

SECURITIES & EXCHANGE COMMISSION EDGAR FILING

Lightwave Logic, Inc.

Form: 10-Q

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**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 10-Q

(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, 2019

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)

Nevada

(State or other jurisdiction of
Incorporation or Organization)

82-049-7368

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

369 Inverness Parkway, Suite 350

Englewood, CO

(Address of principal executive offices)

80112

(Zip Code)

(720) 340-4949

(Registrant's telephone number, including area code)

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

Title of each class

Trading Symbol(s)

Name of exchange on which registered

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 every Interactive Data File required to be submitted 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 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 ☐

Non-accelerated filer ☐

Accelerated filer ☒

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 11, 2019 was 86,133,258.

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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, or will 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; and other factors beyond the Company's control.

The ultimate correctness of these forward-looking statements depends upon a number of known and unknown risks and events. We discuss our known material risks under Item 1.A “Risk Factors” contained in our Company's Annual Report on Form 10-K for the year ended December 31, 2018. Many factors could cause our actual results to differ materially from the forward-looking statements. In addition, we cannot assess the impact of each factor on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements.

The forward-looking statements speak only as of the date on which they are made, and, except as required by law, we undertake no obligation to update any forward-looking statement to reflect events or circumstances after the date on which the statement is made or to reflect the occurrence of unanticipated events.

PART I – FINANCIAL INFORMATION

Item 1 Financial Statements

LIGHTWAVE LOGIC, INC.

FINANCIAL STATEMENTS

SEPTEMBER 30, 2019

(UNAUDITED)

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LIGHTWAVE LOGIC, INC.
BALANCE SHEETS

	September 30, 2019 (Unaudited)	December 31, 2018 (Audited)
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	\$ 2,167,777	\$ 2,174,625
Prepaid expenses and other current assets	268,329	537,959
	<u>2,436,106</u>	<u>2,712,584</u>
PROPERTY AND EQUIPMENT - NET	2,351,946	1,800,769
OTHER ASSETS		
Intangible assets - net	929,481	938,239
Operating Lease - Right of Use - Building	885,094	—
	<u>1,814,575</u>	<u>938,239</u>
TOTAL ASSETS	<u>\$ 6,602,627</u>	<u>\$ 5,451,592</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Accounts payable	\$ 111,690	\$ 150,741
Current portion of equipment purchase	516,054	178,482
Accounts payable and accrued expenses - related parties	38,025	13,824
Deferred lease liability	33,858	51,148
Operating lease liability	141,552	—
Accrued expenses	30,509	1,155
	<u>871,688</u>	<u>395,350</u>
LONG TERM LIABILITIES		
Deferred lease liability	141,076	149,180
Operating lease liability	743,542	—
Long term portion of equipment purchase	86,009	—
	<u>970,627</u>	<u>149,180</u>
TOTAL LIABILITIES	<u>1,842,315</u>	<u>544,530</u>
STOCKHOLDERS' EQUITY		
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, 85,111,715 and 79,176,330 issued and outstanding at September 30, 2019 and December 31, 2018	85,112	79,177
Additional paid-in-capital	67,447,988	62,356,854
Accumulated deficit	<u>(62,772,788)</u>	<u>(57,528,969)</u>
TOTAL STOCKHOLDERS' EQUITY	<u>4,760,312</u>	<u>4,907,062</u>
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	<u>\$ 6,602,627</u>	<u>\$ 5,451,592</u>

See accompanying notes to these financial statements.

LIGHTWAVE LOGIC, INC.
STATEMENTS OF OPERATIONS
FOR THE THREE MONTHS AND NINE MONTHS ENDING SEPTEMBER 30, 2019 AND 2018
(UNAUDITED)

	For the Three Months Ending September 30, 2019	For the Three Months Ending September 30, 2018	For the Nine Months Ending September 30, 2019	For the Nine Months Ending September 30, 2018
NET SALES	\$ —	\$ —	\$ —	\$ —
COST AND EXPENSE				
Research and development	1,134,372	984,760	3,355,887	2,830,785
General and administrative	441,575	458,774	1,514,231	1,543,241
	<u>1,575,947</u>	<u>1,443,534</u>	<u>4,870,118</u>	<u>4,374,026</u>
LOSS FROM OPERATIONS	(1,575,947)	(1,443,534)	(4,870,118)	(4,374,026)
OTHER INCOME (EXPENSE)				
Interest income	63	63	187	187
Commitment fee	(33,328)	(54,230)	(373,888)	(135,333)
NET LOSS	<u>\$ (1,609,212)</u>	<u>\$ (1,497,701)</u>	<u>\$ (5,243,819)</u>	<u>\$ (4,509,172)</u>
Basic and Diluted Loss per Share	<u>\$ (0.02)</u>	<u>\$ (0.02)</u>	<u>\$ (0.06)</u>	<u>\$ (0.06)</u>
Basic and Diluted Weighted Average Number of Shares	<u>84,083,452</u>	<u>76,985,304</u>	<u>82,341,821</u>	<u>75,694,887</u>

See accompanying notes to these financial statements.

LIGHTWAVE LOGIC, INC.
STATEMENT OF STOCKHOLDERS' EQUITY
SEPTEMBER 30, 2019

NINE-MONTH PERIOD ENDED SEPTEMBER 30, 2019

	Number of Shares	Common Stock	Additional Paid-in Capital	Accumulated Deficit	Total
BALANCE AT DECEMBER 31, 2018 (AUDITED)	79,176,330	\$ 79,177	\$ 62,356,854	\$ (57,528,969)	\$ 4,907,062
Common stock issued to institutional investor	5,450,000	5,450	4,160,135	—	4,165,585
Common stock issued for commitment shares	485,385	485	373,403	—	373,888
Options issued for services	—	—	500,591	—	500,591
Warrants issued for services	—	—	57,005	—	57,005
Net loss for the nine months ending September 30, 2019	—	—	—	(5,243,819)	(5,243,819)
BALANCE AT SEPTEMBER 30, 2019 (UNAUDITED)	85,111,715	\$ 85,112	\$ 67,447,988	\$ (62,772,788)	\$ 4,760,312

NINE-MONTH PERIOD ENDED SEPTEMBER 30, 2018

	Number of Shares	Common Stock	Additional Paid-in Capital	Accumulated Deficit	Total
BALANCE AT DECEMBER 31, 2017 (AUDITED)	74,068,259	\$ 74,068	\$ 56,698,658	\$ (51,756,011)	\$ 5,016,715
Common stock issued to institutional investor	3,250,000	3,250	3,609,150	—	3,612,400
Common stock issued for commitment shares	117,407	118	135,215	—	135,333
Exercise of options	100,000	100	99,900	—	100,000
Exercise of warrants	100,000	100	61,400	—	61,500
Options issued for services	—	—	339,076	—	339,076
Warrants issued for services	—	—	62,731	—	62,731
Net loss for the nine months ending September 30, 2018	—	—	—	(4,509,172)	(4,509,172)
BALANCE AT SEPTEMBER 30, 2018 (UNAUDITED)	77,635,666	\$ 77,636	\$ 61,006,130	\$ (56,265,183)	\$ 4,818,583

See accompanying notes to these financial statements.

LIGHTWAVE LOGIC, INC.
STATEMENT OF STOCKHOLDERS' EQUITY (CONTINUED)
SEPTEMBER 30, 2019

THREE-MONTH PERIOD ENDED SEPTEMBER 30, 2019

	Number of Shares	Common Stock	Additional Paid-in Capital	Accumulated Deficit	Total
BALANCE AT JUNE 30, 2019 (UNAUDITED)	83,192,958	\$ 83,193	\$ 65,904,260	\$ (61,163,576)	\$ 4,823,877
Common stock issued to institutional investor	1,875,000	1,875	1,344,500	—	1,346,375
Common stock issued for commitment shares	43,757	44	33,284	—	33,328
Options issued for services	—	—	149,768	—	149,768
Warrants issued for services	—	—	16,176	—	16,176
Net loss for the three months ending September 30, 2019	—	—	—	(1,609,212)	(1,609,212)
BALANCE AT SEPTEMBER 30, 2019 (UNAUDITED)	85,111,715	\$ 85,112	\$ 67,447,988	\$ (62,772,788)	\$ 4,760,312

THREE-MONTH PERIOD ENDED SEPTEMBER 30, 2018

	Number of Shares	Common Stock	Additional Paid-in Capital	Accumulated Deficit	Total
BALANCE AT JUNE 30, 2018 (UNAUDITED)	76,137,706	\$ 76,138	\$ 59,266,099	\$ (54,767,482)	\$ 4,574,755
Common stock issued to institutional investor	1,350,000	1,350	1,474,350	—	1,475,700
Common stock issued for commitment shares	47,960	48	54,182	—	54,230
Exercise of warrants	100,000	100	99,900	—	100,000
Options issued for services	—	—	95,940	—	95,940
Warrants issued for services	—	—	15,659	—	15,659
Net loss for the three months ending September 30, 2018	—	—	—	(1,497,701)	(1,497,701)
BALANCE AT SEPTEMBER 30, 2018 (UNAUDITED)	77,635,666	\$ 77,636	\$ 61,006,130	\$ (56,265,183)	\$ 4,818,583

See accompanying notes to these financial statements.

LIGHTWAVE LOGIC, INC.
STATEMENTS OF CASH FLOW
FOR THE NINE MONTHS ENDING SEPTEMBER 30, 2019 AND 2018
(UNAUDITED)

	For the Nine Months Ending September 30, 2019	For the Nine Months Ending September 30, 2018
CASH FLOWS FROM OPERATING ACTIVITIES		
Net loss	\$ (5,243,819)	\$ (4,509,172)
Adjustments to reconcile net loss to net cash used in operating activities		
Warrants issued for services	57,005	62,731
Stock options issued for services	500,591	339,076
Common stock issued for services and fees	373,888	135,333
Depreciation and amortization of patents	499,197	322,495
Loss on disposal of property and equipment	—	10,084
Decrease in assets		
Prepaid expenses and other current assets	269,630	268,560
Increase (decrease) in liabilities		
Accounts payable	(39,051)	(31,610)
Accounts payable and accrued expenses- related parties	24,201	43,962
Deferred lease liability	(25,394)	—
Accrued expenses	29,354	(46,305)
Net cash used in operating activities	<u>(3,554,398)</u>	<u>(3,404,846)</u>
CASH FLOWS FROM INVESTING ACTIVITIES		
Cost of intangibles	(52,022)	(371,320)
Purchase of property and equipment	(215,513)	(897,774)
Sale of property and equipment	—	2,500
Net cash used in investing activities	<u>(267,535)</u>	<u>(1,266,594)</u>
CASH FLOWS FROM FINANCING ACTIVITIES		
Exercise of options and warrants	—	161,500
Issuance of common stock, institutional investor	4,165,585	3,612,400
Repayment of equipment purchase payable	(350,500)	(380,470)
Net cash provided by financing activities	<u>3,815,085</u>	<u>3,393,430</u>
NET DECREASE IN CASH AND CASH EQUIVALENTS	<u>(6,848)</u>	<u>(1,278,010)</u>
CASH AND CASH EQUIVALENTS - BEGINNING OF PERIOD	<u>2,174,625</u>	<u>3,482,327</u>
CASH AND CASH EQUIVALENTS - END OF PERIOD	<u>\$ 2,167,777</u>	<u>\$ 2,204,317</u>
<u>Supplemental Disclosure of Non-cash investing and financing activities :</u>		
Operating Lease - Right of Use - Building and Operating lease liability	\$ 885,094	\$ —
Equipment acquisition funded by liability	774,081	—

See accompanying notes to these financial statements.

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 2018 Annual Report on Form 10K. 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, 2018, as filed with the Securities and Exchange Commission. The interim operating results for the three and nine months ending September 30, 2019 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 requisite service periods using the straight-line method. In June 2018, the FASB issued ASU No. 2018-07, *Compensation – Stock Compensation (Topic 718), Improvements to Nonemployee Share-Based Payment Accounting*. The amendments in this Update expand the scope of Topic 718 to include share-based payment transactions for acquiring goods and services from nonemployees. Prior to this Update, Topic 718 applied only to share-based transactions to employees. Consistent with the accounting requirement for employee share-based payment awards, nonemployee share-based payment awards within the scope of Topic 718 are measured at grant-date fair value of the equity instruments that an entity is obligated to issue when the good has been delivered or the service has been rendered and any other conditions necessary to earn the right to benefit from the instruments have been satisfied. The adoption of this pronouncement on June 30, 2018 had no material impact on the Company's financial statements.

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 2019 and 2018, 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, 2019, there are no recently issued accounting standards not yet adopted which would have a material effect on the Company's financial statements.

Recently Adopted Accounting Pronouncements

In February 2016, the FASB issued ASU No. 2016-02, Leases (Topic 842) and subsequent related updates. The core principle of Topic 842 is that a lessee should recognize the assets and liabilities that arise from operating leases. The Company adopted the standard effective January 1, 2019 under the optional transition method which allows the entity to apply the new lease standard at the adoption date and recognize a cumulative-effect adjustment, if any, to the opening balance of retained earnings in the period of adoption. The standard had a material impact on the balance sheet (see Note 7).

Reclassifications

Certain reclassifications have been made to the 2018 financial statement in order to conform to the 2019 financial statement presentation.

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. In January 2019, the Company signed a purchase agreement ("Purchase Agreement") with an institutional investor to sell up to \$25,000,000 of common stock. Under the Purchase Agreement and at Company's sole discretion, the institutional investor has committed to invest up to \$25,000,000 in common stock over a 36-month period with the remaining available amount of \$21,846,000 as of September 30, 2019. Since September 30, 2019, the Company has sold an additional \$662,875 of common stock pursuant to the Purchase Agreement. As of November 12, 2019, the Company has a cash position of approximately \$2,165,000. Based upon the current cash position and expected expenditures over subsequent periods and no debt service, management believes the Company has sufficient funds to finance its operations through February 2020 before the Company will need to replenish cash reserves pursuant to the Purchase Agreement.

NOTE 3 – PREPAID EXPENSES AND OTHER CURRENT ASSETS

Prepaid expenses and other current assets consist of the following:

	September 30, 2019	December 31, 2018
Insurance	\$ 117,399	\$ 226,363
Other	92,120	37,210
Prototype Devices	34,166	—
Rent	22,222	222,224
Prepaid material	2,422	46,120
Stock award	—	6,042
	<u>\$ 268,329</u>	<u>\$ 537,959</u>

NOTE 4 – PROPERTY AND EQUIPMENT

Property and equipment consists of the following:

	September 30, 2019	December 31, 2018
Office equipment	\$ 84,751	\$ 79,886
Lab equipment	3,489,176	2,513,459
Furniture	33,128	33,128
Leasehold Improvements	229,401	220,389
	<u>3,836,456</u>	<u>2,846,862</u>
Less: Accumulated depreciation	1,484,510	1,046,093
	<u>\$ 2,351,946</u>	<u>\$ 1,800,769</u>

Depreciation expense for the nine months ending September 30, 2019 and 2018 was \$438,417 and \$277,539. Depreciation expense for the three months ending September 30, 2019 and 2018 was \$180,098 and \$120,856. During the three and nine months ending September 30, 2019, the Company did not retire property and equipment. During the nine months ending September 30, 2018, the Company sold equipment for proceeds of \$2,500 and a gain of \$2,500. During the nine months ending September 30, 2018, the Company retired property and equipment and recorded a loss on the retirement of \$12,584. During the three months ended September 30, 2018, the Company did not sell or retire property and equipment.

NOTE 5 – INTANGIBLE ASSETS

This represents legal fees and patent fees associated with the prosecution of patent applications. The Company has recorded amortization expense 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.

On June 11, 2018, the Company purchased patents for \$315,000.

NOTE 5 – INTANGIBLE ASSETS (CONTINUED)

Patents consist of the following:

	September 30, 2019	December 31, 2018
Patents	\$ 1,236,904	\$ 1,184,882
Less: Accumulated amortization	307,423	246,643
	<u>\$ 929,481</u>	<u>\$ 938,239</u>

Amortization expense for the nine months ending September 30, 2019 and 2018 was \$60,780 and \$44,956. Amortization expense for the three months ending September 30, 2019 and 2018 was \$20,206 and \$20,059. There were no patent costs written off for the three and nine months ending September 30, 2019 and 2018.

NOTE 6 – LONG TERM EQUIPMENT PURCHASE PAYABLE

Outstanding long term equipment purchase payable is comprised of the following

Final Year of Maturity	Classification	Interest Rate	September 30, 2019	December 31, 2018
2019	Current	0.00%	\$ 516,054	\$ 178,482
2020	Long term	0.00%	86,009	—
			<u>\$ 602,063</u>	<u>\$ 178,482</u>

NOTE 7 – LEASES

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; and (ii) the estimated amount of tenant's proportionate share of operating expenses for the same period in the sum of \$186,293. 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 as a security deposit which shall be held by landlord to secure the Company's obligations under the lease. The lease contains an option to extend the term to October 31, 2024. 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.

Due to the adoption of the new lease standard, the Company has capitalized the present value of the minimum lease payments commencing November 1, 2019, including the additional option period using an estimated incremental borrowing rate of 6.5%. The minimum lease payments do not include common area annual expenses which are considered to be nonlease components.

As of January 1, 2019 the operating lease right-of-use asset and operating lease liability amounted to \$885,094 with no cumulative-effect adjustment to the opening balance of retained earnings/accumulated deficit. The Company has elected not to recognize right-of-use assets and lease liabilities arising from short-term leases.

NOTE 7 – LEASES (CONTINUED)

There are no other material operating leases.

The Company is obligated under an operating lease for office and laboratory space. The aggregate minimum future lease payments under the operating leases, including the extended term are as follows:

YEARS ENDING DECEMBER 31,	AMOUNT
2019	\$ 32,432
2020	195,574
2021	201,501
2022	207,563
2023	213,781
2024	182,624
	<u>1,033,475</u>
Less discounted interest	<u>(148,381)</u>
TOTAL	<u>\$ 885,094</u>

Rent expense amounting to \$84,582 and \$28,194 is included in research and development and general and administrative expenses for the nine months ended September 30, 2019. Rent expense amounting to \$122,829 and \$43,023 is included in research and development and general and administrative expenses for the nine months ended September 30, 2018. Rent expense amounting to \$27,764 and \$9,254 is included in research and development and general and administrative expenses for the three months ended September 30, 2019. Rent expense amounting to \$26,302 and \$8,767 is included in research and development and general and administrative expenses for the three months ended September 30, 2018.

NOTE 8 – INCOME TAXES

There is no income tax benefit for the losses for the three and nine months ended September 30, 2019 and 2018 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, 2019, 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, 2019. The Company did not recognize any interest or penalties during 2018 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, 2016 and thereafter are subject to examination by the relevant taxing authorities. However, there are currently no audits for any tax periods in progress,

NOTE 9 – 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.

NOTE 9 – STOCKHOLDERS' EQUITY (CONTINUED)

Common Stock Options and Warrants

2016 Purchase Agreement

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. The Company registered an additional 5,000,000 shares pursuant to a registration statement filed on May 2, 2018 which became effective May 11, 2018. 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, 2019, the institutional investor purchased 14,000,000 shares of common stock for proceeds of \$13,150,370 and the Company issued 427,405 shares of common stock as additional commitment fee, valued at \$456,367, fair value, leaving 222,595 in reserve for additional commitment fees. During the nine month period ending September 30, 2019, the institutional investor purchased 1,550,000 shares of common stock for proceeds of \$1,011,585 and the Company issued 32,879 shares of common stock as additional commitment fee, valued at \$24,162, fair value. During the three month period ending September 30, 2019, the institutional investor did not purchase shares of common stock. The 2016 Purchase Agreement expired April, 2019.

2019 Purchase Agreement

In January 2019, the Company signed a Purchase Agreement with the institutional investor to sell up to \$25,000,000 of common stock. The Company registered 9,500,000 shares pursuant to a registration statement filed on January 30, 2019 which became effective February 13, 2019. The Company issued 350,000 shares of common stock to the institutional investor as an initial commitment fee valued at \$258,125, fair value, and 812,500 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 nine month period ending September 30, 2019, the institutional investor purchased 3,900,000 shares of common stock for proceeds of \$3,154,000 and the Company issued 102,506 shares of common stock as additional commitment fee, valued at \$91,601, fair value. During the three month period ending September 30, 2019, the institutional investor purchased 1,875,000 shares of common stock for proceeds of \$1,346,375 and the Company issued 43,757 shares of common stock as additional commitment fee, valued at \$33,328, fair value. During October and November 2019, the institutional investor purchased 1,000,000 shares of common stock for proceeds of \$662,875 and the Company issued 21,543 shares of common stock as additional commitment fee, valued at \$14,715, fair value, leaving 688,451 in reserve for additional commitment fees.

NOTE 10 – STOCK BASED COMPENSATION

During 2007, the Board of Directors of the Company adopted the 2007 Employee Stock Plan ("2007 Plan") that was approved by the shareholders. Under the Plan, the Company is authorized to grant options to purchase up to 10,000,000 shares of common stock to directors, officers, employees and consultants who provide services to the Company. The Plan is intended to permit stock options granted to employees under the 2007 Plan to qualify as incentive stock options under Section 422 of the Internal Revenue Code of 1986, as amended ("Incentive Stock Options"). All options granted under the 2007 Plan, which are not intended to qualify as Incentive Stock Options are deemed to be non-qualified options ("Non-Statutory Stock Options"). Effective June 24, 2016, the 2007 Plan was terminated. As of September 30, 2019, options to purchase 4,450,000 shares of common stock have been issued and are outstanding.

NOTE 10 – STOCK BASED COMPENSATION (CONTINUED)

During 2016, the Board of Directors of the Company adopted the 2016 Equity Incentive Plan (“2016 Plan”) that was approved by the shareholders at the 2016 annual meeting of shareholders on May 20, 2016. Under the 2016 Plan, the Company is authorized to grant awards of incentive and non-qualified stock options and restricted stock to purchase up to 3,000,000 shares of common stock to employees, directors and consultants. Effective May 16, 2019, the number of shares of the Company’s common stock available for issuance under the 2016 Plan was increased from 3,000,000 to 8,000,000 shares. As of September 30, 2019, options to purchase 3,178,750 shares of common stock have been issued and are outstanding and 4,821,250 shares of common stock remain available for grants under the 2016 Plan.

Both plans are administered by the Board of Directors or its compensation committee which determines the persons to whom awards will be granted, the number of awards to be granted, and the specific terms of each grant. Subject to the provisions regarding Ten Percent Shareholders, the exercise price per share of each option cannot be less than 100% of the fair market value of a share of common stock on the date of grant. Options granted under the 2016 Plan are generally exercisable for a period of 10 years from the date of grant and may vest on the grant date, another specified date or over a period of time.

The Company uses the Black-Scholes option pricing model to calculate the grant-date fair value of an award, with the following assumptions for 2019: no dividend yield in all years, expected volatility, based on the Company’s historical volatility, 60% to 80.5%, risk-free interest rate between 1.47% to 2.71% and expected option life of 5.0 to 10 years. The expected life is based on the estimated average of the life of options using the “simplified” method, as prescribed in FASB ASC 718, due to insufficient historical exercise activity during recent years.

As of September 30, 2019, there was \$484,626 of unrecognized compensation expense related to non-vested market-based share awards that is expected to be recognized through September 30, 2021.

Share-based compensation was recognized as follows:

	For the Nine Months Ending September 30, 2019	For the Nine Months Ending September 30, 2018
2007 Employee Stock Option Plan	\$ —	\$ 15,149
2016 Equity Incentive Plan	500,591	323,927
Warrants	57,005	62,731
Total share-based compensation	\$ 557,596	\$ 401,807

The following tables summarize all stock option and warrant activity of the Company during the nine months ended September 30, 2019:

	Non-Qualified Stock Options and Warrants Outstanding and Exercisable		
	Number of Shares	Exercise Price	Weighted Average Exercise Price
Outstanding, December 31, 2018	18,964,867	\$0.57 - \$1.69	\$ 0.91
Granted	1,122,500	\$0.64 - \$1.05	\$ 0.83
Expired	(3,838,600)	\$0.95 - \$1.25	\$ 1.13
Forfeited	(151,250)	\$0.77 - \$1.50	\$ 0.91
Outstanding, September 30, 2019	16,097,517	\$0.57 - \$1.69	\$ 0.85
Exercisable, September 30, 2019	15,190,336	\$0.57 - \$1.69	\$ 0.85

NOTE 10 – STOCK BASED COMPENSATION (CONTINUED)

The aggregate intrinsic value of options and warrants outstanding and exercisable as of September 30, 2019 was \$117,075. 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 \$0.687 for the Company's common stock on September 30, 2019. No options or warrants were exercised during the nine and three month period ending September 30, 2019. During the nine month period ending September 30, 2018, 100,000 warrants were exercised for proceeds of \$61,500. During the nine month period ending September 30, 2018, 100,000 options were exercised for proceeds of \$100,000. During the three month period ending September 30, 2018, 100,000 options were exercised for proceeds of \$100,000.

Non-Qualified Stock Options and Warrants Outstanding			
Range of Exercise Prices	Number Outstanding Currently Exercisable at September 30, 2019	Weighted Average Remaining Contractual Life	Weighted Average Exercise Price of Options and Warrants Currently Exercisable
\$0.57 - \$1.69	15,190,336	3.92 Years	\$0.85

NOTE 11 – RELATED PARTY

At September 30, 2019 the Company had a legal accrual to related party of \$26,730 and travel and office expense accruals of officers in the amount of \$11,295. At December 31, 2018 the Company had a legal and accounting service accrual to related party of \$10,999 and travel and office expense accruals of officers in the amount of \$2,825.

During July 2018, the Company issued a warrant to purchase 100,000 shares of common stock at a purchase price of \$1.15 per share for professional services to be rendered over a twelve month period commencing July 1, 2018. The warrant was valued at \$62,637, fair value upon issuance, using the Black-Scholes Option Pricing Formula. The expense is being recognized based on service terms of the agreement over a twelve month period. For the nine and three months ending September 30, 2018, the Company recognized \$15,659 of expense.

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 professional 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. The expense is being recognized based on service terms of the agreement over a twelve month period. For the nine and three months ending September 30, 2018, the Company recognized \$47,072 and \$0 of expense.

NOTE 12 – RETIREMENT PLAN

The Company established a 401(k) retirement plan covering all eligible employees beginning November 15, 2013. For the nine months ending September 30, 2019 and 2018, a contribution of \$32,974 and \$16,564 was charged to expense for all eligible non-executive participants. For the three months ending September 30, 2019 and 2018, a contribution of \$11,817 and \$6,801 was charged to expense for all eligible non-executive participants.

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, 2018, filed with the Securities and Exchange Commission on March 18, 2019.

Overview

Lightwave Logic, Inc. is a development stage company moving toward commercialization of next generation electro-optic photonic devices made on its P²IC™ technology platform which uses in-house proprietary high-activity and high-stability organic polymers. Electro-optical devices convert data from electric signals into optical signals for multiple applications.

Our differentiation at the device level is in higher speed, lower power consumption, simplicity of manufacturing and reliability. We have demonstrated higher speed and lower power consumption in packaged devices, and during 2019, we developed new materials that promise to further lower power consumption. We are currently focused on testing and demonstrating the simplicity of manufacturability and reliability of our devices.

We are initially targeting applications in data communications and telecommunications markets and are exploring other applications for our polymer technology platform.

Materials Development

Our 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, higher power consuming, slower-performance materials and devices used in fiber-optic 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 operating conditions.

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. Our Company contemplates future applications that may address the needs of semiconductor companies, optical network companies, Web 2.0 media companies, high performance computing companies, telecommunications companies, aerospace companies, and government agencies.

Device Design and Development

Electro-optic Modulators

Our Company designs its own proprietary electro-optical modulation devices. Electro-optical modulators convert data from electric signals into optical signals that can then be transmitted over high-speed fiber-optic cables. Our modulators are electro-optic, meaning they work because the optical properties of the polymers are affected by electric fields applied by means of electrodes. Modulators are key components that are used in fiber optic telecommunications, data communications, and data centers networks etc., to convey the high data flows that have been driven by applications such as pictures, video streaming, movies etc., that are being transmitted through the Internet. Electro-optical modulators are expected to continue to be an essential element as the appetite and hunger for data increases every year.

Our Company also designs its own proprietary polymer photonic integrated circuits (otherwise termed a polymer PIC). A polymer PIC 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 semiconductor chip to create a progression like what was seen in the computer integrated circuits, commonly referred to as Moore's Law. One type of integration is to combine several instances of the same photonic functions such as a plurality of modulators to create a 4 channel polymer PIC. In this case, the number of photonic components would increase by a factor of 4. Another type is to combine different types of devices including from different technology bases such as the combination of a semiconductor laser with a polymer modulator. Our P²IC™ platform encompasses both these types of architecture.

Current photonic technology today is struggling to reach faster device speeds. Our modulator devices, enabled by our electro-optic polymer material systems, work 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 (LiNbO₃), indium phosphide (InP), silicon (Si), and gallium arsenide (GaAs). Our advanced electro-optic polymer platform is creating a new class of modulators and associated PIC platforms that can address higher data rates in a lower cost, lower power consuming manner, with much simpler modulation techniques.

Our electro-optic polymers can be integrated with other materials platforms because they can be applied as a thin film coating in a fabrication clean room such as may be found in semiconductor foundries. Our polymers are unique in that they are stable enough to seamlessly integrate into existing CMOS, Indium Phosphide (InP), Gallium Arsenide (GaAs), and other semiconductor manufacturing lines.

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 P²IC™ technology
- Continue to develop proprietary intellectual property
- Grow our commercial device development capabilities
- Grow our product reliability and quality assurance capabilities
- Grow our optoelectronic packaging and testing capabilities
- Grow our commercial material manufacturing capabilities
- Maintain/develop strategic relationships with major telecommunications and data communications companies to further the awareness and commercialization of our technology platform
- Continue to add high-level personnel with industrial and manufacturing experience 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 commercial electro-optic polymer product devices with applications for various markets, including telecommunications, data communications and data centers. These product devices will be part of our proprietary photonics integrated circuit (PIC) technology platform.

We expect our initial modulator products will operate at data rates at least 50 Gbaud (capable of 50 Gbps with standard data encoding of NRZ and 100 Gbps with more complex PAM-4 encoding). Our devices are highly linear, enabling the performance required to take advantage of the more advance complex encoding schemes. We are currently developing our polymer technology to operate at the next industry node of 100Gbaud.

Our 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 polymer optical materials. They include:

Ridge Waveguide Modulator

Our ridge electro-optic waveguide modulator was designed and fabricated in our in-house 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. In September 2017 we announced that our initial alpha prototype ridge waveguide modulator, enabled by our P²IC™ polymer system, demonstrated bandwidth performance levels that will enable 50 Gbaud modulation in fiber-optic communications. This device demonstrated true amplitude (intensity) modulation in a Mach-Zehnder modulator structure incorporating our polymer waveguides. This important achievement will allow users to utilize arrays of 4 x 50 Gbaud (4x 100 Gbps) polymer modulators using PAM-4 encoding to access 400 Gbps data rate systems. These ridge waveguide modulators are currently being packaged with our partner into prototype packages. We showed an example packaged modulator at our Annual Shareholders Meeting in May 2018.

These prototype packages will enable potential customers to evaluate the performance at 50 Gbaud. Once a potential customer generates technical feedback on our prototype, we expect to be asked to optimize the performance to their specifications. Assuming this is successful, we expect to enter a qualification phase where our prototypes will be evaluated more fully.

In parallel, we are developing modulators for scalability to higher data rates above 50 Gbaud. In September 2018, we showed in conference presentations the potential of our polymer modulator platform to operate at over 100 GHz bandwidth. This preliminary result corresponds to 100 Gbaud data rates using a simple NRZ data encoding scheme or 200 Gbps with PAM-4 encoding. With 4 channel arrays in our P²IC™ platform, the Company thus has the potential to address both 400 Gbps and 800 Gbps markets. While customers may start the engagement at 50 Gbaud, we believe potential customers recognize that scalability to higher speeds is an important differentiator of the polymer technology.

We believe the ridge waveguide modulator represents our first commercially viable device and targets the fiber optics communications market. We have completed internal market analysis and are initially targeting interconnect reach distances of greater than 10km. In these markets, the system network companies are looking to implement modulator-based transceivers that can handle aggregated data rates 100 Gbps and above. The market opportunity for greater than 10km is worth over \$1B over the next decade.

Advanced Modulator Structures

As part of supporting further improvement and scalability of our platform, we continue to explore more advanced device structures. 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 4 x 10Gbps, inorganic, lithium niobate modulators that would require approximately 12-16 volts to move the same amount of information.

We continued with our collaborative development of our polymer photonic slot waveguide modulator in 2014 and continued our collaboration with an associated third-party research group in 2017 and 2018. We are now designing slot modulators to operate at data rates greater than 50 Gbaud.

Our Long-Term Device Development Goal - Multichannel Polymer Photonic Integrated Circuit (P²IC™)

Our P²IC™ platform is positioned to address markets with aggregated data rates of 100 Gbaud, 400 Gbaud, 800 Gbaud and beyond. Our P²IC™ platform will contain a number of photonic devices that may include, over and above polymer-based modulators, photonic devices such as lasers, multiplexers, demultiplexers, detectors, fiber couplers.

While our polymer-based ridge waveguide and slot modulators are currently under development to be commercially viable products, our long-term device development goal is to produce a platform for the 400 Gbps and beyond transceiver market. This has been stated in our photonics product roadmap that is publicly available on our website. The roadmap shows a progression in speed from 50 Gbaud based ridge waveguide modulators to 100 Gbaud based ridge waveguide modulators. The roadmap shows a progression in integration in which the modulators are arrayed to create a flexible, multichannel P²IC™ platform that spans 100 Gbps, 400 Gbps, 800 Gbps, and potentially 1.6 Tbps aggregated data-rate markets.

We showed bandwidths of polymer-based modulator devices at a major international conference (ECOC – European Conference on Optical Communications 2018) with bandwidths that exceeded 100GHz. We noted that to achieve 100Gbaud, the polymer-based modulator only needs to achieve 80GHz bandwidth. During ECOC 2019, we showed environmental stability. We continue to develop our polymer materials and device designs to optimize additional metrics. We are now optimizing the device parameters for very low voltage operation.

Our 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.

Datacenters have grown to enormous sizes with hundreds of thousands and even millions of servers in a single datacenter. The number of so-called “hyperscale” datacenters are expected to continue to increase in number. Due to their size, a single “datacenter” may consist of multiple large warehouse-size buildings on a campus or even several locations distributed around a metropolitan area. Data centers are confronted with the problem of moving vast amounts of data not only around a single data center building, but also between buildings in distributed data center architecture. Links within a single datacenter building may be shorter than 500 meters, though some will require optics capable of 2 km. Between datacenter buildings, there is an increasing need for high performance interconnects over 10km in reach.

Our modulators are suitable for single-mode fiber optic links. We believe that our single mode modulator solutions will be competitive at 500m to 10km link distances, but it will be ideally suited at greater than 10km link distances.

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. The metropolitan network is especially under stress now and into the near future. Telecommunications companies provide services to some data center customers for the inter-data center connections discussed above. 5G mobile upgrade, autonomous driving and IoT are expected to increase the need for data stored and processed close to the end user in edge data centers. This application similarly requires optics capable of very high speeds and greater than 10 km reach.

Recent Significant Events and Milestones Achieved

During February and March 2018, we moved our Newark, Delaware synthetic laboratory and our Longmont, Colorado optical testing laboratory and corporate headquarters to office, laboratory and research and development space located at 369 Inverness Parkway, Suite 350, Englewood, Colorado. The 13,420 square feet Englewood facility 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 Englewood facility streamlines all of our Company’s research and development workflow for greater operational efficiencies.

During March 2018, our Company, together with our packaging partner, successfully demonstrated packaged polymer modulators designed for 50Gbps, which we believe will allow us to scale our P²IC™ platform with our Mach-Zehnder ridge waveguide modulator design as well as other photonics devices competitively in the 100Gbps and 400Gbps datacom and telecommunications applications market. We are currently fine-tuning the performance parameters of these prototypes in preparation for customer evaluations.

During June 2018, our Company Acquired the Polymer Technology Intellectual Property Assets of BrPhotonics Produtos Optoeletrônicos S.A., a Brazilian corporation, which significantly advanced our patent portfolio of electro-optic polymer technology with 15 polymer chemistry materials, devices, packaging and subsystems patent and further strengthened our design capabilities to solidify our market position as we prepare to enter the 400Gbps integrated photonics marketplace with a highly competitive, scalable alternative to installed legacy systems. We have now fully integrated the acquired technology into our P²IC (polymer photonic integrated circuit) platform.

Also, during June 2018, our Company promoted polymer PICs and Solidified Polymer PICs as Part of the Photonics Roadmap at the World Technology Mapping Forum in Enschede, Netherlands, which includes our Company's technology of polymers and polymer PICs that have the potential to drive not only 400Gbps aggregate data rate solutions, but also 800Gbps and beyond.

In August 2018 we announced the completion (ahead of schedule) of our fully equipped on-site fabrication facility, where we are expanding our high-speed test and design capabilities. We also announced the continuation of the building of our internal expertise with the hiring of world-class technical personnel with 100Gbps experience.

In February 2019 we announced a major breakthrough in our development of clean technology polymer materials that target the insatiable demand for fast and efficient data communications in the multi-billion-dollar telecom and data markets supporting Internet, 5G and IoT (Internet of Things) webscale services. The improved thermally stable polymer has more than double the electro-optic response of our previous materials, enabling optical device performance of well over 100 GHz with extremely low power requirements. This addition to the family of PerkinamineTM polymers will hold back run-away consumption of resources and energy needed to support ever-growing data consumption demands. We continue to conduct testing of the material and assessment of associated manufacturing processes and device structures prior to release to full development.

In March 2019 we created an Advisory Board comprised of three world-class leaders in the photonics industry: Dr. Craig Ciesla, Dr. Christoph S. Harder, and Mr. Andreas Umbach. The Advisory Board will work closely with our Company leadership to enhance our Company's product positioning and promote our polymer modulator made on our proprietary *Faster by Design*TM polymer P²ICTM platform. The mission of the Advisory Board will initially be to increase our Company's outreach into the datacenter interconnect market and later to support expansion into other billion-dollar markets. The Advisory Board members have each been chosen for their combination of deep technical expertise, breadth of experience and industry relationships in the fields of fiber optics communications, polymer and semiconductor materials. Each of the Advisory Board members has experience at both innovators like Lightwave Logic and large industry leaders of the type most likely to adopt game-changing polymer-based products. In addition, they possess operational experience with semiconductor and polymer businesses.

Also, in March 2019, our Company received the "Best Achievement in PIC Platform" award for our 100 GHz polymer platform from the PIC International Conference. The award recognizes innovative advances in the development and application of key materials systems driving today's photonic integrated circuits (PICs) and providing a steppingstone to future devices.

During the second quarter of 2019, our Company promoted its polymers at ColInnovate in May and the World Technology Mapping Forum in June. ColInnovate is a meeting of semiconductor industry experts. The World Technology Mapping Forum is a group authoring a photonics roadmap out to 2030.

In September 2019 at the prestigious European Conference on Communications (ECOC) in Dublin, Ireland, we showed measured material response over frequency and the resulting optical data bits stream on our clean technology polymer materials, the newest addition to our family of PerkinamineTM polymers, that meet and exceed of our near-term target speed of 80 GHz. We also released data demonstrating stability under elevated temperatures in the activated (poled to create data carrying capability) state.

In October 2019, we reported that energy-saving polymer technology is highlighted in the recently published Integrated Photonics Systems Roadmap - International (IPSR-I). The roadmap validates the need for low-voltage, high-speed technologies such as ours.

As we move forward to diligently meet our goals, we continue to work closely with our packaging partner for the 50Gbaud and 100 Gbaud prototypes, and we are advancing our reliability and characterization efforts to support our prototyping. We are actively engaged with test equipment manufacturers of the most advanced test equipment to test our state-of-the-art polymer devices. We continue to engage with multiple industry bodies to promote our roadmap. We continue to fine tune our business model with target markets, customers, and technical specifications. Discussions with prospective customers are validating that our modulators are ideally suited for the datacenter and telecommunications markets that are over 10km in length. Details of what these prospective customers are seeking from a prototype are delivered to our technical team.

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, 2019 to three months ended September 30, 2018

Revenues

As a development stage company, we had no revenues during the three months ended September 30, 2019 and September 30, 2018. 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 and prototype devices prior to moving into production.

Operating Expenses

Our operating expenses were \$1,575,947 and \$1,443,534 for the three months ended September 30, 2019 and 2018, respectively, for an increase of \$132,413. This is primarily due to increases in research and development salaries and wages, depreciation, non-cash stock option and warrant amortization, rent and utility expenses and director fees offset by decreases in recruiting fees, moving expenses, legal fees and general and administrative salaries and wages.

Included in our operating expenses for the three months ended September 30, 2019 was \$1,134,372 for research and development expenses compared to \$984,760 for the three months ended September 30, 2018, for an increase of \$149,612. This is primarily due to increases in research and development salaries and wages, depreciation, non-cash stock option and warrant amortization and rent and utility expenses offset by decreases in moving expenses.

Research and development expenses currently consist primarily of compensation for employees and consultants engaged in internal research, product development activities; laboratory operations, prototypes electro-optic device design, development and internal material and device fabrication testing; 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, PIC development 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 \$63,637 from \$463,760 for the three months ended September 30, 2018 to \$527,397 for the three months ended September 30, 2019. The reason for the variation was primarily due to an increase in full time technical personnel working on device and material development.

Depreciation expense increased \$58,892 from \$118,302 for the three months ended September 30, 2018 to \$177,194 for the three months ended September 30, 2019. The primary reason for the increase was due to the addition of capital equipment for wafer fabrication and testing.

Research and development non-cash stock option and warrant amortization increased \$35,481 from \$45,429 for the three months ended September 30, 2018 to \$80,910 for the three months ended September 30, 2019. The reason for the variation was due to stock options and warrants vesting schedules.

Rent and utilities increased \$11,049 from \$40,660 for the three months ended September 30, 2018 to \$51,709 for the three months ended September 30, 2019 due to the increase in rent for the new facility combining the chemistry lab and device development into one facility.

Moving expenses decreased by \$17,786 from \$17,786 for the three months ended September 30, 2018 to \$0 for the three months ended September 30, 2019. The primary reason for the decrease was the relocation of employees to the new facility during 2018.

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 decreased \$17,199 to \$441,575 for the three months ended September 30, 2019 compared to \$458,774 for the three months ended September 30, 2018. The decrease is primarily due to decreases in recruiting fees, legal fees and general and administrative salary and wages offset by increases in general and administrative non-cash stock option and warrant amortization and director fees.

Recruiting fees decreased \$24,500 from \$24,500 for the three months ended September 30, 2018 to \$0 for the three months ended September 30, 2019. The primary reason for the variance was due to a reduction in recruiting firm expenditures.

Legal fees decreased \$16,261 from \$29,448 for the three months ended September 30, 2018 to \$13,187 for the three months ending September 30, 2019. The reason for the variation was due to a reduction in business legal expenditures.

General and administrative wages and salaries decreased \$13,196 from \$160,444 for the three months ended September 30, 2018 to \$147,248 for the three months ended September 30, 2019. The decrease was due to a reduction in headcount.

General and administrative non-cash stock option and warrant amortization increased \$18,864 from \$66,170 for the three months ended September 30, 2018 to \$85,034 for the three months ending September 30, 2019. The reason for the variation was due to stock options and warrants vesting schedules.

Director fees increased \$10,000 from \$0 for the three months ended September 30, 2018 to \$10,000 for the three months ended September 30, 2019. The reason for the increase was due to implementation of director board meeting fees.

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 \$20,902 from \$54,167 for the three months ended September 30, 2018 to \$33,265 for the three months ended September 30, 2019, relating to the commitment fee associated with the purchase agreement.

Net Loss

Net loss was \$1,609,212 and \$1,497,701 for the three months ended September 30, 2019 and 2018, respectively, for an increase of \$111,511, due primarily to increases in research and development salaries and wages, depreciation, non-cash stock option and warrant amortization, rent and utility expenses and director fees offset by decreases in recruiting fees, decreases in commitment fee associated with the purchase agreement, moving expenses, legal fees and general and administrative salaries and wages.

Comparison of nine months ended September 30, 2019 to nine months ended September 30, 2018

Revenues

As a development stage company, we had no revenues during the nine months ended September 30, 2019 and September 30, 2018. 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 and prototype devices prior to moving into production.

Operating Expenses

Our operating expenses were \$4,870,118 and \$4,374,026 for the nine months ended September 30, 2019 and 2018, respectively, for an increase of \$496,092. This is primarily due to increases in salaries and wages, depreciation, non-cash stock option and warrant amortization, laboratory and wafer fabrication materials and supplies, product development consulting expenses, director fees, accounting fees, and patent amortization offset by decreases in legal fees, moving expenses, rent and utility expenses, office expenses, recruiting fees, other tax expenses and repair expenses.

Included in our operating expenses for the nine months ended September 30, 2019 was \$3,355,887 for research and development expenses compared to \$2,830,785 for the nine months ended September 30, 2018, for an increase of \$525,102. This is primarily due to increases in research and development salaries and wages, depreciation, laboratory and wafer fabrication materials and supplies, non-cash stock option and warrant amortization, product development consulting expenses and patent amortization offset by decreases in moving expenses, rent and utility expenses and repair expenses.

Research and development expenses currently consist primarily of compensation for employees and consultants engaged in internal research, product development activities; laboratory operations, prototypes electro-optic device design, development and internal material and device fabrication testing; 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, PIC development 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 increased \$248,041 from \$1,302,560 for the nine months ended September 30, 2018 to \$1,550,601 for the nine months ended September 30, 2019. The reason for the variation was primarily due to an increase in full time technical personnel working on device and material development.

Depreciation expense increased \$158,848 from \$ 270,856 for the nine months ended September 30, 2018 to \$429,704 for the nine months ended September 30, 2019. The primary reason for the increase was due to the addition of capital equipment for wafer fabrication and testing.

Laboratory and wafer fabrication materials and supplies increased \$101,911 from \$257,726 for the nine months ended September 30, 2018 to \$359,637 for the nine months ended September 30, 2019. The primary reason for the increase was fabrication of prototype wafers, devices and electro-optic polymer material systems.

Research and development non-cash stock option amortization increased \$63,323 from \$197,493 for the nine months ended September 30, 2018 to \$260,816 for the nine months ended September 30, 2019. The reason for the variation was due to stock options and warrants vesting schedules.

Product development consulting expenses increased \$58,775 from \$288,246 for the nine months ended September 30, 2018 to \$347,021 for the nine months ended September 30, 2019. The primary reason for the increase was due to engaging outside consultants for device development and packaging.

Patent amortization increased by \$15,824 from \$44,956 for the nine months ended September 30, 2018 to \$60,780 for the nine months ended September 30, 2019. The primary reason for the increase was the BrPhotonics patents purchased in September 2018.

Moving expenses decreased \$61,885 from \$61,885 for the nine months ending September 30, 2018 to \$0 for the nine months ending September 30, 2019. The reason for the variation was due to moving to a new facility during 2018.

Rent and utilities decreased \$41,550 from \$181,227 for the nine months ended September 30, 2018 to \$139,677 for the nine months ended September 30, 2019 due to facility consolidation into a single location during 2018.

Repair expenses decreased \$15,384 from \$41,461 for the nine months ending September 30, 2018 to \$26,077 for the nine months ending September 30, 2019. The reason for the decrease was due to facility consolidation into a single location during 2018.

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 decreased \$29,010 to \$1,514,231 for the nine months ended September 30, 2019 compared to \$1,543,241 for the nine months ended September 30, 2018. The decrease is primarily due to decreases in legal fees, office expenses, recruiting fees, moving expenses, rent and utility expenses and other tax expenses offset by increases in general and administrative non-cash stock option and warrant amortization, director fees, general and administrative salary and wages and accounting fees.

Legal fees decreased \$85,774 from \$202,679 for the nine months ended September 30, 2018 to \$116,905 for the nine months ended September 30, 2019. The reason for the variation was due to a reduction in business legal expenditures.

Office expenses decreased \$36,966 from \$94,175 for the nine months ended September 30, 2018 to \$57,209 for the nine months ended September 30, 2019. The reason for the variation was due to facility consolidation into a single location during the first quarter of 2018.

Recruiting fees decreased \$ 36,812 from \$40,500 for the nine months ended September 30, 2018 to \$3,688 for the nine months ended September 30, 2019. The primary reason for the variance was due to a reduction in recruiting firm expenditures.

Moving expenses decreased \$20,606 from \$20,606 for the nine months ended September 30, 2018 to \$0 for the nine months ended September 30, 2019. The reason for the variation was due to moving to a new facility during the first quarter of 2018.

Rent and utilities decreased \$20,259 from \$71,357 for the nine months ended September 30, 2018 to \$51,098 for the nine months ended September 30, 2019. The reason for the variation was due to facility consolidation into a single location.

Other tax expenses decreased \$16,345 from \$26,694 for the nine months ended September 30, 2018 to \$10,349 for the nine months ended September 30, 2019. The reason for the variation was due to the timing of payments of personal property tax.

General and administrative non-cash stock option and warrant amortization increased \$92,466 from \$204,314 for the nine months ended September 30, 2018 to \$296,780 for the nine months ended September 30, 2019. The reason for the variation was due to stock options and warrants vesting schedules.

Director fees increased \$31,500 from \$0 for the nine months ended September 30, 2018 to \$31,500 for the nine months ended September 30, 2019. The reason for the increase was due to implementation of director board meeting fees.

General and administrative wages and salaries increased \$30,502 from \$399,243 for the nine months ended September 30, 2018 to \$429,745 for the nine months ended September 30, 2019. The increase was due to salary and headcount increases.

Accounting fees increased \$19,625 from \$106,750 for the nine months ended September 30, 2018 to \$126,375 for the nine months ended September 30, 2019. The primary reason for the increase was due to the additional work being an accelerated filer and general accounting expense.

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 expenses increased \$238,555 from \$135,146 for the nine months ended September 30, 2018 to \$373,701 for the nine months ended September 30, 2019, relating to the commitment fee associated with the purchase agreement.

Net loss was \$5,243,819 and \$4,509,172 for the nine months ended September 30, 2019 and 2018, respectively, for an increase of \$734,647, due primarily to increases in salaries and wages, increases in commitment fee associated with the purchase agreement depreciation, non-cash stock option and warrant amortization, laboratory and wafer fabrication materials and supplies, product development consulting expenses, director fees, accounting fees, and patent amortization offset by decreases in legal fees, moving expenses, rent and utility expenses, office expenses, recruiting fees, other tax expenses and repair expenses.

Significant Accounting Policies

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, 2018 contains a discussion of these significant accounting policies.

Recently Adopted Accounting Pronouncements. For information on recent accounting pronouncements, see *Recently Adopted Accounting Pronouncements* in Note 1 in our unaudited financial statements for the nine months ended September 30, 2019 as set forth herein.

Reclassifications. Certain reclassifications have been made to the 2018 financial statement in order to conform to the 2019 financial statement presentation.

Liquidity and Capital Resources

For the nine months ended September 30, 2019

During the nine months ended September 30, 2019, net cash used in operating activities was \$3,554,398 and net cash used in investing activities was \$267,535, 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, 2019 was \$3,815,085. At September 30, 2019, our cash and cash equivalents totaled \$2,167,777, our assets totaled \$6,602,627, our liabilities totaled \$1,842,315, and we had stockholders' equity of \$4,760,312.

For the nine months ended September 30, 2018

During the nine months ended September 30, 2018, net cash used in operating activities was \$3,404,846 and net cash used in investing activities was \$1,266,594, which was due primarily to the Company's research and development activities, general and administrative expenditures and capital expenditures. Net cash provided by financing activities for the nine months ended September 30, 2018 was \$3,393,430. At September 30, 2018, our cash and cash equivalents totaled \$2,204,317, our assets totaled \$5,237,215, our liabilities totaled \$418,632, and we had stockholders' equity of \$4,818,583.

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 \$600,000 of expenditures per month over the next 12 months. We expect our Lincoln Park financing (described below) to provide us with sufficient funds to maintain our operations over that period of time. Our current cash position enables us to finance our operations through February 2020 before we will be required to replenish our cash reserves pursuant to the Lincoln Park financing. 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. We currently have no debt to service.

On January 21, 2019, our Company entered into a purchase agreement (the "Purchase Agreement") with Lincoln Park Capital Fund, LLC ("Lincoln Park"), pursuant to which Lincoln Park agreed to purchase from us up to \$25,000,000 of our common stock (subject to certain limitations) from time to time over a 36-month period. 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 continue to increase during 2019 and beyond as a result of the following planned activities:

- The addition of management, sales, marketing, technical and other staff to our workforce;
- Increased spending for the expansion of our research and development efforts, including purchases of additional laboratory and production equipment;
- Increased spending in marketing as our products are introduced into the marketplace;
- Developing and maintaining collaborative relationships with strategic partners;
- Developing and improving our manufacturing processes and quality controls; and
- 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, 2019

Net cash used in operating activities was \$3,554,398 for the nine months ended September 30, 2019, primarily attributable to the net loss of \$5,243,819 adjusted by \$57,005 in warrants issued for services, \$500,591 in options issued for services, \$373,888 in common stock issued for services, \$499,197 in depreciation expenses and patent amortization expenses, \$269,630 in prepaid expenses and (\$10,890) 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 \$267,535 for the nine months ended September 30, 2019, consisting of \$52,022 in cost for intangibles and \$215,513 in asset additions primarily for the new Colorado headquarter facility and labs.

Net cash provided by financing activities was \$3,815,085 for the nine months ended September 30, 2019 and consisted of \$4,165,585 in proceeds from resale of common stock to an institutional investor offset by \$350,500 repayment of equipment purchased.

For the nine months ended September 30, 2018

Net cash used in operating activities was \$3,404,846 for the nine months ended September 30, 2018, primarily attributable to the net loss of \$4,509,172 adjusted by \$62,731 in warrants issued for services, \$339,076 in options issued for services, \$135,333 in common stock issued for services, \$322,495 in depreciation expenses and patent amortization expenses, \$10,084 net loss on disposal of equipment, \$268,560 in prepaid expenses and (\$33,953) 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 \$1,266,594 for the nine months ended September 30, 2018, consisting of \$371,320 in cost for intangibles and \$897,774 in asset additions primarily for the new Colorado headquarter facility offset by proceeds of \$2,500 on the sale of equipment.

Net cash provided by financing activities was \$3,393,430 for the nine months ended September 30, 2018 and consisted of \$3,612,400 in proceeds from resale of common stock to an institutional investor and \$161,500 in proceeds from exercise of warrants and options offset by \$380,470 repayment of equipment purchased.

Contractual Obligations

There have been no material changes outside the ordinary course of business in our contractual commitments during the three months ended September 30, 2019.

Off-Balance Sheet Arrangements

As of September 30, 2019, we do not have an interest in any off-balance sheet arrangements as defined in Item 303(a)(4) of Regulation S-K that have or are reasonably likely to have a current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures, or capital resources that is material to investors.

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, 2019. Based on this evaluation, the Company's Principal Executive Officer and Principal Financial Officer concluded that, as of September 30, 2019 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, 2019 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

<u>Date</u>	<u>Security/Value</u>
July 2019	Warrant – right to buy 100,000 shares of common stock at \$.75 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:

<u>Exhibit No.</u>	<u>Description of Exhibit</u>	<u>Location</u>
31.1	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
31.2	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
32.1	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
32.2	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	

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. Lebby
Michael S. Lebby,
Chief Executive Officer
(Principal Executive Officer)

Date: November 12, 2019

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

Date: November 12, 2019

CERTIFICATION

I, Michael S. Lebby, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Lightwave Logic, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 12, 2019

/s/ Michael S. Lebby
Michael S. Lebby,
Chief Executive Officer
(Principal Executive Officer)

CERTIFICATION

I, James S. Marcelli, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Lightwave Logic, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 12, 2019

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

**CERTIFICATION PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002
18 U.S.C. SECTION 1350**

In connection with the Quarterly Report on Form 10-Q of Lightwave Logic, Inc. (the "Company") for the period ending September 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Michael S. Lebby, Chief Executive Officer of our Company, certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that, to my knowledge:

1. The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of our Company.

Date: November 12, 2019

/s/ Michael S. Lebby
Michael S. Lebby,
Chief Executive Officer
(Principal Executive Officer)

**CERTIFICATION PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002
18 U.S.C. SECTION 1350**

In connection with the Quarterly Report on Form 10-Q of Lightwave Logic, Inc. (the "Company") for the period ending September 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, James S. Marcelli, Chief Operating Officer of our Company, certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that, to my knowledge:

1. The Report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information contained in the Report fairly presents, in all material respects, the financial condition and result of operations of our Company.

Date: November 12, 2019

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