Lightwave Logic, Inc.
Form 10-K
April 14, 2009

UNITED STATES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

[X] **ANNUAL REPORT UNDER SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2008

[ ] **TRANSITION REPORT UNDER SECTION 13 OR 15 (D) OF THE EXCHANGE ACT**

Commission file number: **0-52567**

Lightwave Logic, Inc.

(Exact name of registrant as specified in its charter)

Nevada	**82-049-7368**
(State or other jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification No.)

121 Continental Drive Suite 110 Newark, DE	19713
(Address of principal executive offices)	(Zip Code)

(Registrant s Telephone Number, including Area Code): **302-356-2717**

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

Title of each class registered	Name of each exchange on which registered

Securities registered pursuant to section 12(g) of the Act:

Common Stock, Par Value $0.001

(Title of class)

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

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

Indicate by check mark whether the registrant (1) has filed all reports 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 ý. No ¨.

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

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

Large Accelerated Filer	¨	Accelerated Filer	¨
Non-Accelerated filer	¨	Smaller reporting company	x

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act of 1934). Yes ¨ No x

On March 26, 2009 there were 37,969,042 shares outstanding of the registrant s common stock, $.001 par value.

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Forward-Looking Statements

This report on Form 10-K contains forward-looking statements. These statements relate to future events or future financial performance and involve known and unknown risks, uncertainties and other factors that may cause our Company or its industry's actual results, levels of activity, performance or achievements to be materially different from any future results, levels of activity, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terminology such as may, will, should, expects, p anticipates, believes, estimates, predicts, potential, or the negative of these terms or other comparable termin These statements are only predictions. Actual events or results may differ materially. Although our Company believes that the expectations reflected in the forward-looking statements are reasonable, our Company cannot guarantee future results, levels of activity, performance or achievements. The forward-looking statements are based on our beliefs, assumptions and expectations of our future performance, taking into account information currently available to us. These beliefs, assumptions and expectations can change as a result of many possible events or factors, including those events and factors described by us in Item 1.A Risk Factors, not all of which are known to us.

Further, this report on Form 10-K contains forward looking statements that involve substantial risks and uncertainties. Such statements include, without limitation, all statements as to expectation or belief and statements as to our future results of operations, the progress of any research and product development, the need for, and timing of, additional capital and capital expenditures, partnering prospects, the protection of and the need for additional intellectual property rights, effects of regulations, the need for additional facilities and potential market opportunities. Our Company's actual results may vary materially from those contained in such forward-looking statements because of risks to which our Company is subject, such as lack of available funding, competition from third parties, intellectual property rights of third parties, regulatory constraints, litigation and other risks to which our Company is subject.

You should not place undue reliance on these forward-looking statements. Statements regarding the following subjects are forward-looking by their nature:

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Our business

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Our business strategy

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Our future operating results

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Our ability to obtain external financing

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Our understanding of our competition

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Industry and market trends

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Future capital expenditures

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The impact of technology on our products, operations and business

PART I

Item 1.

Business.

Our Business Development

PSI-TEC Corporation (**PSI-TEC**) was founded in 1991 and incorporated under the laws of the State of Delaware on September 12, 1995. PSI-TEC was founded in Upland, Pennsylvania by Dr. Frederick J. Goetz where he established a laboratory with a small amount of private funding. PSI-TEC subsequently moved its operations to laboratory space provided by the U.S. Army on the Aberdeen Proving Grounds in cooperation with a division of the Department of Defense for the advancement of ultra wide-bandwidth satellite telecommunications. Thereafter, PSI-TEC commenced operations of its own organic synthesis and thin-films laboratory in Wilmington, Delaware.

In order to become a non-reporting publicly-traded corporation, in July 2004 PSI-TEC reorganized with our Company pursuant to a reorganization agreement between PSI-TEC and all of its shareholders, and our Company's sole officer, director and majority shareholder. Pursuant to the reorganization agreement, (i) our Company changed its name from Eastern Idaho Internet Services, Inc. to PSI-TEC Holdings, Inc.; (ii) our Company acquired all of the issued and outstanding shares of PSI-TEC stock; (iii) PSI-TEC became the wholly-owned operating subsidiary of our Company; and (iv) our Company's then sole officer and director resigned, PSI-TEC's nominees were elected to our Company's board of directors and new management was appointed. For accounting purposes, this acquisition transaction was accounted for as a reverse-acquisition, whereby PSI-TEC was deemed to have purchased our Company. As a result, the historical financial statements of PSI-TEC became the historical financial statements of our Company.

Immediately prior to the time of the reorganization transaction, our Company was a non-reporting development stage company whose stock was traded on the OTC: Pink Sheets and that was seeking other business opportunities; it had no substantive business operations. Our Company was originally incorporated under the laws of the State of Nevada on June 24, 1997 as Eastern Idaho Internet Services, Inc. to operate as an Internet services marketing firm. It was unsuccessful in this venture, and in June 1998 it ceased its operations and sold all of its operating assets.

On October 20, 2006, in order to consolidate the operations of PSI-TEC Holdings, Inc. and PSI-TEC Corp. (PSI-TEC Holdings, Inc.'s wholly owned subsidiary), PSI-TEC Holdings, Inc. and PSI-TEC Corp. merged; and PSI-TEC Holdings, Inc., a Nevada corporation, survived and changed its name to Third-Order Nanotechnologies, Inc. No change of control or domicile occurred as a result of the merger.

On March 10, 2008, Third-order Nanotechnologies, Inc. changed its name to Lightwave Logic, Inc. to better suit its strategic business plan and to facilitate stockholder recognition of the Company and its business.

Unless the context otherwise requires, all references to the **Company**, **we**, **our** or **us** and other similar terms me
Lightwave Logic, Inc., a Nevada corporation.

Our principal executive office is located at 121 Continental Drive, Suite 110, Newark, Delaware 19713 and our telephone number is (302) 356-2717. Our website address is www.lightwavelogic.com. No information found on our website is part of this report. Also, this report includes the names of various government agencies and the trade names of other companies. Unless specifically stated otherwise, the use or display by us of such other parties' names and trade names in this report is not intended to and does not imply a relationship with, or endorsement or sponsorship of us by, any of these other parties.

Overview

We are a development stage research and development company. We have developed and are continuing to develop high-activity, high-stability electro-optic polymers which we believe could have a broad range of applications in the electro-optic device market.

Electro-optic devices convert data from electric signals into optical signals for use in communications systems and in optical interconnects for high-speed data transfer. We expect our patented and patent-pending technologies when completed and tested to be utilized by electro-optic device manufacturers, such as telecommunications component and systems manufacturers, networking and switching suppliers, semiconductor companies, aerospace companies and government agencies.

Our electro-optic polymers (plastics) are property-engineered at the molecular level (nanotechnology level) to meet the exacting thermal, environment and performance specifications demanded by electro-optic devices. We believe that our patent pending technologies will enable us to design electro-optic polymers that are free from the numerous diverse inherent flaws that plague competitive polymer technologies employed by other companies and research groups. We engineer our polymers with the intent to have temporal, thermal, chemical and photochemical stability within our patent pending molecular architectures.

Our 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. Aromaticity is what will enable our core molecular structures to maintain stability under a broad range of polymerization conditions that otherwise appear to affect other current polymer molecular designs. Polymers, polymer-based devices and the processes used to create them are often patentable, which can provide the developers of such technology with a significant competitive advantage. We consider our proprietary intellectual property to be unique.

Glossary of Select Technology Terms Used Herein

All-optical devices. All-optical devices convert data in the form of input light signals to a secondary light data stream. The future market of all-optic devices is expected to include all-optical transistors.

All-optical transistors. All-optical transistors are devices currently underdevelopment that use an input light signal to switch a secondary light signal. All-optical transistors are expected to enable the fabrication of an entirely new high-speed generation of computers

that operate on light instead of electricity, which in turn should significantly improve computation speeds.

Aromaticity. Aromaticity causes an extremely high degree of molecular stability. It is a molecular arrangement wherein atoms combine into a ring or rings and share their electrons among each other. Aromatic compounds are extremely stable because the electronic charge distributes evenly over a great area preventing hostile moieties, such as oxygen and free radicals, from finding an opening to attack.

CLD-1. An electro-optic material based upon unstable polyene molecular architectures. Unlike our own molecular designs, CLD-1 is not a CSC model molecule and exhibits thermal degradation at low temperatures (~250 C) which makes it less suitable for commercial and military applications.

CSC (Cyclical Surface Conduction) theory. Most charge-transfer dyes (e.g. Disperse Red 1, CLD, FTC) are based upon a polyene architecture wherein the ground state and first excited state differ by the alteration of single and double bonds. CSC model molecules use nitrogenous heterocyclical structures.

Electro-optic devices. Electro-optic devices convert data from electric signals into optical signals for use in communications systems and in optical interconnects for high-speed data transfer.

Electro-optic materials. Electro-optic materials are materials that are engineered at the molecular level. Molecular level engineering is commonly referred to as nanotechnology.

Electro-optic modulators. Electro-optic modulators are electro-optic devices that perform electric-to-optic conversions within the infrastructure of the Internet.

Nanotechnology. Nanotechnology refers to the development of products and production processes at the molecular level, which is a scale smaller than 100 nanometers (a nanometer is one-billionth of a meter).

Nitrogenous heterocyclical structure. A multi-atom molecular ring or combination of rings that contain nitrogen.

Plastics/Polymers. Polymers, also known as plastics, are large carbon-based molecules that bond many small molecules together to form a long chain. Polymer materials can be engineered and optimized using nanotechnology to create a system in which unique surface, electrical, chemical and electro-optic characteristics can be controlled. Materials based on polymers are used in a multitude of industrial and consumer products, from automotive parts to

home appliances and furniture, as well as scientific and medical equipment.

Polymerization. Polymerization is a molecular engineering process that provides the environmental and thermal stability necessary for functional electro-optical devices. Polymer materials can be engineered and optimized using nanotechnology to create a system in which unique surface, electrical, chemical and electro-optic characteristics can be controlled.

Thermal Gravimetric Analysis (TGA). The basic principle in TGA is to measure the mass of a sample as a function of temperature. This, in principle, simple measurement is an important and powerful tool in solid state chemistry and materials science. The method for example can be used to determine water of crystallisation, follow degradation of materials, determine reaction kinetics, study oxidation and reduction, or to teach the principles of stoichiometry, formulae and analysis.

Zwitterionic-aromatic push-pull. Most charge-transfer dyes (e.g. Disperse Red 1, CLD, FTC) have an excited state (such as during photonic absorption) wherein a full charge is separated across the molecule. Such a molecule is said to be excited-state zwitterionic. Within such a molecular system the zwitterionic state is unstable and the molecule typically collapses rapidly into its lower dipole ground state. In our molecular designs, the excited state is further stabilized by the aromatization of the molecular core. In that aromaticity stabilizes this excited state, it is said to "pull" the molecule into this higher energy state; on the other hand, the unstable zwitterionic state is said to "push" the molecule out of the excited state.

Our Business

Lightwave Logic, Inc., is developing a new generation of advanced electro-optic plastics that convert high-speed electronic signals into optical (light) signals. Electro-optic material is the core active ingredient in high-speed fiber-optic telecommunication systems. Utilizing our proprietary technology, we are in the process of engineering advanced electro-optic plastics which we believe may lead to significant performance advancements, component size and cost reduction, ease of processing, and thermal and temporal stability. We believe that polymer materials engineered at the molecular level may have a significant role in the future development of commercially significant electro-optic related products.

In order to transmit digital information over long or intermediate distances at extremely high-speeds (wide bandwidth), electrical signals, such as those produced by a computer or telephone, must be converted into optical signals for transmission over long-distance fiber-optic cable. Within the infrastructure of the Internet, a device known as an electro-optic modulator performs the electric-to-optic conversion. Within the electro-optic modulator, an electro-optic material performs the actual conversion of electricity to an optical signal. These materials change their optical properties in the presence of an electric field at extremely high frequencies (wide bandwidths).

Currently, the core electro-optic material contained in most modulators is a crystalline material, such as lithium niobate or gallium arsenide, which must be manufactured in strict dust-free conditions since even slight contamination can render them inoperable. As a result, these crystalline materials are expensive to produce. Current electro-optic crystals are limited to telecommunication speeds that are less than 40Gb/s (40 billion digital bits of data per second). Lithium niobate devices require large power levels (modulation voltages) to operate and are large in size -- typically measuring about four inches long. Considering that most integrated circuits are literally invisible to the naked eye, these devices are enormous. Additionally, it is important to note that these crystalline-based electro-optic modulators require expensive mechanical packaging (housings) generally comprised of materials, such as gold-plated Kovar, in

order to assure

operational integrity over required time and operating temperature ranges.

Unlike crystals, electro-optic plastics appear to be capable of being tailored at the molecular level for optimal performance characteristics. Additionally, electro-optic plastics are less expensive to manufacture and demand significantly lower power requirements (modulation voltages). The electro-optic plastics have demonstrated the ability to perform many times faster (>100Gb/s) than existing crystalline technology.

We consider electro-optic plastics to be the most feasible technology for future high-speed (wide bandwidth) electronic-optical conversion. Due to the ease of processing afforded by electro-optic plastics, as well as their capacity to foster component size reduction, we believe electro-optic plastics have the potential to replace existing high-speed fiber-optics components that are used today in many commercial and military applications.

We also believe that the extreme miniaturization provided by advanced electro-optic plastics may allow for the successful fabrication of chip-to-chip (backplane) optical interconnect devices for computers that create the high-speed data transmission necessary for extremely high-speed computations. Further, we believe that additional potential applications for electro-optic plastics may include phased array radar, cable television (CATV), electronic counter measure (ECM) systems, ultra-fast analog-to-digital conversion, land mine detection, radio frequency photonics, spatial light modulation and all-optical (light-switching-light) signal processing.

Our Electro-Optic Technology

For the past two decades, diverse corporate interests, including, to our knowledge, IBM, Lockheed Martin, DuPont, AT&T Bell Labs, Corning, Honeywell and 3M, as well as numerous universities and U.S. Government Agencies, have been attempting to produce high-performance, high-stability electro-optic plastics for high-speed (wide bandwidth) telecommunication applications. These efforts have largely been unsuccessful due, in our opinion, to the industry's singular adherence to an industry pervasive engineering model known as the Bond Length Alternation ("BLA") theory model. The BLA model, like all other current industry-standard molecular designs, consists of molecular designs containing long strings of atoms called polyene chains. Longer polyene chains provide higher electro-optic performance, but are also more susceptible to environmental threats, which result in unacceptably low-performing, thermally unstable electro-optic plastics.

As a result, high frequency modulators engineered with electro-optic plastics designed on the BLA model or any other polyene chain design model are unstable over typical operating temperature ranges, and often exhibit performance degradation within days, hours or even minutes. Similarly, lower frequency modulators exhibit comparable failings, but to a lesser extent. These flaws have prevented commercial quality polymer-based modulators operating at 10-40Gb/s from entering the commercial marketplace. The thermal stability of these devices does not generally meet the minimum Telcordia GR-468 operating temperature range (-40 degrees Celsius to +85 degrees Celsius) much less the more harsh MILSPEC 883D (military specification) range of -55 degrees Celsius to 150 degrees Celsius.

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None of our molecular designs rely on the BLA polyene chain design model. Our proposed solution lies in a far less mainstream, yet firmly established, scientific phenomenon called aromaticity. Aromaticity causes a high degree of molecular stability. It is a molecular arrangement wherein atoms combine into multi-membered rings and share their electrons among each other. Aromatic compounds are stable because the electronic charge distributes evenly over a great area preventing hostile moieties, such as oxygen and free radicals, from finding an opening to attack. To our knowledge, no one has previously been able to demonstrate molecular designs that could effectively exploit aromaticity in the design of a high-performance electro-optic plastic.

Our research and findings in this area resulted in our Company being the sole recipient of the 2006 Electro-Optic Materials Technology Innovation of the Year Award by Frost & Sullivan. Frost & Sullivan's Technology Innovation of the Year Award is bestowed upon candidates whose original research has resulted in innovations that have, or are expected to bring, significant contributions to multiple industries in terms of adoption, change, and competitive posture. This award recognizes the quality and depth of our Company's research and development program as well as the vision and risk-taking that enabled us to undertake such an endeavor. Our Company did not actively elicit consideration or apply to receive this award. Frost & Sullivan independently contacted our Company and conducted several interviews which included chemical and technical experts in the field of electro-optics who were supplied with detailed public information regarding our Company's technological innovations.

Our Patents

We hold one patent and thirty pending patent applications (consisting of five patent applications in each of Australia, Canada, China, European Patent Convention, Japan and the U.S. based on the PCT applications below) in the field of nonlinear optic chromophore design as follows:

6,041,157

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Environmentally sensitive compositions of matter based on 3H-fluoren-3- ylidenes and process for making same;

PCT/US05/39212

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Tricyclic Spacer Systems for Nonlinear Optical Devices;

PCT/US05/39664

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Anti-Aromatic Chromophore Architectures;

PCT/US05/39213

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Heterocyclical Anti-Aromatic Chromophore Architectures;

PCT/US05/39010

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Heterocyclical Chromophore Architectures;

PCT/US06/11637

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Heterocyclical Chromophore Architectures with Novel Electronic Acceptor Systems.

Heterocyclical Anti-Aromatic Systems. Two of our provisional patents cover heterocyclical anti-aromatic electronic conductive pathways, which are the heart of our high-performance, high-stability molecular designs. The completely heterocyclical nature of our molecular designs "lock" conductive atomic orbitals into a planar (flat) configuration, which provides improved electronic conduction and a significantly lower reaction to environmental threats (e.g. thermal, chemical, photochemical, etc.) than the BLA design paradigm employed by other competitive electro-optic polymers.

The anti-aromatic nature of these structures dramatically improves the "zwitterionic-aromatic push-pull" of the systems, providing for low energy charge transfer. Low energy charge transfer is important for the production of extremely high electro-optic character.

Heterocyclical Steric Hindering System. This patent describes a nitrogenous heterocyclical structure for the integration of steric hindering groups that are necessary for the nanoscale material integration. Due to the [pi]-orbital configuration of the nitrogen bridge, this structure has been demonstrated not to interfere with the conductive nature of the electronic conductive pathway and thus is non-disruptive to the electro-optic character of the core molecular construction. The quantum mechanical design of the system is designed to establish complete molecular planarity (flatness) for optimal performance.

Totally Integrated Material Engineering System. This patent covers material integration structures under a design strategy known as Totally Integrated Material Engineering. These integration structures provide for the "wrapping" of the core molecule in sterically hindering groups that maximally protect the molecule from environmental threats and maximally protect it from microscopic aggregation (which is a major cause of performance degradation and optical loss) within a minimal molecular volume. These structures also provide for the integration of polymerizable groups for integration of materials into a highly stable cross-linked material matrix.

Our Latest Tests and Results

Prior to our recent experimental results, in 2004, quantum mechanical calculations were independently performed on our novel electro-optic plastic designs at government laboratories located at the Naval Air Warfare Center Weapons Division in China Lake, California. The results of these calculations suggest that our initial aromatic molecules perform two and a half (2.5) to three and three-tenths (3.3) times more efficiently than currently available telecom grade electro-optic plastics. Logical extensions of this novel molecular design paradigm further suggest even greater performance improvements. Subsequently, top scientists and engineers at Wright-Patterson Air Force Base reviewed these calculations and concluded that our molecular designs show promise of a five to ten times improvement over existing commercial polymeric architectures. Our conclusion is that performance improvements of this magnitude indicate a significant breakthrough in the field of fiber-optic telecommunication.

In May and June of 2006, we initiated performance evaluations of one of our first extremely high-performance electro-optic materials. The initial tests were performed by electro-optic expert, Dr. C.C. Teng, co-inventor of the

renowned Teng-Man test, the industry-wide standard method of evaluating the material performance of electro-optic plastics, and subsequently confirmed by the University of Arizona's College of Optical

Sciences, one of the most respected and fastest growing optical sciences departments in the world. Under identical laboratory conditions at low molecular loadings, one of our recent molecular designs outperformed one of the industry's highest performance electro-optic systems by a factor as high as 650%.

We believe results of the Teng-Man test have established the validity of our novel, patent pending molecular design paradigm known as CSC (Cyclical Surface Conduction) theory. We believe the success of CSC theory has the potential to establish the fundamental blueprint of electro-optic material design for decades to come, and to have broad application in commercial and military telecommunication and advanced computational systems.

On September 25, 2006 we obtained independent laboratory results that confirmed the thermal stability of our Perkinamine electro-optic materials. Thermal stability as high as 350 degrees Celsius was confirmed, significantly exceeding many other commercially available high performance electro-optic materials, such as CLD-1 which exhibits thermal degradation in the range of 250 degrees Celsius to 275 degrees Celsius. This high temperature stability of our materials eliminates a major obstacle to vertical integration of electro-optic polymers into standard microelectronic manufacturing processes (e.g. wave/vapor-phase soldering) where thermal stability of at least 300 degrees Celsius is required. In independent laboratory tests, ten-percent material degradation, a common evaluation of overall thermal stability, did not occur until our Perkinamine material base was exposed to temperatures as high as 350 degrees Celsius, as determined by Thermo-Gravimetric Analysis (TGA).

The test results supported our Company's progress to introduce our materials into commercial applications such as optical interconnections, high-speed telecom and datacom modulators, and military/aerospace components.

In July 2007, our Company developed an innovative process to integrate our unique architecture into our anticipated commercial devices, whereby dendritic spacer systems are attached to its core chromophore. In the event we are successful in developing a commercially viable product, we believe these dendrimers will reduce the cost of manufacturing materials and reduce the cost and complexity of tailoring the material to specific customer requirements.

In March 2008, we commenced production of our first prototype photonic chip, which we delivered to Photon-X, LLC to fabricate a prototype polymer optical modulator and measure its technical properties. As a result of delays caused by engineering setbacks related to our material production, the production of our first prototype photonic chip was temporarily halted, along with the completion of our proof of concept tests that were being administered by Dr. Robert Norwood at the University of Arizona Photonics Department. In order to address this issue, Dr. David Eaton s role and responsibilities with the Company were significantly expanded, and we added two veteran synthetic chemists to our science and technology team. We now believe we have overcome these engineering setbacks and we believe we are prepared to start our next phase of testing for material performance (r33) Teng-Man testing protocol in order to re-confirm previous test results. Once again, we intend to deliver independent validated r33 test results necessary for secondary proof of concept testing, as we have in the past. We may incur delays in this process due to slower than expected material production within our laboratories

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and/or delays caused by the testing procedures. Should these tests produce a functional 40Gb/s or greater modulator we expect to go forward with product development and marketing in the telecommunication market with partners in the telecommunication field. We cannot anticipate the details of the customer adoption cycle until we have produced a functional prototype to create a credible technology offering.

The Electro-Optic Device Market

General

Electro-optic devices such as fiber-optic modulators translate electric signals into optical signals. Such devices are used in communication systems to transfer data over fiber-optic networks. Optical data transfer is significantly faster and more efficient than transfer technologies using only electric signals, permitting more cost-effective use of bandwidth for broadband Internet and voice services.

Two distinct technologies currently exist for the fabrication of fiber-optic devices, such as fiber-optic modulators. The first, which is the more traditional technology, utilizes an electro-optically active inorganic core crystalline material (e.g. lithium niobate). The second, which is the up-and-coming technology, involves the exploitation of electro-optic plastics.

Traditional Technology - Inorganic Crystals

Traditional technology translates electric signals into optical signals generally relying upon electro-optic materials, such as lithium niobate or gallium arsenide. Six of the largest inorganic fiber-optic component manufactures hold approximately 85% of the electro-optic modulator component market. They are JDS Uniphase, Sumitomo, Avanex, Covega, Fujitsu, and Bookham. These companies are heavily invested in the production of crystalline-based electro-optic modulator technologies, as well as the development of novel manufacturing techniques and integrated laser/modulator designs. While each company possesses their own modulator design and processing patents, the underlying core constituents (lithium niobate, gallium arsenide, indium phosphide) occur in nature and as such cannot be patented.

New Technology - Organic Plastics

Our developing technology that translates electric signals into optical signals relies upon organic electro-optic materials, such as electro-optic plastics. Electro-optic plastics involve the material integration of specifically engineered organic (carbon-based) compounds. The molecular designs of these compounds are precise and do not

occur naturally; thus they may be protected under patent law.

Plastic-based electro-optic modulators may provide considerable advantages over traditional inorganic fiber-optic technology in terms of:

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Costs.

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Size and versatility.

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Modulating/switching speed.

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Optical transmission properties.

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Lower operating voltages.

Other than our own Company, we are aware of only one other company, Gigoptix, Inc. who reorganized with Lumera Corporation ("Lumera") in December 2008, which has designed and patented potentially commercially feasible electro-optic plastics. Prior to our own technological developments, Lumera held an exclusive monopoly on this area of technology because Lumera holds an exclusive present and future license to all electro-optic polymeric technology developed within the University of Washington. Lumera has yet, to our knowledge, to publicly demonstrate a robust, stable commercial modulator capable of low cost volume production.

As a result, no significant commercial market developments have occurred with electro-optic plastic devices. This is because all previously known electro-optic polymer design strategies incorporate molecular structures that adversely react to the requisite polymerization processes that thermally-stabilize the material matrix. This inherent design flaw causes the polymer to melt at unreasonably low temperatures, which corrupts the polymer's electro-optic performance.

Our Company holds an extensive amount of internally developed intellectual property in the field of electro-optic molecular design that, as a whole, attempts to fundamentally solve these and other problems associated with these molecular structures. We believe our provisional patents describe broad, highly unique techniques for novel paradigms in molecular design.

Our innovative solution lies in a very well-known scientific phenomenon called aromaticity, which causes a high degree of molecular stability. Aromaticity is a molecular arrangement wherein atoms combine into multi-membered rings and share their electrons among each other. Aromatic compounds are extremely stable because the electronic charge distributes evenly over a great area preventing hostile moieties, such as oxygen and free radicals, from finding an opening to attack. Until now, to our knowledge, no one has been able to propose molecular designs that could effectively exploit aromaticity in the design of a high-performance electro-optic plastic.

We believe now that we have fabricated electro-optic molecular architectures that do in fact exhibit extremely high thermal stability, our technologies may soon replace inorganic electro-optic materials in the marketplace due to their considerable advantages over traditional inorganic fiber-optic materials.

Our Target Markets

Our proprietary electro-optic plastics are designed at the molecular level for potentially superior performance, stability and cost-efficiency and we believe may have the potential to replace more expensive, lower-performance materials used in fiber-optic ground, wireless and satellite communication networks. We believe our electro-optic plastics may have broad applications in civilian and military telecommunications and advanced computational systems. Potential future applications may include: (i)

telecommunications; (ii) backplane optical interconnects; (iii) entertainment; (iv) medical applications; (iv) satellite reconnaissance; (vi) navigational systems; (vii) radar applications; and (viii) all-optical transistors.

Telecommunications

Telecommunications is the primary initial target application for electro-optic plastics. Electro-optic plastics could not only simplify the device design of key components, such as modulators, significantly reducing packaging costs, but could also provide for higher speed devices with greater system miniaturization. Current crystalline (e.g. lithium niobate) fiber-optic modulators are difficult and expensive to manufacture due to the complexities of producing single crystalline ingots of sufficient diameter (3 to 5 inches). Also, strict environmental controls must be enforced during the growth of the core crystalline material. Plastics are not inherently costly to produce nor do they require such strict environmental conditions. Due to their material flexibility (e.g. ability to more easily mold into specific topologies) they are expected to enable smaller, cheaper, faster, less expensive, and more integrated network components. In many laboratory tests, electro-optic polymers have demonstrated substantial (3-10x) transmission data speed improvements over crystalline technologies (lithium niobate, gallium arsenide, indium phosphide).

Backplane Optical Interconnects

It is reported that backplane optical interconnects are envisioned by members within leading corporations (including IBM, Intel and Agilent Technologies) as the future of high-speed computation. These components could speed the transmission of information within an integrated circuit, among integrated circuit chips in a module, and across circuit boards at speeds unattainable with traditional metallic interconnections and bus structures. In the future, all-optical (light switching light) signal processing could become possible using an advanced version of our chemistry.

Entertainment

Entertainment applications, including CATV and Internet, are a highly important potential application subdivision of the telecommunication market. The ever-increasing number of entertainment services such as VOD (video on demand) and digital cable, as well as the future ability to download television and movies real-time from the Internet, drives the demand for ever-increasing bandwidth. Flexible displays utilizing organic light emitting diodes are inherently compatible with our polymer waveguides.

Medical Applications

Medical Applications for electro-optic plastics have been proposed for many varied applications, including dentistry, oncology and protein identification. Although experimental, it is believed that the successful fabrication of high-stability electro-optic plastics could open up many future applications such as these. Other medical applications

such as the higher-speed transmission of medical records, X-ray and MRI scans over the Internet would be improved by the broadening of Internet bandwidths.

Satellite Reconnaissance

Satellite reconnaissance applications include a specific target market within the Department of Defense, the 14-member Intelligence Community and their contractors. Electro-optic plastics have historically been seen as attractive for potential application in this market due to the constant need for the fastest bandwidth transmission to meet the needs of national security.

Navigational Systems

Navigational systems for both advanced aerial and missile guidance require the use of electro-optic gyroscopes. These devices are currently fabricated out of lithium niobate or similar electro-optic materials; the application of electro-optic plastics would facilitate the development of more accurate and architecturally simple device designs.

Radar Applications

Radar Applications, specifically phased array radar, has been traditionally understood as a potential application for successful electro-optic material designs, along with electronic counter measure systems (ECM) systems, ultra-fast analog-to-digital conversion, land mine detection, radio frequency photonics and spatial light modulation.

All-Optical Transistors

All-optical transistors are expected to be included in the future market of all-optic devices. All-optical devices convert data in the form of input light signals to a secondary light data stream. Some experts anticipate that all-optical transistors will replace traditional transistors used today in microprocessors. All-optical transistors are expected to enable the fabrication of an entirely new high-speed generation of "plastic" computers that operate on light instead of electricity, which in turn should significantly improve computation speeds.

Our Business Strategy

Our economic model 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, subject to successful testing of our technology and having available financial resources, to:

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Develop electro-optic product devices.

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Continue to develop proprietary intellectual property.

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Streamline our product development process.

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Develop a comprehensive marketing plan.

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Maintain/develop strategic relationships with government agencies, private firms, and academic institutions.

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Attract seasoned executives and science and technology personnel to our Company.

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Expand into a state-of-the-art development, testing and manufacturing facility.

Develop Electro-Optic Product Devices

We intend to utilize our proprietary technology to create an initial portfolio of commercially feasible electro-optic plastic product devices and applications for various markets, including telecommunications and government. We expect our initial product device line to include high speed 40Gb/s and 100Gb/s modulators and system applications.

Continue to Develop Proprietary Intellectual Property

We plan to advance our core competence in electro-optic plastic technology by continuing to develop proprietary materials, processes, designs and devices. We also plan to protect our technology by filing patent applications where appropriate, obtaining exclusive technology rights where available, and taking other appropriate steps to secure and protect our intellectual property.

Streamline Our Product Development Process

We intend to streamline our development process and to design, fabricate and test proprietary materials and potential electro-optic plastic devices in order to position our Company to take advantage of emerging market opportunities.

Develop a Comprehensive Marketing Plan

We intend to build a sales and marketing organization dedicated to developing customers and multiple distribution channels for our products. We plan to aggressively pursue sales of our potential products through the use of industry-specific sales organizations, such as electro-optic component representatives and distributors. In addition, we plan to target market leaders as initial customers and to leverage relationships with these market leaders to obtain future contracts and sales references.

In 2008 we retained TangibleFuture, Inc., a San Francisco based technology analysis and business development consulting company, to generate an independent assessment of our business opportunities in the fiber-optic telecommunications and optical computing sectors and develop strategies to penetrate those potential markets.

Maintain/Develop Strategic Relationships with Government Agencies, Private Firms, and Academic Institutions

Almost since our inception, we have had beneficial strategic relationships with various government agencies that have provided us with funding and access to important technology. We intend to re-establish our relationship with DARPA, the Defense Advance Research Project Agency (the agency in the Intelligence Community credited with the origination of the Internet), by sharing the technical data and test results on our aromatic molecular materials. DARPA previously provided our Company with funding in order to advance of our technologies and to bring them to the public market, but due to a change in focus at DARPA our funding was not renewed.

As we advanced towards the commercialization phase of our strategic plan, we commenced discussions with several potential strategic alliance partners ranging from micro-electronic component firms to large-scale computer companies, as well as petrochemical companies having very large volume production capabilities. We believe strategic alliances and/or technology licensing will be a crucial step in commercializing our novel technologies and achieving competitive advantages. We entered into a strategic relationship with Photon-X, LLC, a technology solutions provider for polymer waveguides that works in conjunction with various government agencies.

We have also developed an excellent relationship with the University of Delaware, an institution well known for excellence in chemical engineering, which we intend to maintain and strengthen.

Attract seasoned executives and science and technology personnel to our Company

In May 2007, we retained Dr. David F. Eaton as our Interim Chief Technology Officer and in January 2008, Dr. Eaton became our permanent Chief Technology Officer. Previously, Dr. Eaton spent thirty years with DuPont where he worked in research & development, research & development management and business leadership positions. Dr. Eaton spearheaded DuPont s entry into polymer-based components for fiber optic telecommunication by founding DuPont Photonics Technology, a wholly owned subsidiary of DuPont.

In March 2008, we retained Terry Turpin as our Optical Computing Guru. Mr. Turpin began his engineering career developing computing engines for the National Security Agency (NSA) where he served as Chief of the Advanced Processing Technologies Division, representing the NSA on the Tri-Service Optical Processing Committee organized by the Under Secretary of Defense for Research and Engineering.

In August 2008, we retained Mr. James S. Marcelli as our Chief Executive Officer. Mr. Marcelli has served as the president and/or chief executive officer of multiple start-up and growth companies in high tech development and manufacturing businesses with a core focus on business and market development and building strong management teams.

In November 2008, we retained Howard E. Simmons, III, PhD to our technology team. Dr. Simmons is a graduate of MIT and Harvard, who spent 25 years with DuPont engaged in research & development at the corporate and business unit level. Mr. Simmons has contributed to programs in organic light emitting diodes (OLEDS), printable electronics, graphic arts, optical recording materials and fundamental polymer research and holds 26 patents.

In February 2009, we retained Anthony J. Cocuzza, PhD to our technology team. Dr. Cocuzza worked for 30 years in medicinal chemistry and brings a highly developed set of synthetic and analytical skills to our Company. A graduate

of Princeton, Dr. Cocuzza spent 24 years with DuPont engaged in corporate research & development and with DuPont s joint venture with Merck.

Expand Into A State-Of-The-Art Development, Testing and Manufacturing Facility

We plan to expand into a state-of-the-art development, testing and manufacturing facility in order to advance our technology platforms, attract additional key industry talent, streamline our product development processes and minimize our time to market. We have already begun to integrate our operations with respect to streamlining our product development process and minimizing the time to market for our potential products through a multifaceted approach to material development. We are able to accomplish this because our technology provides us with the flexibility to create tailored material properties for a multitude of specific applications, and also to allow for the specific tailoring of materials for compatibility with silicon, glass, metals or many plastics.

In August 2006, we executed a co-location agreement with a New Jersey-based micro-optics company, InPlane Photonics that allowed our scientists to advance our organic material development. The agreement with InPlane was terminated in early 2007 in favor of a strategic alliance formed in December, 2006 with Photon-X, LLC, a Pennsylvania-based company that has significant experience in polymer waveguide production. Photon-X is working as a strategic ally with our Company to establish a pre-production line in order to test and integrate our organic materials into waveguide devices and system prototypes as a first step toward product commercialization. The agreement affords our Company access to a full suite of fabrication facilities capable of producing commercial quantities of precision micro-optic devices such as high-speed 40Gb/s telecom modulators, optical filters, and optical interconnects important to military and civilian global information movement and management markets.

Our Research and Development Process

Our research and development process consists of the following steps:

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We develop novel polymer materials utilizing our patent pending technology to meet certain performance specifications. We then develop methods to synthesize larger quantities of such material.

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We conduct a full battery of tests at the completion of the synthesis of each new polymer material to evaluate its characteristics. We also create development strategies to optimize materials to meet specifications for specific applications.

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We integrate data from the material characterization and test results to fabricate devices. We analyze device-testing results to refine and improve fabrication processes and methods. In addition, we investigate alternative material and design variations to possibly create more efficient fabrication processes.

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We create an initial device design using simulation software. Following device fabrication, we run a series of optical and electronic tests on the device.

Our Current Strategic Partners

Photon-X, LCC

We entered into a strategic relationship with Photon-X, LLC, a technology solutions provider for polymer waveguides that works in conjunction with various government agencies. In connection therewith, we will provide Photon-X with our unique polymeric material to be tested and used on certain niche devices for anticipated military and commercial applications. If the tests are successful, our management believes that our alliance with Photon-X will serve to simultaneously lead its commercialization as well as publicly validate its scientific findings, creating a new standard in electro-optic polymers.

TangibleFuture, Inc.

In 2008 we retained TangibleFuture, Inc., a San Francisco based technology analysis and business development consulting company, to generate an independent assessment of our business opportunities in the fiber-optic telecommunications and optical computing sectors. TangibleFuture, Inc. has substantial expertise in photonics and fiber optic telecommunications; and their team has experience in running and developing photonics related companies.

Our Past Government Program Participation

Our Company has been a participant in several vital government sponsored research and development programs with various government agencies that protect the interests of our country. The following is a list of some of the various divisions of government agencies that have provided us with advisory, financial and/or materials support in the pursuit of high-speed electro-optic materials. We are not partnered with, strategically related to, or financially supported by any governmental agency at this time.

National Reconnaissance Office (NRO)

During 1998 and 1999, we worked with the NRO to advance the development of extremely high performance electro-optic polymers pursuant to an unclassified Director's Innovative Initiative. The NRO is a member of the Department of Defense Agency and plays a primary role in achieving information superiority for the U.S. Government and Armed Forces. The NRO designs, builds, and operates reconnaissance satellites, assists in military operation preparedness, and monitors the environment. NRO products are paramount to national security and are provided to an expanding list of users including the Central Intelligence Agency and the Department of Defense.

Army Research Laboratory (ARL)

During 1998 through 2000, we were provided strong support for our electro-optic materials development by the Process and Properties Branch of the Army Research Laboratory on the Aberdeen Proving Grounds in Aberdeen, Maryland. This support was in cooperation with other government agencies and included the advisory support of the Army Missile Command at Redstone Arsenal. The Army Research Laboratory provided us with access to its highly advanced organic chemical development laboratories and state-of-the-art analytic equipment. PSI- TEC operated out of more than five laboratories at the Army Research Laboratory. During the nascent stages of our technological development, this support provided us with the strong foundations we needed to progress electro-optic technology into its second generation. The technically skilled members at Army Missile Command provided our engineers instruction on the latest advancements of the military's research and development in the area of polymeric materials and device fabrication. Much of our initial work at the Army Research Laboratory was based upon revolutionary advancements of our Chief Technical Officer's (Dr. Frederick J. Goetz) highly unique electro-optic polymeric design as exhibited in our U.S. Patent #6,041,157: "Environmentally sensitive compositions of matter based on 3H-fluoren-3-ylidenes and process for making same."

Defense Advance Research Project Agency (DARPA)

DARPA, the agency in the Intelligence Community credited with the origination of the Internet, provided our Company with funding for the advancement of our technologies and bridging these technologies to the public market. Under the auspices of DARPA initiatives, the MORPH (Molecular Photonics) and C2OI (Chip-to-Chip Optical Interconnects) programs, our advanced technologies were reviewed by the Naval Air Warfare Center Weapons Division (NAVAIR) and the Air Force Research Laboratory (AFRL). DARPA works to maintain the technological superiority of the U.S. military and to prevent technological surprise from harming our national security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their military use.

Naval Air Warfare Center Weapons Division (NAVAIR)

Under the auspices of the Defense Advance Research Projects Agency (DARPA), high-level scientists at the Naval Air Warfare Center Weapons Division in China Lake, California reviewed our electro-optic molecular design paradigms in 2004. Computer calculations regarding the quantum mechanical performance of our electro-optic molecular designs were repeated and verified by NAVAIR staff. These calculations suggest an improvement in electro-optic performance over the current state-of-the-art.

Our unique, proprietary technology was demonstrated through detailed computer calculations to improve existing approaches in the production of ultra fast frequencies (wide bandwidths). Calculations performed at NAVAIR regarding our preliminary, first-stage next-generation molecular architectures indicate an improvement of hyperpolarizability (electro-optic character) of several times existing state-of-the-art molecular designs.

These computer calculations have been validated by independent tests performed on our recently developed electro-optic materials at the University of Arizona.

Air Force Research laboratory (AFRL)

In cooperation with the Defense Advance Research Projects Agency (DARPA), our molecular design technologies were reviewed by top-level and senior engineers and scientists at the Air Force Research Laboratory at Wright-Patterson Air Force Base in Dayton, Ohio. An Air Force Research Laboratory senior scientist and engineer, in connection with a National Science Foundation proposal and as a result of reviews conducted under the Defense Advance Research Projects Agency's C2OI (Chip-to-Chip Optical Interconnects) and MORPH (Molecular Photonics), concluded that, "[our] molecular designs show promise of a five to ten times improvement over existing commercial polymeric architectures." In review of detailed calculations performed on our future material designs, Air Force Research Laboratory personnel further note, "Computer simulations and modeling indicate that [our] approach to materials synthesis has the potential for realizing high nonlinearity (i.e., high electro-optic performance). This, in turn, could result in five to ten times lower drive voltages for devices." "Synthesis of [our] materials to verify the properties predicted by the computer models is essential for new NLO (electro-optic) polymer material development.... This is a very novel and promising approach that has the potential for high payoff."

These predictions were validated in 2006 by independent tests performed on our patent pending electro-optic materials at the University of Arizona, which performed approximately seven times better than other competitive technologies.

In regards to applications of our materials, an Air Force Research Laboratory senior scientist states, "Highly active NLO (electro-optic) polymer materials are key for the realization of next generation electro-optic devices and render high application potential for high-speed fiber-optic telecommunication (i.e., Internet, HDTV), satellite

reconnaissance (i.e., homeland security), and navigation and guidance systems."

Our Competition

The markets we are targeting for our electro-optic polymer technology are intensely competitive. Among the largest fiber-optic component manufactures are JDS Uniphase, Avanex, Sumitomo, Fujitsu, Mitsubishi, Corning, Bookham, OpNext and FiBest. Additional significant domestic component manufacturers include Covega, Apogee, Multiplex, and CyOptics. All of these companies are heavily invested in the production of crystalline-based electro-optic modulator technologies as well as the development of novel manufacturing techniques and modulator designs.

Other than our own Company, we are aware of only one other company, Gigoptix, Inc. who reorganized with Lumera Corporation ("Lumera") in December 2008, which has designed and patented potentially commercially feasible electro-optic plastics. Prior to our own technological developments, Lumera held an exclusive monopoly on this area of technology because Lumera holds an exclusive present and future license to all electro-optic polymeric technology developed within the University of Washington. Lumera has yet, to our knowledge, to publicly demonstrate a robust, stable commercial modulator capable of low cost volume production.

As one of only two companies known to us that are actively pursuing the development of high-performance electro-optic materials for application and development in the high-speed telecommunication markets, we believe that upon the commercialization of our technology, that we will be poised to obtain a significant portion of the component manufacturing market. Electro-optic plastics demonstrate several advantages over other technologies, such as crystalline-based technologies, due to their reduced manufacturing and processing costs, higher performance and lower power requirements. Our electro-optic plastics are CSC model molecules that have demonstrated significant stability advantages over our sole known competitor's materials. In the expectation of becoming the sole producer of high-performance, high-stability electro-optic materials, we hope to capture all or some of this potential electro-optic component market.

We believe the principal competitive factors in our target markets are:

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The ability to develop and commercialize highly stable polymer-based products, including obtaining appropriate patent and proprietary rights protection.

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Lower cost, high production yield for these products.

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The ability to enable integration and implement advanced technologies.

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Strong sales and marketing channels for access to products.

We believe that our current business planning will position our Company to compete adequately with respect to these factors. Our future success is difficult to predict because we are an early stage company with all of our potential products still in development.

Many of our existing and potential competitors have substantially greater research and product development capabilities and financial, scientific, marketing and human resources than we do. As a result, these competitors may:

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Succeed in developing products that are equal to or superior to our potential products or that achieve greater market acceptance than our potential products.

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Devote greater resources to developing, marketing or selling their products.

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Respond quickly to new or emerging technologies or scientific advances and changes in customer requirements, which could render our technologies or potential products obsolete.

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Introduce products that make the continued development of our potential products uneconomical.

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Obtain patents that block or otherwise inhibit our ability to develop and commercialize our potential products.

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Withstand price competition more successfully than we can.

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Establish cooperative relationships among themselves or with third parties that enhance their ability to address the needs of our prospective customers.

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Take advantage of acquisition or other opportunities more readily than we can.

Our Laboratory Facilities

Our Company operates an organic synthesis and thin-films laboratory in Wilmington, Delaware. These facilities include state-of-the-art equipment including NMR, IR, UV/VIS and HPLC analytical systems, profilometry evaluation and electro-optic (r33) materials characterization necessary to produce next generation fiber-optic organic materials. We also utilize an electro-optic test facility in conjunction with local universities to perform critical evaluation tests (eg. R33) on our polymer material films and future electro-optic devices, such as our waveguides, modulators, and

all-optical transistors.

Item 1A.

Risk Factors

Investing in our common stock is risky. In addition to the other information in this report, you should consider carefully the following risk factors in evaluating us and our business. If any of the events described in the following risk factors were to occur, our business, financial condition or results of operations likely would suffer. In that event, the trading price of our common stock could decline, and you could lose all or a part of your investment.

We have incurred substantial operating losses since our inception and will continue to incur substantial operating losses for the foreseeable future.

Since our inception, we have been engaged primarily in the research and development of our polymer materials technologies and potential products. As a result of these activities, we incurred significant losses and experienced negative cash flow since our inception. We incurred a net loss of $4,340,607 for the year ended December 31, 2008 and $4,223,449 for the year ended December 31, 2007. We anticipate that we will continue to incur operating losses through at least 2009.

We may not be able to generate significant revenue either through development contracts from the U.S. government or government subcontractors or through customer contracts for our potential products or technologies. We expect to continue to make significant operating and capital expenditures for research and development and to improve and expand production, sales, marketing and administrative systems and processes. As a result, we will need to generate significant additional revenue to achieve profitability. We cannot assure you that we will ever achieve profitability.

These conditions raise substantial doubt to our auditors about our ability to continue as a going concern. Successful completion of our research and development program and, ultimately, the attainment of profitable operations is dependent upon future events, including our ability to obtain adequate financing to fulfill our development activities and achieving a level of sales adequate to support our Company's cost structure.

Our independent auditors have expressed substantial doubt about our ability to continue as a going concern

Our independent auditors have included an explanatory paragraph in their audit report issued in connection with our financial statements which states that our significant losses and negative cash flow during our development stage raise substantial doubt about our ability to continue as a going concern. Our financial statements do not include any adjustments that might result from the outcome of this uncertainty. Our ability to continue as a going concern is dependent upon our ability to successfully complete our development program and, ultimately, attain profitable operations, which is dependent upon future events, including obtaining adequate financing to fulfill our development activities and achieving a level of revenue adequate to support our cost structure. We cannot assure you that we will be able to secure the necessary financing and/or equity investment or achieve an adequate sales level.

We are subject to the risks frequently experienced by early stage companies.

The likelihood of our success must be considered in light of the risks frequently encountered by early stage companies, especially those formed to develop and market new technologies. These risks include our potential inability to:

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establish product sales and marketing capabilities;

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establish and maintain markets for our potential products;

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identify, attract, retain and motivate qualified personnel;

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continue to develop and upgrade our technologies to keep pace with changes in technology and the growth of markets using polymer materials;

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develop expanded product production facilities and outside contractor relationships;

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maintain our reputation and build trust with customers;

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improve existing and implement new transaction-processing, operational and financial systems;

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scale up from small pilot or prototype quantities to large quantities of product on a consistent basis;

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contract for or develop the internal skills needed to master large volume production of our products; and

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fund the capital expenditures required to develop volume production due to the limits of our available financial resources.

We are entering new markets, and if we fail to accurately predict growth in these new markets, we may suffer substantial losses.

We are devoting significant resources to engineer next-generation electro-optic plastics for future applications to be utilized by electro-optic device manufacturers, such as telecommunications component and systems manufacturers, networking and switching suppliers, semiconductor companies, aerospace companies and government agencies. We expect to continue to develop products for these markets and to seek to identify new markets. These markets change rapidly and we cannot assure you that they will grow or that we will be able to accurately forecast market demand, or lack thereof, in time to respond appropriately. Our investment of resources to develop products for these markets may either be insufficient to meet actual demand or result in expenses that are excessive in light of actual sales volumes. Failure to predict growth and demand accurately in new markets may cause us to suffer substantial losses. In addition, as we enter new markets, there is a significant risk that:

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the market may not accept the price and/or performance of our products;

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there may be issued patents we are not aware of that could block our entry into the market or could result in excessive litigation; and

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the time required for us to achieve market acceptance of our products may exceed our capital resources which would require additional investment.

The establishment and maintenance of collaborative relationships is critical to the success of our business.

We expect to sell many of our products directly to commercial customers or through potential industry partners. For example, we expect to sell our electro-optic plastic products to electro-optic device manufacturers, such as telecommunications component and systems manufacturers, networking and switching suppliers, semiconductor companies, aerospace companies and government agencies. Our ability to generate revenues depends significantly on the extent to which potential customers and other potential industry partners develop, promote and sell systems that incorporate our products. Any failure by potential customers and other potential industry partners to successfully develop and market systems that incorporate our products could adversely affect our sales. The extent to which

potential customers and other industry partners develop, promote and sell systems incorporating our products is based on a number of factors that are largely beyond our ability to control.

Our future growth will suffer if we do not achieve sufficient market acceptance of our electro-optic plastic products.

We are developing our electro-optic polymer products to be utilized by electro-optic device manufacturers, such as telecommunications component and systems manufacturers, networking and switching suppliers, semiconductor companies, aerospace companies and government agencies. All of our potential products are still in the development stage, and we do not know when a market for these products will develop, if at all. Our success depends, in part, upon our ability to gain market acceptance of our products. To be accepted, our products must meet the technical and performance requirements of our potential customers. OEMs, suppliers or government agencies may not accept polymer-based products. In addition, even if we achieve some degree of market acceptance for our potential products in one industry, we may not achieve market acceptance in other industries for which we are developing products. If the markets we are targeting fail to accept polymer-based products or determine that other products are superior, we may not be able to achieve market acceptance of our products.

Achieving market acceptance for our products will require marketing efforts and the expenditure of financial and other resources to create product awareness and demand by customers. We may be unable to offer products that compete effectively due to our limited resources and operating history. Also, certain large corporations may be predisposed against doing business with a company of our limited size and operating history. Failure to achieve broad acceptance of our products by customers and to compete effectively would harm our operating results.

Successful commercialization of our current and future products will require us to maintain a high level of technical expertise.

Technology in our target markets is undergoing rapid change. To succeed in our target markets, we will have to establish and maintain a leadership position in the technology supporting those markets. Accordingly, our success will depend on our ability to:

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accurately predict the needs of our target customers and develop, in a timely manner, the technology required to support those needs;

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provide products that are not only technologically sophisticated but are also available at a price acceptable to customers and competitive with comparable products;

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establish and effectively defend our intellectual property; and

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enter into relationships with other companies that have developed complementary technology into which our products may be integrated.

We cannot assure you that we will be able to achieve any of these objectives.

Two of our significant target markets are the telecommunications and networking markets, which continue to be subject to overcapacity and slow growth or decline.

Two of our significant target markets are the telecommunications and networking markets, and developments that adversely affect the telecommunications or networking markets, including delays in traffic growth and changes in U.S. government regulation, could slow down, or even halt our efforts to enter into these markets. Reduced spending and technology investment by telecommunications companies may make it more difficult for our products to gain market acceptance. Such companies may be less willing to purchase new technology such as ours or invest in new technology development when they have reduced capital expenditure budgets.

Many of our products will have long sales cycles, which may cause us to expend resources without an acceptable financial return and which makes it difficult to plan our expenses and forecast our revenues.

Many of our products will have long sales cycles that involve numerous steps, including initial customer contacts, specification writing, engineering design, prototype fabrication, pilot testing, device certification, regulatory approvals (if needed), sales and marketing and commercial manufacture. During this time, we may expend substantial financial resources and management time and effort without any assurance that product sales will result. The anticipated long sales cycle for some of our products makes it difficult to predict the quarter in which sales may occur. Delays in sales may cause us to expend resources without an acceptable financial return and make it difficult to plan expenses and forecast revenues.

We will require additional capital to continue to fund our operations. If we do not obtain additional capital, we may be required to substantially limit our operations.

Our business does not presently generate the cash needed to finance our current and anticipated operations. Based on our current operating plan and budgeted cash requirements, we believe that we will be able to fund our operations through at least May 2009. We will require additional capital to continue to fund our operations in future periods. We expect that we will need to seek additional funding through public or private financings, including equity financings, and through other arrangements, including collaborative arrangements. Poor financial results, unanticipated expenses or unanticipated opportunities could require additional financing sooner than we expect. We currently have no plans or arrangements with respect to the possible acquisition of additional financing, and such financing may be unavailable when we need it or may not be available on acceptable terms. Additional financing may not be available to us, due to, among other things, our Company not having a sufficient credit history, income stream, profit level, asset base eligible to be collateralized, or market for its securities. If we raise additional funds by issuing equity or convertible debt securities, the percentage ownership of our existing stockholders may be reduced, and these securities may have rights superior to those of our common stock. If adequate funds are not available to satisfy either short-term or long-term capital requirements, or if planned revenues are not generated, we may be required to limit our operations substantially. These limitations of operations may include reductions in capital expenditures and reductions in staff and discretionary costs.

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We may incur debt in the future that might be secured with our intellectual property as collateral, which could subject our Company to the risk of loss of all of our intellectual property.

If we incur debt in the future, we may be required to secure the debt with our intellectual property, including all of our patents and patent pendings. In the event we default on the debt, we could incur the loss of all of our intellectual property, which would materially and adversely affect our Company and cause you to lose your entire investment in our Company.

Our quarter-to-quarter performance may vary substantially, and this variance, as well as general market conditions, may cause our stock price to fluctuate greatly and potentially expose us to litigation.

We have generated no sales to date and we cannot accurately estimate future quarterly revenue and operating expenses based on historical performance. Our quarterly operating results may vary significantly based on many factors, including:

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fluctuating demand for our potential products and technologies;

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announcements or implementation by our competitors of technological innovations or new products;

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amount and timing of our costs related to our marketing efforts or other initiatives;

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the status of particular development programs and the timing of performance under specific development agreements;

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timing and amounts relating to the expansion of our operations;

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product shortages requiring suppliers to allocate minimum quantities;

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announcements or implementation by our competitors of technological innovations or new products;

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the status of particular development programs and the timing of performance under specific development agreements;

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our ability to enter into, renegotiate or renew key agreements;

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timing and amounts relating to the expansion of our operations;

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costs related to possible future acquisitions of technologies or businesses; or

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economic conditions specific to our industry, as well as general economic conditions.

Our current and future expense estimates are based, in large part, on estimates of future revenue, which is difficult to predict. We expect to continue to make significant operating and capital expenditures in the area of research and development and to invest in and expand production, sales, marketing and administrative systems and processes. We may be unable to, or may elect not to, adjust spending quickly enough to offset any unexpected revenue shortfall. If our increased expenses are not accompanied by increased revenue in the same quarter, our quarterly operating results would be harmed.

In one or more future quarters, our results of operations may fall below the expectations of investors and the trading price of our common stock may decline as a consequence. We believe that quarter-to-quarter comparisons of our operating results will not be a good indication of our future performance and should not be relied upon to predict the future performance of our stock price. In the past, companies that have

experienced volatility in the market price of their stock have often been subject to securities class action litigation. We may be the target of this type of litigation in the future. Securities litigation against us could result in substantial costs and divert our management's attention from other business concerns, which could seriously harm our business.

We cannot predict the pace of marketable products we may generate, and any inability to generate a sufficient number of marketable products would reduce our revenues and harm our business.

Our future revenues and profitability are dependent upon our ability to create marketable products, whether through our own research and development efforts or through collaborations with customers or industry partners. Because of the inherently uncertain nature of research and development activities, we cannot predict the pace of new product introductions. We must undertake additional research and development before we are able to develop additional products for commercial sale. Product development delays by us or potential product development partners, or the inability to enter into relationships with these potential partners, may delay or prevent us from introducing products for commercial sale. In addition, our product candidates may not result in products having the commercial potential we anticipate. Any of these factors could reduce our potential commercial sales and lead to inability to generate revenue and attain profitability.

Our failure to compete successfully could harm our business.

The markets that we are targeting for our electro-optic polymer technology are intensely competitive. Most of our present and potential competitors have or may have substantially greater research and product development capabilities, financial, scientific, marketing, manufacturing and human resources, name recognition and experience than we have. As a result, these competitors may:

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succeed in developing products that are equal to or superior to our potential products or that will achieve greater market acceptance than our potential products;

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devote greater resources to developing, marketing or selling their products;

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respond more quickly to new or emerging technologies or scientific advances and changes in customer requirements, which could render our technologies or potential products obsolete;

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introduce products that make the continued development of our potential products uneconomical;

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obtain patents that block or otherwise inhibit our ability to develop and commercialize our potential products;

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withstand price competition more successfully than we can;

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establish cooperative relationships among themselves or with third parties that enhance their ability to address the needs of our prospective customers; and

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take advantage of acquisitions or other opportunities more readily than we can.

The failure to compete successfully against these existing or future competitors could harm our business.

We may be unable to establish sales and marketing capabilities necessary to successfully commercialize our potential products.

We currently have limited sales and marketing capabilities. To date, we have relied upon our strategic partners to assist us in creating an awareness of our developing technology in both the government and commercial markets. We will need to either hire sales personnel with expertise in the markets we intend to address or contract with others to provide for sales support. Although our potential products are all based on our polymer materials technology, the potential products themselves address different markets and can be offered through multiple sales channels. Addressing each market effectively will require sales and marketing resources tailored to the particular market and to the sales channels that we choose to employ. In addition, the markets in which we operate are highly complex and technical; we may not have the adequate expertise to adequately market our products. We may be unable to establish marketing and sales capabilities necessary to commercialize and gain market acceptance for our potential products. Co-promotion or other marketing arrangements with others to commercialize products could significantly limit the revenues we derive from these products, and these parties may fail to commercialize such products successfully.

We may be unable to obtain effective intellectual property protection for our potential products and technology.

Our intellectual property, or any intellectual property that we have or may acquire, license or develop in the future, may not provide meaningful competitive advantages. Our patents and patent applications, including those we license, may be challenged by competitors, and the rights granted under such patents or patent applications may not provide meaningful proprietary protection. For example, numerous patents held by third parties relate to polymer materials and electro-optic devices. These patents could be used as a basis to challenge the validity or limit the scope of our patents or patent applications. A successful challenge to the validity or limitation of the scope of our patents or patent applications could limit our ability to commercialize our polymer materials technology and, consequently, reduce our revenues.

Moreover, competitors may infringe our patents or those that we license, or successfully avoid these patents through design innovation. To combat infringement or unauthorized use, we may need to resort to litigation, which can be expensive and time-consuming and may not succeed in protecting our proprietary rights. In addition, in an infringement proceeding a court may decide that our patents or other intellectual property rights are not valid or are unenforceable, or may refuse to stop the other party from using the intellectual property at issue on the ground that it is non-infringing. Policing unauthorized use of our intellectual property is difficult and expensive, and we may not be able to, or have the resources to, prevent misappropriation of our proprietary rights, particularly in countries where the laws may not protect these rights as fully as the laws of the United States.

We also rely on the law of trade secrets to protect unpatented technology and know-how. We try to protect this technology and know-how by limiting access to those employees, contractors and strategic partners with a need to know this information and by entering into confidentiality agreements with these parties. Any of these parties could breach the agreements and disclose our trade secrets or confidential information to our

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competitors, or these competitors might learn of the information in other ways. Disclosure of any trade secret not protected by a patent could materially harm our business.

We may be subject to patent infringement claims, which could result in substantial costs and liability and prevent us from commercializing our potential products.

Third parties may claim that our potential products or related technologies infringe their patents. Any patent infringement claims brought against us may cause us to incur significant expenses, divert the attention of our management and key personnel from other business concerns and, if successfully asserted against us, require us to pay substantial damages. In addition, as a result of a patent infringement suit, we may be forced to stop or delay developing, manufacturing or selling potential products that are claimed to infringe a patent covering a third party's intellectual property unless that party grants us rights to use its intellectual property. We may be unable to obtain these rights on terms acceptable to us, if at all. Even if we are able to obtain rights to a third party's patented intellectual property, these rights may be non-exclusive, and therefore our competitors may obtain access to the same intellectual property. Ultimately, we may be unable to commercialize our potential products or may have to cease some of our business operations as a result of patent infringement claims, which could severely harm our business.

If our potential products infringe the intellectual property rights of others, we may be required to indemnify customers for any damages they suffer. Third parties may assert infringement claims against our current or potential customers. These claims may require us to initiate or defend protracted and costly litigation on behalf of customers, regardless of the merits of these claims. If any of these claims succeed, we may be forced to pay damages on behalf of these customers or may be required to obtain licenses for the products they use. If we cannot obtain all necessary licenses on commercially reasonable terms, we may be unable to continue selling such products.

Our technology may be subject to government rights and retained research institution rights.

We may have obligations to government agencies or universities in connection with the technology that we have developed, including the right to require that a compulsory license be granted to one or more third parties selected by certain government agencies. In addition, academic research partners often retain certain rights, including the right to use the technology for noncommercial academic and research use, to publish general scientific findings from research related to the technology, and to make customary scientific and scholarly disclosures of information relating to the technology. It is difficult to monitor whether our partners will limit their use of the technology to these uses, and we could incur substantial expenses to enforce our rights to our licensed technology in the event of misuse.

The loss of certain of our key personnel, or any inability to attract and retain additional personnel, could impair our ability to attain our business objectives.

Our future success depends to a significant extent on the continued service of our key management personnel, particularly James S. Marcelli, our Chief Executive Officer,

Frederick J. Goetz, Jr. our Chief Science Officer, and Dr. David F. Eaton our Chief Technology Officer. We currently do not maintain key person life insurance on any executive officer. Accordingly, the loss of the services of any of these persons would adversely affect our business and our ability to timely commercialize our products, and impede the attainment of our business objectives.

Our future success will also depend on our ability to attract, retain and motivate highly skilled personnel to assist us with product development and commercialization. Competition for highly educated qualified personnel in the polymer industry is intense. If we fail to hire and retain a sufficient number of qualified management, engineering, sales and technical personnel, we will not be able to attain our business objectives.

If we fail to develop and maintain the quality of our manufacturing processes, our operating results would be harmed.

The manufacture of our potential products is a multi-stage process that requires the use of high-quality materials and advanced manufacturing technologies. Also, polymer-related device development and manufacturing must occur in a highly controlled, clean environment to minimize particles and other yield and quality-limiting contaminants. In spite of stringent quality controls, weaknesses in process control or minute impurities in materials may cause a substantial percentage of a product in a lot to be defective. If we are not able to develop and continue to improve on our manufacturing processes or to maintain stringent quality controls, or if contamination problems arise, our operating results would be harmed.

We may utilize third parties to manufacture our current products and our revenues could decline if these third parties do not timely complete our orders and our reputation could suffer if we do not maintain high quality standards.

We may enter into manufacturing arrangements with third party manufacturers and we intend to enter into agreements with additional corporate partners, OEMs and other third parties. We expect to contract with manufacturing companies to perform various portions of our product manufacturing, testing, assembly and shipping and purchase components to be used in our potential products from third-party vendors. If these third parties do not timely complete our orders, or do not properly manufacture our products, our reputation could be harmed, and our revenues could decline. We cannot assure you that we will be able to negotiate arrangements with these third parties on acceptable terms, if at all, or that these arrangements will be successful in yielding commercially viable products. If we cannot maintain our current relationships or establish new arrangements, we will require additional capital to undertake those activities on our own and will require manufacturing expertise that we do not currently possess and that may be difficult to obtain.

If we decide to make commercial quantities of products at our facilities, we will be required to make significant capital expenditures to increase capacity.

We lack the internal ability to manufacture products at a level beyond the stage of early commercial introduction. To the extent we do not have an outside vendor to manufacture our products, we will have to increase our internal production capacity and we will be required to expand our existing facilities or to lease or construct new facilities

or to acquire entities with additional production capacities. These activities would require us to make significant capital investments and may require us to seek additional equity or debt financing. We cannot assure you that such financing would be available to us when needed on acceptable terms, or at all. If we are unable to expand internal production capacity on a timely basis to meet increases in demand, we could lose market opportunities for sales. Further, we cannot assure you that any increased demand for our potential products would continue for a sufficient period of time to recoup our capital investments associated with increasing our internal production capacity.

In addition, we do not have experience manufacturing our potential products in large quantities. In the event of significant demand for our potential products, large-scale production might prove more difficult or costly than we anticipate and lead to quality control issues and production delays.

We may not be able to manufacture products at competitive prices.

To date, we have produced limited quantities of products for research, development and demonstration purposes. The cost per unit for these products currently exceeds the price at which we could expect to profitably sell them. If we cannot substantially lower our cost of production as we move into sales of products in commercial quantities, our financial results will be harmed.

We conduct significantly all of our research and development activities at a single facility, and circumstances beyond our control may result in considerable interruptions.

We conduct significantly all of our research and development activities at a single facility in Wilmington, Delaware. A disaster such as a fire, flood or severe storm at or near this facility could prevent us from further developing our technologies or manufacturing our potential products, which would harm our business.

We could be exposed to significant product liability claims that could be time-consuming and costly and impair our ability to obtain and maintain insurance coverage.

We may be subject to product liability claims if any of our potential products are alleged to be defective or harmful. Product liability claims or other claims related to our potential products, regardless of their outcome, could require us to spend significant time and money in litigation, divert our management's time and attention from other business concerns, require us to pay significant damages, harm our reputation or hinder acceptance of our potential products. Any successful product liability claim may prevent us from obtaining adequate product liability insurance in the future on commercially reasonable terms. Any inability to obtain sufficient insurance coverage at an acceptable cost or otherwise to protect against potential product liability claims could impair our ability to commercialize our potential products.

We may be unable to effectively implement new transaction accounting, operational and financial systems.

To manage the expected growth of our operations and personnel, we will be required to implement complex transaction accounting, operational and financial systems, procedures and controls and to retain personnel experienced in the use of these systems.

Deficiencies in the design and operation of our systems, procedures and controls, including internal controls, could adversely affect our ability to record, process, summarize and report material financial information. We cannot assure you that our current and planned systems, procedures and controls will be adequate to support our future operations.

Our failure to effectively manage and support our growth could adversely affect our business.

Failure to effectively manage and support our growth could adversely affect our business. To date, substantially all of our activities and resources have been directed at the research and development of our technology and development of potential products. The transition from research and development to a product vendor or licensor will create significant additional demands on our infrastructure and will require effective planning and management. We cannot assure you that our resources will be adequate to support our future growth. In addition, future expansion will be expensive and will likely strain our management and other resources. In order to effectively manage growth, we must:

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manage in-house our operating and financial control systems;

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continue to develop an effective planning and management process to implement our business strategy;

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hire, train and integrate new personnel in all areas of our business; and

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expand our facilities and increase our capital investments.

We cannot assure you that we will be able to accomplish these tasks effectively or otherwise effectively manage our growth.

We are subject to regulatory compliance related to our operations.

We are subject to various U.S. governmental regulations related to occupational safety and health, labor and business practices. Failure to comply with current or future regulations could result in the imposition of substantial fines, suspension of production, alterations of our production processes, cessation of operations, or other actions, which could harm our business.

We may be unable to export our potential products or technology to other countries, convey information about our technology to citizens of other countries or sell certain products commercially, if the products or technology are subject to United States export or other regulations.

We are developing certain polymer-based products that we believe the United States government and other governments may be interested in using for military and information gathering or antiterrorism activities. United States government export regulations may restrict us from selling or exporting these potential products into other countries, exporting our technology to those countries, conveying information about our technology to citizens of other countries or selling these potential products to commercial customers. We may be unable to obtain export licenses for products or technology if necessary. We currently cannot assess whether national security concerns would affect our potential products and, if so, what procedures and policies we would have to adopt to

comply with applicable existing or future regulations.

We may incur liability arising from the use of hazardous materials.

Our business and our facilities are subject to a number of federal, state and local laws and regulations relating to the generation, handling, treatment, storage and disposal of certain toxic or hazardous materials and waste products that we use or generate in our operations. Many of these environmental laws and regulations subject current or previous owners or occupiers of land to liability for the costs of investigation, removal or remediation of hazardous materials. In addition, these laws and regulations typically impose liability regardless of whether the owner or occupier knew of, or was responsible for, the presence of any hazardous materials and regardless of whether the actions that led to the presence were taken in compliance with the law. In our business, we use hazardous materials that are stored on site. We use various chemicals in our manufacturing process that may be toxic and covered by various environmental controls. The waste created by use of these materials is transported off-site by an unaffiliated waste hauler. Many environmental laws and regulations require generators of waste to take remedial actions at an off-site disposal location even if the disposal was conducted lawfully. The requirements of these laws and regulations are complex, change frequently and could become more stringent in the future. Failure to comply with current or future environmental laws and regulations could result in the imposition of substantial fines, suspension of production, alteration of our production processes, cessation of operations or other actions, which could severely harm our business.

Our plan to develop relationships with strategic partners may not be successful.

Part of our business strategy is to maintain and develop strategic relationships with government agencies, private firms, and academic institutions to conduct research and development of technologies and products. For these efforts to be successful, we must identify partners whose competencies complement ours. We must also successfully enter into agreements with them on terms attractive to us, and integrate and coordinate their resources and capabilities with our own. We may be unsuccessful in entering into agreements with acceptable partners or negotiating favorable terms in these agreements. Also, we may be unsuccessful in integrating the resources or capabilities of these partners. In addition, our strategic partners may prove difficult to work with or less skilled than we originally expected. If we are unsuccessful in our collaborative efforts, our ability to develop and market products could be severely limited.

As our business grows, if we need to establish global operations, we will be subject to various risks.

Many of the markets that we propose to address are global and may require us to conduct foreign operations, including the establishment of sales, manufacturing and possible research and development facilities in other countries. While the specific risks that will apply to these activities would depend on the circumstances, we could become subject to risks relating to foreign currency fluctuations, political and social unrest, local regulatory systems and varying standards for the protection of intellectual property. The existence of any of these risks will complicate our business and may lead to unexpected and adverse effects on our business. If we are required to conduct significant foreign operations, we will also need expertise in such operations, which we do not presently

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have.

Our limited operating history makes financial forecasting difficult for us and for others that may publish estimates of our future financial results.

As a result of our limited operating history, it is difficult to accurately forecast our revenue and results, including product sales, cost of revenue, research and development expenses, marketing, general and administrative expenses and other financial and operating data. We have a limited amount of meaningful historical financial data upon which to base projected revenue or expenses. We base our current expense levels and estimates of future expense levels on our operating plans and estimates of future revenue, and our future expenses will be dependent in large part upon our future levels of product sales. Sales and results are difficult to forecast because we do not currently have any commercial customers or government contracts, we are uncertain of the extent of orders for our products and the mix, volume and timing of any such orders. As a result, we may be unable to make accurate financial forecasts of revenue or expenses. Financial analysts and others that may seek to project our future performance face similar difficulties. This inability to accurately forecast our revenue and expenses could cause our financial results to differ materially from any projected financial results and could cause a decline in the trading price of our common stock.

Item 1B.

Unresolved Staff Comments.

Not Applicable

Item 2.

Properties.

Our executive and business office headquarters are located at 121 Continental Drive, Suite 110, Newark, Delaware 19713. We coordinate our operations and market our services from this space. We lease this space on a month-to-month basis at fair market value rates from a third party. Our monthly rent for this space is $725.

We also lease approximately 1,400 square feet of laboratory space at 41A Germay Drive, Wilmington, Delaware 19804. We operate an organic synthesis and thin-films laboratory from this facility, which has state-of-the-art equipment including NMR, IR, UV/VIS and HPLC analytical systems, profilometry evaluation and electro-optic (r33) materials characterization necessary to produce next generation fiber-optic organic materials. We lease this space at fair market value rates from a third party. The lease expires on June 30, 2009 and the monthly rent for the space is $737.

Item 3.

Legal Proceedings.

During the spring of 2005, we raised $1,000,000 through the sale of 4,000,000 shares of our common stock in a limited offering to persons considered to be accredited investors. Our Company received a legal opinion from outside counsel as to the availability of an exemption from registration with the Securities and Exchange Commission (the "SEC" or "Commission") with respect to the limited offering.

In December 2005, we were informed by the Commission that it is investigating the circumstances surrounding the $1,000,000 offering described above including the subsequent public resale of certain shares originally sold in the offering, along with related matters. Our Company has further been informed that the original issuance of the stock and subsequent resale thereof may have been done, in the opinion of the Commission, in violation of the registration provisions of the Securities Act of 1933, as amended. These matters could lead to enforcement action by the Commission. Our Company has committed to cooperate fully with the Commission with the intention that all issues will be resolved as quickly as possible.

We are not aware of any litigation or threatened litigation of a material nature.

Item 4.

Submission Of Matters To A Vote Of Security Holders.

No matter was submitted to a vote of our security holders during the fourth quarter of the fiscal year covered by this report.

PART II

Item 5.

Market For Registrant s Common Equity, Related Stockholder Matters and Issuer Purchases Of Equity Securities.

Market Information

Our common stock is currently traded under the symbol LWLG on the on the over-the-counter bulletin board ("**OTCBB**").

The following table set forth below lists the range of high and low bids for our common stock for each fiscal quarter for the last two fiscal years. The prices in the table reflect inter-dealer prices, without retail markup, markdown or commission and may not represent actual transactions.

		High		Low	
		Bid	Ask	Bid	Ask
2007	1st Quarter	$0.72	$0.74	$0.42	$0.48
	2nd Quarter	$0.92	$0.95	$0.56	$0.59
	3rd Quarter	$0.77	$0.79	$0.40	$0.45
	4th Quarter	$0.91	$0.94	$0.55	$0.58
2008	1st Quarter	$2.15	$2.20	$0.70	$0.73
	2nd Quarter	$2.66	$2.70	$1.21	$1.23
	3rd Quarter	$2.03	$2.05	$0.53	$0.02
	4th Quarter	$1.08	$1.03	$0.26	$0.30

Holders

As of the date of this annual report, we have a total of 37,969,042 shares of common stock outstanding, held of record by approximately 1,978 shareholders. We do not have any shares of preferred stock outstanding.

Dividends

No cash dividends have been declared or paid on our common stock to date. No restrictions limit our ability to pay dividends on our common stock. The payment of cash dividends in the future, if any, will be contingent upon our Company's revenues and earnings, if any, capital requirements and general financial condition. The payment of any dividends is within the discretion of our board of directors. Our board of director's present intention is to retain all earnings, if any, for use in our business operations and, accordingly, the board of directors does not anticipate paying any cash dividends in the foreseeable future.

Securities Authorized for Issuance under Equity Compensation Plans

Equity Compensation Plans as of December 31, 2008.

Equity Compensation Plan Information

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights (a)	Weighted-average exercise price of outstanding options, warrants and rights (b)	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a)) (c)
Equity compensation plans approved by security holders (1)	3,152,000	$1.25	348,000
Equity compensation plans not approved by security holders (2)	2,822,200	$0.32	0
Total	5,974,200	$0.81	348,000

1.

Reflects our 2007 Employee Stock Plan for the benefit of our directors, officers, employees and consultants. We initially reserved 3,500,000 shares of common stock for such persons pursuant to that plan.

2.

Comprised of common stock purchase warrants we issued to consultants.

Penny Stock Regulations and Restrictions on Marketability

The SEC has adopted rules that regulate broker-dealer practices in connection with transactions in penny stocks. Penny stocks are generally equity securities with a market price of less than $5.00, other than securities registered on certain national securities exchanges or quoted on the NASDAQ system, provided that current price and volume

information with respect to transactions in such securities is provided by the exchange or system. The penny stock rules require a broker-dealer, prior to a transaction in a penny stock, to deliver a standardized risk disclosure document prepared by the SEC, that: (a) contains a description of the nature and level of risk in the market for penny stocks in both public offerings and secondary trading; (b) contains a description of the broker's or dealer's duties to the customer and of the rights and remedies available to the customer with respect to a violation of such duties or other requirements of the securities laws; (c) contains a brief, clear, narrative description of a dealer market, including bid and ask prices for penny stocks and the significance of the spread between the bid and ask price; (d) contains a toll-free telephone number for inquiries on disciplinary actions; (e) defines significant terms in the disclosure document or in the conduct of trading in penny stocks; and (f) contains such other information and is in such form, including language, type size and format, as the SEC shall require by rule or regulation.

The broker-dealer also must provide, prior to effecting any transaction in a penny stock, the customer with (a) bid and offer quotations for the penny stock; (b) the compensation of the broker-dealer and its salesperson in the transaction; (c) the number of shares to which such bid and ask prices apply, or other comparable information relating to the depth and liquidity of the market for such stock; and (d) a monthly account statement showing the market value of each penny stock held in the customer's account.

In addition, the penny stock rules require that prior to a transaction in a penny stock not otherwise exempt from those rules, the broker-dealer must make a special written determination that the penny stock is a suitable investment for the purchaser and receive the purchaser's written acknowledgment of the receipt of a risk disclosure statement, a written agreement as to transactions involving penny stocks, and a signed and dated copy of a written suitability statement.

These disclosure requirements may have the effect of reducing the trading activity for our common stock. Therefore, stockholders may have difficulty selling our securities.

Recent Sales of Unregistered Securities

During the period covered by this report, our Company has sold the following securities without registering the securities under the Securities Act:

Common Stock

During January through August 2008, warrant holders exercised warrants to purchase 270,000 shares of our common stock at $0.50 per share for proceeds of $135,000.

During October 2008, our board of directors authorized the Company to raise up to $600,000 of capital through an incentive to current warrant holders that provided eligible warrant holders with the opportunity to purchase four (4) shares of common stock for each dollar invested pursuant to their existing warrant agreement. As of December 31, 2008, warrants to purchase 641,080 shares of common stock were exercised with proceeds of $160,270.

No underwriters were utilized and no commissions or fees were paid with respect to any of the above transactions. These persons were the only offerees in connection with these transactions. We relied on Section 4(2) and Rule 506 of Regulation D of the Securities Act since the transaction does not involve any public offering.

Item 6.

Selected Financial Data.

Not Applicable.

Item 7.

Management's Discussion And Analysis Of Financial Condition And Results Of Operations.

The following management's discussion and analysis of financial condition and results of operations provides information that management believes is relevant to an

assessment and understanding of our plans and financial condition. The following selected financial information is derived from our historical financial statements and should be read in conjunction with such financial statements and notes thereto set forth elsewhere herein and the "Forward-Looking Statements" explanation included herein.

Overview

Lightwave Logic, Inc., formerly, Third-Order Nanotechnologies, Inc., formerly, PSI-TEC Holdings, Inc., formerly Eastern Idaho Internet Service, Inc. was organized under the laws of the State of Nevada in 1997, where we engaged in the business of marketing Internet services until June 30, 1998 when our operations were discontinued. We were then inactive until we acquired PSI-TEC Corporation as our wholly owned subsidiary on July 14, 2004, at which time our name was changed to PSI-TEC Holdings, Inc. On October 20, 2006, we completed a parent-subsidiary merger with PSI-TEC Corporation whereby we were the surviving corporation of the merger, and our name was changed to Third-Order Nanotechnologies, Inc. On March 10, 2008, we changed our name to Lightwave Logic, Inc. to better suit our strategic business plan and to facilitate stockholder recognition of our Company and its business.

We are a developmental stage company that has developed and continues to develop high-activity, high-stability electro-optic polymers (plastics) that we believe could have a broad range of applications in the electro-optic device market. We engineer our proprietary electro-optic plastics at the molecular level for superior performance, stability, cost-efficiency and ease of processability. We expect our electro-optic plastics to broadly replace more expensive, lower-performance materials that are currently used in fiber-optic ground, wireless and satellite communication networks.

In order to transmit digital information at extremely high-speeds (wide bandwidth) over the Internet, it is necessary to convert the electrical signals produced by a computer into optical signals for transmission over long-distance fiber-optic cable. The actual conversion of electricity to an optical signal may be performed by a molecularly-engineered material known as an electro-optic plastic.

We are currently developing electro-optic plastics that promise performance many times faster than any technology currently available and that have unprecedented thermal stability. High-performance electro-optic materials produced by our Company have demonstrated stability as high as 350 degrees Celsius. Stability above 300 degrees Celsius is necessary for vertical integration into many semi-conductor production lines. Recent results, independently confirmed by the University of Arizona, have demonstrated that the molecular performance of some of our Company's molecular designs perform 650% better than competitive electro-optic compounds.

Our revenue model relies substantially on the assumption that we will be able to successfully develop electro-optic products for applications within the industries described below. When appropriate, we intend to create specific materials for each of these applications and use our proprietary knowledge base to continue to enhance its discoveries.

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Satellite Reconnaissance

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Navigational Systems

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Radar Applications

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Telecommunications

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Backplane Optical Interconnects

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Entertainment

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Medical Applications

To be successful, we must, among other things:

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Develop and maintain collaborative relationships with strategic partners;

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Continue to expand our research and development efforts for our products;

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Develop and continue to improve on our manufacturing processes and maintain stringent quality controls;

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Produce commercial quantities of our products at commercially acceptable prices;

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Rapidly respond to technological advancements;

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Attract, retain and motivate qualified personnel; and

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Obtain and retain effective intellectual property protection for our products and technology.

We believe that Moore's Law (a principle which states the number of transistors on a silicon chip doubles approximately every eighteen months) will create markets for our high-performance electro-optic material products.

Plan of Operation

Since our inception, we have been engaged primarily in the research and development of our polymer materials technologies and potential products. We are devoting significant resources to engineer next-generation electro-optic plastics for future applications to be utilized by electro-optic device manufacturers, such as telecommunications component and systems manufacturers, networking and switching suppliers, semiconductor companies, aerospace companies and government agencies. We expect to continue to develop products that we intend to introduce to these rapidly changing markets and to seek to identify new markets. We expect to continue to make significant operating and capital expenditures for research and development activities.

As we move from a development stage company to a product vendor, we expect that our financial condition and results of operations will undergo substantial change. In particular, we expect to record both revenue and expense from product sales, to incur increased costs for sales and marketing and to increase general and administrative expense. Accordingly, the financial condition and results of operations reflected in our historical financial statements are not expected to be indicative of our future financial condition and results of operations.

On August 8, 2006, we contracted with Triple Play Communications Corporation, a design and market consulting company, to deliver a comprehensive market opportunity assessment report for high speed 40G (commercial) & 100G+ (military/aerospace) modulators and system applications.

In August, 2006 we entered into a co-location agreement with InPlane Photonics,

a New Jersey-based micro-optics company that allowed our scientists to establish a pre-production line in order to test and integrate our organic materials into waveguide devices and system prototypes as a first step toward product commercialization. This agreement was terminated at the end of January 2007 so that we could focus on pursuing a strategic relationship with Photon-X LLC, a Pennsylvania-based firm with extensive experience in polymer waveguide processing. We entered into a non-binding memorandum of understanding with Photon-X, LLC in December 2006 to work towards creating a fee for services agreement with Photon-X, LLC to design, develop, produce and market electro-optic components based upon our polymer technology, which we ultimately finalized in March 2007. This agreement with Photon-X, LLC enables our Company access to a full suite of fabrication facilities capable of producing commercial quantities of precision micro-optic devices such as high-speed (40GHz) telecom modulators, optical filters, and optical interconnects important to military and civilian global information movement and management markets.

On September 25, 2006 we obtained independent laboratory results that confirmed the thermal stability of our Perkinamine electro-optic materials. Thermal stability as high as 350 degrees Celsius was confirmed, significantly exceeding many other commercially available high performance electro-optic materials, such as CLD-1 which exhibits thermal degradation in the range of 250 degrees Celsius to 275 degrees Celsius. This high temperature stability of our materials eliminates a major obstacle to vertical integration of electro-optic polymers into standard microelectronic manufacturing processes (e.g. wave/vapor-phase soldering) where thermal stability of at least 300 degrees Celsius is required. In independent laboratory tests, ten-percent material degradation, a common evaluation of overall thermal stability, did not occur until our Perkinamine material base was exposed to temperatures as high as 350 degrees Celsius, as determined by Thermo-Gravimetric Analysis (TGA). The test results supported our Company's progress to introduce our materials into commercial applications such as optical interconnections, high-speed telecom and datacom modulators, and military/aerospace components.

In July 2007, our Company developed an innovative process to integrate our unique architecture into our anticipated commercial devices, whereby dendritic spacer systems are attached to its core chromophore. In the event we are successful in developing a commercially viable product, we believe these dendrimers will reduce the cost of manufacturing materials and reduce the cost and complexity of tailoring the material to specific customer requirements.

In January 2008, we retained TangibleFuture, Inc., a San Francisco based technology analysis and business development consulting company, to generate an independent assessment of our business opportunities in the fiber-optic telecommunications and optical computing sectors and develop strategies to penetrate those potential markets.

In March 2008, we commenced production of our first prototype photonic chip, which we delivered to Photon-X, LLC to fabricate a prototype polymer optical modulator and measure its technical properties. As a result of delays caused by engineering setbacks related to our material production, the production of our first prototype photonic chip was temporarily halted, along with the completion of our proof of concept tests that were being administered by Dr. Robert Norwood at the University of Arizona Photonics Department. In order to address this issue, Dr. David Eaton s role and responsibilities

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with the Company were significantly expanded, and we added two veteran synthetic chemists to our science and technology team. We now believe we have overcome these engineering setbacks and we believe we are prepared to start our next phase of testing for material performance (r33) Teng-Man testing protocol in order to re-confirm previous test results. Once again, we intend to deliver independent validated r33 test results necessary for secondary proof of concept testing, as we have in the past. We may incur delays in this process due to slower than expected material production within our laboratories and/or delays caused by the testing procedures. Should these tests produce a functional 10 Gb/s or greater modulator we expect to go forward with product development and marketing in the telecommunication market with partners in the telecommunication field. We cannot anticipate the details of the customer adoption cycle until we have produced a functional prototype to create a credible technology offering. Further, our management is in the process of developing a business plan that it believes will be attractive enough to investors to raise the necessary capital to continue to maintain our operations. However, we cannot assure you that we will be able to secure the necessary financing and/or equity investment or achieve an adequate sales level to do so. Successful completion of our prototype could lead to adequate financing to fulfill our development activities and achieve a level of revenue adequate to support our Company s cost structure for the following three years.

We ultimately intend to use our next-generation electro-optic plastics for future applications vital to the following industries. We expect to create specific materials for each of these applications as appropriate:

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Satellite Reconnaissance

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Navigational Systems

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Radar Applications

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Telecommunications

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Backplane Optical Interconnects

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Entertainment

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Medical Applications

In an effort to maximize our future revenue stream from our electro-optic polymer products, we are currently evaluating each of or some combination of the following approaches:

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Licensing our technology for individual specific applications;

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Entering into collaborative or joint venture agreements with one or a number of partners; or

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Selling our products directly to commercial customers.

Additionally, we must create an infrastructure, including operational and financial systems, and related internal controls, and recruit qualified personnel. Failure to do so could adversely affect our ability to support our operations.

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. During 2004 we raised approximately $529,000 from the issuance of convertible promissory notes, of which $30,000 was converted into common stock of the

company during 2004 and the remaining $499,000 converted in 2005. Also, during 2005, we raised an aggregate of $1,000,000 from the private sale of our common stock. During 2006, we raised approximately $425,000 from the private sale of our common stock, of which $200,000 was rescinded during 2007. During 2007, we raised approximately $2,301,524 from the private sale of our common stock. During 2008, we raised approximately $414,000 from the private sale of our common stock and $375,270 upon the exercise of existing warrant holder s warrants.

We have also issued shares of our common stock and warrants to purchase shares of our common stock in exchange for services rendered to our company, including professional services.

Award

On September 26, 2006, we were awarded the 2006 Electro-Optic Materials Technology Innovation of the Year Award by Frost & Sullivan. Frost & Sullivan's Technology Innovation of the Year Award is bestowed upon candidates whose original research has resulted in innovations that have, or are expected to bring, significant contributions to multiple industries in terms of adoption, change, and competitive posture. This award recognizes the quality and depth of our Company's research and development program as well as the vision and risk-taking that enabled us to undertake such an endeavor.

Results of Operations

Comparison of Fiscal 2008 to Fiscal 2007

Revenues

We had no revenues in fiscal 2008 or 2007 since we are a development stage company that has yet to commence revenue creating operations.

Operating Expenses

Our operating expenses were $4,242,353 and $4,228,748 for the years ended December 31, 2008 and 2007, respectively, for an increase of $13,605.

Included in our operating expenses for 2008 was $2,845,956 for research and development expenses compared to $1,455,608 for 2007 which is an increase of $1,390,348. Research and development expenses currently consist primarily of compensation for employees and contractors engaged in internal research and product development activities; laboratory operations, outsourced development and processing work; fees and expenses related to patent applications and intellectual property protection; costs incurred in acquiring and maintaining licenses; and related operating expenses. The increase is primarily due to increase in employee and non-cash consulting stock compensation and option amortization.

Wages and salaries increased $888,435 from $607,056 in 2007 to $1,495,491 in 2008 due to the amortization of employee options, employee stock compensation and an increase in wages. Consultant expense was $1,194,332 in 2008 and $551,015 in 2007. The increase of $643,317 was due to additional consulting services being used during 2008. Payroll tax of $49,885 and $29,158 was paid during 2008 and 2007. The increase of $20,727 is due to the greater payroll expenses incurred in 2008. Health insurance expenses increased $17,284 from $25,520 in 2007 to $42,804 in 2008 due to an increase of health insurance expenses and payroll.

We expect to continue to incur substantial research and development expense to develop commercial products that utilize our electro-optic plastics. These expenses could increase as a result of continued development and commercialization of our electro-optic materials technology; subcontracting work to potential development partners; expanding and equipping in-house laboratories; hiring additional technical and support personnel; pursuing other potential business opportunities; and incurring related operating expenses.

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

General and administrative expenses decreased $1,376,743 to $1,396,397 for 2008 compared to $2,773,140 for 2007. The decrease is due primarily to our decreases in management fees, consulting fees and investor relations expenses.

General consulting services in general and administrative expenses in 2007 of $743,114 were not incurred in 2008 since the agreements for services terminated. The Company retained a market research firm during 2008 to assist in market research and the development of the Company s commercial business plan. The 2008 expenditures totaled $75,519.

Management fees decreased $341,996 to $431,337 from $773,333 in 2007 as a result of a new management contract in March 2008. Investor relations fees decreased $370,587 from $436,318 in 2007 to $65,731 in 2008 due to end of the contract with the company s investor relations firm.

Accounting and auditing fees were $85,558 and $99,986 in 2008 and 2007, respectively. The decrease of $14,428 was primarily due to the fees associated with restating financial statements. Legal fees decreased $9,816 to $175,408 in 2008 compared to $185,224 in 2007 due to the settlement of a lawsuit in 2007.

Travel expenses increased $17,785 to $32,704 in 2008 compared to $14,919 in 2007 due to additional travel and business related expenses incurred in 2008.

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)

Total other income (expense) was a net loss of $98,254 in the year ended December 31, 2008, consisting of $59,276 realized loss on a related party investment and $2,911 of interest expense, offset by $11,409 of interest income on cash deposits and short term investments and $24 of dividend income, compared to other income of $5,299 in the year ended December 31, 2007, consisting of $10,548 of interest income on cash deposits and short term investments, $637 of realized gain on investment, offset by $5,886 of interest expense. Other expense of $47,500 represents the settlement of a lawsuit.

Net Loss

Net loss was $4,340,607 and $4,223,449 for the years ended December 31, 2008 and 2007, respectively, for an increase of $117,158, primarily resulting from research and development and general and administrative expenses incurred as described above.

Significant Accounting Policies

The Company's accounting policies are more fully described in Note 1 of Notes to Financial Statements. As disclosed in Note 1 of Notes to Financial Statements, the preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions about future events that affect the amounts reported in the financial statements and accompanying notes. Future events and their effects cannot be determined with absolute certainty. Therefore, the determination of estimates requires the

exercise of judgment. Actual results inevitably will differ from those estimates, and such differences may be material to the financial statements. The Company believes that, of its significant accounting policies, the following may involve a higher degree of judgment, estimation, or complexity than other accounting policies.

Merger

On July 14, 2004, the Company acquired PSI-TEC. Under the terms of the merger agreement, the stockholders of PSI-TEC received 15,600,000 shares of common stock in exchange for its 2,206,280 shares. Following the merger, the Company changed

its name to PSI-TEC Holdings, Inc. Under accounting principles generally accepted in the United States, the share exchange is considered to be a capital transaction in substance rather than a business combination. That is, the share exchange is equivalent to the issuance of stock by PSI-TEC Holdings, Inc. for the net monetary assets of PSI-TEC, accompanied by a recapitalization, and is accounted for as a change of capital structure. Accordingly, the accounting for the share exchange will be identical to that resulting from a reverse acquisition, except no goodwill will be recorded. Under reverse takeover accounting, the post-reverse acquisition comparative historical financial statements of the legal acquirer, PSI-TEC Holdings, Inc., are those of the legal acquiree, PSI-TEC, which is considered to be the accounting acquirer. On October 20, 2006, PSI-TEC Holdings, Inc. and PSI-TEC merged and changed its name to Third-Order Nanotechnologies, Inc. On March 10, 2008, Third-Order Nanotechnologies, Inc. changed its name to Lightwave Logic, Inc.

Stock Based Compensation

In December 2004, the Financial Accounting Standards Board ("FASB") issued SFAS 123 (revised 2004), Share-Based Payment ("SFAS 123R"). SFAS 123(R) supersedes APB Opinion No. 25, Accounting for Stock Issued to Employees, and amends SFAS No. 95, Statement of Cash Flows. Generally, the approach in SFAS 123(R) is similar to the approach described in SFAS 123. However, SFAS 123(R) requires share-based payments to employees, including grants of employee stock options, to be recognized in the income statement based on their fair values at the date of grant. Pro forma disclosure is no longer an alternative.

On January 1, 2006, the Company adopted SFAS 123(R) using the modified prospective method as permitted under SFAS 123(R). Under this transition method, compensation cost recognized in the first quarter of 2006 includes compensation cost for all share-based payments granted prior to but not yet vested as of December 31, 2005, based on the grant-date fair value estimated in accordance with the provisions of SFAS 123. In accordance with the modified prospective method of adoption, the Company's results of operations and financial position for prior periods have not been restated.

The Company uses the Black-Scholes option pricing model to calculate the grant-date fair value of an award.

Liquidity and Capital Resources

During 2008, net cash used in operating activities was $1,248,318 and net cash provided by investing activities was $80,322, which was primarily for the assignment and sale of note receivable. Net cash provided by financing activities during 2008 was $776,770. At December 31, 2008, our cash and cash equivalents totaled $88,225, our assets totaled $374,565, our liabilities totaled $168,027, and we had stockholders' equity of $206,538.

During 2007, net cash used in operating activities was $1,434,681 and net cash used in investing activities was $182,384, which was primarily for patents and equipment. Net cash provided by financing activities during 2007 was $2,095,988. At December 31, 2007, our cash and cash equivalents totaled $479,451, our assets totaled $871,271, our liabilities totaled $218,091, and we had stockholders' equity of $653,180.

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 plastic 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 in excess of $1,200,000 of expenditures over the next 12 months. Our cash requirements are expected to increase at a rate consistent with the Company s path to revenue growth as we expand our activities and operations with the objective of commercializing our electro-optic plastic technology during the latter portion of 2009.

Our business does not presently generate the cash needed to finance our current and anticipated operations. We believe we have raised sufficient capital to finance our operations through May 2009, however, we will need to obtain additional future financing after that time to finance our operations until such time that we can conduct profitable revenue-generating activities. Such future sources of financing may include cash from exercise of warrants, equity offerings, exercise of stock options and proceeds from debt instruments; but we cannot assure you that such equity or borrowings will be available or, if available, will be at rates or prices acceptable to us. If adequate funds are not available to satisfy either short-term or 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.

We expect that our cash used in operations will increase during 2009 and beyond as a result of the following planned activities:

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

.

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 year ended December 31, 2008

Net cash used in operating activities was $1,248,318 for the year ended December 31, 2008, consisting of payments for management, legal, professional and consulting

expenses, rent and other expenditures necessary to develop our business infrastructure, offset by $443,732 in deferred charges, $1,228,474 in warrants issued for services, $963,774 in options issued for services, $435,000 in common stock issued for services, $1,244 in assets receivable, and $7,172 in related party accounts payable.

Net cash provided by investing activities was $80,322 for the year ended December 31, 2008, consisting of $100,000 from the assignment and sale of a note receivable and $28,524 from sale of securities, offset by the purchase of intangibles (patents) for $37,995 and for the purchase of equipment in the amount of $10,207.

Net cash provided by financing activities was $776,770 for the year ended December 31, 2008 and consisted of $414,000 of proceeds from the sale of our common stock, and $362,770 of proceeds from exercise of warrants.

For the year ended December 31, 2007

Net cash used in operating activities was $1,434,681 for the year ended December 31, 2007, consisting of payments for management, legal, professional and consulting expenses, rent and other expenditures necessary to develop our business infrastructure, offset by $1,550,442 in deferred charges, $690,362 in warrants issued for services, $102,999 in options issued for services, $530,292 in common stock issued for services, $2,059 in prepaid expenses and $30,953 in accrued expenses.

Net cash used in investing activities was $182,384 for the year ended December 31, 2007, consisting of $132,045 for the purchase of intangibles (patents) and $50,339 for the purchase of equipment.

Net cash provided by financing activities was $2,095,988 for the year ended December 31, 2007 and consisted of $2,301,524 of proceeds from the sale of our common stock, offset by $200,000 for a subscription agreement that was rescinded by a shareholder, the repayment of $4,068 of notes payable and the repayment of $1,468 of advances from officers.

Item 7A.

Quantitative And Qualitative Disclosures About Market Risk

Not Applicable

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Item 8.

Financial Statements and Supplementary Data

Our Financial Statements of are attached as Appendix A (following Exhibits) and included as part of this Form 10-K Report. A list of our Financial Statements is provided in response to Item 15 of this Form 10-K Report.

Item 9.

Changes In And Disagreements With Accountants On Accounting and Financial Disclosure

Not Applicable

Item 9A.

Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

As of the end of the period covered by this report, our Company evaluated the effectiveness and design and operation of its disclosure controls and procedures. Our Company s disclosure controls and procedures are the controls and other procedures that we designed to ensure that our Company records, processes, summarizes, and reports in a timely manner the information that it must disclose in reports that our Company files with or submits to the Securities and Exchange Commission. Our principal executive officer and principal financial officer reviewed and participated in this evaluation. Based on this evaluation, our Company made the determination that its disclosure controls were effective.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Exchange Act Rules 13a-15(f) and 15d-15(f). Under the supervision and with the participation of management, including our principal executive officer and principal financial officer, we conducted an evaluation of the effectiveness of our internal controls over financial reporting based on the framework in Internal Control -Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO"). Based on this evaluation, management has concluded that our internal control over financial reporting was effective as of December 31, 2008.

The Company's internal control over financial reporting includes policies and procedures that (1) pertain to maintenance of records that, in reasonable detail, accurately and fairly reflect transactions and dispositions of the assets of the Company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the Company's assets that could have a material effect on the financial statements. We did not include in this annual report an attestation report of our registered

public accounting firm regarding internal control over financial reporting because our management's report was not subject to attestation by our registered public accounting firm pursuant to temporary rules of the Securities and Exchange Commission that permit our Company to provide only management's report in this annual report.

Limitations on Controls

Our management, including our principal executive officer and principal financial officer, does not expect that our disclosure controls or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Internal control over financial reporting is a process that involves human diligence and compliance and is subject to lapses in judgment and breakdowns resulting from human failures. In addition, the design of any system of controls is based in part on certain assumptions about the likelihood of future events, and controls may become inadequate if conditions change. There can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions.

Changes to Company Internal Controls

In our opinion, there were no material changes in our Company's internal controls over financial reporting during our fourth fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting.

Item 9B.

Other Information

Not Applicable

PART III

Item 10.

Directors and Executive Officers and Corporate Governance

Identity of directors, executive officers and significant employees

Name	Age	Position	Term/Period Served
James S. Marcelli	61	Director, Chief Executive Officer, President	1 yr./Since 2008
Frederick J. Goetz, Jr.	33	Director, Chief Science Officer	1 yr./Since 2004
David F. Eaton	62	Chief Technology Officer	1 yr./Since 2007
Andrew J. Ashton	32	Director, Senior Vice President, Treasurer, Secretary	1 yr./Since 2004
Terry Turpin	66	Optical Computing Guru(1)	1 yr./Since 2008
Ross Fasick	76	Director	(2)/Since 2008
William C. Pickett, III	65	Director	(2)/Since 2008
Thomas P. Smith	41	Director	(2)/Since 2008
Thomas E. Zelibor	54	Director	(2)/Since 2008

(1) Optical Computing Guru is not an executive officer position, but our Company anticipates that Mr. Turpin s expertise in optical computing and his respect in the optical computing community will significantly contribute to the development of our Company.

(2) During 2008 our board of directors added seats to our board of directors at various times, whereby we increased the number of our board members from three to seven. Each of Messrs. Fasick, Pickett, Smith and Zelibor were appointed to fill the vacancies on the board of directors created by adding these additional seats, and their terms will continue until the next annual stockholder s meeting or until their successors are duly appointed.

Business experience of directors, executive officers, and significant employees

Mr. James S. Marcelli. Mr. Marcelli has served as an officer and director of our Company since August 2008. Mr. Marcelli is in charge of the day-to-day operations of our Company and its movement to a fully functioning commercial corporation. Since 2000, Mr. Marcelli has served as the president and chief executive officer of Marcelli

Associates, a consulting company that offers senior management consulting, mentoring, and business development services to start-up and growth companies. Business segments Mr. Marcelli has worked with included an Internet networking gaming center, high speed custom gaming computers, high tech manufacturing businesses and business service companies. Mr. Marcelli has served as president and/or chief executive officer of multiple start-up and grown companies over his career.

Mr. Frederick J. Goetz, Jr. Mr. Goetz has served as an officer and director of our Company since July 2004. He is a leader in the corporate coding and operation of electrostatic simulation software for nonlinear optic materials development and aids in the development of novel molecular designs and quantum mechanical interpretation at our Company. Prior to joining our Company, Mr. Goetz began his career at Lawrence Berkeley Laboratory and the Army Research Laboratory on Aberdeen Proving Grounds after graduating first in his class in physics from the University of Delaware in 1997.

Dr. David F. Eaton. Mr. Eaton has served as an officer of our Company since May 2007. For over 30 years, Mr. Eaton was employed in DuPont's chemical division, with his most recent appointment being its technology director. Most recently, from September 2003 to present, Mr. Eaton founded and is the principal of Light Insights, LLC, a consulting firm, and from March 2005 to present, Mr. Eaton has served as vice president of technology for software company Precision Cure, LLC. Mr. Eaton has a bachelor's degree in chemistry from Wesleyan University and a Ph.D. in chemistry from the California Institute of Technology.

Mr. Andrew J. Ashton. Mr. Ashton has served as an officer and director of our Company since July 2004. Since that time his assistance in the creation of the synthetic chemistry of our novel molecular architecture has been fundamental to our Company's success. His current duties include the development of chemical synthesis, providing extensive analytical support and assisting with our Company's management goals. Mr. Ashton is a skilled computer scientist and organic chemist who began his career in 1998 at the Army Research Laboratory on the Aberdeen Proving Grounds where he helped to design and implement computer interfaces for fiberglass composite analysis. At that time he joined PSI-TEC Corporation as a financial manager and was responsible for day to day administrative duties. He was instrumental in securing government funding, PSI-TEC's sole financial source, until 2003.

Mr. Terry Turpin. Mr. Turpin has served as our Optical computing Guru since March 2008. Since October 2006, Mr. Turpin has been a member of the UMBC College of Natural Science and Mathematics Advisory Board. Until January 2007, when Essex Corporation was acquired by Northrop Grumman Space & Mission Systems Corp., Mr. Turpin was a director of Essex Corporation. Mr. Turpin remained Senior Vice President and Chief Scientist for Essex Corporation after its acquisition until April 2007. Mr. Turpin was appointed as a director of Essex Corporation in January 1997 and became its Senior Vice President and Chief Scientist in 1996. He joined Essex Corporation through a merger with SEDC where he was Vice President and Chief Scientist from September 1984 through June 1989. From December 1983 to September 1984 he was an independent consultant. From 1963 through December 1983, Mr. Turpin was employed by the National Securities Agency (NSA). He was Chief of the Advanced Processing Technologies Division for ten years. He holds patents for optical computers and adaptive optical components. Mr. Turpin represented NSA on the Tri-Service Optical Processing Committee organized by the Under Secretary of Defense for Research and Engineering. He received a Bachelor of Science degree in Electrical Engineering from the University of Akron in 1966 and a Master of Science degree in Electrical Engineering from Catholic University in Washington, D.C. in 1970.

Dr. Ross Fasick. Dr. Ross Fasick has served as a director of our Company since July 2008. Dr. Fasick has a broad spectrum of global business and chemistry experience that spans over thirty years. Dr. Fasick spent the early years of his career with DuPont as a research chemist primarily working with polymers and dyes. During his thirty year tenure at Dupont, Dr. Fasick held diverse positions ranging from manufacturing and business development to making divestitures and acquisitions. He served as both President of DuPont s Brazil division and Director of worldwide paint operations. He completed his DuPont career as Senior VP of Polymers and Automotive, a division that generates multi-billion dollar annual revenues. Since his retirement, Dr. Fasick has remained an active board and committee member for private college and pre-college level institutions. Dr Fasick earned his Ph.D in organic chemistry at the University of Delaware.

Mr. William C. Pickett, III. Mr. Picket has served as a director of our Company since January 2008. Mr. Pickett enjoyed a 32 year career with E.I. DuPont de Nemours & Co., where he worked in numerous financial leadership positions, including serving from February 2002 to April 2004 as Chief Financial Officer of Invista, DuPont's $7 billion man-made fibers company, which was ultimately sold to Koch Industries, Inc. Since February 2005 Mr. Pickett has been serving as a member of the Board of Directors, Executive Committee, Treasurer and Chair of the Finance Committee of the Ronald McDonald House of Delaware; and since December 2004, Mr. Picket has been serving as Chair of Audit Committee and Chief Compliance Officer of the Operation Warm charity. Mr. Pickett received his MBA from Harvard Business School and a BA from Trinity College.

Mr. Thomas P. Smith. Mr. Smith has served as a director of our Company since November 2008. Mr. Smith is co-founder of TASER International, Inc., (NASDAQ: TASR), and is currently the Chairman of the Board of TASER and has been a member of its Board of Directors since 1993. Mr. Smith served as TASER s President for 12 years, where he established TASER s initial logistical plans, was responsible for its accounting, finance, manufacturing and operations, and was fully involved with TASER s international sales activities. Presently, Mr. Smith s primary responsibilities with TASER are sales and public affairs, as well as working with investor relations. Mr. Smith also oversees the highly sensitive area of aircraft security and he has spent several years assisting with lobbying efforts in Washington, DC and multiple states.

Thomas E. Zelibor, Rear Admiral, USN (Ret). RADM Zelibor has served as a director of our Company since July 2008. RADM Zelibor has over twenty years of strategic planning and senior leadership experience. Currently, RADM Zelibor serves as the Chief Executive Officer and President of Flatirons Solutions Corp. a professional services firm that provides consulting, systems integration, systems & software engineering, and program management expertise to corporate and government clients. Previously, from July 2006 RADM Zelibor, served as the Dean of the College of Operational and Strategic Leadership at the United States Naval War College where he was responsible for the adoption of a corporate approach to leadership development. Prior to that time, RADM Zelibor served in a number of positions, including as Director of Global Operations, United States Strategic Command; Director, Space, Information Warfare, Command and Control on the Navy staff; Department of the Navy, Deputy Chief Information Officer (CIO), Navy; Commander, Carrier Group Three and Commander, Naval Space Command.

Each Director of the Company holds such position until the next annual meeting of shareholders and until his successor is duly elected and qualified. The officers hold office until the first meeting of the board of directors following the annual meeting of shareholders and until their successors are chosen and qualified, subject to early removal by the board of directors.

Section 16(a) Beneficial Ownership Reporting Compliance

To the best of our knowledge, no officer, director and/or beneficial owner of more than 10% of our Common Stock, failed to file reports as required by Section 16(a) of the Exchange Act during the period covered by this report.

Code of Ethics

The Company has not yet adopted a code of ethics for its principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions or any other position due to its development stage, the small number of executive officers involved with the Company, and the fact that the Company operates with few employees. Our board of directors will continue to evaluate, from time to time, whether a code of ethics should be developed and adopted.

Audit Committee

During the period covered by this report, the Company did not have a separately designated standing audit committee in place; the Company s entire board of directors served, and currently serves, in that capacity. This is due to the Company s development stage, lack of business operations, the small number of executive officers involved with the Company, and the fact that the Company operates with few employees. Our board of directors will continue to evaluate, from time to time, whether a separately designated standing audit committee should be put in place. Mr. William C. Pickett, III serves as our audit committee financial expert as that term is defined by the rules promulgated by the Securities and Exchange Commission.

Item 11.

Executive Compensation.

The table below summarizes all compensation awarded to, earned by, or paid to our named executive officers for the fiscal years ended December 31, 2008 and 2007.

Summary Compensation Table

Name and principal position	Year	Salary	Bonus	Stock Awards	Option Awards	Non-Equity Incentive Plan Compensation	Nonqualified Deferred Compensation Earnings	All Other Compensation	Total
		($)	($)	($)	($)	($)	($)	($)	($)
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
James S. Marcelli	2008	73,100		360,000	215,555	0	0	9,350	658,005
CEO, President									
Director(1)									
Harold R. Bennett	2008	100,000	0	0	0	0	0	0	100,000
	2007	114,000	0	288,000	447,379	0	0	189,228	1,038,607
Director									
CEO(2)									
Ronald R. Genova, Interim CEO(3)	2007	25,806	0	0	33,540	0	0	0	59,346
Frederick J. Goetz, Jr.,	2008	96,000	0	0	0	0	0	0	96,000
	2007	88,000	45,00	0	0	0	0	5,000 (5)	138,000
President, Director(4)									
	2008	96,000	0	0	0	0	0	0	96,000

Andrew J. Ashton, Treasurer, Sr. VP, Secretary Director(6)	2007	96,000	0	0	0	0	0	0	96,000
David F. Eaton, Chief Technology Officer(7)	2008	26,400	0	0	99,889	0	0	31,444	157,733
	2007	32,000	0	0	11,911	0	0	52,946	96,857

(1) Mr. Marcelli was appointed to serve as our Chief Executive Officer in August 2008. Pursuant to his employment agreement, Mr. Marcelli receives a salary of $14,500 per month, a $600 per month offsite car allowance, a $6,950 offsite housing allowance, 200,000 shares of restricted stock, and an option to purchase up to 1,050,000 shares of common stock at an exercise price of $1.75 per share. Additionally, in the event Mr. Marcelli s employment terminates upon his death and the key man life insurance is in place for Mr. Marcelli, our Company will continue to pay the base cash compensation described in Mr. Marcelli s employment agreement to his estate through the remainder of term of his employment agreement, or 90 days, whichever is longer. The values described in column (f) reflect vested Options.

(2) Mr. Bennett served as our Chief Executive Officer from March 2007 to August 2008. Mr. Bennett received $12,000 per month for his services as the Company s chief executive officer. On April 17, 2007, Mr. Bennett received a warrant to purchase up to 300,000 shares of common stock at a purchase price of $0.25 per share. On November 17, 2007, pursuant to the Company s 2007 Plan, the Company issued 400,000 shares of the Company's restricted common stock and an option to purchase up to 750,000 shares of the Company's restricted common stock at an exercise price of $0.72 per share to Mr. Bennett for his services as the Company s chief executive officer. The option to purchase up to 750,000 shares expired unexercised. For 2007, the values described in column (f) and (i) reflect both vested and unvested options and warrants.

(3) From September 2005 to February 2007, Mr. Genova served as our Interim Chief Executive Officer. Mr. Genova received $8,000 per month for serving as our interim chief executive officer.

(4) Pursuant to his employment agreement, Mr. Goetz receives a salary of $8,000 per month.

(5) We provided an automobile that Mr. Goetz utilized at a cost to us of approximately $5,000 to $6,000 per year, which was discontinued in October 2007.

(6) Pursuant to his employment agreement, Mr. Ashton receives a salary of $8,000 per month.

(7) Dr. Eaton served as our interim Chief Technology Officer from May 15, 2007 to December 31, 2007 pursuant to a consulting agreement whereby Dr. Eaton received $4,000 per month and a warrant to purchase up to 150,000 shares of common stock at a purchase price of $0.25 per share. Dr. Eaton was named as our Chief Technology Officer on January 1, 2008 pursuant to an employment agreement dated January 1, 2008 whereby DR. Eaton receives $400 per day, which was increased to $500 per day on November 1, 2008. Additionally, on February 5, 2008, Dr. Eaton was awarded an option to purchase up to 501,000 shares of common stock at an exercise price of $.72 per share. The values described in column (f) and (i) reflect vested options and warrants.

We grant stock options to our executive officers based on their level of experience and contributions to our Company. The aggregate fair value of these options are computed in accordance with FAS 123R and are reported in the Summary Compensation Table above in the column titled Option Awards.

At no time during the last fiscal year was any outstanding option otherwise modified or re-priced, and there was no tandem feature, reload feature, or tax-reimbursement feature associated with any of the stock options we granted to our executive officers or otherwise.

The table below summarizes all of the outstanding equity awards for our named executive officers as of December 31, 2008, our latest fiscal year end.

Outstanding Equity Awards At Fiscal Year-End

	Option Awards					Stock Awards			
Name	Number of Securities Underlying Unexercised Options (#) Exercisable (b)	Number of Securities Underlying Unexercised Unearned Options (#) Unexercisable (c)	Equity Incentive Plan Awards: Number Of Securities Underlying Unexercised Unearned Options (#) (d)	Option Exercise Price ($) (e)	Option Expiration Date (f)	Number Of Shares Or Units Of Stock That Have Not Vested (#) (g)	Market Value Of Shares Of Units Of Stock That Have Not Vested ($) (h)	Equity Incentive Plan Awards: Number Of Unearned Shares, Units Or Other Rights That Have Not Vested (#) (i)	Equity Incentive Plan Awards: Market Or Payout Value Of Unearned Shares, Units Or Other Rights That Have Not Vested ($) (j)
James S. Marcelli CEO, President Director(1)	87,500	962,500	---	1.75	07/31/2013	---	---	---	---
Frederick J. Goetz, Jr., President, Director	---	---	---	---	---	---	---	---	---
Andrew J. Ashton,	---	---	---	---	---	---	---	---	---

Treasurer,

Sr. VP,

Secretary

Director

David F. Eaton, Chief Technology officer	167,000	334,000	---	0.72 11/17/2012	---	---	---	---
	150,000	---		0.25 04/17/2010				

(1) On August 1, 2008 Mr. Marcelli received an option to purchase up to 1,050,000 shares of company common stock. The options vest quarterly over three years in equal installments of 87,500 shares per quarter beginning November 1, 2008.

(2) On February 5, 2008, Dr. Eaton was awarded an option to purchase up to 501,000 shares of common stock at an exercise price of $.72 per share which vest as follows: 41,750 shares vest at the end of every three month period commencing November 17, 2007. On April 17, 2007 Dr. Eaton received a warrant to purchase up to 150,000 shares of company stock, 12,500 of which vested on April 17, 2007, and the remaining vested in 11 equal monthly installments thereafter.

Compensation of Directors

Set forth below is a summary of the compensation of our directors during our December 31, 2008 fiscal year.

Name	Fees Earned or Paid in Cash ($)	Stock Awards ($)	Option Awards ($)	Non-Equity Incentive Plan Compensation ($)	Non-Qualified Deferred Compensation Earnings ($)	All Other Compensation ($)	Total ($)
Ross Fasick(1)	--	--	121,581(5)	--	--	--	121,581
William C. Pickett, III(2)	--	--	217,225(5)	--	--	--	217,225
Thomas P. Smith(3)	--	--	6,439(5)	--	--	--	6,439
Thomas E. Zelibor(4)	--	--	116,168(5)	--	--	--	116,168

(1) On July 21, 2008, Mr. Fasick received an option to purchase up to 100,000 shares of company stock at an exercise price of $1.75 that vest pursuant to the following schedule: 25,000 shares vested immediately; and the remaining options vest in 3 equal annual installments of 25,000 options per year commencing on July 21, 2009. On August 29, 2008, Mr. Fasick received an option to purchase up to 150,000 shares of company stock at an exercise price of $1.42 that vest pursuant to the following schedule: 37,500 shares vest immediately and 37,500 shares vest at the end of every 12 month period commencing August 29, 2008.

(2) On January 8, 2008, Mr. Picket received an option to purchase up to 100,000 shares of company stock at an exercise price of $.72 that vest pursuant to the following schedule: 25,000 shares vested immediately; and the remaining options vest in 3 equal annual installments of 25,000 options per year commencing on January 8, 2009. On August 29, 2008, Mr. Picket received an option to purchase up to 250,000 shares of company stock at an exercise price of $1.42 that vest pursuant to the following schedule: 137,500 shares vest immediately and 37,500 shares vest at the end of every 12 month period commencing August 29, 2008. Mr. Picket was awarded 250,000 options instead of 150,000 options on August 29, 2008 in recognition of the additional assistance he provided to the Company during his initial tenure as a director.

(3) On November 6, 2008 Mr. Smith received an option to purchase up to 250,000 shares of company stock at an exercise price of $.65 that vest pursuant to the following schedule: 62,500 options vested immediately; and the remaining options vest in 3 equal annual installments of 62,500 options per year commencing on November 6, 2009.

(4) On July 11, 2008, Mr. Zelibor received an option to purchase up to 100,000 shares of company stock at an exercise price of $1.75 that vest pursuant to the following schedule: 25,000 shares vested immediately; and the remaining options vest in 3 equal annual

installments of 25,000 options per year commencing on July 11, 2009. On August 29, 2008, Mr. Zelibor received an option to purchase up to 150,000 shares of company stock at an exercise price of $1.42 that vest pursuant to the following schedule: 37,500 shares vested immediately and 37,500 shares vest at the end of every 12 month period commencing August 29, 2008.

(5) The values described in this column reflect vested Options.

Compensation Committee

Our Board of Directors currently has no standing compensation committee or committee performing similar functions. This is due to the Company s development stage, lack of business operations, the small number of executive officers involved with the Company, and the fact that the Company operates with few employees. The Company s entire board of directors currently participates in the consideration of

executive officer and director compensation. Our board of directors will continue to evaluate, from time to time, whether it should appoint standing compensation committee.

Item 12.

Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The following table sets forth, as of March 26, 2009, the names, addresses, amount and nature of beneficial ownership and percent of such ownership of each person or group known to our Company to be the beneficial owner of more than five percent (5%) of our common stock:

Security Ownership of Certain Beneficial Owners

Name and Address of Beneficial Owner (1)	Amount and Nature of Beneficial Ownership(3)	% of Class Owned (5)
Frederick J. Goetz, Jr. (2)	3,371,667	8.88 %
Frederick J. Goetz (2)	6,596,667 (4)	17.37 %
Mary Goetz (2)	6,596,667 (4)	17.37 %
Andrew J. Ashton	3,171,667	8.35 %

(1) In care of our Company at 121 Continental Drive, Suite 110, Newark, Delaware 19713.

(2) Frederick J. Goetz and Mary Goetz are Husband and wife, and Frederick J. Goetz, Jr. is their son.

(3) To our best knowledge, as of the date hereof, such holders had the sole voting and investment power with respect to the voting securities beneficially owned by them, unless otherwise indicated herein. Includes the person's right to obtain additional shares of common stock within 60 days from the date hereof.

(4) Consists of (i) 3,465,000 shares of common stock owned by Frederick J. Goetz; and (ii) 3,131,667 shares of common stock owned by Mary Goetz. Each of Frederick J. Goetz and Mary Goetz disclaim any beneficial ownership of their spouse s shares of common stock.

(5) Based on 37,969,042 shares of common stock outstanding on March 26, 2009. Does not include shares underlying: (i) options to purchase shares of our common stock under our 2007 Plan, or (ii) outstanding warrants to purchase shares of our common stock.

The following table sets forth, as of March 26, 2009, the names, addresses, amount and nature of beneficial ownership and percent of such ownership of our common stock of each of our officers and directors, and officers and directors as a group:

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Security Ownership of Management

Name and Address of Beneficial Owner (1)	Amount and Nature of Beneficial Ownership (2)	% of Class Owned (3)(4)
James S. Marcelli	502,500 (5)	1.32 %
Director, Chief Executive Officer, President		
Frederick J. Goetz, Jr.	3,371,667	8.88 %
Director, Chief Science Officer		
Andrew J. Ashton	3,171,667	8.35 %
Director, Executive		
Vice President, Treasurer		
Secretary		
David F. Eaton,	500,500 (6)	1.32 %
Chief Technology officer		
Ross Fasick	367,500 (7)	*
Director		
William C. Pickett, III	208,500 (8)	*
Director		
Thomas P. Smith	1,000,000 (9)	2.63 %
Director		
Thomas E. Zelibor	102,500 (10)	*
Director		
Directors and Officers as a Group (8 Persons)	9,224,834	24.30 %

* Less than 1%.

(1) In care of our Company at 121 Continental Drive, Suite 110, Newark, Delaware 19713.

(2) To our best knowledge, as of the date hereof, such holders had the sole voting and investment power with respect to the voting securities

beneficially owned by them, unless otherwise indicated herein. Includes the person's right to obtain additional shares of common stock within 60 days from the date hereof.

(3) Based on 37,969,042 shares of common stock outstanding on March 26, 2009. Does not include shares underlying: (i) options to purchase shares of our common stock under our 2007 Plan, or (ii) outstanding warrants to purchase shares of our common stock.

(4) If a person listed on this table has the right to obtain additional shares of common stock within 60 days from the date hereof, the additional shares are deemed to be outstanding for the purpose of computing the percentage of class owned by such person, but are not deemed to be outstanding for the purpose of computing the percentage of any other person.

(5) Consists of 240,000 shares of common stock and an option to purchase up to 262,500 shares of common stock exercisable within 60 days from the date hereof.

(6) Consists of 100,000 shares of common stock; an option to purchase up to 250,500 shares of common stock exercisable within 60 days from the date hereof; and a warrant to purchase up to 150,000 shares of common stock exercisable within 60 days from the date hereof.

(7) Consists of 220,000 shares of common stock; an option to purchase up to 62,500 shares of common stock exercisable within 60 days from the date hereof; and a warrant to purchase up to 85,000 shares of common stock exercisable within 60 days from the date hereof.

(8) Consists of 21,000 shares of common stock; and an option to purchase up to 187,500 shares of common stock exercisable within 60 days from the date hereof.

(9) Consists of 750,000 shares of common stock; an option to purchase up to 62,500 shares of common stock exercisable within 60 days from the date hereof; and a warrant to purchase up to 187,500 shares of common stock exercisable within 60 days from the date hereof.

(10) Consists of 40,000 shares of common stock; and an option to purchase up to 62,500 shares of common stock exercisable within 60 days from the date hereof.

We are not aware of any arrangements that could result in a change of control.

Securities Authorized for Issuance under Equity Compensation Plans

Information regarding our compensation plans under which our equity securities are authorized for issuance can be found in Part II Item 5 of this report.

Item 13.

Certain Relationships and Related Transactions; Director Independence

On October 28, 2008, the Company s board of directors authorized the Company to raise up to $600,000 of capital through an incentive to then current warrant holders who received warrants pursuant to a cash investment made in connection with the Company s 2006 and 2007 private offerings of common stock. This offering provided the warrant holders with the opportunity to purchase four (4) shares of common stock for each dollar invested pursuant to their existing warrant agreement. As of December 31, 2008, pursuant to this offering, warrants to purchase 641,080 shares of common stock were exercised with proceeds of $160,270. Two of our directors, Thomas P. Smith and Ross W. Fasick, participated in this offering. Thomas P. Smith exercised warrants to purchase 62,500 shares at an exercise price of $1.00 per share and received a total of 250,000 shares pursuant to the terms of the offering. Ross W. Fasick exercised warrants to purchase 15,000 shares at an exercise price of $1.00 per share and received a total of 60,000 shares pursuant to the terms of the offering.

We have seven directors. James Marcelli, Frederick Goetz, Jr. and Andrew Ashton are not considered independent directors. Ross Fasick, William C. Pickett, III, Thomas P. Smith and Thomas E. Zelibor are considered independent directors. The definition the Company uses to determine whether a director is independent is NASDAQ Rule 4200(a)(15). A copy of that rule is attached to this filing as Exhibit 99.1.

Item 14.

Principal Accounting Fees and Services.

Audit Fees.

The aggregate fees billed for the years ended December 31, 2007 and 2006 for professional services rendered by Morison Cogen, LLP for the audit of the Company s annual financial statements and review of financial statements included in the Company s Form 10-QSB or services that are normally provided by the accountant in connection with statutory and regulatory filings or engagements for the year ended December 31, 2008 was $43,000; and for the year ended December 31, 2007 was $31,600.

Audit-Related Fees.

No fees were billed for the years ended December 31, 2008 and 2007 for assurance and related services by Morison Cogen, LLP that are reasonably related to the performance of the audit or review of the Company s financial statements and are not reported under the category Audit Fees described above.

Tax Fees.

No fees were billed for the years ended December 31, 2007 for tax compliance, tax advice, or tax planning by Morison Cogen, LLP. Fees billed for the year ended December 31, 2008 for tax compliance by Morison Cogen, LLP was $6,000.

All Other Fees.

No fees were billed for the fiscal years ended December 31, 2008 and 2007 for products and services provided by Morison Cogen, LLP other than the services reported in the Audit Fees, Audit-Related Fees, and Tax Fees categories above.

Audit Committee Pre-Approval Policies.

The Company's audit committee currently does not have any pre-approval policies or procedures concerning services performed by Morison Cogen, LLP. All the services performed by Morison Cogen, LLP that are described above were pre-approved by the Company's audit committee.

None of the hours expended on Morison Cogen, LLP 's engagement to audit the Company's financial statements for the years ended December 31, 2008 were attributed to work performed by persons other than Morison Cogen, LLP s full-time, permanent employees.

PART IV

Item 15.

Exhibits and Financial Statement Schedules

(a)

The following Audited Financial Statements are filed as part of this Form 10-KReport:

Report of Independent Registered Public Accounting Firm

Balance Sheets

Statements of Operations

Statements of Comprehensive Loss

Statement of Stockholders Equity

Statements of Cash Flows

Notes to Financial Statements

(b)

The following exhibits are filed as part of this report.

3(i).1	Articles of Incorporation (incorporated by reference to Company s Form 10-SB filed April 13, 2007).
3(i).2	Certificate of Amendment to Articles of Incorporation (incorporated by reference to Company s Definitive Schedule 14C Information Statement filed on February 19, 2008).
3(ii).1	Bylaws (incorporated by reference to Company s Form 10-SB filed April 13, 2007).
10.1	Employment Agreement - Frederick J. Goetz, Jr. (included herein).
10.2	Employment Agreement Andrew J. Ashton (included herein).
10.3	Employment Agreement James S. Marcelli (incorporated by reference to the Company s Form 8-K filed August 5, 2008).
10.4	Employment Agreement David F. Eaton (incorporated by reference to the Company s Form 10-KSB filed April 10, 2008).
10.5	Employment Agreement Terry Turpin (incorporated by reference to the Company s Form 10-KSB filed April 10, 2008).
10.6	Director Agreement William C. Pickett, III (incorporated by reference to the Company s Form 8-K filed March 26, 2008).
10.7	Director Agreement Ross Fasick (incorporated by reference to the Company s Form 8-K filed July 22, 2008).
10.8	Director Agreement Thomas E. Zelibor (incorporated by reference to the Company s Form 8-K filed July 14, 2008).
10.9	Director Agreement Thomas P. Smith (incorporated by reference to the Company s Form 8-K filed November 12, 2008).
10.10	Photon-X, LLC Memorandum of Understanding (incorporated by reference to Company s Form 10-SB filed April 13, 2007).
10.11	Triple Play Communications Corporation Agreement (incorporated by reference to Company s Form 10-SB filed April 13, 2007).
10.12	2007 Employee Stock Plan (incorporated by reference to Company s Definitive Schedule 14C Information Statement filed on February 19, 2008).
31.1	Certification pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934 executed by the Principal Executive Officer of the Company (included herein).
31.2	Certification pursuant to Rule 13a-14(a)/15d-14(a) of the Securities Exchange Act of 1934 executed by the Principal Financial Officer of the Company (included herein).
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 (included herein).
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 (included herein).
99.1	Independent Director Standards (included herein).

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SIGNATURES

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

LIGHTWAVE LOGIC, INC.

By: /s/ James S. Marcelli
James S. Marcelli,

Chief Executive Officer,

President, Director

Date: April 14, 2009

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

Signature

Title

Date

James S. Marcelli

Chief Executive Officer,

April 14, 2009

President, Director

Frederick J. Goetz, Jr.

Chief Science Officer,

Director

April 14, 2009

Andrew J. Ashton

Senior Vice President,

April 14, 2009

Treasurer, Secretary,

Director

Ross Fasick

Director

April 14, 2009

William C. Pickett, III

Director

April 14, 2009

Thomas P. Smith

Director

April 14, 2009

Thomas E. Zelibor

Director

April 14, 2009

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Appendix A

Financial Statements.

The following Audited Financial Statements are filed as part of this Form 10-K Report:

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

FINANCIAL STATEMENTS

DECEMBER 31, 2008 AND 2007

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

CONTENTS

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the Board of Directors

Lightwave Logic, Inc.

Wilmington, Delaware

We have audited the accompanying balance sheets of Lightwave Logic, Inc., as of December 31, 2008 and 2007 and the related statements of operations, comprehensive loss, stockholders equity and cash flows for the years then ended and for the period from January 1, 2004 (inception of development stage) through December 31, 2008. These financial statements are the responsibility of the Company s management. Our responsibility is to express an opinion on these financial statements based on our audits.

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

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Lightwave Logic, Inc., as of December 31, 2008 and 2007 and results of its operations and its cash flows for the years then ended and for the period from January 1, 2004 (inception of development stage) through December 31, 2008 in conformity with accounting principles generally accepted in the United States.

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. The Company is in the development stage at December 31, 2008. As discussed in Note 2 to the financial statements, successful completion of the Company s development program and, ultimately, the attainment of profitable operations are dependent upon future events, including obtaining adequate financing to fulfill its development activities and achieving a level of sales adequate to support the Company s cost structure. These factors raise substantial doubt about the ability of the Company to continue as a going concern. The financial statements do not include any adjustments that might result from the outcome of these uncertainties.

/s/ MORISON COGEN LLP

Bala Cynwyd, Pennsylvania

March 9, 2009

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

BALANCE SHEETS

	December 31, 2008	December 31, 2007
ASSETS		
CURRENT ASSETS		
Cash and cash equivalents	$ 88,225	$ 479,451
Deferred charges	-	12,395
Prepaid expenses	12,198	7,294
Note receivable	-	100,000
Interest receivable	-	1,244
	100,423	600,384
AVAILABLE FOR SALE SECURITIES		
Related party	-	26,779
Other	-	2,411
	-	29,190
PROPERTY AND EQUIPMENT - NET	61,726	67,276
OTHER ASSETS		
Intangible assets	212,416	174,421
TOTAL ASSETS	$ 374,565	$ 871,271
LIABILITIES AND STOCKHOLDERS' EQUITY		
CURRENT LIABILITIES		
Accounts payable	$ 62,650	$ 103,426
Accounts payable - related party	7,172	-
Accrued expenses	98,205	114,665
TOTAL LIABILITIES	168,027	218,091

CONTINGENCY		-		-
STOCKHOLDERS' EQUITY				
Preferred stock, $0.001 par value, 1,000,000 authorized				
No shares issued or outstanding		-		-
Common stock $0.001 par value, 100,000,000 authorized				
35,911,156 and 33,690,075 issued and outstanding at				
December 31, 2008 and December 31, 2007		35,911		33,690
Additional paid-in-capital		14,196,060		10,449,763
Deferred charges		(55,330)		(154,667)
Unrealized loss on Available for Sale Securities		-		(58,610)
Accumulated deficit		(15,827)		(15,827)
Receivable for issuance of common stock		(12,500)		-
Deficit accumulated during development stage		(13,941,776)		(9,601,169)
TOTAL STOCKHOLDERS' EQUITY		206,538		653,180
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	$	374,565	$	871,271

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

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

STATEMENTS OF OPERATIONS FOR THE YEARS ENDING

DECEMBER 31, 2008 AND 2007 AND FOR THE PERIOD

JANUARY 1, 2004 (INCEPTION OF DEVELOPMENT STAGE) TO DECEMBER 31, 2008

	Cumulative Since Inception	For the Year Ending December 31, 2008	For the Year Ending December 31, 2007
NET SALES	$ -	$ -	$ -
COST AND EXPENSE			
Research and development	6,558,988	2,845,956	1,455,608
General and administrative	7,337,305	1,396,397	2,773,140
	13,896,293	4,242,353	4,228,748
LOSS FROM OPERATIONS	(13,896,293)	(4,242,353)	(4,228,748)
OTHER INCOME (EXPENSE)			
Interest income	29,434	11,409	10,548
Dividend income	1,551	24	-
Realized gain (loss) on investment	3,911	(59,276)	-
Realized gain on disposal of assets	637	-	637
Litigation settlement	(47,500)	(47,500)	-
Interest expense	(33,516)	(2,911)	(5,886)
NET LOSS	$ (13,941,776)	$ (4,340,607)	$ (4,223,449)
Basic and Diluted Loss per Share		$ (0.12)	(0.14)
Basic and Diluted Weighted Average Number of Shares		34,726,411	30,983,663

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

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

STATEMENTS OF COMPREHENSIVE LOSS FOR THE YEARS ENDING

DECEMBER 31, 2008 AND 2007 AND FOR THE PERIOD

JANUARY 1, 2004 (INCEPTION OF DEVELOPMENT STAGE) TO DECEMBER 31, 2008

	Cumulative Since Inception	For the Year Ending December 31, 2008	For the Year Ending December 31, 2007
NET LOSS	$ (13,941,776)	$ (4,340,607)	$ (4,223,449)
OTHER COMPREHENSIVE INCOME (LOSS)			
Unrealized loss on available for sale securities			(32,610)
Realized loss reclassification	-	58,610	
COMPREHENSIVE LOSS	$ (13,941,776)	$ (4,281,997)	$ (4,256,059)

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

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

STATEMENT OF STOCKHOLDERS EQUITY

FOR THE PERIOD JANUARY 1, 2004 (INCEPTION OF DEVELOPMENT STAGE) TO

DECEMBER 31, 2008

	Number of Shares	Common Stock	Paid-in Capital	Subscription Receivable	Deferred Charges	Unrealized Loss on Securities	Accumulated Deficit	Deficit Accumulated During Development Stage	T
I N G NCE AT MBER 3	100	1	$ -	$ -	$ -	$ -	$ (15,827)	$ -	$ (
roactive alization everse ion	706,973	706	(706)	-	-	-	-	-	
NCE AT ARY 1,	707,073	707	(706)	-	-	-	(15,827)	-	(
ommon ssued to s	13,292,927	13,293	(13,293)	-	-	-	-	-	
ommon sued for services 2004 at hare	1,600,000	1,600	254,400	-	-	-	-	-	2
ommon ssued at	2,000,000	2,000	(2,000)	-	-	-	-	-	

ommon sued for services ust 2004 /share	637,500	638	74,362	-	-	-	-	-	
version payable cember 4 at hare	187,500	187	29,813	-	-	-	-	-	
loss for r ended ber 31,	-	-	-	-	-	-	-	(722,146)	(7
NCE AT MBER 4	18,425,000	18,425	342,576	-	-	-	(15,827)	(722,146)	(3
ommon ssued in v a t e ment in 2005 at hare	4,000,000	4,000	996,000	-	-	-	-	-	1,0
version payable 2005 at hare	3,118,750	3,119	495,881	-	-	-	-	-	4
scription ble	-	-	-	(6,500)	-	-	-	-	
ommon sued for services ust 2005, e d a t hare	210,000	210	585,290	-	-	-	-	-	5
ommon sued for services ust 2005, e d a t hare	200,000	200	583,800	-	-	-	-	-	5
arrants d for s in May vested 2005,	-	-	37,000	-	-	-	-	-	

ed at hare									
rants or in ber ested 2005, lued at hare	-	-	24,200	-	-	-	-	-	
rants or in 2005, luring alued at hare	-	-	15,900	-	-	-	-	-	
rants or future in ber ested 2005, alued at hare	-	-	435,060	-	-	-	-	-	4
eferred es for n stock or future ces in 2005, alued at hare	-	-	-	-	(584,000)	-	-	-	(5
rtization ferred	-	-	-	-	265,455	-	-	-	2
rcise of nts in ber 2005 /share	300,000	300	74,700	-	-	-	-	-	
loss for r ended ber 31,	-	-	-	-	-	-	-	(1,721,765)	(1,7
NCE AT MBER	26,253,750	26,254	$ 3,590,407	$ (6,500)	$ (318,545)	$ -	$ (15,827)	$ (2,443,911)	$ 8

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

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

STATEMENT OF STOCKHOLDERS EQUITY

FOR THE PERIOD JANUARY 1, 2004 (INCEPTION OF DEVELOPMENT STAGE) TO

DECEMBER 31, 2008 (CONTINUED)

	Number of Shares	Common Stock	Paid-in Capital	Subscription Receivable	Deferred Charges	Unrealized Loss on Securities	Accumulated Deficit	Deficit Accumulated During Development Stage	T
NCE AT EMBER 5	26,253,750	26,254	$ 3,590,407	$ (6,500)	$ (318,545)	$ -	$ (15,827)	$ (2,443,911)	$ 8
ommon ssued in v a t e e m e n t 2006 at hare	850,000	850	424,150	-	-	-	-	-	4
ommon ssued for services bruary valued at hare	300,000	300	269,700	-	-	-	-	-	2
ommon ssued for services y 2006, e d a t hare	400,000	400	619,600	-	-	-	-	-	6
ommon ssued for services e 2006,	25,000	25	36,225	-	-	-	-	-	

ed at hare									
ommon ssued for services vember valued at hare	60,000	60	29,340	-	-	-	-	-	
arrants ed for ces in ember vested 2006,									
valued at hare	-	-	66,500	-	-	-	-	-	
arrants for future s in June vested 2006,									
valued at hare	-	-	465,996	-	-	-	-	-	4
ptions ed for ces in ry 2006, during valued at hare	-	-	428,888	-	-	-	-	-	4
ntributed related crued	-	-	35,624	-	-	-	-	-	
scription ble	-	-	-	6,500	-	-	-	-	
ortization ferred	-	-	-	-	318,545	-	-	-	3
realzed loss) on es	-	-	-	-	-	(26,000)	-	-	(
loss for r ending mber 31,	-	-	-	-	-		-	(2,933,809)	(2,9

NCE AT EMBER										
6	27,888,750	27,889	$ 5,966,430	$ -	$ -	$ (26,000)	$ (15,827)	$ (5,377,720)	$	5

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

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

STATEMENT OF STOCKHOLDERS EQUITY

FOR THE PERIOD JANUARY 1, 2004 (INCEPTION OF DEVELOPMENT STAGE) TO

DECEMBER 31, 2008 (CONTINUED)

	Number of Shares	Common Stock	Paid-in Capital	Receivable for Issuance of Common Stock	Deferred Charges	Unrealized Loss On Securities	Accumulated Deficit	Deficit Accumulated During Development Stage	T
NCE AT EMBER 06	27,888,750	27,889	$ 5,966,430	$ -	$ -	$ (26,000)	$ (15,827)	$ (5,377,720)	$ 5
ommon ssued in vate ement 2007 at hare	2,482,000	2,482	1,238,518	-	-	-	-	-	1,2
ommon ssued in vate ement 2007 at hare	1,767,540	1,768	1,058,756	-	-	-	-	-	1,0
ommon o c k ription inded 2007 at hare	(400,000)	(400)	(199,600)	-	-	-	-	-	(2
ommon ssued for services bruary	151,785	152	106,098	-	-	-	-	-	1

valued at hare									
ommon ssued for services ch 2007, ed at hare	1,000,000	1,000	579,000	-	-	-	-	-	5
ommon ssued for ces and ment for ounts e in April									
valued at hare	100,000	100	34,900	-	-	-	-	-	
ommon ssued for ces in er 2007, ed at hare	150,000	150	101,850	-	-	-	-	-	1
ommon ssued for ces in er 2007, ed at hare	150,000	150	134,850	-	-	-	-	-	1
ommon ssued for ces in ember valued at hare	400,000	400	287,600	-	-	-	-	-	2
arrants ed for ces in ember vested g 2007, ed at hare	-	-	36,370	-	-	-	-	-	
arrants ed for ces in h 2007, l during	-	-	52,180	-	-	-	-	-	

valued at hare									
arrants ed for ces in 2007, l during valued at hare	-	-	293,476	-	-	-	-	-	29
arrants ed for ces in 2007, l during valued at hare	-	-	140,490	-	-	-	-	-	14
arrants ed for s in May vested g 2007, ed at hare	-	-	52,946	-	-	-	-	-	
arrants ed for ces in er 2007, l during valued at hare	-	-	61,449	-	-	-	-	-	
arrants ed for ces in er 2007, l during valued at hare	-	-	52,292	-	-	-	-	-	
arrants ed for ces in ember vested g 2007, ed at hare	-	-	1,159	-	-	-	-	-	
ptions ed for ces in ry 2006,	-	-	17,589	-	-	-	-	-	

d during valued at hare									
Options ed for ces in ry 2006, d during valued at hare	-	-	43,757	-	-	-	-	-	4
Options ed for ces in ember vested g 2007, ed at hare	-	-	41,653	-	-	-	-	-	4
Warrants for future ces in 2007, d during valued at hare	-	-	348,000	-	-	-	-	-	34
erred s for on stock for future s in 2007, valued at hare	-	-	-	-	(928,000)	-	-	-	(92
ortization ferred s	-	-	-	-	773,333	-	-	-	7
realized loss) on es	-	-	-	-	-	(32,610)	-	-	(3
t loss for ar ending mber 31,	-	-	-	-	-	-	-	(4,223,449)	(4,22
NCE AT EMBER 07	33,690,075	33,690	$ 10,449,763	$ -	$ (154,667)	$ (58,610)	$ (15,827)	$ (9,601,169)	$ 6

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

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

STATEMENT OF STOCKHOLDERS EQUITY

FOR THE PERIOD JANUARY 1, 2004 (INCEPTION OF DEVELOPMENT STAGE) TO

DECEMBER 31, 2008 (CONTINUED)

	Number of Shares	Common Stock	Paid-in Capital	Receivable for Issuance of Common Stock	Deferred Charges	Unrealized Loss On Securities	Accumulated Deficit	Deficit Accumulated During Development Stage	T
NCE AT MBER 7	33,690,075	33,690	$ 10,449,763	$ -	$ (154,667)	$ (58,610)	$ (15,827)	$ (9,601,169)	$ 6
ommon ssued in v a t e e m e n t 2008 at hare	690,001	690	413,310	-	-	-	-	-	4
ommon sued for ces in 2008, e d a t hare	100,000	100	74,900	-	-	-	-	-	
ommon sued for ces in t, 2008, e d a t hare	200,000	200	359,800	-	-	-	-	-	3
rcise of nts at hare	320,000	320	79,680	-	-	-	-	-	
	641,080	641	159,629						1

rcise of s at hare, t to ber 2008 ljusted ffering									
rcise of nts at hare	270,000	270	134,730	-	-	-	-	-	1
rants or s in ber ested 2008, alued at hare	-	-	27,014	-	-	-	-	-	
rants or s in 2007, during alued at hare	-	-	10,885	-	-	-	-	-	
rants or s in 007, during alued at hare	-	-	121,713	-	-	-	-	-	1
rants or s in 007, during alued at hare	-	-	48,738	-	-	-	-	-	
rants or s in May ested 2008, alued at hare	-	-	31,444	-	-	-	-	-	

rants or s in ber ested 2008, lued at nare	-	-	12,487	-	-	-	-	-
ons or s in ber ested 2008, lued at nare	-	-	286,803	-	-	-	-	-
ions or s in 2008, during alued at nare	-	-	30,750	-	-	-	-	-
ons or s in July ested 2008, lued at nare	-	-	114,519	-	-	-	-	-
ons or s in 2008, during alued at nare	-	-	525,263	-	-	-	-	-
ons or s in ber ested 2008 lued at nare	-	-	6,439	-	-	-	-	-
rants or future	-	-	332,000	-	(332,000)	-	-	-

s in 2008, hrough ber									
alued at nare									
rants or s in May ested									
ber									
alued at nare	-	-	976,193	-	-	-	-	-	9
rtization f e r r e d	-	-	-	-	431,337	-	-	-	4
eivable issuance m m o n	-	-	-	(12,500)	-	-	-	-	(
ized loss fication	-	-	-	-	-	58,610	-	-	
loss for r ending ber 31,	-	-	-	-	-	-	-	(4,340,607)	(4,3
NCE AT MBER 8	35,911,156	$ 35,911	$ 14,196,060	$ (12,500)	$ (55,330)	$ -	$ (15,827)	$ (13,941,776)	$ 2

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

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

STATEMENTS OF CASH FLOW FOR YEARS ENDING

DECEMBER 31, 2008 AND 2007 AND FOR THE PERIOD

JANUARY 1, 2004 (INCEPTION OF DEVELOPMENT STAGE) TO DECEMBER 31, 2008

	Cumulative Since Inception	For the Year Ending December 31, 2008	For the Year Ending December 31, 2007
CASH FLOWS FROM OPERATING ACTIVITIES			
Net loss	$ (13,941,776)	$ (4,340,607)	$ (4,223,449)
Adjustment to reconcile net loss to net cash used in operating activities			
Amortization of deferred charges	4,337,126	443,732	1,550,442
Warrants issued for services	2,062,436	1,228,474	690,362
Stock options issued for services	1,829,161	963,774	102,999
Common stock issued for services	965,292	435,000	530,292
Depreciation	60,895	15,757	16,362
Realized (gain) loss on investments	(3,911)	59,276	-
Realized gain on disposal of assets	(637)	-	(637)
(Increase) decrease in assets			
Receivables	(30,461)	1,244	(101,144)
Prepaid expenses	(12,198)	(4,904)	2,059
Increase (decrease) in liabilities			
Accounts payable	150,565	(40,776)	32,420
Accounts payable - related party	7,172	7,172	(65,339)
Accrued expenses	32,690	(16,460)	30,953
Net cash used in operating activities	(4,543,646)	(1,248,318)	(1,434,681)
CASH FLOWS FROM INVESTING ACTIVITIES			
Cost of intangibles	(212,416)	(37,995)	(132,045)

Proceeds from sale of available for sale securities	203,911	28,524	-
Proceeds from receipt of note receivable	100,000	100,000	-
Purchase of available for sale securities	(200,000)	-	-
Purchase of equipment	(85,371)	(10,207)	(50,339)
Net cash provided by (used in) investing activities	(193,876)	80,322	(182,384)
CASH FLOWS FROM FINANCING ACTIVITIES			
Issuance of common stock, private placement	4,140,524	414,000	2,301,524
Common stock rescinded, private placement	(200,000)	-	(200,000)
Issuance of common stock, exercise of warrants	362,770	362,770	0
Repayment of notes payable	(14,970)	-	(4,068)
Proceeds from subscription receivable	6,500	-	-
Advances to stockholders	(4,933)	-	-
Proceeds from convertible notes	529,000	-	-
Advances from officers	1,498	-	(1,468)
Net cash provided by financing activities	4,820,389	776,770	2,095,988
NET INCREASE IN CASH AND CASH EQUIVALENTS	82,867	(391,226)	478,923
CASH AND CASH EQUIVALENTS - BEGINNING OF PERIOD	5,358	479,451	528
CASH AND CASH EQUIVALENTS - END OF PERIOD	$ 88,225	$ 88,225	$ 479,451

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

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

STATEMENTS OF CASH FLOW FOR YEARS ENDING

DECEMBER 31, 2008 AND 2007 AND FOR THE PERIOD

JANUARY 1, 2004 (INCEPTION OF DEVELOPMENT STAGE) TO DECEMBER 31, 2008
(CONTINUED)

	Cumulative Since Inception	For the Year Ending December 31, 2008	For the Year Ending December 31, 2007
SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION			
CASH PAID DURING THE PERIOD FOR:			
Interest	20,907	$ 2,911	$ 5,886
SUPPLEMENTAL DISCLOSURE OF NON-CASH INVESTING AND FINANCING ACTIVITIES			
Common stock issued in exchange for deferred charges	$ 3,142,400	$ -	$ 686,250
Warrants issued in exchange for deferred charges	$ 1,581,056	$ 332,000	$ 348,000
Common stock issued as settlement for accounts payable	$ 29,708	$ -	$ 29,708
Unrealized gain (loss) on available for sale	$ -	$ -	$ (32,610)
Realized loss reclassification	$ -	$ 58,610	$ -

Accrued interest contributed as capital	$	35,624	$	-	$	-
Common stock issued in the conversion of notes payable	$	529,000	$	-	$	-
Acquisition of automobile through loan payable	$	24,643	$	-	$	-
Common stock issued upon exercise of a warrant in exchange for receivable	$	75,000	$	-	$	-
Insurance company pay off of note payable	$	9,673	$	-	$	-
Receivable for issuance of common stock	$	12,500	$	12,500	$	-

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

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2008

NOTE 1- SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

History and Nature of Business

Lightwave Logic, Inc., formerly Third-Order Nanotechnologies, Inc., formerly PSI-Tec Holdings, Inc., formerly Eastern Idaho Internet Service, Inc. (the Company) was organized under the laws of the State of Nevada in 1997. The Company was engaged in the business of marketing internet services until June 30, 1998, at which time the principal assets of the business were sold and operations were discontinued. The Company was inactive until the acquisition of PSI-TEC Corporation (PSI-TEC) on July 14, 2004, at which time the name was changed to PSI-TEC Holdings, Inc.

Development Stage

PSI-TEC was incorporated in 1995 under the laws of the State of Delaware. PSI-TEC primarily conducted research for the United States Government under a contract, which expired in 2003. Beginning January 1, 2004, PSI-TEC was engaged in the development of electro-optic polymers for application in the electro-optic device markets. PSI-TEC is considered a development stage company as defined in Statement on Financial Accounting Standards (SFAS) No. 7 from the inception of the development stage on January 1, 2004.

Merger

On July 14, 2004, the Company acquired PSI-TEC. Under the terms of the merger agreement, the stockholders of PSI-TEC received 15,600,000 shares of common stock in exchange for its 2,206,280 shares. Following the merger, the Company changed its name to PSI-TEC Holdings, Inc. Under accounting principles generally accepted in the United States, the share exchange is considered to be a capital transaction in substance rather than a business combination. That is, the share exchange is equivalent to the issuance of stock by PSI-TEC Holdings, Inc. for the net monetary assets of PSI-TEC, accompanied by a recapitalization, and is accounted for as a change of capital structure. Accordingly, the accounting for the share exchange will be identical to that resulting from a reverse acquisition, except no goodwill will be recorded. Under reverse takeover accounting, the post-reverse acquisition comparative historical financial statements of the legal acquirer, PSI-TEC Holdings, Inc., are those of the legal acquiree, PSI-TEC, which is considered to be the accounting acquirer. On October 20, 2006, PSI-TEC Holdings, Inc. and PSI-TEC merged and changed its name to Third-Order Nanotechnologies, Inc. On March 10, 2008, Third-Order

Nanotechnologies, Inc. changed its name to Lightwave Logic, Inc.

Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the amounts reported in the financial statements and accompanying disclosures. Although these estimates are based on management s best knowledge of current events and actions the Company may undertake in the future, actual results could differ from the estimates.

Cash Equivalents

For the purposes of the statement of cash flows, the Company considers all highly liquid instruments with maturities of three months or less at the time of purchase to be cash equivalents.

Concentration of Credit Risk

Certain financial instruments potentially subject the Company to concentrations of credit risk. These financial instruments consist primarily of cash. At December 31, 2008, the Company did not have deposits with a financial institution that exceed the FDIC deposit insurance coverage of $250,000.

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2008

NOTE 1- SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Investment

Securities classified as available-for-sale may be sold in response to changes in interest rates, liquidity needs, and for other purposes. Available-for-sale securities are carried at fair value. Unrealized gains and losses on investment securities available for sale are based on the difference between book value and fair value of each security. These gains and losses are credited or charged to other comprehensive income, whereas realized gains and losses are recognized in the Company s net income (loss).

Property and Equipment

Equipment is stated at cost. Depreciation is principally provided by use of straight-line methods for financial and tax reporting purposes over the estimated useful lives of the assets, generally 5 years.

Fair Value of Financial Instruments

The Company s financial instruments consist of cash, accounts payable and accrued expenses. The carrying values of cash, accounts payable and accrued expenses approximate fair value because of their short maturities.

Income Taxes

The Company follows Statement of Financial Accounting Standards (SFAS) No. 109, Accounting for Income Taxes, which requires an asset and liability approach to financial accounting and reporting for income taxes. Deferred income tax assets and liabilities are computed annually for temporary differences between the financial statement and tax bases of assets and liabilities that will result in taxable or deductible amounts in the future based on enacted tax laws and rates applicable to the periods in which the differences are expected to affect taxable income. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized. Income tax expense is the tax payable or refundable for the period plus or minus the change during the period in deferred tax assets and liabilities.

Loss Per Share

The Company follows SFAS No. 128, Earnings Per Share, resulting in the presentation of basic and diluted earnings per share. Because the Company reported a net loss in 2008 and 2007, 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.

Recoverability of Long Lived Assets

The Company follows SFAS No. 144 Accounting for the Impairment or Disposal of Long-Lived Assets (Statement 144). Long-lived assets to be held and used are reviewed for impairment whenever events or changes in circumstances indicate that the related carrying amount may not be recoverable. When required, impairment losses on assets to be held and used are recognized based on the excess of the asset s carrying amount.

Comprehensive Income

The Company follows SFAS No. 130, 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.

Reclassifications

Certain reclassifications were made to the 2007 financial statements in order to conform to the 2008 financial statement presentation.

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2008

NOTE 1- SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Recently Adopted Accounting Pronouncements

SFAS No. 157 Fair Value Measurements

In September 2006, the FASB issued SFAS No. 157, Fair Value Measurements. SFAS No. 157 establishes a framework for measuring fair value and expands disclosures about fair value measurements. The changes to current practice resulting from the application of this statement relate to the definition of fair value, the methods used to measure fair value, and the expanded disclosures about fair value measurements. SFAS No. 157 is effective for fiscal years beginning after November 15, 2007. In February 2008, the FASB issued FSP No. SFAS 157-2, Effective Date of FASB Statement No. 157, which provides a one-year deferral of the effective date of SFAS No. 157 for non-financial assets and non-financial liabilities, except those that are recognized or disclosed in the financial statements at fair value at least annually. Therefore the Company has adopted the provisions of SFAS No. 157 with respect to its financial assets and liabilities only. However, the Company does not anticipate that the full adoption of SFAS 157 will significantly impact their financial statements.

SFAS No. 159 The Fair Value Option for Financial Assets and Financial Liabilities

In February 2007, the FASB issued SFAS No. 159, The Fair Value Option for Financial Assets and Financial Liabilities. This statement permits entities to choose to measure many financial instruments and certain other items at fair value that are not currently required to be measured at fair value. The objective is to improve financial reporting by providing entities with the opportunity to mitigate volatility in reported earnings caused by measuring related assets and liabilities differently without having to apply complex hedge accounting provisions. This statement also establishes presentation and disclosure requirements designed to facilitate comparisons between entities that choose different measurement attributes for similar types of assets and liabilities. This statement is effective for financial statements issued for fiscal years beginning after November 15, 2007. The Company adopted SFAS No. 159 on

January 1, 2008, and did not elect the fair value option for any of its assets or liabilities.

SFAS No. 162 The Hierarchy of Generally Accepted Accounting Principles

In May 2008, the FASB issued Statement of Financial Accounting Standards No. 162, The Hierarchy of Generally Accepted Accounting Principles (FAS 162"). This Standard identifies the sources of accounting principles and the framework for selecting the principles to be used in the preparation of financial statements of nongovernmental entities that are presented in conformity with generally accepted accounting principles. FAS 162 directs the hierarchy to the entity, rather than the independent auditors, as the entity is responsible for selecting accounting principles for financial statements that are presented in conformity with generally accepted accounting principles. Effective November 15, 2008, the Company adopted SFAS No. 162, which did not have any impact on the Company s financial statements.

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2008

NOTE 1- SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Recently Issued Accounting Pronouncements Not Yet Adopted

SFAS No. 141R Business Combinations

In December 2007, the FASB issued SFAS No. 141 (revised 2007), Business Combinations (SFAS 141R). SFAS 141R establishes principles and requirements for how an acquirer recognizes and measures in its financial statements the identifiable assets acquired, the liabilities assumed, any noncontrolling interest in the acquiree and the goodwill acquired. SFAS 141R also establishes disclosure requirements to enable the evaluation of the nature and financial effects of the business combination. This statement is effective for the Company beginning January 1, 2009 and will change the accounting for business combinations on a prospective basis.

SFAS No. 160 Noncontrolling interest in Consolidated Financial Statements

On December 4, 2007, the FASB issued SFAS No. 160, Noncontrolling interest in Consolidated Financial Statements (SFAS No. 160). SFAS No. 160 requires all entities to report noncontrolling (minority) interests in subsidiaries as equity in the consolidated financial statements. The statement establishes a single method of accounting for changes in a parent s ownership interest in a subsidiary that do not result in deconsolidation and expands disclosures in the consolidated financial statements. SFAS No. 160 is effective for fiscal years beginning after December 15, 2008 and interim periods within those fiscal years. SFAS No. 160 is not currently applicable to the Company.

SFAS No. 161 Disclosures about Derivative Instruments and Hedging

In March 2008, the FASB issued SFAS No. 161, Disclosures about Derivative Instruments and Hedging Activities, which is effective January 1, 2009. SFAS 161 requires enhanced disclosures about derivative instruments and hedging activities to allow for a better understanding of their effects on an entity s financial position, financial performance, and cash flows. Among other things, SFAS 161 requires disclosures of the fair values of derivative instruments and associated gains and losses in a tabular formant. SFAS 161 is not currently applicable to the Company since the Company does not have derivative instruments or hedging activity.

FSA 142-3 Determination of the Useful Life of Intangible Assets

In April 2008, the FASB issued FASB Staff Position (FSP) FAS 142-3, Determination of the Useful Life of Intangible Assets, which amends the factors that should be considered in developing renewal or extension assumptions used to determine the useful life of a recognized intangible asset under FASB Statement No. 142, Goodwill and Other Intangible Assets. This Staff Position is effective for financial statements issued for fiscal years beginning after December 15, 2008, and interim periods within those fiscal years. Early adoption is prohibited. The Company is currently evaluating the impact that FSP No. 142-3 will have on its financial statements.

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2008

NOTE 1- SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Recently Issued Accounting Pronouncements Not Yet Adopted (Continued)

EITF 03-6-1 Determining Whether Instruments Granted in Share-Based Payment Transactions are Participating Securities

In June 2008, the FASB issued FSP EITF 03-6-1, Determining Whether Instruments Granted in Share-Based Payment Transactions are Participating Securities. This FSP provides that unvested share-based payment awards that contain nonforfeitable rights to dividends or dividend equivalents (whether paid or unpaid) are participating securities and shall be included in the computation of earnings per share pursuant to the two-class method. The Company does not currently have any share-based awards that would qualify as participating securities. Therefore, application of this FSP is not expected to have an effect on the Company's financial reporting.

APB 14-1 Accounting for Convertible Debt That May Be Settled in Cash upon Conversion (Including Partial Cash Settlement) (FSP 14-1)

In May 2008, the FASB issued FASB Staff Position (FSP) APB 14-1, Accounting for Convertible Debt That May Be Settled in Cash upon Conversion (Including Partial Cash Settlement) ("FSP 14-1"). FSP 14-1 will be effective for financial statements issued for fiscal years beginning after December 15, 2008. The FSP includes guidance that convertible debt instruments that may be settled in cash upon conversion should be separated between the liability and equity components, with each component being accounted for in a manner that will reflect the entity's nonconvertible debt borrowing rate when interest costs are recognized in subsequent periods. FSP 14-1 is currently not applicable to the Company since the Company does not have any convertible debt.

EITF 07-05 Determining Whether an Instrument (or Embedded Feature) is Indexed to an Entity s Own Stock

In June 2008, the FASB issued EITF Issue No. 07-05, Determining Whether an Instrument (or Embedded Feature) is Indexed to an Entity s Own Stock (EITF Issue No. 07-05) which is effective for financial statements for fiscal years beginning after December 15, 2008, and interim periods within those fiscal years. The Issue addresses the determination of whether an instrument (or an embedded feature) is indexed to an entity s own stock, which is the first part of the scope exception in Paragraph 11(a) of SFAS No. 133 for the purpose of determining whether the instrument is classified as an equity instrument or accounted for as a derivative instrument which would be recognized either as an asset or liability and measured at fair value. The guidance shall be applied to outstanding instruments as of the beginning of the fiscal year in which this Issue is initially applied. Any debt discount that was recognized when the conversion option was initially bifurcated from the convertible debt instrument shall continue to be amortized. The cumulative effect of the change in accounting principles shall be recognized as an adjustment to the opening balance of retained earnings. The Company is currently evaluating the impact of EITF Issue No. 07-05 on its financial statements and footnote disclosure.

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2008

NOTE 1- SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES (CONTINUED)

Recently Issued Accounting Pronouncements Not Yet Adopted (Continued)

EITF 08-7 Accounting for Defensive Intangible Assets

In November 2008, the FASB issued EITF Issue no. 08-7, Accounting for Defensive Intangible Assets (EITF Issue No. 08-7) which is effective for intangible assets acquired on or after the beginning of the first annual reporting period beginning on or after December 15, 2008. After the effective date of SFAS 141R, an intangible asset must be recognized at fair value in accordance with SFAS 157 regardless of how the entity intends to use that asset. The Issue addresses how defensive intangible assets should be accounted for subsequent to their acquisition including the estimated useful life that should be assigned to such assets. EITF Issue No. 08-7 is currently not applicable to the Company since the Company does not have defensive intangible assets.

NOTE 2 GOING CONCERN

The accompanying financial statements have been prepared assuming the Company will continue as a going concern. The Company has incurred significant losses and experienced negative cash flow during the development stage. These conditions raise substantial doubt about the Company s ability to continue as a going concern. The financial statements do not include any adjustments that might result from the outcome of this uncertainty.

The Company is in the development stage at December 31, 2008. Currently, the Company has funds to maintain its operations through May 2009. The Company s development has run behind schedule however, management hopes to

demonstrate a prototype by mid second quarter of 2009. Management is in the process of developing a business plan that it believes will be attractive enough to investors to raise the necessary capital. However, there can be no assurances that the Company will be able to secure the necessary financing and/or equity investment or achieve an adequate sales level. Successful completion of the Company s prototype could lead to adequate financing to fulfill its development activities and achieve a level of revenue adequate to support the Company s cost structure for the following three years.

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2008

NOTE 3 DEFERRED CHARGES

Deferred charges represent the unamortized fair value of the issuance of common stock and warrants for future services to non-employees which was accounted for in accordance with Emerging Issue Task Force No. 96-18, *Accounting for Equity Instruments That Are Issued To Other Than Employees for Acquiring, or in Conjunction with Selling, Goods or Services,* as follows:

	December 31, 2008	December 31, 2007
Common stock	$ 2,811,400	$ 2,811,400
Warrants	1,581,056	1,249,056
	4,392,456	4,060,456
Less: Accumulated Amortization	4,337,126	3,893,394
	55,330	167,062
Less: Amount reflected as a contra-equity account for management consulting services provided by related party	55,330	154,667
	$ -	$ 12,395

NOTE 4 NOTE RECEIVABLE

Note Receivable consists of the following:

	December 31, 2008	December 31, 2007
Note Receivable - Theater Xtreme Entertainment Group, Inc., bears interest at 14% per year, mature one year from the date of issue (August 15, 2008) and may be prepaid at any time without penalty. Pursuant to the term of the Note, the Company received warrants to purchase 50,000 shares of common stock at an exercise price of $1.00 per share. The value of the warrant is $0 at December 31, 2008 and $2,300 at December 31, 2007, using the Black-Scholes pricing formula. This Note was assigned in August 2008 for cash consideration of $100,000 (the face value of the promissory note).	$ -	$ 100,000
Total	$ -	$ 100,000

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NOTE 5 AVAILABLE FOR SALE SECURITIES

As described in Note 1, the Company partially adopted SFAS No. 157 on January 1, 2008. SFAS No. 157, among other things, defines fair value, establishes a consistent framework for measuring fair value and expands disclosure for each major asset and liability category measured at fair value on either a recurring or nonrecurring basis. SFAS No. 157 clarifies that fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. As a basis for considering such assumptions, SFAS No. 157 establishes a three-tier fair value hierarchy, which prioritizes the inputs used in measuring fair value as follows:

Level 1

Observe inputs such as quoted prices in active markets;

Level 2

Inputs, other than the quoted prices in active markets, that are observable either directly or indirectly; and

Level 3

Unobservable inputs in which there is little or no market data, which require the reporting entity to develop its own assumptions.

Assets measured at fair value on a recurring basis are as follows:

	Fair Value December 31, 2008	Quoted Prices in Active Markets for Identical Assets (Level 1)	Siginificant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Available for sale securities				
Related Party	$ -	$ -	$ -	$ -
Other	-	-	-	-
Total available for sale securities	$ -	$ -	$ -	$ -

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NOTE 5 AVAILABLE FOR SALE SECURITIES (CONTINUED)

		Fair Value Measurement Using Significant Unobservable Inputs (Level 3)
Beginning Balance, January 1, 2008	$	2,300
Total gains or losses (realized/unrealized)		
Included in earnings		-
Included in other comprehensive income		
Purchases, issuance and settlements		(2,300)
Ending Balance, December 31, 2008	$	-
The amount of total gains or losses for the period included in earnings attributable to the change in unrealized gains or losses relating to assets still held at the reporting date.	$	-

NOTE 6 EQUIPMENT

Equipment consists of the following:

	December 31, 2008	December 31, 2007
Office equipment	$ 7,727	$ 23,752
Lab equipment	82,105	75,165
	89,832	98,917
Less: Accumulated depreciation	28,106	31,641
	$ 61,726	$ 67,276

Depreciation expense for the year ending December 31, 2008 and 2007 was $15,757 and $16,362.

NOTE 7 INTANGIBLE ASSETS

This represents legal fees and patent fees associated with the registration of patents. The Company has not recorded any amortization expenses since the patents have yet to be declared effective. Once issued, the cost of the patents will be amortized over their legal lives, which is generally 20 years.

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NOTE 8 COMMITMENTS

The Company is obligated under an operating lease for laboratory space expiring June 30, 2009.

Aggregate minimum future lease payments are as follows:

YEARS ENDING DECEMBER 31,		AMOUNT
2009	$	4,422

Rent expense approximating $8,552 and $10,425 is included in general and administrative expenses for the years ended December 31, 2008 and 2007.

NOTE 9 INCOME TAXES

As discussed in Note 1, the Company utilizes the asset and liability method of accounting for income taxes in accordance with SFAS 109. The reconciliation of the statutory federal rate to the Company s effective Income tax rate is as follows:

	2008		2007	
	Amount	%	Amount	%
Income tax benefit at U.S. federal income tax rate	$ (1,459,000)	(34)	$ (1,436,000)	(34)
State tax, net of federal tax effect	(386,000)	(9)	(380,000)	(9)
Non-deductible share-based compensation	249,000	3	235,000	3
Change in valuation allowance	1,596,000	40	1,581,000	40
	$ -	-	$ -	-

The components of deferred tax assets as of December 31, 2008, and December 31, 2007 are as follows:

	2008	2007
Deferred tax asset for NOL carryforwards	$ 4,241,000	$ 3,441,000
Share-based compensation	1,272,000	476,000
Accrued expenses	31,000	31,000
Valuation allowance	(5,544,000)	(3,948,000)
	$ -	$ -

NOTE 9 INCOME TAXES (CONTINUED)

The valuation allowance for deferred tax assets as of December 31, 2008 and 2007 was

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$5,544,000 and $3,948,000. The change in the total valuation for the years ended December 31, 2008 and 2007 was an increase of $1,596,000 and $1,581,000. In assessing the realization of deferred tax assets, management considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependant upon the generation of future taxable income during the periods in which the net operating losses and temporary differences become deductible. Management considered projected future taxable income and tax planning strategies in making this assessment. The value of the deferred tax assets was offset by a valuation allowance, due to the current uncertainty of the future realization of the deferred tax assets.

As of December 31, 2008, the Company had net operating loss carry forwards of approximately $10,000,000, expiring through the year ending December 31, 2028. This amount can be used to offset future taxable income of the Company.

The timing and manner in which the Company can utilize operating loss carryforwards in any year may be limited by provisions of the Internal Revenue Code regarding changes in ownership of corporations. Such limitation may have an impact on the ultimate realization of its carryforwards and future tax deductions.

On January 1, 2007, the Company adopted FIN 48, which provides guidance for the recognition and measurement of certain tax positions in an enterprise s financial statements. Recognition involves a determination of whether it is more likely than not that a tax position will be sustained upon examination with the presumption that the tax position will be examined by the appropriate taxing authority having full knowledge of all relevant information. The adoption of FIN 48 did not require an adjustment to the Company s financial statements.

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, 2008, the Company had no unrecognized tax benefits and no charge during 2008, and accordingly, the Company did not recognize any interest or penalties during 2008 related to unrecognized tax benefits. We do not have an accrual for uncertain tax positions as of December 31, 2008.

The Company files U.S. income tax returns and a state income tax return. With few exceptions, the U.S. and state income tax returns filed for the tax years ending on December 31, 2005 and thereafter are subject to examination by the relevant taxing authorities.

NOTE 10 STOCKHOLDERS EQUITY

Preferred Stock

Pursuant to our Company s Articles of Incorporation, our 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 our 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 our business or a takeover from a third party.

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NOTE 10 STOCKHOLDERS EQUITY (CONTINUED)

Common Stock and Warrants

The stockholders deficit at January 1, 2004 has been retroactively restated for the equivalent number of shares received in the reverse acquisition at July 14, 2004 (Note 1) after giving effect to the difference in par value with the offset to additional paid-in-capital.

In July 2004, the Company issued 1,600,000 shares of its common stock for professional services valued at $256,000, fair value.

In August 2004, the Company issued 637,500 shares of its common stock for professional services valued at $75,000, fair value.

In December 2004, the Company converted a note payable of $30,000 into 187,500 shares of common stock at a conversion price of $0.16 per share.

In April 2005, the Company issued 4,000,000 shares of its common stock in a private placement for proceeds of $1,000,000.

On May 4, 2005, the Company converted the notes payable of $499,000 into 3,118,750 shares of common stock at a conversion price of $0.16 per share. An unpaid note payable in the amount of $6,500 has been reflected as a subscription receivable.

During August 2005, the Company issued 210,000 shares of common stock for professional services rendered valued at $585,500, fair value. Consulting expense of $375,500 was recognized during 2005, and at December 31, 2005, the remaining balance of $210,000 is reflected as a deferred charge on the balance sheet. During 2006, consulting expense of $210,000 was recognized. This agreement ended in May 2006.

In August 2005, in conjunction with a management services contract, the Company issued 200,000 shares of common stock valued at $584,000. Management expense of $265,455 was recognized during 2005, and at December 31, 2005, the remaining balance of $318,545 is reflected as a deferred charge in a contra-equity account. During 2006, management expense of $318,545 was recognized. This agreement ended in June 2006.

During May 2005, the Company issued Stock Purchase Warrants to purchase 100,000 shares of common stock at an exercise price of $2.10 in exchange for consulting services. The warrants are exercisable until May 2008 and vest as follows: 50,000 shares during the first year of the agreement, 25,000 shares during the second year of the agreement, and 25,000 shares during the third year. In accordance with the fair value method, the Company used the Black-Scholes model to calculate the grant-date fair value, with the following assumptions: no dividend yield, expected volatility of 60%, risk-free interest rate of 3.8% and expected life of option of three years. The fair market value of the warrants was $113,250. In accordance with the fair value method as described in accounting requirements of SFAS No. 123, the Company recognized consulting expense of $37,000 in 2005. This warrant was cancelled during 2006.

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NOTE 10 STOCKHOLDERS EQUITY (CONTINUED)

Common Stock and Warrants (Continued)

During September 2005, the Company issued Stock Purchase Warrants to purchase 100,000 shares of common stock at an exercise price of $2.00 in exchange for consulting services. The warrants expire in September 2008 and vest as follows: 50,000 shares during the first year of the agreement, 25,000 shares during the second year of the agreement, and 25,000 shares during the third year of the agreement. In accordance with the fair value method, the Company used the Black-Scholes model to calculate the grant-date fair value, with the following assumptions: no dividend yield, expected volatility of 60%, risk-free interest rate of 3.8% and expected life of option of three years. The fair market value of the warrants was $145,100. The Company recognized consulting expense of $36,370, $66,500 and $24,200 for the years ended December 31, 2007, 2006 and 2005 in conjunction with this agreement. For the year ending December 31, 2008, the Company recognized $27,014 in consulting expense.

On October 15, 2005, the Company issued Stock Purchase Warrants to purchase 30,000 shares of common stock at an exercise price of $1.40 in exchange for consulting services. The warrants expire in October 2006 and are exercisable immediately. In accordance with the fair value method, the Company used the Black-Scholes model to calculate the grant-date fair value, with the following assumptions: no dividend yield, expected volatility of 60%, risk-free interest rate of 4.15% and expected life of option of one year. The fair market value of the warrants was $15,900. In accordance with the fair value method as described in accounting requirements of SFAS No. 123, the Company recognized consulting expense of $15,900 during 2005. These warrants expired in October 2006.

In December 2005, in conjunction with a consulting contract, the Company issued Stock Purchase Warrants to purchase 300,000 shares of common stock at an exercise price of $0.25 per share valued at $435,060, fair value. The warrants expire in December 2007 and were exercisable immediately. In accordance with the fair value method, the Company used the Black-Scholes model to calculate the grant-date fair value, with the following assumptions: no dividend yield, expected volatility of 60%, risk-free interest rate of 4.41% and expected life of option of two years. In accordance with the fair value method as described in accounting requirements of SFAS No. 123, the Company recognized consulting expense of $199,435, and at December 31, 2005, the remaining balance in deferred charges amounted to $235,625. The 300,000 warrants were fully exercised on December 31, 2005 for $75,000. The Company recognized $18,128 and $217,497 in consulting expense in conjunction with this agreement for the years

ended December 31, 2007 and 2006, which was cancelled during 2007.

During 2006, the Company issued 850,000 shares of common stock and warrants to purchase 425,000 shares of common stock for proceeds of $425,000 in accordance to a private placement memorandum amended December 18, 2006. Pursuant to the terms of the amended offering, up to 20 units were offered at the offering price of $50,000 per unit, with each unit comprise of 100,000 shares and a warrant to purchase 50,000 shares of common stock at $0.50 per share. As of December 31, 2008, warrants to purchase 210,000 shares of common stock were fully exercised for proceeds of $105,000 and warrants to purchase 200,000 shares of common stock were rescinded.

During February 2006, the Company issued 300,000 shares of common stock for professional services rendered valued at $270,000, fair value. The Company recognized consulting expense of $16,875 and $118,125 and legal expense of $16,875 and $118,125 during 2007 and 2006. The contracts expired during 2007.

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NOTE 10 STOCKHOLDERS EQUITY (CONTINUED)

Common Stock and Warrants (Continued)

During May 2006, the Company issued 400,000 shares of common stock for professional services rendered valued at $620,000, fair value. The Company recognized consulting expense of $258,333 and $361,667 during 2007 and 2006, and at December 31, 2006. The contracts expired during 2007.

During June 2006, the Company issued 25,000 shares of common stock for professional services rendered valued at $36,250, fair value. The Company recognized legal expense of $16,615 and $19,635 during 2007 and 2006, and at December 31, 2006. The contracts expired during 2007.

During November 2006, the Company issued 60,000 shares of common stock for professional services valued at $29,400, fair value. The Company recognized investor relations expense of $25,480 and $3,920 during 2007 and 2006. The contract expired during 2007.

In June 2006, in conjunction with an addendum to an existing consulting contract effective December 2005, the Company issued Stock Purchase Warrants to purchase 300,000 shares of common stock at an exercise price of $0.25 per share. The warrants expire in June 2008 and were exercisable immediately. In accordance with the fair value method, the Company used the Black-Scholes model to calculate the grant-date fair value, with the following assumptions: no dividend yield, expected volatility of 186%, risk-free interest rate of 4.41% and expected life of option of two years. The fair market value of the warrants was $465,996. During 2007 and 2006, the Company recognized consulting expense of $330,948 and $135,048 in conjunction with this agreement. The contract was cancelled during 2007. The 300,000 warrants were fully exercised on March 12, 2008 for proceeds of $75,000.

During 2006, the Company cancelled a warrant issued during May 2005 to purchase 100,000 shares of the Company s common stock at an exercise price of $2.10, and issued an option to purchase 500,000 shares of the Company s common stock at an exercise price of $1 per share and the same option s expiration and vesting terms were modified during November 2006. The incremental cost of the modified option was $394,030 and will be expensed over the

vesting terms. The Company recognized $17,589 and $406,215 as a consulting expense in 2007 and 2006, which includes $337,290 of the incremental cost of the modified option.

During February 2006, the Company awarded an employee with an option to purchase 200,000 shares of common stock at an exercise price of $1.00 per share under the 2005 Employee Stock Option Plan. These options were valued at $217,628 using the Black-Scholes Option Pricing Formula. The employee compensation expense recognized during 2007 and 2006 is $43,757 and $22,673. In June 2007, the employee was terminated and the vesting ceased. After September 2007, the vested options expired.

During 2006, the Company recognized contributed capital of $35,624 related to the conversion of accrued interest payable.

During 2006, the Company deemed an outstanding subscription receivable of $6,500 to be uncollectible.

During 2007, the Company issued 2,482,000 shares of common stock and warrants to purchase 1,241,000 shares of common stock for proceeds of $1,241,000 in accordance to a private placement memorandum amended December 18, 2006. Pursuant to the terms of the amended offering, up to 20 units were offered at the offering price of $50,000 per unit, with each unit comprised of 100,000 shares and a warrant to purchase 50,000 shares of common stock at $0.50 per share. As of December 31, 2008, warrants to purchase 856,000 shares of common stock are still outstanding.

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NOTE 10 STOCKHOLDERS EQUITY (CONTINUED)

Common Stock and Warrants (Continued)

During 2007, the Company issued 1,767,540 shares of common stock and warrants to purchase 883,770 shares of common stock for proceeds of $1,060,524 in accordance to a private placement memorandum issued on October 3, 2007. Pursuant to the terms of the offerings, up to 20 units were offered at the purchase price of $60,000 per unit, with each unit comprised of 100,000 shares and a warrant to purchase 50,000 shares of common stock at $1.00 per share. As of December 31, 2008, the warrants to purchase 801,001 shares of common stock are still outstanding.

During 2007, a shareholder that was issued 400,000 shares of the Company s common stock and a warrant to purchase 200,000 shares of common stock at $0.50 per share rescinded his shares and warrant.

During February 2007, the Company issued 151,785 shares of common stock for investor relations services valued at $106,250, fair value, which was recorded as a deferred charge and amortized over one year, the term of the services contract. During 2007, the Company recognized $97,396 in investor relations expense. During 2008, the Company recognized $8,854 in investor relations expense. This contract expired in February 2008.

During February 2007, the Company terminated its then CEO. The option to purchase 56,000 shares of common stock that was recorded as deferred charges of $42,730 were not vested and were forfeited. The option to purchase 444,000 shares of common stock that were vested expired during 2007.

During March 2007, the Company issued 1,000,000 shares of common stock for management consulting services valued at $580,000, fair value. During April 2007, the Company issued 500,000 warrants as an addendum to the original contract for management consulting services valued at $348,000, fair value. This contract was recorded as a contra-equity deferred charges account and is amortized over one year, the term of the contract. Management consulting expense of $773,333 was recognized during 2007. For the year ending December 31, 2008, $154,667 was recognized as management consulting expense. This contract was renewed in March 2008.

During April 2007, the Company issued 100,000 shares of common stock for legal services valued at $35,000, fair value, to settle $29,708 of accounts payable and as payment for $5,292 of legal services incurred in April 2007.

During October 2007, the Company issued 150,000 shares of common stock for investor relations services valued at $102,000, fair value. During 2007 the Company recognized $102,000 in investor relation expense.

During October 2007, the Company issued 150,000 shares of common stock for investor relation services pursuant to a contract entered into by the Chief Executive Officer on behalf of the Company. The value of these shares is $135,000, fair value. During 2007, the Company recognized $135,000 in investor relations expense.

During November 2007, the Company issued 400,000 shares of common stock under the 2007 Stock Option Plan to the acting Chief Executive Officer for services rendered valued at $288,000, fair value. The Company recognized $288,000 in consulting expense during 2007.

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NOTE 10 STOCKHOLDERS EQUITY (CONTINUED)

Common Stock and Warrants (Continued)

During March 2007, the Company issued a warrant to purchase 100,000 shares of common stock for consulting services at an exercise price of $0.25 per share. The warrant was valued at $63,065 using the Black-Scholes Option Pricing Formula and expensed over the life of the contract associated with the consulting services, which is one year. The consulting expense recognized during 2007 is $52,180. For the year ending December 31, 2008 the Company recognized $10,885 of consulting expense. The warrant is still outstanding as of December 31, 2008.

During April 2007, the Company issued warrants to purchase 900,000 shares of common stock for consulting services at an exercise price of $0.25 per share. The warrants were valued at $604,416 using the Black-Scholes Option Pricing Formula and expensed over the life of the contracts associated with the consulting services, which is one year. The consulting expense recognized during 2007 is $433,966. For the year ending December 31, 2008, the Company recognized $170,451 in consulting expense. The warrants are still outstanding as of December 31, 2008.

During May 2007, the Company issued a warrant to purchase 150,000 shares of common stock for consulting services at an exercise price of $0.25 per share. The warrant was valued at $84,390 using the Black-Scholes Option Pricing Formula and expensed over the life of the contract associated with the consulting services, which is one year. The consulting expense recognized during 2007 is $52,946. For the year ending December 31, 2008, the Company recognized $31,444 in consulting expense. The warrant is still outstanding as of December 31, 2008.

During October 2007, the Company issued a warrant to purchase 100,000 shares of common stock at a purchase price of $0.25 per share for accounting services rendered. The warrant was valued at $61,449 using the Black-Scholes Option Pricing Formula. The Company recognized $61,449 in accounting expense during 2007. The warrant is still outstanding as of December 31, 2008.

During October 2007, the Company issued a warrant to purchase 67,200 shares of common stock at a purchase price of $0.25 per share for consulting services rendered. The warrant was valued at $52,292 using the Black-Scholes Option Pricing Formula. During 2007, the Company recognized $52,292 in consulting expense. In July 2008, the warrant was partially exercised to purchase 20,000 shares of common stock for proceeds of $5,000. As of December 31, 2008, warrants to purchase 47,200 shares of common stock are still outstanding.

During December 2007, the Company issued a warrant to purchase 25,000 shares of common stock at a purchase price of $0.50 per share for accounting services rendered. The warrant was valued at $13,646 using the Black-Scholes Option Pricing Formula and expensed over the life of the contract, which is one year. The Company recognized $1,159 in consulting expense during 2007. For the year ending December 31, 2008, the Company recognized $12,487 in consulting expense. The warrant is still outstanding as of December 31, 2008.

During November 2007, under the 2007 Employee Stock Option Plan, the Company issued options to purchase 1,752,000 shares of common stock at a purchase price of $0.72 per share. The options were valued at $1,045,077 using the Black-Scholes Option Pricing Formula. During 2007, the Company recognized $41,653 in consulting expense. For the year ending December 31, 2008, the Company recognized $286,803 of expense. During 2008, an option to purchase 750,000 shares of common stock, of which 125,000 shares were vested, forfeited.

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NOTE 10 STOCKHOLDERS EQUITY (CONTINUED)

Common Stock and Warrants (Continued)

In January 2008, under the 2007 Employee Stock Option Plan, the Company issued an option to purchase 100,000 shares of common stock at a purchase price of $0.72 per share. The option was valued at $59,490, fair value, using the Black-Scholes Option Pricing Formula and is being recognized on a monthly basis over a four year period. For the year ending December 31, 2008, the Company recognized $30,750 of expense. The option is still outstanding as of December 31, 2008.

During 2008, the Company issued 690,001 shares of common stock and warrants to purchase 345,001 shares of common stock for proceeds of $414,000 in accordance to a private placement memorandum issued on October 3, 2007. Pursuant to the terms of the offerings, up to 25 units were offered at the purchase price of $60,000 per unit, with each unit comprised of 100,000 shares and a warrant to purchase 50,000 shares of common stock at $1.00 per share. As of December 31, 2008, warrants to purchase 315,001 shares of common stock are still outstanding.

During March 2008, the Company issued a warrant to purchase 400,000 shares of common stock as an addendum to the original contract for management consulting services provided by a related party, valued at $332,000, fair value using Black-Scholes Option Pricing Formula, vesting immediately. This contract was recorded as a contra-equity deferred charges account and is amortized over one year beginning February 28, 2008, the term of the contract. Management consulting expense of $276,670 was recognized for year ending December 31, 2008. The warrant is still outstanding as of December 31, 2008.

During March 2008, the company issued 100,000 shares of common stock for legal services valued at $75,000, fair value. The Company recognized $75,000 of legal expense for the year ending December 31, 2008.

During April 2008, the Company issued a warrant to purchase 600,000 shares of common stock at a purchase price of $0.73 per share for consulting services rendered. The warrant was valued at $976,193, fair value, using the Black-Scholes Option Pricing Formula, vesting immediately. For the year ended December 31, 2008, the Company recognized $976,193 in consulting expense. The warrant is still outstanding as of December 31, 2008.

In July 2008, the Company issued options to purchase 200,000 shares of common stock at a purchase price of $1.75 per share to members of the board of directors, under the 2007 Employee Stock Option Plan. Using the Black-Scholes Option Pricing Formula, the options were valued at $296,247, fair value, vesting 50,000 immediately and the remaining in annual equal installments of 50,000 over the next three years. For the year ending December 31, 2008, the Company recognized $114,519 of expense, which is being recognized on a monthly basis over a three year period. The options are still outstanding as of December 31, 2008.

In August 2008, under the 2007 Employee Stock Option Plan, the Company issued options to purchase 550,000 and 1,050,000 shares of common stock at a purchase price of $1.42 and $1.75 per share to members of the board of directors and the Chief Executive Officer, vesting 212,500 immediately and the remaining in annual equal installments of 112,500 over the next three years and vesting in quarterly equal installments of 87,500 commencing November 1, 2008, respectively. The options were valued at $2,176,201, fair value, using the Black-Scholes Option Pricing Formula and are being recognized on a monthly basis over a three year period. For the year ending December 31, 2008, the Company recognized $525,263 of expense. The options are still outstanding as of December 31, 2008.

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NOTE 10 STOCKHOLDERS EQUITY (CONTINUED)

Common Stock and Warrants (Continued)

In August 2008, the Company issued 200,000 shares of common stock under the 2007 Stock Option Plan to its new Chief Executive Officer as part of the employment agreement valued at $360,000, fair value. The Company recognized $360,000 in consulting expense for the year ending December 31, 2008.

In 2008, January through August warrant holders exercised warrants to purchase 270,000 shares at $0.50 per share for proceeds of $135,000.

On October 28, 2008, the Company s board of directors authorized the Company to raise up to $600,000 of capital through an Adjusted Common Stock Offering to certain warrant holders. This offering provided eligible warrant holders with the opportunity to purchase four (4) shares of common stock for each dollar invested pursuant to their existing warrant agreement. As of December 31, 2008, warrants to purchase 641,080 shares of common stock were exercised with proceeds of $160,270.

In November 2008, the Company issued an option to purchase 250,000 shares of common stock under the 2007 Stock Option Plan at a purchase price of $.65 per share to a new member of its board of directors. Using the Black-Scholes Option Pricing Formula, the options were valued at $125,911, fair value, vesting 62,500 immediately and the remaining in annual equal installments of 62,500 over the next three years. For the year ending December 31, 2008, the Company recognized $6,439 of expense which is being recognized on a monthly basis over a three year period. The options are still outstanding as of December 31, 2008.

NOTE 11 STOCK BASED COMPENSATION

The Company uses the Black-Scholes option pricing model to calculate the grant-date fair value of an award, with the following assumptions for 2008 and 2007: no dividend yield in both years, expected volatility between 113% and 186% in 2008 and 186% in 2007, risk-free interest rate between 0.03% and 5.1% in 2008 and between 3.8% and 5.1% in 2007 and expected option life of five years in 2008 and from three through ten years in 2007.

As of December 31, 2008, there was $2,378,798 of unrecognized compensation expense related to non-vested market-based share awards that is expected to be recognized.

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NOTE 11 STOCK BASED COMPENSATION (CONTINUED)

The following tables summarize all stock option and warrant activity of the Company since December 31, 2004:

	Non-Qualified Stock Options and Warrants Outstanding and Exercisable		
	Number of Shares	Exercise Price	Weighted Average Exercise Price
Outstanding, December 31, 2004	-	$ -	$ -
Granted	680,000	$0.25 - $2.10	$ 0.99
Exercised	(300,000)	$ 0.25	$ 0.25
Outstanding, December 31, 2005	380,000	$1.40 - $2.10	$ 0.68
Granted	1,425,000	$0.25 - $1.00	$ 0.70
Cancelled	(260,000)	$1.40 - $2.10	$ (0.48)
Expired	(70,000)	$1.40 - $2.00	$ (0.12)
Outstanding, December 31, 2006	1,475,000	$0.25 - $2.00	$ 0.83
Granted	5,768,971	$0.25 - $0.72	$ 0.48
Rescinded	(200,000)	$ 0.50	$ 0.50
Forfeited	(125,019)	$ 1.00	$ 1.00
Expired	(574,981)	$ 1.00	$ 1.00
Outstanding, December 31, 2007	6,343,971	$0.25 - $2.00	$ 0.48

Granted	3,495,001	$0.001 - $1.75	$ 1.16
Expired	(115,000)	$0.50 - $2.00	$ 0.07
Forfeited	(750,000)	$ 0.72	$ 0.72
Exercised	(807,770)	$0.25 - $0.50	$ 0.53
Outstanding, December 31, 2008	8,166,202	$0.001 - $1.75	$ 0.79
Exercisable, December 31, 2008	5,363,202	$0.001 - $1.75	$ 0.61

LIGHTWAVE LOGIC, INC.

(A Development Stage Company)

NOTES TO FINANCIAL STATEMENTS

DECEMBER 31, 2008

NOTE 11 STOCK BASED COMPENSATION (CONTINUED)

	Non-Qualified Stock Options and Warrants Outstanding			
Range of Exercise Prices	Number Outstanding Currently Exercisable at December 31, 2008	Weighted Average Remaining Contractual Life		Weighted Average Exercise Price of Options and Warrants Currently Exercisable
$0.001 - $1.75	5,363,202	3.07 Years	$	0.61

NOTE 12 CONTINGENCY

2005 Private Offering

During 2005, the Company raised $1,000,000 through the sale of 4,000,000 shares of common stock in a limited offering to persons believed to be accredited investors. The Company received a legal opinion from third party outside counsel as to the availability of an exemption from registration with the SEC with respect to the limited offering. In December 2005, the Company was informed by the SEC that it is investigating the circumstances surrounding the $1,000,000 offering including the subsequent public resale of certain shares originally sold in the offering, along with related matters. The Company has further been informed that the original issuance of the stock and subsequent resale may have been done, in the opinion of the SEC, in violation of the registration provisions of the Securities Act of 1933, as amended. These matters could lead to enforcement action by the SEC.

In or around January 2007, the SEC issued an investigative subpoena to the Company directing it to produce specified documents and information. Thereafter, an SEC subpoena seeking testimony by the Company s president was issued. The Company and its president have complied with all of the SEC s requests for documents and testimony. The SEC has not indicated whether or not it intends to take any action against the Company or any of its officers, directors or employees. There has been no contact with the SEC since December 2007.

Ronald R. Genova Lawsuit

During July 2007, Ronald R. Genova (plaintiff) filed a lawsuit in Philadelphia County, Court of Common Pleas against Defendants Lightwave Logic, Inc., (formerly Third-Order Nanotechnologies, Inc.), PSI-TEC Holdings, Inc. (which subsequently merged into Lightwave Logic, Inc.) and Universal Capital Management, Inc.

The lawsuit was settled in May 2008 against all defendants by the Company making a payment of $47,500 to the plaintiff, reflected in other expenses on the statement of operations.

LIGHTWAVE LOGIC, INC.

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NOTES TO FINANCIAL STATEMENTS

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NOTE 13 RELATED PARTY

Under the management agreement dated August 1, 2005, the related party was issued 200,000 shares of common stock with a fair value of $584,000 which was amortized over the term of the agreement (one year), which expired in 2006. In February 2007, the Company entered into a contract with the related party and issued 1,000,000 shares of common stock with a fair value of $580,000. In addition, the Company issued a warrant to purchase 500,000 shares of its common stock with a fair value of $348,000. This contract was renewed in March 2008 and the Company issued a warrant to purchase 400,000 shares of its common stock in exchange for management services for one year, valued at $332,000, fair value. For the year ending December 31, 2008 and 2007, the Company recognized $431,337 and $773,333 in management expense. The unamortized expense is reflected as deferred charges in the equity section of the balance sheet. The Company decided not to renew its management contract. The contract was terminated on February 28, 2009.

At December 31, 2008 the Company has accrued officer salaries of $98,205.

NOTE 14 SUBSEQUENT EVENTS

In January 2009, the term of the 2008 Adjusted Common Stock offering was extended until January 31, 2009.

Through February 2009, warrants to purchase 1,279,336 shares of common stock were exercised, pursuant the 2008 Adjusted Common Stock Offering with total proceeds of $319,834.

In January 2009, an employee was granted with an option to purchase up to 25,000 shares of common stock valued at $13,136, fair value. These options expire in 5 years and vest immediately.

During January 2009, the Company issued 100,000 shares of common stock to an officer, under the 2007 Stock Option Plan, for services rendered valued at $58,000, fair value.

During January 2009, the Company issued 100,000 shares of common stock for legal services valued at $58,000, fair value, to settle $10,001 of accounts payable and $47,999 for future services.

During January 2009, the officers, directors, and employees of the Company were given the right to purchase up to 40,000 shares each for a total of 400,000 shares of common stock at a purchase price of $.25 per share valued at $132,058, fair value. Options to purchase 180,550 were exercised with total proceeds of $45,138. These options expire on January 31, 2009 and vest immediately.

At December 31, 2008 the Company has accrued officer salaries of $98,205. On February 19, 2009, two officers agreed to waive their rights to unpaid wages and salary amounting to $52,129. As of December 31, 2008, the payroll along with accrued payroll taxes of $3,988 is reflected in accrued expenses in the balance sheet. Accordingly in the first quarter 2009, the accrued expense will be adjusted from $98,205 to $42,088 with the $52,129 treated as contributed capital.