchase 10,000 shares of common stock is still outstanding.

In May 2017, under the 2016 Equity Incentive Plan, the Company issued an option to an employee to purchase 25,000 shares of common stock at a purchase price of \$1.50 per share. The option was valued at \$23,889, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years and 3,125 shares vesting on the anniversary date of the third month of employment and the remaining vesting in seven equal installments of 3,125 at the end of every three month period thereafter. The option is expensed over the vesting term. For the three and nine months

ending September 30, 2017, the Company recognized \$2,986 and \$4,447 of expense. As of September 30, 2017, the option to purchase 25,000 shares of common stock is still outstanding.

In May 2017, under the 2016 Equity Incentive Plan, the Company issued an option to a director to purchase 300,000 shares of common stock at a purchase price of \$1.50 per share. The option was valued at \$250,000, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years and vests immediately. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$0 and \$250,000 of expense. As of September 30, 2017, the option to purchase 300,000 shares of common stock is still outstanding.

In May 2017, under the 2016 Equity Incentive Plan, the Company issued an option to a new employee to purchase 10,000 shares of common stock at a purchase price of \$1.50 per share. The option was valued at \$9,585, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years and vests in quarterly equal installments of 1,250 commencing September 12, 2017. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$1,201 and \$1,448 of expense. As of September 30, 2017, the option to purchase 10,000 shares of common stock is still outstanding.



**LIGHTWAVE LOGIC, INC.**

**NOTES TO FINANCIAL STATEMENTS**

**SEPTEMBER 30, 2017 AND 2016**

**NOTE 7 STOCKHOLDERS EQUITY (CONTINUED)**

**Common Stock Options and Warrants (Continued)**

During July 2017, the Company issued a warrant to purchase 150,000 shares of common stock at a purchase price of \$1.48 per share for accounting services to be rendered over a twelve month period commencing July 1, 2017. The warrant was valued at \$124,788, fair value upon issuance, using the Black-Scholes Option Pricing Formula, vesting over the next twelve months with 12,500 vesting immediately, 12,500 vesting per month on the first day of the next ten months and 12,500 vesting on the first day of the twelfth month of the corresponding service agreement. The warrant was re-valued at \$115,226, fair value at September 30, 2017. The warrant expires in five years. The expense is being recognized based on service terms of the agreement over a twelve month period. For the three and nine months ending September 30, 2017, the Company recognized \$28,807 of expense. As of September 30, 2017, the warrant to purchase 150,000 shares of common stock is still outstanding.

In August 2017, under the 2016 Equity Incentive Plan, the Company issued an option to an employee to purchase 10,000 shares of common stock at a purchase price of \$1.05 per share. The option was valued at \$6,169, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years and vests in quarterly equal installments of 2,500 commencing August 15, 2017. The option is expensed over the vesting term. For the three and nine months ending September 30, 2017, the Company recognized \$2,339 of expense. As of September 30, 2017, the option to purchase 10,000 shares of common stock is still outstanding.

For the nine months ending September 30, 2017 the Company issued 10,997 shares, with a fair value of \$8,000, to a director serving as a member of the Company's Operations Committee commencing August 2015. For the nine months ending September 30, 2017, the Company recognized \$8,000 of expense. The Company did not issue any shares to the director serving as a member of the Company's Operations Committee during the three month period ending September 30, 2017.

During January 2017, an option to purchase 100,000 shares of common stock at an exercise price of \$0.72 expired. During March 2017, a warrant to purchase 10,000 shares of common stock at an exercise price of \$1.69 expired. During May 2017, warrants to purchase 100,000 shares of common stock at an exercise price of \$1.20 expired. During June 2017, an option to purchase 200,000 shares of common stock at an exercise price of \$0.90 expired. During June

2017, an option to purchase 100,000 shares of common stock at an exercise price of \$1.69 forfeited.

On September 29, 2017, the Company issued 25,000 shares of common stock pursuant to a consulting agreement for consulting services to be rendered over an eighteen month period commencing September 30, 2017, valued at \$36,250, fair value. The amount was recorded as deferred compensation and will be amortized based on service terms of the agreement over an eighteen month period. For the nine months ending September 30, 2017, the Company recognized \$0 of expense.

#### **NOTE 8 STOCK BASED COMPENSATION**

The Company uses the Black-Scholes option pricing model to calculate the grant-date fair value of an award, with the following assumptions for 2017: no dividend yield, expected volatility, based on the Company's historical volatility, 64% to 75%, risk-free interest rate 1.74 to 1.97% and expected option life of 5 to 5.75 years.

As of September 30, 2017, there was \$306,698 of unrecognized compensation expense related to non-vested market-based share awards that is expected to be recognized through March 2020.

**LIGHTWAVE LOGIC, INC.****NOTES TO FINANCIAL STATEMENTS****SEPTEMBER 30, 2017 AND 2016****NOTE 8 STOCK BASED COMPENSATION (CONTINUED)**

The following tables summarize all stock option and warrant activity of the Company during the nine months ended September 30, 2017:

**Non-Qualified Stock Options and Warrants  
Outstanding and Exercisable**

	<b>Number of Shares</b>		<b>Exercise Price</b>		<b>Weighted Average Exercise Price</b>
Outstanding, December 31, 2016	18,101,367	\$	0.57 - \$1.69	\$	0.90
Granted	1,715,000	\$	0.60 - \$1.50	\$	0.95
Expired	(772,500)	\$	0.68 - \$1.69	\$	0.98
Forfeited Exercised	(469,000)	\$	1.00 - \$1.25	\$	1.07
Outstanding, September 30, 2017	18,574,867	\$	0.57 - \$1.69	\$	0.90
Exercisable, September 30, 2017	17,952,367	\$	0.57 - \$1.69	\$	0.89

The aggregate intrinsic value of options and warrants outstanding and exercisable as of September 30, 2017 was \$10,000,895. The aggregate intrinsic value is calculated as the difference between the exercise price of the underlying options and warrants and the closing stock price of \$1.45 for the Company's common stock on September 30, 2017. No options or warrants were exercised during the three and nine months period ending September 30, 2017.

**Non-Qualified Stock Options and Warrants Outstanding**

<b>Range of Exercise Prices</b>	<b>Number Outstanding Currently Exercisable at September 30, 2017</b>	<b>Weighted Average Remaining Contractual Life</b>	<b>Weighted Average Exercise Price of Options and Warrants Currently Exercisable</b>
\$0.57 - \$1.69	17,952,367	4.35 Years	\$0.89

**NOTE 9 RELATED PARTY**

At September 30, 2017 the Company had a legal accrual to related party of \$12,100 and travel and office expense accruals of officers in the amount of \$5,762. At December 31, 2016 the Company had a legal accrual to related party of \$2,900 and travel and office expense accruals of officers in the amount of \$2,659.

**NOTE 10 RETIREMENT PLAN**

The Company established a 401(k) retirement plan covering all eligible employees beginning November 15, 2013. A contribution of \$15,181 and \$15,000 was charged to expense and accrued for the nine months ending September 30, 2017 and September 30, 2016 to all eligible non-executive participants. A contribution of \$5,382 and \$5,000 was charged to expense and accrued for the three months ending September 30, 2017 and September 30, 2016 to all eligible non-executive participants.

**LIGHTWAVE LOGIC, INC.**

**NOTES TO FINANCIAL STATEMENTS**

**SEPTEMBER 30, 2017 AND 2016**

**NOTE 11 SUBSEQUENT EVENTS**

During October 2017, under the 2016 Equity Incentive Plan, the Company issued options to an employee to purchase 10,000 shares of common stock at a purchase price of \$1.45 per share. The option was valued at \$8,419, fair value, using the Black-Scholes Option Pricing Formula. The options expire October 1, 2027 with 1,250 shares vesting on October 1, 2017 and the remaining vesting in seven equal quarterly installments of 1,250. The option is expensed over the vesting terms.

On October 30, 2017, the Company entered into a new lease to lease approximately 13,420 square feet of office, laboratory and research and development space located in Colorado for the Company's new principal executive offices and research and development facility. The term of the lease is sixty-one (61) months, beginning on November 1, 2017 and ending on November 30, 2022. The term shall be extended for an additional twenty-four (24) months, subject to certain conditions, waivable solely by Landlord in its sole and absolute discretion. Base rent for the first year of the lease term is approximately \$168,824, with an increase in annual base rent of approximately 3% in each subsequent year of the lease term. As specified in the lease, the Company paid the landlord (i) all base rent for the period November 1, 2017 and ending on October 31, 2019, in the sum of \$347,045.68; and (ii) the estimated amount of tenant's proportionate share of operating expenses for the same period in the sum of \$186,293.04. Commencing on November 1, 2019, monthly installments of base rent and one-twelfth of landlord's estimate of tenant's proportionate share of annual operating expenses shall be due on the first day of each calendar month. The lease also provides that (i) on November 1, 2019 landlord shall pay the Company for the cost of the cosmetic improvements in the amount of \$3.00 per rentable square foot of the premises, and (ii) on or prior to November 1, 2019, the Company shall deposit with Landlord the sum of \$36,524.76 as a security deposit which shall be held by landlord to secure the Company's obligations under the lease. On October 30, 2017, the Company entered into an agreement with the tenant leasing the premise from the landlord ( Original Lessee ) whereby the Original Lessee agreed to pay the Company the sum of \$260,000 in consideration of the Company entering into the lease and landlord agreeing to the early termination of the Original Lessee's lease agreement with landlord. The consideration of \$260,000 was received on November 1, 2017.

In November 2017, under the 2016 Equity Incentive Plan, the Company issued an option to a new employee to purchase 15,000 shares of common stock at a purchase price of \$1.33 per share. The option was valued at \$12,142, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years and vests in quarterly equal installments of 1,875 commencing February 6, 2018. The option is expensed over the vesting term.

In November 2017, under the 2016 Equity Incentive Plan, the Company issued an option to a new employee to purchase 30,000 shares of common stock at a purchase price of \$1.37 per share. The option was valued at \$22,829, fair value, using the Black-Scholes Option Pricing Formula. The option expires in 10 years and vests in quarterly equal installments of 3,750 commencing February 7, 2018. The option is expensed over the vesting term.

## Item 2

### Management's Discussion and Analysis of Financial Condition and Results of Operations

*The following discussion and analysis should be read in conjunction with our financial statements, included herewith. This discussion should not be construed to imply that the results discussed herein will necessarily continue into the future, or that any conclusion reached herein will necessarily be indicative of actual operating results in the future. Such discussion represents only the best present assessment of our management. This information should also be read in conjunction with our audited historical financial statements which are included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2016, filed with the Securities and Exchange Commission on March 17, 2017.*

#### Overview

Lightwave Logic, Inc. (the **Company**) is a development stage company whose **ILC™** technology addresses advanced telecommunication, data communications, and data center markets utilizing its advanced organic electro-optic polymer systems. The Company currently has two business segments to support its development activities, its materials development segment located in Newark, Delaware, and its photonic device design and development segment located in Longmont, Colorado.

#### Materials Development

The Company designs and synthesizes organic chromophores for use in its own proprietary electro-optic *polymer systems* and photonic device designs. A polymer system is not solely a material, but also encompasses various technical enhancements necessary for its implementation. These include host polymers, poling methodologies, and molecular spacer systems that are customized to achieve specific optical properties. Our organic electro-optic polymer systems compounds are mixed into solution form that allows for thin film application. Our proprietary electro-optic polymers are designed at the molecular level for potentially superior performance, stability and cost-efficiency. We believe they have the potential to replace more expensive, lower-performance materials and devices used in fiber-optic ground, wireless and satellite communication networks.

Our patented and patent pending molecular architectures are based on a well-understood chemical and quantum mechanical occurrence known as *aromaticity*. Aromaticity provides a high degree of molecular stability that enables our core molecular structures to maintain stability under a broad range of polymerization conditions that otherwise appear to affect other current polymer molecular designs.

We expect our patented and patent-pending optical materials along with trade secrets and licensed materials, to be the core of and the enabling technology for future generations of optical devices, modules, sub-systems and systems that we will develop or potentially out-license to electro-optic device manufacturers. The Company contemplates future applications that may address the needs of semiconductor companies, aerospace companies and government agencies.

## **Prototype Device Design and Development**

### *Electro-optic Modulators*

The Company designs its own proprietary electro-optical modulation devices. Electro-optical modulators convert data from electronic signals (binary data) into optical signals that can then be transmitted over high-speed fiber-optic cables. These devices are key components that have historically limited the ability of telecommunications, data communications, data centers networks to keep up with the seemingly endless flow of data in the form of voice calls, text messages, pictures, video streaming that are being transmitted to a growing array of devices.

### *Polymer Photonic Integrated Circuits (P<sup>2</sup>IC<sup>TM</sup>)*

The Company also designs its own proprietary Polymer Photonic Integrated Circuits. A Polymer Photonic Integrated Circuit is a photonic device that integrates several photonic functions on a single chip. We believe that our technology can enable the ultra-miniaturization needed to increase the number of photonic functions residing on a chip to create a progression like what was seen in the computer integrated circuits, commonly referred to as Moore's Law.



Current integrated photonic technology is based on inorganic crystalline materials, which due to physical limitations have not been able to address devices such as slot waveguides that require highly miniaturized geometries. Slot modulators have the potential to scale in integration for increased functionality as well as low power consumption, and would be highly beneficial to data center infrastructure. Organic electro-optic polymers have greater potential in lower cost because they can be applied as a thin film coating. Our polymers are unique in that they can withstand extremely high semiconductor process temperatures to seamlessly integrate into existing CMOS manufacturing lines. Our devices, enabled by our organic electro-optic polymer material systems, work by affecting the optical properties of light in the presence of an electric field at extremely high frequencies (wide bandwidths) and possess inherent advantages over current crystalline electro-optic material contained in most modulator devices such as lithium niobate, indium phosphide, and gallium arsenide.

## **Business Strategy**

Our business strategy anticipates that our revenue stream will be derived from one or some combination of the following: (i) technology licensing for specific product application; (ii) joint venture relationships with significant industry leaders; or (iii) the production and direct sale of our own electro-optic device components. Our objective is to be a leading provider of proprietary technology and know-how in the electro-optic device market. In order to meet this objective, we intend to:

- Further the development of proprietary organic electro-optic polymer material systems
- Develop photonic devices based on our P<sup>2</sup>IC™ technology
- Continue to develop proprietary intellectual property
- Continue to add device development capabilities
- Continue to add to material development capabilities
- Maintain/develop strategic relationships with major telecommunications and data communications companies to further the awareness and commercialization of our technology
- Continue to add high-level science and technology personnel in key areas of our materials and device development programs.

### *Create Organic Polymer-Enabled Electro-Optic Modulators*

We intend to utilize our proprietary optical polymer technology to create an initial portfolio of commercially feasible electro-optic polymer product devices and applications for various markets, including telecommunications, data communications (which includes data centers and high performance computing).

We expect our initial product device line will be a high-speed 4 x 25 Gbps ridge waveguide modulator optical sub-assumpley (OSA) to compete in the growing 100 Gbps modulator market. This will be followed by a 4 x 50Gbps ridge waveguide modulator OSA that will compete in the 400Gbps market. OSAs are packaged devices and packaged integrated photonics chips that become the engine for transceiver based products in these markets. Our unique technology platform will be the engine to drive current and next generation transceiver based products.

*Continue to Expand Our Intellectual Property Portfolio and Reliance on Trade Secrets*

We plan to continuously advance the development of unique organic electro-optic polymer materials along with proprietary designs and device configurations. We intend to protect our technology by filing patent applications where appropriate or by obtaining exclusive technology rights where available. However, in some cases, we will refrain from protecting certain proprietary with patents in favor of trade secrets.

*Maintain/Develop Strategic Relationships Private Firms, and Academic Institutions*

Since the formation of our Company, we have had numerous strategic relationships with government agencies that have provided us with funding and access to important technology. From the time that we developed our own in-house testing capability and Class 100 clean room facility in Longmont, Colorado, we will utilize outside foundries as and when needed for specific tasks and processes.

After completion of our initial prototype ridge waveguide and integrated photonics platform, we will seek to enter into partnership/JV discussions with outside parties to co-develop a slot waveguide modulator.

*Continue to recruit industry experts to gain technical expertise*

On April 1, 2017 Dr. Frederick Leonberger, PhD became a member of our Board of Directors and was appointed as a member of its Operations Committee. Dr. Leonberger is the former Chief Technology Officer of JDS Uniphase, Inc. Dr. Leonberger is presently assisting our Company with strategic planning and the design of optical modulators that we intend to develop. Dr. Leonberger has served our Company in various advisory and consulting roles since 2011.

### **Proprietary Products in Development**

As part of a two-pronged marketing strategy, our Company is developing several optical devices, which are in various stages of development and that utilize our organic nonlinear optical materials. They include:

#### *Ridge Waveguide Modulator*

Our ridge electro-optic waveguide modulator was designed and fabricated in our Longmont, Colorado laboratory. The fabrication of our first in-house device is significant to our entire device program and is an important starting point for modulators that are being developed for target markets. We have multiple generations of new materials that we will soon be optimizing for this specific design. On December 27, 2016, we announced that our initial alpha prototype ridge waveguide modulator, enabled by our P<sup>2</sup>IC polymer system, demonstrated bandwidth suitable for data rates up to about 10 Gbps, which exceeds the telecom OC-48 standard (2.5 Gbps) and is capable of running optical signals at OC-192 (10Gbps) or 10G Ethernet data rates (10Gbps).

On April 26, 2017, we announced a significant improvement over our initial alpha prototype ridge waveguide modulator by achieving bandwidth suitable for 25Gbps data rates in our all-organic polymer ridge waveguide intensity modulator prototype, and on July 19, 2017 we further advanced its high-speed modulation performance to satisfy 28Gbps data rates for QSFP28 standards and 100Gbps data center applications (using 4 channels of 25 Gbps). This device, enabled by our P<sup>2</sup>IC polymer system, demonstrated true amplitude (intensity) modulation in a Mach-Zehnder modulator structure incorporating our polymer waveguides. We are optimizing relevant 28Gbps device performance parameters and are now focused on commercializing our ridge waveguide modulator. To that end, we have entered into a contract with a packaging partner that has deep experience in high-speed telecommunications and data communications optoelectronic devices. The partner will package Lightwave's 28Gbps modulators so further evaluations can be made--both internally and externally by potential customers.

Additionally, we continue to move towards extending our prototype ridge waveguide modulator to operate up to 50 Gbps, and on September 19, 2017, we announced that our ridge waveguide Mach-Zehnder modulators achieved bandwidth performance levels that will enable 50Gbps modulation in fiber-optic communications. A 50Gbps device would be the key to open the door for our Company to address the next large market, 400Gbps nodes (e.g., using 8 modulators that are multiplexed together (8 x 50Gbps = 400Gbps)) or alternatively 4 modulators at 50Gbps (4 x 50Gbps = 200Gbps) and the use of PAM4 coding to double the modulated speed to 400Gbps (200Gbps x 2 = 400Gbps).

The ridge waveguide modulator represents our first commercially viable device, and targets metro networks (< 10Km) within large scale telecommunications and data communications networks and represents approximately a \$300MM per year market opportunity for us.

#### *Slot Waveguide Modulator*

Our functional polymer photonics slot waveguide modulator utilizes an existing modulator structure with one of our proprietary electro-optic polymer material systems as the enabling material layer, and is functional as an operating prototype device.

Preliminary testing and initial data on our polymer photonics slot waveguide modulators demonstrated several promising characteristics. The tested polymer photonic chip had a 1-millimeter square footprint, enabling the possibility of sophisticated integrated optical circuits on a single silicon substrate. In addition, the waveguide structure was approximately 1/20 the length of a typical inorganic-based silicon photonics modulator waveguide.

With the combination of our proprietary electro-optic polymer material and the extremely high optical field concentration in the slot waveguide modulator, the test modulators demonstrated less than 2.2 volts to operate. Initial speeds exceeded 30-35 GHz in the telecom, 1550 nanometer frequency band. This is equivalent to four, 10Gbps, inorganic, lithium niobate modulators that would require approximately 12-16 volts to move the same amount of information.

Our material also operates in the 1550 nanometer frequency band, which is suitable for data communications applications. We continued with our collaborative development of our SOH/ Polymer photonic slot waveguide modulator in 2014 and continued our collaboration with an associated third-party research group through 2016.

*Our Long-Term Device Development Goal - Multichannel Integrated Nanophotonic Transceiver*

While we consider our ridge waveguide and slot waveguide modulators currently under development to be commercially viable products, in another sense they are intermediate steps in the development of our long-term goal of a multichannel integrated nanophotonic transceiver for application in data communications.

The transceiver consists of a silicon photonic chip fabricated with nonlinear polymer infused modulators (polymer photonic), multiplexers, demultiplexers, detectors and grating fiber couplers to an external light source. The CMOS-compatible optical modulators are key components for future silicon-based photonic transceivers. Our solution, the silicon-organic hybrid (polymer photonic) platform has been proposed and is being prototyped. In the polymer photonic approach, the optical signal is guided by a silicon waveguide while an organic cladding provides the electro-optic effect.

**Target Markets**

*Cloud computing and data centers*

*Big data* is a general term used to describe the voluminous amount of unstructured and semi-structured data a Company creates -- data that would take too much time and cost too much money to load into a relational database for analysis. Companies are looking to cloud computing in their data centers to access all the data. Inherent speed and bandwidth limits of traditional solutions and the potential of organic polymer devices offer an opportunity to increase the bandwidth, reduce costs and improve speed of access.

While the number of data centers is declining, the overall square footage has been growing rapidly. Data centers are confronted with the problem of moving vast amounts of data not only around the data center itself, but also between data centers. The size of these data center links are often measured in kilometers and employ optical modulators to convert stored electronic/binary information to optical and back. Links that are shorter than 500 meters can employ direct modulation, which accomplishes modulation by mechanically turning a laser on and off. However, for links greater than 500 meters, it is necessary to employ optical modulators. We intend to target optical devices that are

aimed at the 500m to 10km distance segment of the market. These are single mode fiber links and require polymer optical devices that operate in single optical mode. While some data center customers are planning their architectures using single mode fiber links even below 500m, others are focusing on cost-performance to make their decisions for their particular architectures. Our technology is both single mode and scalable, which means that it can be implemented in either data center application depending on how we achieve the customer metrics and specifications. We believe that our single mode modulator solutions will not only be competitive at 500m to 10km link distances, but also at distances below 500m depending on the customer architecture designs.

### *Telecommunications/Data Communications*

The telecommunications industry has evolved from transporting traditional analogue voice data over copper wire into the movement of digital voice and data. Telecommunication companies are faced with the enormous increasing challenges to keep up with the resulting tremendous explosion in demand for bandwidth. This has been further exacerbated by a recent trend for content providers to store large amounts of data closer to the end user. This results in enormous demands on telecommunication metro networks (less than 10 Kilometers in length) and their ability to facilitate the transportation of content.

We believe that our ridge waveguide modulator, when completed will have the potential to address several segments within telecommunications networks.

### **Recent Significant Events and Milestones Achieved**

In December 2016, we achieved high-speed modulation in our first all-organic polymer ridge waveguide intensity modulator prototype, which constituted one of the most significant moments in the history of our Company. Our initial "alpha" prototype device, enabled by our P2IC polymer system, demonstrated bandwidth suitable for data rates up to about 10 Gbps. This performance exceeds the telecom OC-48 standard (2.5 Gbps). This device demonstrated true amplitude (intensity) modulation in a Mach-Zehnder modulator structure incorporating our polymer waveguides. Thereafter, we began to move towards extending our initial "alpha" prototype device to operate up to 25 Gbps, which is important to the optical networking industry because this data rate is a major node to achieve 100 Gbps (using 4 channels of 25 Gbps).

In April 2017, we successfully achieved bandwidth suitable for 25Gbps data rates in our all-organic polymer ridge waveguide intensity modulator prototype, and on July 19, 2017 we further advanced its high-speed modulation performance to satisfy 28Gbps data rates for QSFP28 standards and 100Gbps data center applications (using 4 channels of 25 Gbps), enabling our Company to address the explosive 100Gbps market for optical modulators using our P<sup>2</sup>IC Technology Platform. We are optimizing relevant 28Gbps device performance parameters and are now focused on commercializing our ridge waveguide modulator. To that end, we have entered into a contract with a packaging partner that has deep experience in high-speed telecommunications and data communications optoelectronic devices. The partner will package Lightwave's 28Gbps modulators so further evaluations can be made--both internally and externally by potential customers.

Additionally, we continue to move towards extending our prototype ridge waveguide modulator to operate up to 50 Gbps, and on September 19, 2017, we announced that our ridge waveguide Mach-Zehnder modulators achieved bandwidth performance levels that will enable 50Gbps modulation in fiber-optic communications. A 50Gbps device would be the key to open the door for our Company to address the next large market, 400Gbps nodes (e.g., using 8 modulators that are multiplexed together (8 x 50Gbps = 400Gbps)) or alternatively 4 modulators at 50Gbps (4 x 50Gbps = 200Gbps) and the use of PAM4 coding to double the modulated speed to 400Gbps (200Gbps x 2 = 400Gbps).

On October 30, 2017, we entered into a new lease to lease approximately 13,420 square feet of office, laboratory and research and development space located in Englewood, Colorado for the Company's new principal executive offices and research and development facility. The new facility's \$1.6 million infrastructure includes fully functional 1,000 square feet of class 1,000 cleanroom, 500 square feet of class 10,000 cleanroom, chemistry laboratories, and analytic laboratories. The move will streamline all research and development workflow into one facility for greater operational efficiencies, and it effectively doubles the combined square footage of the Company's two current locations in Longmont, Colorado and Newark, Delaware. We have in place a phased transition strategy that will assure continuity of product development that we expect will be completed by late March 2018.

As we move through 2017, we expect to (i) bring in-house more specific skill sets in materials engineering and in device testing and fabrication, as well as personnel to orchestrate our various Company activities; and (ii) attract an industry partner with the synergistic capabilities necessary to help develop future products that are in various stages of design, such as a slot waveguide modulator and our integrated fiber optic polymer-based transceiver over and above device packaging competences.

## **Capital Requirements**

As a development stage company, we do not generate revenues. We have incurred substantial net losses since inception. We have satisfied our capital requirements since inception primarily through the issuance and sale of our

common stock.

## Results of Operations

### Comparison of three months ended September 30, 2017 to three months ended September 30, 2016

#### Revenues

As a development stage company, we had no revenues during the three months ended September 30, 2017 and September 30, 2016. The Company is in various stages of photonic device and material development and evaluation. We expect the next revenue stream to be in product development agreements, prototype devices and sale of nonlinear optical polymer materials prior to moving into production.

#### Operating Expenses

Our operating expenses were \$1,205,932 and \$943,326 for the three months ended September 30, 2017 and 2016, respectively, for an increase of \$262,606. The increase in operating expenses was due primarily to increases in research and development salaries, legal fees, non-cash stock option and warrant amortization, laboratory materials and supplies, product development consulting expenses, product prototype development and material testing expenses, insurance expense and license fees offset by decreases in general and administrative salaries, internet expenses, general and administrative travel and shareholder annual meeting expenses.



Included in our operating expenses for the three months ended September 30, 2017 was \$821,331 for research and development expenses compared to \$589,038 for the three months ended September 30, 2016, for an increase of \$232,293. The increase in research and development expenses is primarily due to increases in research and development salaries, non-cash research and development stock option and warrant amortization, laboratory materials and supplies, product development consulting expenses, product prototype development and material testing expenses and license fees.

Research and development expenses currently consist primarily of compensation for employees and consultants engaged in internal research, product development activities; laboratory operations, internal material and device fabrication testing and prototype electro-optic device design, development and prototype device processing; costs; and related operating expenses.

We expect to continue to incur substantial research and development expense to develop and commercialize our photonic devices and electro-optic materials platform. These expenses will increase as a result of accelerated development effort to support commercialization of our non-linear optical polymer materials technology; to build photonic device prototypes in our in-house laboratories; hiring additional technical and support personnel; engaging a senior technical advisor; pursuing other potential business opportunities and collaborations; customer testing and evaluation; and incurring related operating expenses.

Wages and salaries, including benefits increased \$97,413 from \$274,110 for the three months ended September 30, 2016 to \$371,523 for the three months ended September 30, 2017.

Research and development non-cash stock option amortization increased \$53,261 from \$43,566 for the three months ended September 30, 2016 to \$96,827 for the three months ended September 30, 2017.

Laboratory materials and supplies also increased \$24,864 from \$40,298 for the three months ended September 30, 2016 to \$65,162 for the three months ended September 30, 2017.

Product development consulting expenses increased \$24,640 from \$79,027 for the three months ended September 30, 2016 to \$103,667 for the three months ended September 30, 2017.

Product prototype development and material testing expenses increased \$11,142 from \$45,424 for the three months ended September 30, 2016 to \$56,566 for the three months ended September 30, 2017.

License fees increased \$7,500 to \$7,500 for the three months ended September 30, 2017 compared to \$0 for the three months ended September 30, 2016.

General and administrative expense consists primarily of compensation and support costs for management staff, and for other general and administrative costs, including executive, sales and marketing, investor relations, accounting and finance, legal, consulting and other operating expenses.

General and administrative expenses increased \$30,313 to \$384,601 for the three months ended September 30, 2017 compared to \$354,288 for the three months ended September 30, 2016. The increase is primarily due to increases in legal fees, non-cash general and administrative stock option and warrant amortization and insurance expense offset by decreases in general and administrative salaries, internet expenses, general and administrative travel and shareholder annual meeting expenses.

Legal fees increased \$71,956 to \$86,957 for the three months ending September 30, 2017 from \$15,001 for the three months ended September 30, 2016.

General and administrative non-cash stock option and warrant amortization increased \$16,119 to \$60,998 for the three months ending September 30, 2017 from \$44,879 for the three months ended September 30, 2016.

Insurance expense increased \$7,923 to \$36,249 for the three months ending September 30, 2017 from \$28,326 for the three months ended September 30, 2016.

General and administration wages and salaries, including benefits decreased \$43,631 from \$159,595 for the three months ended September 30, 2016 to \$115,964 for the three months ended September 30, 2017.

Internet expenses decreased \$6,418 from \$8,350 for the three months ended September 30, 2016 to \$1,932 for the three months ended September 30, 2017.

General and administration travel expenses decreased \$4,854 to \$10,639 for the three months ending September 30, 2017 from \$15,493 for the three months ended September 30, 2016.

Shareholder annual meeting expenses decreased \$4,468 to \$120 for the three months ending September 30, 2017 from \$4,588 for the three months ended September 30, 2016.

We expect general and administrative expense to increase in future periods as we increase the level of corporate and administrative activity, including increases associated with our operation as a public company; and significantly increase expenditures related to the future production and sales of our products.

#### Other Income (Expense)

Other expense increased \$52,458 to \$74,573 for the three months ended September 30, 2017 from \$22,115 for the three months ended September 30, 2016, relating to the commitment fee associated with the purchase of shares by an institutional investor for sale under a stock purchase agreement.

#### Net Loss

Net loss was \$1,280,505 and \$965,441 for the three months ended September 30, 2017 and 2016, respectively, for an increase of \$315,064, due primarily to increases in research and development salaries, legal fees, non-cash stock option and warrant amortization, commitment fee associated with the purchase of shares by an institutional investor for sale under a stock purchase agreement, laboratory materials and supplies, product development consulting expenses, product prototype development and material testing expenses, insurance expense and license fees offset by decreases in general and administrative salaries, internet expenses, general and administrative travel and shareholder annual meeting expenses.

#### Comparison of nine months ended September 30, 2017 to nine months ended September 30, 2016

## Revenues

As a development stage company, we had no revenues during the nine months ended September 30, 2017 and September 30, 2016. The Company is in various stages of photonic device and material development and evaluation. We expect the next revenue stream to be in product development agreements, prototype devices and sale of nonlinear optical polymer materials prior to moving into production.

Our operating expenses were \$4,032,323 and \$3,041,967 for the nine months ended September 30, 2017 and 2016, respectively, for an increase of \$990,356. The increase in operating expenses was due primarily to increases in non-cash stock option and warrant amortization, research and development salaries, legal fees, product development consulting expenses, product prototype development and material testing expenses, patent amortization and patent related expenses, laboratory materials and supplies, license fees, recruiting fees, insurance expense and research and development travel offset by decreases in general and administrative salaries and investor relations expenses.

Included in our operating expenses for the nine months ended September 30, 2017 was \$2,388,861 for research and development expenses compared to \$1,784,871 for the nine months ended September 30, 2016, for an increase of \$603,990. The increase in research and development expenses is primarily due to increases in non-cash stock option and warrant amortization, research and development salaries, product development consulting expenses, product prototype development and material testing expenses, patent amortization and patent related expenses, laboratory materials and supplies, license fees and research and development travel.

Research and development expenses currently consist primarily of compensation for employees and consultants engaged in internal research, product development activities; laboratory operations, internal material and device fabrication testing and prototype electro-optic device design, development and prototype device processing; costs; and related operating expenses.

We expect to continue to incur substantial research and development expense to develop and commercialize our photonic devices and electro-optic materials platform. These expenses will increase as a result of accelerated development effort to support commercialization of our non-linear optical polymer materials technology; to build photonic device prototypes in our in-house laboratories; hiring additional technical and support personnel; engaging a senior technical advisor; pursuing other potential business opportunities and collaborations; customer testing and evaluation; and incurring related operating expenses.

Non-cash stock compensation and stock option and warrant amortization increased \$163,666 from \$244,730 for the nine months ended September 30, 2016 to \$408,396 for the nine months ended September 30, 2017.

Wages and salaries and benefits increased \$148,554 to \$967,448 for the nine months ended September 30, 2017 from \$818,894 for the nine months ended September 30, 2016.

Product development consulting expenses increased \$100,004 from \$196,651 for the nine months ended September 30, 2016 to \$296,655 for the nine months ended September 30, 2017.

Product prototype development and material testing expense increased \$74,095 from \$93,114 for the nine months ended September 30, 2016 to \$167,209 for the nine months ended September 30, 2017.

Patent amortization and patent related expenses increased \$52,030 from \$11,918 for the nine months ended September 30, 2016 to \$63,948 for the nine months ended September 30, 2017.

Laboratory materials and supplies increased \$24,443 from \$117,083 for the nine months ended September 30, 2016 to \$141,526 for the nine months ended September 30, 2017.

License fees increased \$22,500 from \$0 for the nine months ended September 30, 2016 to \$22,500 for the nine months ended September 30, 2017 for the license fee.

Research and development travel expense increased \$5,714 from \$43,322 for the nine months ended September 30, 2016 to \$49,036 for the nine months ended September 30, 2017.

General and administrative expense consists primarily of compensation and support costs for management staff, and for other general and administrative costs, including executive, sales and marketing, investor relations, accounting and finance, legal, consulting and other operating expenses.

General and administrative expenses increased \$386,366 to \$1,643,462 for the nine months ended September 30, 2017 compared to \$1,257,096 for the nine months ended September 30, 2016. The increase is primarily due to increases in non-cash stock option and warrant amortization, legal fees, recruiting fees, insurance expense, offset by a decrease in salaries and investor relations expenses.

General and administrative non-cash stock option and warrant amortization increased by \$306,818 to \$461,846 for the nine months ended September 30, 2017 compared to \$155,028 for the nine months ended September 30, 2016.

Legal fees increased \$134,396 to \$295,809 for the nine months ended September 30, 2017 from \$161,413 for the nine months ended September 30, 2016 for an increase of \$134,396.

Recruiting fees increased \$20,000 to \$20,000 for the nine months ended September 30, 2017 compared to \$0 for the nine months ended September 30, 2016.

Insurance expense increased \$11,079 from \$84,459 for the nine month period ended September 30, 2016 to \$95,538 for the nine month period ended September 30, 2017.

Salaries and wages decreased \$60,450 to \$422,800 for the nine months ending September 30, 2017 from \$483,250 for the nine months ending September 30, 2016.

Investor relations expenses decreased \$21,029 from \$33,329 for the nine months ended September 30, 2016 to \$12,300 for the nine months ended September 30, 2017.



We expect general and administrative expense to increase in future periods as we increase the level of corporate and administrative activity, including increases associated with our operation as a public company; and significantly increase expenditures related to the future production and sales of our products.

#### Other Income (Expense)

Other expense decreased \$131,581 to \$128,370 for the nine months ended September 30, 2017 from \$259,951 for the nine months ended September 30, 2016, relating to the commitment fee associated with the purchase of shares by an institutional investor for sale under a stock purchase agreement.

#### Net Loss

Net loss was \$4,160,693 and \$3,301,918 for the nine months ended September 30, 2017 and 2016, respectively, for an increase of \$858,775, due primarily to increases in non-cash stock option and warrant amortization, research and development salaries, legal fees, product development consulting expenses, product prototype development and material testing expenses, patent amortization and patent related expenses, laboratory materials and supplies, license fees, recruiting fees, insurance expense and research and development travel offset by decreases in commitment fee associated with the purchase of shares by an institutional investor for sale under a stock purchase agreement, general and administrative salaries and investor relations expenses.

#### **Significant Accounting Policies**

Our discussion and analysis of our financial condition and results of operations are based on our financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates based upon historical experience and various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Our actual results may differ materially from these estimates.

We believe our significant accounting policies affect our more significant estimates and judgments used in the preparation of our financial statements. Our Annual Report on Form 10-K for the year ended December 31, 2016



contains a discussion of these significant accounting policies. There have been no significant changes in our significant accounting policies since December 31, 2016. See our Note 1 in our unaudited financial statements for the nine months ended September 30, 2017 as set forth herein for a complete discussion of our Company's accounting policies.

### **Liquidity and Capital Resources**

During the nine months ended September 30, 2017, net cash used in operating activities was \$2,873,598 and net cash used in investing activities was \$127,311, which was due primarily to the Company's research and development activities and general and administrative expenditures. Net cash provided by financing activities for the nine months ended September 30, 2017 was \$3,923,721. At September 30, 2017, our cash and cash equivalents totaled \$2,879,656, our assets totaled \$4,205,080, our liabilities totaled \$321,642, and we had stockholders' equity of \$3,883,438.

During the nine months ended September 30, 2016, net cash used in operating activities was \$2,271,725 and net cash used in investing activities was \$121,104, which was due primarily to the Company's research and development activities and general and administrative expenditures. Net cash provided by financing activities for the nine months ended September 30, 2016 was \$964,200. At September 30, 2016, our cash and cash equivalents totaled \$2,302,076, our assets totaled \$3,560,474, our liabilities totaled \$213,224, and we had stockholders' equity of \$3,347,250.

## Sources and Uses of Cash

Our future expenditures and capital requirements will depend on numerous factors, including: the progress of our research and development efforts; the rate at which we can, directly or through arrangements with original equipment manufacturers, introduce and sell products incorporating our polymer materials technology; the costs of filing, prosecuting, defending and enforcing any patent claims and other intellectual property rights; market acceptance of our products and competing technological developments; and our ability to establish cooperative development, joint venture and licensing arrangements. We expect that we will incur approximately \$5,250,000 of expenditures over the next 12 months. Our cash requirements are expected to increase at a rate consistent with the Company's path to revenue growth as we expand our activities and operations with the objective of commercializing our electro-optic polymer technology during 2017.

Our business does not presently generate the cash needed to finance our current and anticipated operations. We believe we have raised sufficient capital to finance our operations through May 2018; however, we will need to obtain additional future financing after that time to finance our operations until such time that we can conduct profitable revenue-generating activities. Such future sources of financing may include cash from equity offerings, exercise of stock options, warrants and proceeds from debt instruments; but we cannot assure you that such equity or borrowings will be available or, if available, will be at rates or prices acceptable to us.

On January 29, 2016, we signed a purchase agreement (the "Purchase Agreement") with Lincoln Park Capital Fund, LLC ("Lincoln Park") to sell up to \$20,000,000 of common stock whereby subject to certain conditions and at our sole discretion, Lincoln Park has committed to purchase up to \$20,000,000 of our common stock over a 36-month period. In April 2016, our registration statement became effective, which registered for resale by Lincoln Park under the Purchase Agreement 5,000,000 shares of our common stock. Pursuant to another registration statement that became effective on June 15, 2017, we registered for resale by Lincoln Park under the Purchase Agreement an additional 5,000,000 shares of our common stock. Pursuant to the Purchase Agreement, Lincoln Park is obligated to make purchases as the Company directs in accordance with the Purchase Agreement, which may be terminated by the Company at any time, without cost or penalty. Sales of shares will be made in specified amounts and at prices that are based upon the market prices of our common stock immediately preceding the sales to Lincoln Park. We expect this financing to provide us with sufficient funds to maintain our operations for the foreseeable future. With the additional capital, we expect to achieve a level of revenues attractive enough to fulfill our development activities and adequate enough to support our business model for the foreseeable future. We cannot assure you that we will meet the conditions of the Purchase Agreement with Lincoln Park in order to obligate Lincoln Park to purchase our shares of common stock. In the event we fail to do so, and other adequate funds are not available to satisfy long-term capital requirements, or if planned revenues are not generated, we may be required to substantially limit our operations. This limitation of operations may include reductions in capital expenditures and reductions in staff and discretionary costs.

There are no trading volume requirements or restrictions under the Purchase Agreement and we will control the timing and amount of any sales of our common stock to Lincoln Park. Lincoln Park has no right to require any sales by us,

but is obligated to make purchases from us as we direct in accordance with the Purchase Agreement. We can also accelerate the amount of common stock to be purchased under certain circumstances. There are no limitations on use of proceeds, financial or business covenants, restrictions on future funding, rights of first refusal, participation rights, penalties or liquidated damages in the Purchase Agreement. Lincoln Park may not assign or transfer its rights and obligations under the purchase agreement.

We expect that our cash used in operations will increase during 2017 and beyond as a result of the following planned activities:

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The addition of management, sales, marketing, technical and other staff to our workforce;

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Increased spending for the expansion of our research and development efforts, including purchases of additional laboratory and production equipment;

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Increased spending in marketing as our products are introduced into the marketplace;

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Developing and maintaining collaborative relationships with strategic partners;

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Developing and improving our manufacturing processes and quality controls; and

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Increases in our general and administrative activities related to our operations as a reporting public company and related corporate compliance requirements.

## Analysis of Cash Flows

For the nine months ended September 30, 2017

Net cash used in operating activities was \$2,873,598 for the nine months ended September 30, 2017, primarily attributable to the net loss of \$4,160,693 adjusted by \$175,621 in warrants issued for services, \$694,621 in options issued for services, \$136,557 in common stock issued for services, \$214,573 in depreciation expenses and patent amortization and noncash expenses, (\$38,839) in prepaid expenses and \$104,562 in accounts payable and accrued expenses. Net cash used in operating activities consisted of payments for research and development, legal, professional and consulting expenses, rent and other expenditures necessary to develop our business infrastructure.

Net cash used by investing activities was \$127,311 for the nine months ended September 30, 2017, consisting of \$38,662 in cost for intangibles and \$88,649 in asset additions primarily for the Colorado lab facility.

Net cash provided by financing activities was \$3,923,721 for the nine months ended September 30, 2017 and consisted of \$3,439,060 in proceeds from resale of common stock to an institutional investor and \$502,500 from the exercise of warrants offset by \$17,839 repayment of equipment purchased.

For the nine months ended September 30, 2016

Net cash used in operating activities was \$2,271,725 for the nine months ended September 30, 2016, primarily attributable to the net loss of \$3,301,918 adjusted by \$73,804 in warrants issued for services, \$325,954 in options issued for services, \$278,142 in common stock issued for services, \$145,658 in depreciation expenses and patent amortization expenses, \$97,012 in prepaid expenses and \$110,267 in accounts payable and accrued expenses and \$644 gain on disposal of property and equipment. Net cash used in operating activities consisted of payments for research and development, legal, professional and consulting expenses, rent and other expenditures necessary to develop our business infrastructure.

Net cash used by investing activities was \$121,104 for the nine months ended September 30, 2016, consisting of \$42,799 for intangibles, \$97,805 in asset additions primarily for the new lab facility and \$19,500 in proceeds from sale of equipment.

Net cash provided by financing activities was \$964,200 for the nine months ended September 30, 2016 and consisted of \$964,200 in proceeds from the sale of common stock to an institutional investor.

## **Inflation and Seasonality**

We do not believe that our operations are significantly impacted by inflation. Our business is not seasonal in nature.

## **Item 4**

### **Controls and Procedures**

*Evaluation of Disclosure Controls and Procedures.* The Company's management, with the participation of the Company's Principal Executive Officer and Principal Financial Officer, evaluated the effectiveness of the Company's disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended) as of September 30, 2017. Based on this evaluation, the Company's Principal Executive Officer and Principal Financial Officer concluded that, as of September 30, 2017 the Company's disclosure controls and procedures were effective, in that they provide reasonable assurance that information required to be disclosed by the Company in the reports that it files or submits under the Securities Exchange Act of 1934, as amended, is recorded, processed, summarized and reported within the time periods specified in the Securities and Exchange Commission's rules and forms, and is accumulated and communicated to the Company's management, including the Company's Principal Executive Officer and Principal Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

*Changes in Internal Control Over Financial Reporting.* There were no changes in our internal control over financial reporting during the quarter ended September 30, 2017 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

**PART II OTHER INFORMATION****Item 2****Unregistered Sales of Equity Securities and Use of Proceeds**

<b>Date</b>	<b>Security/Value</b>
July 2017	Warrant right to buy 150,000 shares of common stock at \$1.48 per share issued for services.
Sept. 2017	Common Stock 25,000 shares of common stock at average price of \$1.45 per share issued for services.

No underwriters were utilized, and no commissions or fees were paid with respect to any of the above transactions. We relied on Section 4(a)(2) and/or Regulation D of the Securities Act of 1933, as amended, since the transactions did not involve any public offering.

**Item 6****Exhibits**

The following exhibits are included herein:

<b>Exhibit No.</b>	<b>Description of Exhibit</b>	<b>Location</b>
<u>31.1</u>	Certification pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934, as amended, executed by the Principal Executive Officer of the Company.	Filed herewith
<u>31.2</u>	Certification pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934, as amended, executed by the Principal Financial Officer of the Company.	Filed herewith
<u>32.1</u>	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, executed by the Principal Executive Officer of the Company.	Filed herewith

<u>32.2</u>	Certification pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, executed by the Principal Financial Officer of the Company.	Filed herewith
101	XBRL	Filed herewith

**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.

**LIGHTWAVE LOGIC, INC.**

Registrant

By: /s/ Michael S. Lebbly  
Michael S. Lebbly,  
Chief Executive Officer  
(Principal Executive Officer)

Date: November 14, 2017

By: /s/ James S. Marcelli  
James S. Marcelli,  
President, Chief Operating Officer  
(Principal Financial Officer)

Date: November 14, 2017



