Management's Discussion and Analysis
For the Three and Six Months Ended June 30, 2021

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MANAGEMENT'S DISCUSSION AND ANALYSIS FOR THE THREE AND SIX MONTHS ENDED JUNE 30, 2021

The following discussion and analysis of the operations, results, and financial position of POET Technologies Inc., (the "Company" or "POET") for the three and six months ended June 30, 2021 (the "Period") should be read in conjunction with the Company's unaudited condensed consolidated financial statements for the three and six months ended June 30, 2021 and the related notes thereto, both of which were prepared in accordance with International Financial Reporting Standards ("IFRS"). The effective date of this report is August 19, 2021. All financial figures are in United States dollars ("USD") unless otherwise indicated. The abbreviation "U.S." used throughout refers to the United States of America

Forward-Looking Statements

This management discussion and analysis contains forward-looking statements that involve risks and uncertainties. It uses words such as "may", "would", "could", "will", "likely", "expect", "anticipate", "believe", "intend", "plan", "forecast", "project", "estimate", and other similar expressions to identify forward-looking statements. Forward-looking statements are subject to a variety of risks and uncertainties which could cause actual events or results to differ from those reflected in the forward-looking statements, including, without limitation, risks and uncertainties relating to the early stage of the Company's development and the possibility that future development of the Company's technology and business will not be consistent with management's expectations, difficulties in achieving commercial production or interruptions in such production if achieved, inherent risks of managing design and development operations in multiple countries, risks associated with supplier and sub-contractor delays and other operating uncertainties, the inherent uncertainty of cost estimates and the potential for unexpected costs and expenses, the uncertainty of profitability and cessation of business for failure to obtain adequate financing on a timely basis, amongst other factors. The Company undertakes no obligation to update forward-looking statements if circumstances or Management's estimates or opinions should change, except to the extent required by law. The reader is cautioned not to place undue reliance on forward-looking statements.

Note on Discontinued Operations in 2019 and Prior Period Disclosures

On November 8, 2019, the Company sold 100% of the issued and outstanding shares of DenseLight for $26,000,000. The Company received $8,000,000 upon the consummation of the sale with the remaining $18,000,000 expected over three tranche payments in 2020. Payments received in the first quarter were as follows: $4,750,000 received on February 14, 2020 and $8,250,000 received on March 30, 2020.

The Company received payments of $1,500,000 and $1,000,000 on June 29, 2020 and July 3, 2020 respectively. After taking into consideration the length of time it had taken the Buyer to make the foregoing payments and the Company's expectations regarding the likelihood of receiving an additional payment, the Company determined that it was in its best interest to accept partial payments as final payment on the Company's receivable. As a result, the Company recognized a credit loss of $2,500,000 during the year ended December 31, 2020.

Upon closing the transaction in November 2019, the Company recognized a gain on the sale of $8,707,280. The Company received an additional $2,000,000 in excess of the sale proceeds which was immediately paid to Oak Capital on behalf of the Buyer for due diligence, legal and other expenses.

Although it continued to operate as a single entity until the sale was closed, to meet financial reporting standards, the Company reported DenseLight as "discontinued operations" separate from the remainder of the Company through and until November 8, 2019. This MD&A has reported DenseLight as discontinued operations separate from its parent company, POET Technologies, Inc. Prior periods reported on in this MD&A have been revised to conform with this disclosure.

Until November 8, 2019, majority of the Company's R&D activities were conducted at DenseLight or with third parties under the direction of POET. Upon the sale of DenseLight, the Company retained sole ownership and all intellectual property and rights to its principal invention, the POET Optical Interposer™. The Optical Interposer will form the basis for the Company's future growth and is therefore the focus of the Business Overview.

Joint Venture with Xiamen Sanan Integrated Circuit Co. Ltd.

On October 20, 2020, the Company signed a Joint Venture Agreement ("JVA") establishing a joint venture company, Super Photonics Xiamen Co., Ltd ("SPX") with Xiamen Sanan Integrated Circuit Co. Ltd. ("Sanan IC") whose purpose is to design, develop, manufacture and sell 100G, 200G and 400G optical engines based on POET's proprietary Optical Interposer platform technology.

SPX'S capitalization will consist of a combination of committed cash, capital equipment and intellectual property from Sanan IC and intellectual property and know-how from POET, with a combined estimated value of approximately US$50M. Capitalization has not yet been completed.

Sanan IC is a world-class wafer foundry service company with an advanced compound semiconductor technology platform, serving the optical, RF microelectronics and power electronics markets. Sanan IC is a wholly owned subsidiary of Sanan Optoelectronics Co., Ltd. (Shanghai Stock Exchange, SSE: 600703), the leading manufacturer of advanced ultra-high brightness LED epitaxial wafers and chips in the world.

Significant progress on SPX included the registration of SPX, appointment of the board of directors and key personnel, completion of 5,000 square feet of temporary facilities, ordering of key capital equipment for installation and qualification and receipt of approximately US$5 million from Sanan IC to cover initial operating and capital expenditures.

SPX is an independent company, and will be managed as a true joint venture. As a result, it will be treated by POET as an investment, using the equity method of accounting, once POET has made its IP contribution. Although each joint venturer has appointed one member to the Board of Directors of SPX, the company will have its own governance and management structure and will be operated under the laws of the Peoples Republic of China.

BUSINESS

Overview

The Company is incorporated under the laws of the Province of Ontario. The Company's shares trade under the symbol "PTK" on the TSX Venture Exchange in Canada and under the symbol "POETF" on the OTCQX in the U.S.

POET Technologies is a design and development company offering photonic integration solutions based on the POET Optical Interposer™, a novel platform that allows the seamless integration of electronic and photonic devices into a single multi-chip module using advanced wafer-level semiconductor manufacturing techniques and packaging methods. POET's Optical Interposer eliminates costly components and labor-intensive assembly, alignment, burn-in and testing methods employed in conventional photonics. We believe, the cost-efficient integration scheme and scalability of the POET Optical Interposer brings value to devices or systems that integrate electronics and photonics, including high-growth areas of communications and computing, such as high-speed networking for cloud service providers and data centers, 5G networks, machine-to-machine communication, sometimes referred to as the "Internet of Things" (IoT), self-contained "Edge" computing applications, such as inference engines for Artificial Intelligence (AI) systems and sensing applications, such as LIDAR systems for autonomous vehicles and point-of-use health care products.

POET targeted as the first application of the Optical Interposer the development of optical engines for transceivers used in data centers. Transceivers are used to convert digital electronic signals into light signals and vice versa, and to transmit and receive those light signals via fiber optic cables within datacenters and between datacenters and metropolitan centers in a vast data and tele-communications network.

During 2019 and early 2020, the Company was engaged with a large North American-based systems company in proving out various aspects of the optical engine technology. Following the successful completion of the project, POET transitioned from technology development to product design and development to deliver prototypes of optical engines for qualification and testing to several customers. These included designs for 100G/200G and 400G optical engines and sub-assemblies based on the POET Optical Interposer in design projects that are ongoing. POET has delivered and expects to deliver additional initial prototypes, including pre-alpha, alpha and beta samples to customers in 2021. The samples will be used by customers to confirm that the uniquely designed optical engines meet specifications and can pass rigorous reliability testing required by the data communications industry. The Company expects that its devices will pass such testing and be included in the production plans of several major customers beginning in late 2021 and early 2022.

In its initial target market of optical transceiver modules, the Corporation believes that, because of its ability to produce, test and burn-in optical engines fully at wafer-scale, that it can deliver devices that are: a) lower in cost by a factor of 25% to 40% than competitive assemblies; and b) that those sub-assemblies can be produced at a capital cost that is 90% lower than conventional approaches. In addition, because of its fundamental design and architecture, the POET Optical Interposer platform can be used for multiple product designs, multiple generations of the same product and multiple product extensions. The Company anticipates entering other related markets for the POET Optical Interposer following its initial focus on optical engines for transceivers, such as 5G communications and the areas of co-packaged optics, which includes stand-alone applications such as optical computing, and high-value sensing applications, such as LIDAR for autonomous vehicles and spectrometry and other sensing devices for use in point-of-care diagnostic and consumer products.

In order to address the challenge of producing devices in the large quantities that are needed by customers in the high-volume data communications industry, POET entered into an agreement in late 2020 with Xiamen Sanan Integrated Circuit Co. Ltd. ("Sanan IC"), a subsidiary of Sanan Optoelectronics Xiamen Co. Ltd. to form a joint venture to assemble, test and sell optical engines in high volumes. Sanan is the world's largest manufacturer of compound semiconductor devices, producing over 25 million eight-inch wafers per year across a variety of substrate types and applications. The objective of the joint venture company, which is named "Super Photonics Xiamen" ("SPX") is to assemble, test and sell optical engines based on the POET Optical Interposer, along with devices procured from various suppliers, including Sanan IC, into finished products. Optical engines for 100G

and 200G applications will be sold exclusively world-wide by SPX. 400G optical engines will be sold by SPX in the China territory while the Company will sell 400G optical engines to customers in the United States, Europe and elsewhere outside the China territory. Until SPX is in full operation, prototypes and samples are currently being fabricated by POET using both internal resources and external suppliers, foundries and vendors. As designs are completed and the prototypes are delivered to customers in the second half of 2021, the Company will begin to benefit from revenues associated with Non-Recurring Engineering (NRE), along with expense reimbursements for delivered prototypes. Volume production of optical engines designed for specific customers is expected to begin in 2022, with high volumes expected to ramp later that year and into 2023. The Company expects that as alpha and beta samples of generic POET optical engines (i.e., those produced to what is referred to as a "reference design") become available in 2021, that additional design opportunities will emerge with customers that have seen the potential benefit of POET's platform approach to optical engine design and development.

Research & Development

Prior to the announcement of its invention of the POET Optical Interposer in January of 2018, the Company had focused its efforts on the integration of multiple functions into a single chip or multiple devices into a single multi-chip package. The acquisition in 2015 and subsequent operation of DenseLight Semiconductors Pte ("DenseLight"), a Singapore-based company that owns and operates a compound semiconductor fabrication facility, anticipated a trend in the market away from the use of Gallium Arsenide (GaAs), favoring the frequencies generated by Indium Phosphide (InP) lasers for use within datacenter, datacenter to datacenter, and datacenter to metro communications. Beginning as early as 2017, POET directed DenseLight to focus on the development of lasers in those frequencies used for data communications applications in addition to its traditional focus on lasers used for sensing devices. Beginning in 2018, those efforts were further focused on the production of devices that would be compatible for use with the Optical Interposer platform. Once sufficient development work had been performed to demonstrate that those lasers could be built reliably to POET's specifications, the Company decided to adopt a "fab light" strategy, common among semiconductor companies, and divest its physical fabrication operations through the sale of DenseLight, which it completed in November of 2019. Since the announcement of the invention of the Optical Interposer, virtually all of the R&D spending in the Company has been dedicated to development of the Optical Interposer as a platform technology, suitable for the design of multiple products, product generations, applications and extensions. This included the development of multiple features embedded in the Optical Interposer that enhance its utility, and the design and development of compatible active devices that are unique to the Optical Interposer platform.

As it transitions from technology to product development in the second half of 2021, the Company will invest approximately $4 million in development and engineering programs in the next two quarters to produce prototype samples of 100G and 200G optical engines in several configurations, including customized designs for specific customers or applications. The Company will invest approximately $7 million in development and engineering programs over the next four to six quarters related to its 400G optical engine designs and fabrication.

Photonics Markets

As a supplier of integrated photonics components, POET operates within a market that is large and rapidly growing. Within the data- and tele-communications segments, the ever-present need for higher speed and lower cost switching and transmission is driving the conversion away from copper to light-based systems that are far more efficient and cost effective to operate and maintain. Light-based sensing devices find uses across a broad expanse of applications, from autonomous vehicles to medical devices and consumer products.

The overall Photonics Market (the market for LEDs, lasers, sensors, detectors, optical components and systems)

is currently $576.8 billion and is projected to grow to $1,214.5 billion over the 10-year period of 2020 through 2030, which is the equivalent of a 6.9% CAGR[1]. Much of this growth is being driven by the explosion in demand for data, storage and information distribution and the corresponding growth in internet traffic and cloud services.

The global data center market is expected to post a CAGR of more than 17% during the period 2019-2023[2]. A key factor driving the growth of the global data center market size is the rise in adoption of multi-cloud and network upgrades to support 5G. The implementation of 5G is expected to significantly increase data traffic, which will increase the demand for upgradation of the existing data centers and construction of new data centers.

Data center market growth drives the most immediate demand for POET's products that are key components to Optical Transceivers. In revenue terms, the global market for such transceivers was estimated at $5.5 billion in 2020 and projected to reach a $9.9 billion by 2027, growing at a CAGR of 8.7% over the period. [3] Specifically relevant to POET is the growth of single-mode transmission, which is projected by ResearchAndMarkets.com to record 8.4% CAGR and reach US$6.5 billion by the end of the analysis period. Growth in China is forecast to be 13.1% over the period, with significantly lower growth in other parts of the world.

Other markets for POET's integrated photonics solutions include 5G interconnect markets, such as PON and GPON, edge computing for machine-to-machine communications, and selected sensing markets, including LIDAR, Optical Coherence Tomography for medical devices, and certain consumer products, such as virtual reality systems.

Our Strategy

Our vision for the Company is to become the global leader in chip-scale photonic solutions by deploying our Optical Interposer technology to enable the seamless integration of electronics and photonics for a broad range of vertical market applications. Our Mission for the Company is to establish an industry leadership position in chip-scale integrated photonics with validated disruptive, IP protected, Optical Interposer platform components.

As we near production of our first Optical Interposer-based products, we have refined our strategy to reflect our current thinking about how best to achieve our vision and mission for the Company:

· *Support Super Photonics Xiamen (SPX), a joint venture between POET and Sanan IC, as an independent company to drive growth in optical transceivers and deliver maximum cash flow to partners.* As our designs for Optical Engines are realized in the form of Alpha samples that provide performance data to potential customers and Beta samples that those customers can test, demonstrating an ability to supply devices in volume is a challenge that must be met. The Company has done so through the formation of Super Photonics Xiamen (SPX), a joint venture between POET and Sanan IC, a leading manufacturer of compound semiconductor-based components in China. In addition to providing the required investment and ability to rapidly scale manufacturing capacity, as a JV partner, Sanan IC also offers the benefits of being a qualified supplier of lasers for Optical Engines, a company with an outstanding reputation within the industry, and one with a direct presence in the largest market for the Company's products. POET's immediate path to commercial success and its ability to generate profits over the longer term are directly influenced by the level of support that it can provide to the newly created joint venture.

· *Continue to engage with industry leaders and incumbents to design, develop and sell devices based on the Optical Interposer.* The POET Optical Interposer is designed to be a flexible platform for the combination or integration of various photonic and electronic components. The low cost makes it suitable for applications like

[1]Prescient & Strategic Intelligence, *Photonics Market Research Report*, *2019*
[2] Technavio, *Global Data Center Market 2019-2023 Research Report, 2019*
[3] ResearchAndMarkets.com, *Global Optical Transceivers Market Trajectory Analytics Report, 2021*

transceivers and automotive LIDAR. The compatibility of the Optical Interposer manufacturing process with standard silicon CMOS processing and the ability to construct architectures with substantially lower energy consumption opens up large and critical data processing applications where super high-speed processing is essential, such as integration with next generation switches and artificial intelligence. The small size and form factor of the Optical Engines that have been developed by the Company are bound to open new applications and markets where miniaturization is a key element, such as point-of-care medical devices and consumer products.

· *Exploit "localization" imperative in China to expand scope of existing operations and to seek both organic and inorganic growth opportunities and exit strategies.* With the advent of COVID-19, China as a nation has increased its efforts to "localize" supplies of key resources and technologies. As a result, there is strong interest from both government and private financial interests in investing in local companies. As an independent operating company, Super Photonics Xiamen is in a strong position to attract capital from outside sources to grow its presence in China and to build a franchise in assembly and test operations all linked to the POET Optical Interposer.

· *Form additional partnerships in target sectors to establish fabrication and sales operations globally.* Currently, the focus of SPX is the data and telecommunications market, specifically limited to building Optical Engines for 100/200G and 400G optical transceivers. The market for 5G interconnect applications is a closely related market, but one which necessitates further planning regarding how best to both enter and supply. As a platform technology that is applicable to many vertical market applications outside of optical transceivers and 5G interconnects, our strategy must include the ability to identify and exploit a variety of different applications. To do so, the Company needs to form additional partnerships in those market segments and to design appropriate strategies for the fabrication of devices whose functions will be materially different from those of transceivers and with correspondingly different distribution and sales. The form of such partnerships may also be different than what was established for transceivers.

· *Pursue complementary strategic alliance or acquisition opportunities for inorganic growth.* We intend to evaluate and selectively pursue strategic alliances or acquisition opportunities that we believe will accelerate our penetration of specific applications or vertical markets with our technology or products.

· *Explore technology licensing opportunities for growth in non-target sectors.* It is not possible for the Company to pursue all potential applications for the POET Optical Interposer. We will consider carefully opportunities to license our technology to others when and if appropriate.

Our Products

During and subsequent to the period ending June 30, 2021, the Company announced several product lines that have been in development for several quarters, including:

- POET's 100/200G CWDM4 product line for data center operations, including fully validated receive (Rx), transmit (Tx) and integrated (TxRx) Optical Engines. Samples mounted on evaluation boards are currently being deployed to selected customers;
- POET's 100G LR4 product line for high performance Optical Engines meeting the demanding specifications for long-range (10km) communications on the client side of long-haul networks with a monolithic 4-channel multiplexing and demultiplexing functionality built directly into its waveguides;
- POET's 400G DR4/FR4 product line being demonstrated in pre-alpha stage integrated with a 400G Silicon Photonics (SiPh)-based high speed modulator; and
  LightBar™ and *LightBar-C*™ products as fully multiplexed light source products operating in the "O-band" for data communications applications and the "C-band" for sensing and computing applications.

Both *LightBar* products come fully assembled with fiber attached for easy adaptation to existing transceiver module and co-packaging applications. POET is also currently engaged in the development of 800G and Co-Packaged Optics (CPO) applications for data centers, optical computing systems and in sensing applications. Optical Engines as components for transceiver assemblies

Intellectual Property

We have 77 issued patents and 18 patent applications pending, including three (3) provisional patent applications submitted. Of the 77 issued patents, 17 are directly related to the Optical Interposer and include fundamental design and process patents. All 18 applications pending are Optical Interposer-related. There are multiple additional applications in various stages of preparation. The patents cover device structures, underlying technology related to the Optical Interposer, applications of the technology and fabrication processes. We believe these patents provide a significant barrier to entry against competition, along with trade secrets and know-how. We intend to continue to apply for additional patents in the future. Currently, we are working on the design of integrated devices, manufacturing processes, assembly and packaging processes and products for data communication applications in the data center market, assembly and packaging processes and products for data communication applications in the data center market.

MD&A Highlights

During the six months ended June 30, 2021, the Company reported non-recurring engineering revenue of $209,100 related to a specific Optical Interposer design project.

Net loss for the six months was $8,506,614. The net loss included $3,802,705 incurred for research and development activities directly related to the development and commercialization of the POET Optical Interposer Platform. Research and development included non-cash costs of $649,997 related to stock-based compensation. $4,610,712 was incurred for selling, marketing and administration expenses which included non-cash costs of $1,407,134 related to stock-based compensation and $522,920 related to depreciation and amortization.

The Company incurred $329,378 of interest expense, of which $176,997 was non-cash, related to funds borrowed at various dates and from various lenders in 2019 by way of convertible debentures. During the period, $3,377,887 worth of the convertible debentures were converted into 10,592,500 units of the Company. Each unit consists of one common share and one common share purchase warrant of the Company.

The Company's balance sheet as of June 30, 2021 reflects assets with a book value of $26,646,502 compared to $11,636,728 as of December 31, 2020. Eighty-four percent (84%) of the book value at June 30, 2021 was in current assets consisting primarily of cash and cash equivalents of $21,941,873 compared to sixty-four percent (64%) of the book value as of December 31, 2020, which consisted primarily of cash of $6,872,894.

Significant Events and Milestones During 2021

In 2021, we continued to execute on our stated strategic plan. We achieved the following significant milestones during the six months ended June 30, 2021:

1) On January 6, 2021, the Company announced that it had entered into development and supply agreements with a technology leader in photonic neural network systems for artificial intelligence (AI), which represents an entry point into the new large and extremely high-growth chipset market for AI applications.
2) On January 19, 2021, the Company announced the opening of a subsidiary company and development center in Shenzhen, PRC and the appointment of Dr. Mo Jinyu as Senior Vice President of Asia

3) On February 11, 2021, the Company announced that it had completed a private placement of 17,647,200 units of the Company (the "2021 Units") at a price of CAD$0.85 per 2021 Unit for gross proceeds of approximately CAD$15 million, including the full exercise of an agents' option.
4) On February 22, 2021, the Company announced that the shareholders of the Company had approved the Consolidation at the special meeting held on February 19, 2021.
5) On February 23, 2021, the Company announced that it had extended the Optical Interposer into new applications and markets with a fully-integrated, multiplexed light-source for optical computing chipsets and sensing applications, named "LightBar-C™.
6) On March 17, 2021, the Company announced significant progress on SPX, which includes the registration of SPX, appointment of the board of directors and key personnel, completion of 5,000 square feet of temporary facilities, ordering of key capital equipment for installation and qualification in April-May and receipt of approximately US$5 million from Sanan IC to cover initial operating and capital expenditures.
7) On April 22, 2021, the Company announced that it has completed the design of a 100G LR4 (4 channel Long Reach) optical engine with a reach of 10km (kilometers) for client-side interconnects to data centers, enterprises and edge computing networks.
8) On June 8, 2021, the Company announced that samples of its 100G and 200G CWDM4 Optical Engines which are powered by four flip-chipped 28G and 28G PAM4 CWDM DFB lasers operating to MSA standards for the QSFP28 module would become available beginning in early July.
9) On June 9, 2021, the Company announced that samples of its O-band LightBar™ product will be available beginning in September. The POET LightBar products address the need for remote, aligned light sources to power data communication transceivers, co-packaging of electronics and photonics in applications such data center switch architectures, optical computing and various sensing devices.

Summary of Quarterly Results

Following are the highlights of financial data of the Company for the most recently completed eight quarters, which have been derived from the Company's consolidated financial statements prepared in accordance with IFRS:

	Jun 30/21	Mar 31/21	Dec 31/20	Sep 30/20	Jun 30/20	Mar 31/20	Dec 31/19	Sep 30/19
Sales	$209,100	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Research and development	1,812,924	1,339,784	2,229,672	1,217,849	1,250,475	1,419,744	836,815	373,592
Depreciation and amortization	270,189	252,731	242,385	206,819	189,582	174,317	118,912	41,748
Professional fees	247,742	284,105	374,737	123,664	177,149	125,001	411,001	366,885
Wages and benefits	593,280	816,012	720,877	442,605	475,114	543,571	441,784	375,358
Management and consulting fees	-	-	-	-	-	-	61,260	31,230
Stock-based compensation [(1)]	1,236,593	820,538	893,664	1,096,013	846,485	776,783	643,315	837,638
General expense, rent and facility	381,539	357,980	305,495	167,608	559,679	213,027	270,918	162,156
Amortization of debt issuance costs	-	-	-	-	-	-	145,917	124,522
Impairment and other loss	-	-	-	-	2,500,000	-	1,764,459	-
Interest expense	94,799	234,579	248,823	243,805	228,591	216,684	301,577	320,794
Other (income), including interest	(19,772)	(7,309)	(7,333)	(13,910)	(18,543)	(1,362)	(5,677)	(40)
Net loss, continuing operations before taxes	$ 4,408,194	$ 4,098,420	$ 5,008,320	$ 3,484,453	$ 6,208,532	$ 3,467,765	$ 4.990.281	$ 2,633,883

	Jun 30/21	Mar 31/21	Dec 31/20	Sep 30/20	Jun 30/20	Mar 31/20	Dec 31/19	Sep 30/19
Net (income) loss, discontinued operations, net of taxes	$ -	$ -	$ -	$ -	$ -	$ -	$(8,151,301)	$310,332
Net loss per share, continuing operations	$ (0.01)	$ (0.01)	$ (0.01)	$ (0.02)	$ (0.01)	$ (0.02)	$ (0.01)	$ (0.01)
Net income (loss) per share, discontinued operations	$ -	$ -	$ -	$ -	$ -	$ -	$ (0.00)	$ (0.00)

(1) Stock based compensation allocated between General & Administrative and Research & Development issuances are combined for MD&A purposes. For financial statement presentation purposes, stock-based compensation is split between *General & Administrative* and *Research & Development*.

Following are the highlights of financial data of discontinued operations, net of taxes for the most recently completed eight quarters. Note: discontinued operations were sold on November 8, 2019:

	Jun 30/21	Mar 31/21	Dec 31/20	Sep 30/20	Jun 30/20	Mar 31/20	Nov 8/19	Sep 30/19
Sales	$ -	$ -	$ -	$ -	$ -	$ -	$ (52,912)	$ (1,182,729)
Cost of sales	-	-	-	-	-	-	79,080	348,869
Research and development	-	-	-	-	-	-	584,703	1,638,295
Professional fees	-	-	-	-	-	-	4,570	7,639
Wages and benefits	-	-	-	-	-	-	125,525	301,842
Stock-based compensation	-	-	-	-	-	-	(347,365)	80,009
General expenses and rent	-	-	-	-	-	-	153,614	265,074
Interest expense	-	-	-	-	-	-	8,764	26,131
Other (income), including interest	-	-	-	-	-	-	-	(1,174,798)
Gain on sale of discontinued operations	-	-	-	-	-	-	(8,707,280)	-
Net (income) loss before taxes	$ -	$ -	$ -	$ -	$ -	$ -	$(8,151,301)	$ 310,332

Explanation of Quarterly Results for the three months ended June 30, 2021 ("Q2 2021") compared to the same three-month period in the prior year ("Q2 2020")

Net loss for Q2 2021 was $4,408,194 compared to a net loss of $6,208,532 in Q2 2020, a decrease of $1,800,338 (29%). The following discusses the significant variances between Q2 2021 and Q2 2020.

In Q2 2021, the Company reported non-recurring revenue of $209,100. No revenue was reported in Q2 2020. The revenue reported related to a unique project that was addressed utilizing the capabilities of the POET Optical Interposer.

R&D increased by $562,449 (45%) to $1,812,924 in Q2 2021 from $1,250,475 in Q2 2020. R&D for a Company at this stage of development will vary from period to period as variable expenses with contract manufacturers will fluctuate based on the development cycle and the immediate product development needs of the Company. The increased cost contributed to the Company's announcement of the Lightbar, 100G and 200G CWDM4 Optical Engines samples that have already and will become available in Q3 2021.

Interest expense decreased by $133,792 (59%) to $94,799 in Q2 2021 from $228,591 in Q2 2020. The decrease in interest expense is a result of interest no longer being paid on $3,377,887 of convertible debentures that were converted in 10,592,500 units of the Company up-to June 30, 2021. The Company's interest obligation was eliminated as the convertible debentures were converted.

Depreciation and amortization increased by $80,607 (43%) to $270,189 in Q2 2021 from $189,582 in Q2 2020. In late 2019, the Company embarked on a "fab-light" strategy with a required test facility situated in Singapore

and design facility in Allentown, Pennsylvania. The increase in depreciation and amortization was a result of assets acquired for the new facilities.

Wages and benefits increased by $118,166 (25%) to $593,280 in Q2 2021 from $475,114 in Q2 2020. In Q2 2021, the Company hired two new senior administrative employees. Additionally, the compensation for certain employees were adjusted to be more aligned with the compensation of employees in similar roles in comparatively sized companies within the industry.

Professional fees increased by $70,593 (40%) to $247,742 in Q2 2021 from $177,149 in Q2 2020. The increase in Q2 2021 related to the fees for multiple projects in the quarter that required professional guidance which included filing of a new base shelf prospectus in April 2021 and the related responses to queries from the various regulatory authorities. Additionally, the Company incurred professional fees related to certain analysis associated with ensuring the Company's compliance to international regulations.

General expenses and rent decreased by $178,140 (32%) to $381,539 in Q2 2021 from $559,679 in Q2 2020. The unusually high general and expense and rent in Q2 2020 was directly related to the Company's announcement of the signing of a $50 million joint venture. General expenses include a one-time cost of $328,000 paid to a firm instrumental in introducing the joint venture parties and assisting with negotiations.

Non-cash stock-based compensation increased by $390,108 (46%) to $1,236,593 in Q2 2021from $846,485 in Q2 2020. The valuation of stock options is driven by a number of factors including the number of options granted, the strike price and the volatility of the Company's stock. The stock option expense is dependent on the timing of the stock option grant and the amortization of the options as they vest. The stock options vest in accordance with the policies determined by the Board of Directors at the time of the grant consistent with the provisions of the Plan.

Explanation of Results for the six months ended June 30, 2021 (the "period") compared to the same six-month period in the prior year ("2020")

Net loss from continuing operations for the period was $8,506,614 compared to a net loss of $9,676,297 in 2020, a decrease of $1,169,683 (12%). The following discusses the significant variances between the period and 2020.

During the period, the Company reported non-recurring revenue of $209,100. No revenue was reported in 2020. The revenue reported related to a unique project that was addressed utilizing the capabilities of the POET Optical Interposer.

R&D increased by $482,489 (18%) to $3,152,708 in the period from $2,670,219 in 2020. The primary driver to the increase in R&D in the period is the addition of 12 R&D staff since 2020. The Company has steadily increased its R&D since it divested of its interest in DenseLight, where all R&D was conducted prior to 2020. Additionally, the Company established a new product development facility in China which became fully operational during the period.

Interest expense was $329,378 in the period as compared to $445,275 in 2020, a decrease of $115,897 (26%). The Company raised $3,729,921 in convertible debentures between April 2019 and September 2019 with two-year maturities. The Company is required to pay monthly interest on the convertible debentures. As the convertible debentures reached maturity during the period, interest cost was reduced. During the period, convertible debenture holders converted $3,377,887 of convertible debentures into 10,592,500 units of the Company. The interest incurred, includes non-cash interest cost of $176,997.

Depreciation and amortization increased by $159,021 (44%) to $522,920 in the period from $363,899 in 2020. With the sale of DenseLight, the Company embarked on a "fab-light" strategy with a required test facility situated in Singapore and product development facility in China. The increase in depreciation and amortization was a result of assets acquired for these new facilities.

Wages and benefits increased by $390,607 (38%) to $1,409,292 in the period from $1,018,685 in 2020. The increase was a result of three primary factors during the period; 1) the Company paid a bonus of $250,000 to

certain employees, 2) the Company hired two new senior administrative employees, and 3) the compensation for certain employees were adjusted to be more aligned with the compensation of employees in similar roles in comparatively sized companies within the industry.

Professional fees increased by $229,697 (76%) to $531,847 in the period from $302,150 in 2020. The increase in the period is a result of professional fees paid for multiple projects in the period that required professional guidance. These projects included the special meeting held in February 2021, filing of a new base shelf prospectus in April 2021 and the related responses to queries from the various regulatory authorities, the analysis associated with ensuring the Company's compliance to international regulations and standards associated with operating as a multinational corporation and ancillary professional fees related to the private placement financing, warrant and stock option exercises.

Impairment and other loss was nil in the period compared to $2,500,000 in 2020. Impairment and other loss consisted of a credit loss of $2,500,000 relating to the receivable from the sale of discontinued operations in 2020. In 2020, after taking into consideration the length of time it took the Buyer of DenseLight to make the required payments and the Company's expectations regarding the likelihood of receiving the balance that was due at the time, the Company determined, and the Buyer accepted, that it was in the Company's best interest to accept partial payments as final payment on the outstanding balance. The Company used the opportunity to restructure its relationship with DenseLight to better accommodate the Company's current supply needs.

Non-cash stock-based compensation increased by $433,863 (27%) to $2,057,131 in the period from $1,623,268 in 2020. The valuation of stock options is driven by a number of factors including the number of options granted, the strike price and the volatility of the Company's stock. The stock option expense is dependent on the timing of the stock option grant and the amortization of the options as they vest. The stock options vest in accordance with the policies determined by the Board of Directors at the time of the grant consistent with the provisions of the Plan.

Explanation of Material Variations by Quarter for the Last Eight Quarters

Q2 2021 compared to Q1 2021

Net loss increased by $309,774 (8%) in Q2 2021 to $4,408,194 from $4,098,420 in Q1 2021.

In Q2 2021, the Company reported non-recurring revenue of $209,100. No revenue was reported in Q1 2021.

R&D increased by $473,140 (35%) to $1,812,924 in Q2 2021 from $1,339,784 in Q1 2021. R&D for a Company at this stage of development will vary from period to period as variable expenses with contract manufacturers will fluctuate based on the development cycle and the immediate product development needs of the Company. The increased cost contributed to the Company's announcement of the Lightbar, 100G and 200G CWDM4 Optical Engines samples that would become available in Q3 2021.

Wages and benefits decreased by $222,732 (27%) to $593,280 in Q2 2021 from $816,012 in Q1 2021. In Q1 2021, the Company paid a bonus of $250,000 to certain employees. No bonus was paid in Q2 2021.

Interest expense decreased by $139,780 (60%) to $94,799 in Q2 2021 from $234,579 in Q1 2021. The decrease in interest expense is a result of interest no longer being paid on $3,377,887 of convertible debentures that were converted in 10,592,500 units of the Company up-to June 30, 2021. The Company's interest obligation was eliminated as the convertible debentures were converted.

Non-cash stock-based compensation increased by $416,055 (51%) to $1,236,593 in the Q2 2021 from $820,538 in Q1 2021. The valuation of stock options is driven by a number of factors including the number of options granted, the strike price and the volatility of the Company's stock. The stock option expense is dependent on the timing of the stock option grant and the amortization of the options as they vest. The stock options vest in accordance with the policies determined by the Board of Directors at the time of the grant consistent with the provisions of the Plan.

Q1 2021 compared to Q4 2020

Net loss decreased by $909,900 (18%) in Q1 2021 to $4,098,420 from 5,008,320 in Q4 2020.

The most significant driver of the decreased loss from Q4 2020 to Q1 2021 was a decrease in R&D of $889,888 (40%) from $2,229,672 in Q4 2020 to $1,339,784 in Q1 2021. In Q4 2020, the Company settled certain R&D expenses by transferring $897,727 worth of equipment to the supplier. The equipment was initially installed in the fabrication facility of the supplier who provided discounted R&D services to the Company. The equipment will be used by the supplier for volume production primarily for the benefit of the Company.

Wages and benefits increased by $95,135 (13%) to $816,012 in Q1 2021 from 720,877 in Q4 2020. The increase is due to a bonus of $250,000 paid in Q1 2021. The increase over Q4 2020 is however, only $95,135 because Q4 2020 included a reclassification of $153,000 of certain wages and benefits that were classified as R&D in the first three quarters of 2020.

Professional fees decreased by $90,632 (24%) to $284,105 in Q1 2021 from $374,737 in Q4 2020. In Q4 2020, the Company incurred legal and other professional fees relating to negotiating and drafting agreements related to the $50 million joint venture that was announced on June 30, 2020. The agreement was signed in Q4 2020 and the JVC was formed. The Company incurred unusually high legal and professional fees relating to the agreement and the establishment of the JVC. Additionally, the Company incurred legal and other professional fees to establish POET Optoelectronics Shenzhen Co. Ltd, in China, a wholly owned subsidiary of Company, to support the efforts of the JVC.

Q4 2020 compared to Q3 2020

Net loss from continuing operations increased by $1,523,867 (44%) in Q4 2020 to $5,008,320 from $3,484,453 in Q3 2020.

R&D increased by $1,011,823 (83%) to $2,229,672 in Q4 2020 from $1,217,849 in Q3 2020. During Q4 2020, the Company settled certain R&D expenses by transferring $897,727 worth of equipment to the supplier. The equipment was initially installed in the fabrication facility of the supplier who provided discounted R&D services to the Company. The equipment will be used by the supplier for volume production primarily for the benefit of the Company. R&D is expected to fluctuate period over period.

Professional fees increased by $251,073 (203%) to $374,737 in Q4 2020 from $123,664 in Q3 2020. The Company incurred legal and other professional fees relating to negotiating and drafting agreements related to the $50 million joint venture that was announced on June 30, 2020. The agreement was signed in Q4 2020 and the JVC was formed. The Company incurred unusually high legal and professional fees relating to the agreement and the establishment of the JVC. Additionally, the Company incurred legal and other professional fees to establish POET Optoelectronics Shenzhen Co. Ltd, in China, a wholly owned subsidiary of Company, to support the efforts of the JVC.

Wages and benefits increased by $278,272 (63%) to $720,877 in Q4 2020 from $442,605 in Q3 2020. The increase in Q4 2020 is a result of a reclassification of $153,000 of certain wages and benefits that were classified as R&D in the first three quarters of 2020.

General expenses and rent and facility increased by $137,887 (82%) to $305,495 in Q4 2020 from $167,608 in Q3 2020. The expense in Q4 2020 includes the general and expenses incurred in setting up the new facility in Shenzhen and annual filing and listing fees related to the Company's listing on the OTCQX and other costs related to the Company's expanded market communications strategy.

Q3 2020 compared to Q2 2020

Net loss from continuing operations decreased by $2, 724,079 (44%) in Q3 2020 to $3,484,453 from $6,208,532 in Q2 2020.

R&D decreased by $83,908 (7%) to $1,166,567 in Q3 2020 from $1,250,475 in Q2 2020. The decrease is a result of the unpredictable nature of R&D activity and timing of such costs. R&D is expected to fluctuate period over period.

Professional fees decreased by $53,485 (30%) to $123,664 in Q3 2020 from $177,149 in Q2 2020. The Company incurred legal and other professional fees relating to negotiating and drafting agreements related to the $50 million joint venture that was announced on June 30, 2020. While the fees incurred in Q2 2020 are higher than the fees in Q3 2020, the Company expects that the fees will increase in a subsequent quarter due to the Company concluding such negotiations subsequent to Q3 2020.

General expenses and rent and facility decreased by $392,071 (70%) to $167,608 in Q2 2020 from $559,679 in Q2 2020. In Q2 2020, the Company announced the signing of a $50 million joint venture. General expenses include a one-time cost of $328,000 paid to a firm instrumental in introducing the joint venture parties and assisting with negotiations.

Impairment and other loss was nil in Q3 2020 compared to $2,500,000 in Q2 2020. Impairment and other loss consisted of a credit loss of $2,500,000 relating to the receivable from the sale of discontinued operations. In Q2 2020, after taking into consideration the length of time it took the Buyer of DenseLight to make the required payments and the Company's expectations regarding the likelihood of receiving the balance that was due at the time, the Company determined, and the Buyer accepted, that it was in the Company's best interest to accept partial payments as final payment on the outstanding balance.

Q2 2020 compared to Q1 2020

Net loss from continuing operations increased by $2,740,767 (79%) in Q2 2020 to $6,208,532 from $3,467,765 in Q1 2020.

R&D decreased by $169,269 (12%) to $1,250,475 in Q2 2020 from $1,419,744 in Q1 2020. The decrease is a result of the unpredictable nature of R&D activity and timing of such costs. R&D is expected to fluctuate period over period.

Professional fees increased by $52,148 (42%) to $177,149 in Q2 2020 from $125,001 in Q1 2020. The increase in professional fees was a result of legal and other professional fees incurred relating negotiating and drafting agreements related to the $50 million joint venture that was announced on June 30, 2020.

General expenses and rent and facility increased by $346,652 (163%) to $559,679 in Q2 2020 from $213,027 in Q1 2020. On June 30, 2020, the Company announced the signing of a $50 million joint venture. General expenses include a one-time cost of $328,000 paid to a firm instrumental in introducing the joint venture parties and assisting with negotiations

Wages and benefits decreased by $68,457 (13%) to $475,114 in Q2 2020 from $543,571 in Q1 2020. The decrease is primarily the result of one full-time employee who transitioned to working on a part-time basis in Q2 2020.

Impairment and other loss was $2,500,000 in Q2 2020 compared to nil in Q1 2020. Impairment and other loss consisted of a credit loss of $2,500,000 relating to the receivable from the sale of discontinued operations. In Q2 2020, after taking into consideration the length of time it took the Buyer of DenseLight to make the required payments and the Company's expectations regarding the likelihood of receiving the balance that was due at the time, the Company determined, and the Buyer accepted, that it was in the Company's best interest to accept partial payments as final payment on the outstanding balance.

Q1 2020 compared to Q4 2019

Net loss from continuing operations decreased by $1,522,516 (31%) in Q1 2020 to $3,467,765 from $4,990,281 in Q4 2019.

R&D increased by $582,929 (70%) to $1,419,744 in Q1 2020 from $836,815 in Q4 2019. The increase is a result of NRE costs incurred related to the active devices to be integrated on the Optical Interposer.

Depreciation and amortization increased by $55,405 (47%) to $174,317 in Q1 2020 from $118,912 in Q4 2019. The increase in depreciation and amortization was a result of assets acquired primarily for the purposes of the newly established test facility in Singapore.

Wages and benefits increased by $101,787 (23%) to $543,571 in Q1 2020 from $441,784 in Q4 2019. In late 2019, the Company recruited and hired three senior individuals for roles for which there was a gap. These roles

included a President & General Manager of the Company, a Vice President & General Manager for the new Singapore testing facility and a Vice President of Product Marketing & Business Development. Q4 2019 included only partial compensation of these new employees. Additionally, one individual who served as a full-time consultant was hired by the Company, this resulted in a transfer of costs from consulting fees to wages and benefits during the period. While wages and benefits increased, consulting fees decreased.

General expenses and rent decreased by $57,891 (21%) to $213,027 in Q1 2020 from 270,918 in Q4 2019. The decrease was primarily a result of reduced travel in Q1 2020 due to travel restrictions in place due to Covid-19. Q4 2019 expenses were also unusually high due ancillary costs incurred related to the various financings that occurred in 2019 and certain indenture fees related to maintaining the warrants of a previous equity financing that occurred in 2018. The Company also held a special meeting in October which resulted in non-recurring general expenses associated with calling and hosting a special meeting.

Interest expense decreased by $84,893 (28%) to $216,684 in Q1 2020 from $301,577 in Q4 2019. The Company is paying interest on $7,729,921 of debt raised between April 2019 and September 2019. Interest is reduced in Q1 2020 because the Company repaid $4,000,000 of the debt in Q4 2019, an additional $293,675 of debt was converted to units of the Company in January 2020. The Company incurred interest on $3,429,105 of debt for most of Q1 2020 as compared to $7,729,921 for most of Q4 2019.

Related to the issuance of debt in 2019 is the amortization of debt issuance cost. The amortized debt issuance cost was directly related to the debt that was repaid in Q4 2019, as a result amortized debt issuance cost in Q1 2020 was nil compared to $145,917 in Q4 2019.

In Q4 2019, the Company performed an impairment analysis on its goodwill and intangible assets related to the acquisition of BB Photonics in 2016. The Company determined that these assets were impaired and consequently recognized an impairment loss of $1,764,459. No impairment was recognized in Q1 2020.

Q4 2019 compared to Q3 2019

Net loss from continuing operations increased by $2,356,398 (89%) in Q4 2019 to $4,990,281 from $2,633,883 in Q3 2019.

R&D increased by $463,223 (124%) to $836,815 in Q4 2019 from $373,592 in Q3 2019. The increase is a result of a redistribution of R&D activities that were typically accounted for by DenseLight and are now being accounted for by the Company. Additionally, the Company established a new test facility in Singapore which became fully operational in Q4 2019. All such test activities and related costs were incurred at DenseLight in Q3 2019.

Depreciation and amortization increased by $77,164 (185%) to $118,912 in Q4 2019 from $41,748 in Q3 2019. The increase in depreciation and amortization was a result of assets acquired primarily for the purposes of the newly established test facility in Singapore.

Wages and benefits increased by $66,426 (18%) to $441,784 in Q4 2019 from $375,358 in Q3 2019. In late 2019, the Company recruited and hired three senior individuals for roles for which there was a gap. These roles included a President & General Manager of the Company, a Vice President & General Manager for the new Singapore testing facility and a Vice President of Product Marketing & Business Development. Q3 2019 did not include compensation to these new employees.

General expenses and rent increased by $108,762 (67%) to $270,918 in Q4 2019 from $162,156 in Q3 2019. The increase was primarily a result of ancillary costs incurred related to the various financings that occurred in 2019 and certain indenture fees related to maintaining the warrants of a previous equity financing that occurred in 2018. The Company also incurred substantial travel and related costs due to the time and effort required in negotiating and addressing due diligence matters respecting the sale of DenseLight.

In Q4 2019, the Company performed an impairment analysis on its goodwill and intangible assets related to the acquisition of BB Photonics in 2016. The Company determined that these assets were impaired and consequently recognized an impairment loss of $1,764,459. No impairment was recognized in Q3 2019.

Non-cash stock-based compensation decreased by $194,323 (23%) to $643,315 in Q4 2019 from $837,638 in Q3 2019. The valuation of stock options is driven by a number of factors including the number of options granted, the strike price and the volatility of the Company's stock. The stock option expense is dependent on the timing of the stock option grant and the amortization of the options as they vest. The stock options vest in accordance with the policies determined by the Board of Directors at the time of the grant consistent with the provisions of the Plan.

Management and consulting fees increased by $30,030 (96%) to $61,260 in Q4 2019 from $31,230 in Q3 2019. The increase was a result of one new consultant who was retained in Q4 2019 to assist with the new strategy of the Company post the sale of DenseLight. The Consultant was subsequently hired by the Company.

Discontinued Operations

Due to the sale of DenseLight on November 8, 2019, the analysis of the period over period reporting is affected by the fact that Q4 2019 is reported as a stub period from October 1, 2019 to November 8, 2019 while Q3 2019 is reported as a full operating quarter. All expenses in Q4 2019 are therefore lower than those of Q3 2019. Significant changes unaffected by the stub reporting in Q4 2019 are therefore reported below.

Non-cash stock-based compensation was $(347,365) in Q4 2019 compared to $80,009 in Q3 2019. The difference of $427,374 (534%) was a result of the cancellation of stock options granted to employees of DenseLight. Company policy stipulates that unvested stock options must be cancelled once an individual is no longer a member of the POET team. The cancellation of those unvested stock options resulted in a recovery of amounts expensed in prior periods.

Other income, including interest was nil in Q4 2019 compared to $1,174,798 in Q3 2019. The Q3 2019 income was a result of recoveries from the EDB in Singapore. The Company was entitled to a recovery of certain qualifying expenses from the EDB. The EDB program ended in Q3 2019.

Segment Disclosure

The Company and its subsidiaries operate in a single segment; the design, manufacture and sale of semi-conductor products and services for commercial applications. The Company's operating and reporting segment reflects the management reporting structure of the organization and the manner in which the chief operating decision maker regularly assesses information for decision making purposes, including the allocation of resources. A summary of the Company's operations is below:

OPEL, ODIS, POET Shenzhen and PTS

OPEL, ODIS, POET Shenzhen and PTS are the developers of the POET platform semiconductor process IP for monolithic fabrication of integrated circuit devices containing both electronic and optical elements on a single die.

BB Photonics

BB Photonics develops photonic integrated components for the datacom and telecom markets utilizing embedded dielectric technology that enables the low-cost integration of active and passive devices into photonic integrated circuits

On a consolidated basis, the Company operates geographically in Singapore, China (collectively "Asia"), the United States and Canada. Geographical information is as follows:

	2021			
As of June 30,	Asia	US	Canada	Consolidated
Current assets	$ 688,827	$ 191,269	$ 21,563,954	$ 22,444,050
Property and equipment	3,084,169	288,694	-	3,372,863
Patents and licenses	-	404,688	-	404,688
Right of use assets	220,951	203,950	-	424,901
Total Assets	$ 3,993,947	$ 1,088,601	$ 21,563,954	$ 26,646,502

For the Six Months Ended June 30,	Asia	US	Canada	Consolidated
Revenue	**$ 209,100**	**$ -**	**$ -**	**$ 209,100**
Selling, marketing and administration	**719,250**	**2,949,242**	**942,220**	**4,610,712**
Research and development	**2,266,515**	**1,016,024**	**520,166**	**3,802,705**
Interest expense	**18,769**	**16,316**	**294,293**	**329,378**
Other income, including Interest	**-**	**-**	**(27,081)**	**(27,081)**
Net loss	**$ 2,795,434**	**$ 3,981,582**	**$ 1,729,598**	**$ 8,506,614**

	2020			
As of December 31,	Asia	US	Canada	Consolidated
Current assets	$ 304,450	$ 69,874	$ 7,117,287	$ 7,491,611
Property and equipment	2,982,496	203,258	-	3,185,754
Patents and licenses	-	438,677	-	438,677
Right of use assets	289,542	231,144	-	520,686
Total Assets	$ 3,576,488	$ 942,953	$ 7,117,287	$ 11,636,728

For the Six Months Ended June 30,	Asia	US	Canada	Consolidated
Selling, marketing and administration	$ 549,268	$ 2,426,398	$ 831,967	$ 3,807,633
Research and development	796,992	622,258	1,524,044	2,943,294
Interest	11,223	8,158	425,894	445,275
Loss on receivable from the sale of discontinued operations	-	-	2,500,000	2,500,000
Other income, including interest	-	-	(19,905)	(19,905)
Net loss	$ 1,357,483	$ 3,056,814	$ 5,262,000	$ 9,676,297

Liquidity and Capital Resources

The Company had working capital of $19,718,308 on June 30, 2021 compared to $2,099,214 on December 31, 2020. The Company's balance sheet as of June 30, 2021 reflects assets with a book value of $26,646,502 compared to $11,636,728 as of December 31, 2020. Eighty-four percent (84%) of the book value at June 30, 2021 was in current assets consisting primarily of cash and cash equivalents of $21,941,873 compared to sixty-four percent (64%) of the book value as of December 31, 2020, which consisted primarily of cash of $6,872,894.

On February 11, 2021, the Company completed a brokered private placement offering of 17,647,200 units at a price of $0.67 (CAD$0.85) per unit for gross proceeds of $11,815,595 (CAD$15,000,120). Each unit consists of one common share and one common share purchase warrant. Each whole warrant entitles the holder to purchase one common share of the Company at a price of $0.90 (CAD$1.15) per share until February 11, 2023. At any time after June 12, 2021, the Company reserves the right to accelerate the expiry of the warrants if the Company's average stock price exceeds $1.81 (CAD$2.30) for a period of 10 consecutive trading days. The broker was paid a cash commission of $708,667 (CAD$900,007) equating to 6% of the gross proceeds and received 1,058,832 broker warrants. Each broker warrant is exercisable into one common share of the Company at a price of $0.67 (CAD$0.85) per broker warrant until February 11, 2023. The Company incurred additional share issuance costs of $434,367 directly related to the private placement and fees to induce certain warrant holders to exercise their warrants.

In addition to funds received from the brokered private placement, the Company received $10,066,538 from the exercise of stock options and warrants. The Company also improved its liquidity by $3,377,887 through the conversion of convertible debentures into units of the Company.

Debt Financings

Convertible Debentures

In 2019, the Management approved the issuance of up to $10.5 million of unsecured convertible debentures (the "Convertible Debentures") of the Company. The Convertible Debentures were sold in multiple tranches, on a brokered private placement basis through the Company's financial advisors, IBK Capital. In 2019, the Company closed five tranches of the private placement of the Convertible Debentures that raised gross proceeds of $3,729,921. The Convertible Debentures, bear interest at 12% per annum, compounded annually with 1% payable at the beginning of each month and mature two years from the date of issue. The Company paid $377,072 in brokerage fees and other costs related to the closing of these five tranches.

The Convertible Debentures are convertible at the option of the holders thereof into units at any time after October 31, 2019 at a conversion price of CAD$0.40 per unit for a total 12,457,500 units of the Company. Each unit consists of one common share and one common share purchase warrant. Each common share purchase warrant entitles the holder to purchase one common share of the Company at a price of CAD$0.50 per share for a period of four years from the date upon which the convertible debenture was issued. Upon completing the sale of DenseLight and receiving the full sale proceeds, holders of Convertible Debentures will have the right to cause the Company to repurchase the Convertible Debentures at face value, subject to certain restrictions. The Convertible Debentures are governed by a trust indenture between the Company and TSX Trust Company as trustee. The Company has notified the trustee and the holders of the debentures that the sale of DenseLight has been completed and holders may, at their discretion, cause the Company to repurchase the Convertible debentures within the established repurchasing parameters.

Insiders of the Company subscribed for 14.3% or $535,000 of the Convertible Debentures, including the Company's board of directors and senior management team. Insiders of IBK Capital subscribed for 4% or $146,000 of the Convertible Debentures.

The debt components of the Convertible Debentures were fair valued using effective discount rates ranging from 28.74% to 29.71% which the Company determined would be the interest rate of the debts without a conversion feature. The difference between the fair value of the debt component and the loan is allocated to the equity component and is included in shareholders' equity.

Because the Convertible Debentures are denominated in Canadian dollars and the conversion price is also denominated in Canadian dollars, the number of equity instruments that would be issued upon exercise of the convertible debentures are fixed. As a result, the equity component of the convertible debentures will not be periodically remeasured. During 2021, holders of certain convertible debentures converted $3,377,887 (2020 - $369,545) worth of convertible debentures into 10,592,500 (2020 - 1,235,000) units of the Company.

The following table reflects the details of the remaining convertible debentures:

Convertible Debentures	Loan	Equity Component	Accretion	Debt Component
Issued August 2, 2019 (net of issue costs)	$ 51,079	$ (6,903)	$ 14,920	$ 59,096
Issued September 19, 2019 (net of issue costs)	122,965	(11,844)	34,091	145,212
Effect of foreign exchange rate changes	-	-	-	(5,160)
Balance June 30, 2021	$ 174,044	$ (18,747)	$ 49,011	$ 199,148

Related Party Transactions

Compensation to key management personnel (Executive Chairman and CEO, CFO, VP Finance and

administration, President & General Manager of the Company, VP & General Manager of PTS) for the six months ended June 30 was as follows:

	2021	2020
Salaries	**$ 972,382**	$ 836,950
Share-based payments (1)	**1,052,080**	1,009,770
Total	**$ 2,024,462**	$ 1,846,720

(1) Share-based payments are the fair value of options granted to key management personnel and expensed during the various years as calculated using the Black-Scholes model.

All transactions with related parties have occurred in the normal course of operations and are measured at the exchange amounts, which are the amounts of consideration established and agreed to by the related parties.

Critical Accounting Estimates

Property and equipment

Property and equipment are recorded at cost. Depreciation is calculated based on the estimated useful life of the asset using the following method and useful lives:

Machinery and equipment	Straight Line, 5 years
Leasehold improvements	Straight Line, 5 years or life of the lease, whichever is less
Office equipment	Straight Line, 3 - 5 years

Patents and licenses

Patents and licenses are recorded at cost and amortized on a straight-line basis over 12 years. Ongoing maintenance costs are expensed as incurred.

Stock-based Compensation

Stock options and warrants awarded to non-employees are accounted for using the fair value of the instrument awarded or service provided, whichever is considered more reliable. Stock options and warrants awarded to employees are accounted for using the fair value method. The fair value of such stock options and warrants granted is recognized as an expense on a proportionate basis consistent with the vesting features of each tranche of the grant. The fair value is calculated using the Black-Scholes option-pricing model with assumptions applicable at the date of grant.

Other stock-based payments

The Company accounts for other stock-based payments based on the fair value of the equity instruments issued or service provided, whichever is more reliable.

Cumulative Translation Adjustment

IFRS requires certain gains and losses such as certain exchange gains and losses arising from the translation of the financial statements of a self-sustaining foreign operation to be included in comprehensive income.

Financial Instruments and Risk Management

The Company's financial instruments consist of cash and cash equivalents, accounts receivable, convertible debentures, covid-19 government support loans and accounts payable and accrued liabilities. Unless otherwise noted, it is management's opinion that the Company is not exposed to significant interest risk arising from these financial instruments. The Company estimates that the fair value of these instruments approximates fair value due to their short-term nature.

The Company has classified financial assets and (liabilities) as follows:

	June 30, 2021	December 31, 2020
Cash and cash equivalents, measured at amortized cost:		
Cash and cash equivalents	$21,941,873	$6,872,894
Accounts receivable	207,260	-
Other liabilities, measured at amortized cost:		
Accounts payable and accrued liabilities	(2,165,686)	(1,730,361)
Convertible debentures	(199,148)	(3,341,246)
Covid-19 government support loans	(219,007)	(218,151)

Exchange Rate Risk

The functional currency of each of the entities included in the accompanying consolidated financial statements is the local currency where the entity is domiciled. Functional currencies include the Chinese Yuan, US, Singapore, and Canadian dollar. Most transactions within the entities are conducted in functional currencies. As such, none of the entities included in the consolidated financial statements engage in hedging activities. The Company is exposed to a foreign currency risk with the Chinese Yuan, Canadian and Singapore dollar. A 10% change in the Chinese Yuan, Canadian and Singapore dollar would increase or decrease other comprehensive loss or discontinued operations by $2,043,000.

Interest Rate Risk

Cash equivalents bear interest at fixed rates, and as such, are subject to interest rate risk resulting from changes in fair value from market fluctuations in interest rates. The Company does not depend on interest from its investments to fund its operations.

Credit Risk

The Company is not exposed to credit risk at this point as it does not currently generate revenue from its operations.

World Economic Risk

Like many other companies, the world economic climate could have an impact on the Company's business and the business of many of its current and prospective customers. A slump in demand for electronic-based devices, due to a world economic crisis may impact any anticipated licensing revenue.

Obsolescence Risk

The Company designs, manufactures and sells various highly technological optoelectronic products that could become obsolete should lower priced competitors or new technology enter the market. This would expose the company to obsolescence risk in the product offering. The redesign of the product offering could take significant time or could never occur.

Liquidity Risk

The Company predominately relies on equity funding for liquidity to meet current and foreseeable financial requirements. The Company currently does not maintain credit facilities. The Company's existing cash and cash resources are considered sufficient to fund operating and investing activities beyond one year from the issuance of these consolidated financial statements.

Outstanding Share Data

Common Shares

Total common shares of the Company outstanding at June 30, 2021 and August 19, 2021 were 349,322,516 and 351,529,899 respectively.

Stock Options, Warrants and Compensation Options

Total warrants and broker warrants outstanding to purchase common shares of the Company at June 30, 2021 and August 19, 2021 were 43,957,289 and 43,557,355 priced respectively between CA$0.50 and CA$1.15 per common share.

Total stock options outstanding as at June 30, 2021 and August 19, 2021 were 48,722,055 and 47,584,305 respectively priced between CA$0.23 and CA$1.19 per common share.

Additional detailed share data information is available in the Company's Notes to Consolidated Financial Statement.

Off-Balance Sheet Arrangements

The Company has not entered into any off-balance sheet arrangements.

Impact of COVID-19 on Operations

While COVID-19 has negatively affected the Company, its impact was limited and economically manageable. Our main priority remains the health and safety of our employees. We continue to monitor and take safety measures to protect our employees and support those employees who work from home so that they can be productive. Our offices in all geographic locations remain open to enable critical on-site business functions in accordance with local government guidelines.

Due to the stage of the Company's development, it was not exposed to any loss of revenue and the associated consequences of downsizing. In Singapore and the US, the Company benefited from government programs designed to financially assist Company's that qualify for such assistance based on certain expenditure limits.

The Company's Canadian operations were unaffected by COVID-19 as its activities are primarily administrative.

Recent reports have documented the impact COVID-19 is having on the shortage of semiconductor chips in the market. The shortage is driven by the suppliers' inability to keep pace with demand. The Company is reliant on many of these suppliers for products and services. The lack of supply in the industry has resulted in a delay of approximately three to six months in the Company's product development cycle. While the delay has pushed out the Company's timeline for its products to reach the market, it has not resulted in a material financial loss to the Company. Management will continue to monitor the impacts of COVID-19 on operations and report such impacts to shareholders.

Key Business Risks and Uncertainties

We have a history of large operating losses. We may not be able to achieve or sustain profitability in the future and as a result we may not be able to maintain sufficient levels of liquidity.

We have historically incurred losses and negative cash flows from operations since our inception. As of June 30, 2021, we had an accumulated deficit of $165,824,491. For the years ended December 31, 2020 and December 31, 2019, we incurred net losses of $18,169,070 and $5,952,875 respectively.

We incurred additional losses of $8,506,614 for the six months ended June 30, 2021.

As of June 30, 2021, we held $21,941,873 in cash and cash equivalents, and we had working capital of $19,718,308.

The optical data communications industry in which we have chosen to operate is subject to significant risks, including rapid growth and volatility, dependence on rapidly changing underling technologies, market and political risks and uncertainties and extreme competition. We cannot guarantee that we will be able to anticipate or overcome any or all of these risks and uncertainties, especially as a small company operating in an environment dominated by large, well-capitalized competitors with substantially more resources.

The optical data communications industry is subject to significant operational fluctuations. In order to remain competitive, we incur substantial costs associated with research and development, qualification, prototype production capacity and sales and marketing activities in connection with products that may be purchased, if at all, long after we have incurred such costs. In addition, the rapidly changing industry in which we operate, the length of time between developing and introducing a product to market, frequent changing customer specifications for products, customer cancellations of products and general down cycles in the industry, among other things, make our prospects difficult to evaluate. As a result of these factors, it is possible that we may not (i) generate sufficient positive cash flow from operations; (ii) raise funds through the issuance of equity, equity-linked or convertible debt securities; or (iii) otherwise have sufficient capital resources to meet our future capital or liquidity needs. There are no guarantees we will be able to generate additional financial resources beyond our existing balances.

We divested our major operating asset, adopted a new "fab-light" strategy, and we plan to focus on the Optical Interposer as our main business. Any or all of these decisions if incorrect may have a material adverse effect on the results of our operations, financial position and cash flows, and pose further risks to the successful operation of our business over the short and long-term.

There are substantial risks associated with our adoption of a "fab-light" strategy, including the immediate loss of all or a substantial part of our revenue, the loss of control over an internal development asset, and the loss of key technical knowledge available from personnel who will no longer be employed by the Company, many of whom we may have to replace.

We have some previous experience with managing development without an internal development resource under a similar "fab-light" strategy which was not successful, and there is no guarantee that our new approach to operating a company with our chosen strategy will be successful. Further, our strategy will be solely dependent on the future market acceptance and sale of Optical Interposer-based solutions, which are either not fully developed or are in qualification stages, and which no customer has yet fully committed to adopting in a production product.

We have taken substantial measures to protect POET's intellectual property in the Optical Interposer, including development and production with a separate third-party company which engaged no DenseLight engineering personnel. We conducted development of component devices separately at our DenseLight facility and took measures to protect POET's intellectual property on those developments as well. However, we cannot guarantee that all our measures to protect our intellectual property on either the POET Optical Interposer or its component devices have been totally effective. Following divestment, we will have little or no control over any leakage of certain proprietary information or know-how and additional development with the DenseLight operation on component devices may expose our intellectual property to parties that we cannot control. Further, we cannot guarantee that DenseLight or any other third-party that we rely on to perform development, manufacturing,

packaging or testing services will perform as expected and produce the devices we will need to grow our Optical Interposer business.

There can be no assurance that we will be successful in addressing these or any other significant risks we may encounter in the divestment of DenseLight, the adoption of a "fab-light" strategy or the focus of our business solely on the Optical Interposer.

We have contributed a portion of our intellectual property and exclusive assembly and sales rights for certain key initial products to a joint venture company that we have recently formed in China. Although we believe that the joint venture offers significant opportunities for growth that we might not otherwise have and solves several major known challenges, we also recognize that there are substantial risks and uncertainties associated with executing a major portion of our strategy through a joint venture, regardless of the intentions and capabilities of the parties involved.

On October 21, 2020, the Company signed a Joint Venture Agreement ("JVA") with Sanan IC to form a joint venture company, Super Photonics Xiamen Co., Ltd. ("SPX"), which will be owned 48% by the Company. SPX will assemble, test, package and sell certain optical engines on an exclusive basis globally and certain others on a exclusive basis in the territory of Greater China. Optical engines based on the POET Optical Interposer are expected to be a primary component of several types of optical transceivers used in data centers. The joint venture is based on the contribution by the Company of certain assembly and test know-how and other intellectual property and cash to be contributed by Sanan IC in stages, subject to meeting certain milestones, to cover all capital and operating expenses of SPX until it is self-sustaining. We cannot guarantee that SPX will meet each milestone or that Sanan IC will or will not contribute capital on schedule when and if such milestones are met, nor can we guarantee that SPX will be successful in assembling and testing optical engines, nor in the marketing and sales once the optical engines are tested and qualified by potential customers.

The Company's investment into "Super Photonics Xiamen" ("SPX") is into an independent company operating as a true joint venture under the laws of the Peoples Republic of China ("PRC"). There are significant governance and operational risks associated with joint ventures and with companies operating in the PRC, in general. We cannot guarantee that we will be able to anticipate or overcome the risks and uncertainties of operating a joint venture company in China.

Although SPX has its own governance structure to which both parties contribute directors, most major decisions must be unanimous, which means that such decisions will require the support of the management of SPX and both of the JV partners. Although the Company has sought the support of well-known and competent legal and other professional advisors and has had a major role in the recruitment of the senior management team of SPX, the Company has no prior experience with either the operation of a joint venture or with the operation of a JV company under the laws of the PRC, so we cannot guarantee that the joint venture will be successfully managed without substantial investment in time and effort by the Company's current management team or at all.

We may not be able to obtain additional capital when desired, on favorable terms or at all.

We operate in a market that makes our prospects difficult to evaluate and, to remain competitive, we will be required to make continued investments in capital equipment, facilities and technology. We expect that substantial capital will be required to continue technology and product development, to expand our contract manufacturing capacity if we need to do so and to fund working capital for anticipated growth. If we do not generate sufficient cash flow from operations or otherwise have the capital resources to meet our future capital needs, we may need additional financing to implement our business strategy.

If we raise additional funds through the issuance of our common stock or convertible securities, the ownership interests of our stockholders could be significantly diluted. These newly issued securities may have rights, preferences or privileges senior to those of existing stockholders. Additional financing may not, however, be available on terms favorable to us, or at all, if and when needed, and our ability to fund our operations, take advantage of unanticipated opportunities, develop or enhance our infrastructure or respond to competitive

pressures could be significantly limited. If we cannot raise required capital when needed we may be unable to continue technology and product development, meet the demands of existing and prospective customers, adversely affecting our sales and market opportunities and consequently our business, financial condition and results of operations.

The process of developing new, technologically advanced products in semiconductor manufacturing and photonics products is highly complex and uncertain, and we cannot guarantee a positive result.

The development of new, technologically advanced products is a complex and uncertain process requiring frequent innovation, highly skilled engineering and development personnel and significant capital, as well as the accurate anticipation of technological and market trends. We cannot assure you that we will be able to identify, develop, manufacture, market or support new or enhanced products successfully or on a timely basis. Further, we cannot assure you that our new products will gain market acceptance or that we will be able to respond effectively to product introductions by competitors, technological changes or emerging industry standards. We also may not be able to develop the underlying core technologies necessary to create new products and enhancements, license these technologies from third parties, or remain competitive in our markets.

If our customers do not qualify our products for use on a timely basis, our results of operations may suffer.

Prior to the sale of new products, our customers typically require us to "qualify" our products for use in their applications. At the successful completion of this qualification process, we refer to the resulting sales opportunity as a "design win." Additionally, new customers often audit our manufacturing facilities and perform other evaluations during this qualification process. The qualification process involves product sampling and reliability testing and collaboration with our product management and engineering teams in the design and manufacturing stages. If we are unable to accurately predict the amount of time required to qualify our products with customers, or are unable to qualify our products with certain customers at all, then our ability to generate revenue could be delayed or our revenue would be lower than expected and we may not be able to recover the costs associated with the qualification process or with our product development efforts, which would have an adverse effect on our results of operations.

We have limited operating history in the data center market, and our business could be harmed if this market does not develop as we expect.

The initial target market for our Optical Interposer-based optical engine is the data center market for data communications within the data center and beyond. We have limited experience in selling products in this market. We may not be successful in developing a product for this market and even if we do, it may never gain widespread acceptance by large data center operators. If our expectations for the growth of the data center / datacom market are not realized, our financial condition or results of operations may be adversely affected.

Customer demand is difficult to forecast accurately and, as a result, we may be unable to match production with customer demand.

We make planning and spending decisions, including determining the levels of business that we will seek and accept, production schedules, component procurement commitments, personnel needs and other resource requirements, based on our estimates of product demand and customer requirements. Our products are typically sold pursuant to individual purchase orders. While our customers may provide us with their demand forecasts, they are typically not contractually committed to buy any quantity of products beyond firm purchase orders. Furthermore, many of our customers may increase, decrease, cancel or delay purchase orders already in place without significant penalty. The short-term nature of commitments by our expected customers and the possibility of unexpected changes in demand for their products reduce our ability to accurately estimate future customer requirements. If any of our customers decrease, stop or delay purchasing our products for any reason, we will likely have excess manufacturing capacity or inventory and our business and results of operations would be harmed.

The markets in which we operate are highly competitive, which could result in lost sales and lower revenues.

The market for optical components and modules is highly competitive and this competition could result in our existing customers moving their orders to our competitors. We are aware of a number of companies that have developed or are developing integrated optical products, including silicon photonics engines, remote light sources, pluggable components, modules and subsystems, photonic integrated circuits, among others, that compete (or may in the future compete) directly with our current and proposed product offerings.

Some of our current competitors, as well as some of our potential competitors, have longer operating histories, greater name recognition, broader customer relationships and industry alliances and substantially greater financial, technical and marketing resources than we do. We may not be able to compete successfully with our competitors and aggressive competition in the market may result in lower prices for our products and/or decreased gross margins. Any such development could have a material adverse effect on our business, financial condition and results of operations.

We depend on a limited number of suppliers and key contract manufacturers who could disrupt our business and technology development activities if they stopped, decreased, delayed or were unable to meet our demand for shipments of their products or manufacturing of our productsWe depend on a limited number of suppliers of epitaxial wafers and contract manufacturers for our Indium Phosphide ("InP") development and optical interposer production activities. Some of these suppliers are sole source suppliers. We typically have not entered into long-term agreements with our suppliers. As a result, these suppliers generally may stop supplying us materials and other components at any time. Our reliance on a sole supplier or limited number of suppliers could result in delivery problems, reduced control over technology development, product development, pricing and quality, and an inability to identify and qualify another supplier in a timely manner. Some of our suppliers that may be small or under-capitalized may experience financial difficulties that could prevent them from supplying us materials and other components. In addition, our suppliers, including our sole source suppliers, may experience manufacturing delays or shutdowns due to circumstances beyond their control such as earthquakes, floods, fires, labor unrest, political unrest or other natural disasters. A change in supplier could require technology transfer that could require multiple iterations of test wafers. This could result in significant delays in resumption of production.

Any supply deficiencies relating to the quality or quantities of materials or equipment we use to manufacture our products could materially and adversely affect our ability to fulfill customer orders and our results of operations. Lead times for the purchase of certain materials and equipment from suppliers have increased and, in some cases, have limited our ability to rapidly respond to increased demand, and may continue to do so in the future. To the extent we introduce additional contract manufacturing partners, introduce new products with new partners and/or move existing internal or external production lines to new partners, we could experience supply disruptions during the transition process. In addition, due to our customers' requirements relating to the qualification of our suppliers and contract manufacturing facilities and operations, we cannot quickly enter into alternative supplier relationships, which prevent us from being able to respond immediately to adverse events affecting our suppliers.

Our international business and operations expose us to additional risks.

We have significant tangible assets located outside the United States and Canada. Conducting business outside Canada and the United States subjects us to a number of additional risks and challenges, including:

- periodic changes in a specific country's or region's economic conditions, such as recession;
- licenses and other trade barriers;
- the provision of services may require export licenses;
- environmental regulations;
- certification requirements;

- fluctuations in foreign currency exchange rates;
- inadequate protection of intellectual property rights in some countries;
- preferences of certain customers for locally produced products;
- potential political, legal and economic instability, foreign conflicts, and the impact of regional and global infectious illnesses in the countries in which we and our customers, suppliers and contract manufacturers are located;
- Canadian and U. S. and foreign anticorruption laws;
- seasonal reductions in business activities in certain countries or regions; and
- fluctuations in freight rates and transportation disruptions.

These factors, individually or in combination, could impair our ability to effectively operate one or more of our foreign facilities or deliver our products, result in unexpected and material expenses, or cause an unexpected decline in the demand for our products in certain countries or regions. Our failure to manage the risks and challenges associated with our international business and operations could have a material adverse effect on our business.

If we fail to attract and retain key personnel, our business could suffer.

Our future success depends, in part, on our ability to attract and retain key personnel, including executive management. Competition for highly skilled technical personnel is extremely intense and we may face difficulty identifying and hiring qualified engineers in many areas of our business. We may not be able to hire and retain such personnel at compensation levels consistent with our existing compensation and salary structure. Our future success also depends on the continued contributions of our executive management team and other key management and technical personnel, each of whom would be difficult to replace. The loss of services of these or other executive officers or key personnel or the inability to continue to attract qualified personnel could have a material adverse effect on our business.

Our predecessor company received subsidies and other types of funding from government agencies. Our current company has applied for loans related to COVID-19. The funding agreements stipulate that if we do not comply with various covenants, including eligibility requirements, and/or do not achieve certain pre-defined objectives, those government agencies may reclaim all or a portion of the funding provided. If they find that we were ineligible for such funding, then they may both reclaim the funds and add penalties and interest. If this were to occur, we would either not be in a position to repay the claimed amounts or would have to borrow large sums in order to do so or refinance with dilutive financing, which could adversely affect our financial condition.

Our predecessor company, Opel Solar and an affiliated company, ODIS, now a wholly-owned subsidiary, received research and development grants from the United States Air Force and from NASA. The rules for eligibility vary widely across government agencies, are complex and may be subject to different interpretations. We cannot guarantee that one or more agencies will not seek repayment of all or a portion of the funds provided or make claims that we were ineligible to receive such funds, and if this were to occur, we could have to borrow large sums or refinance with dilutive financing in order to make the repayments, which would adversely affect our financial condition.

In March and April of 2020, in response to the financial challenges companies face as a result of the COVID-19 pandemic, the United States and Canadian Governments, both launched financial assistance programs by way of Government backed loans. These loans may either be partially or fully forgiven if recipient companies meet certain spending or repayment criteria. If such criteria are not met, recipients of these government backed loans may be required to repay the loans in full plus a prescribed amount of interest. The Company received $219,007 of such

loans. While we are confident that we meet all the criteria for receiving such loans, we cannot guarantee that we may not be required to repay the loans in full plus any incurred interest and or penalties.

If we fail to protect, or incur significant costs in defending, our intellectual property and other proprietary rights, our business and results of operations could be materially harmed.

Our success depends on our ability to protect our intellectual property and other proprietary rights. We rely on a combination of patent, trademark, copyright, trade secret and unfair competition laws, as well as license agreements and other contractual provisions, to establish and protect our intellectual property and other proprietary rights. We have applied for patent registrations in the U.S. and in foreign countries, some of which have been issued. We cannot guarantee that our pending applications will be approved by the applicable governmental authorities. Moreover, our existing and future patents and trademarks may not be sufficiently broad to protect our proprietary rights or may be held invalid or unenforceable in court. A failure to obtain patents or trademark registrations or a successful challenge to our registrations in the U.S. or foreign countries may limit our ability to protect the intellectual property rights that these applications and registrations intended to cover.

Policing unauthorized use of our technology is difficult and we cannot be certain that the steps we have taken will prevent the misappropriation, unauthorized use or other infringement of our intellectual property rights. Further, we may not be able to effectively protect our intellectual property rights from misappropriation or other infringement in foreign countries where we have not applied for patent protections, and where effective patent, trademark, trade secret and other intellectual property laws may be unavailable or may not protect our proprietary rights as fully as Canadian or U.S. law. We may seek to secure comparable intellectual property protections in other countries. However, the level of protection afforded by patent and other laws in other countries may not be comparable to that afforded in Canada and the U.S.

We also attempt to protect our intellectual property, including our trade secrets and know-how, through the use of trade secret and other intellectual property laws, and contractual provisions. We enter into confidentiality and invention assignment agreements with our employees and independent consultants. We also use non-disclosure agreements with other third parties who may have access to our proprietary technologies and information. Such measures, however, provide only limited protection, and there can be no assurance that our confidentiality and non-disclosure agreements will not be breached, especially after our employees end their employment, and that our trade secrets will not otherwise become known by competitors or that we will have adequate remedies in the event of unauthorized use or disclosure of proprietary information. Unauthorized third parties may try to copy or reverse engineer our products or portions of our products, otherwise obtain and use our intellectual property, or may independently develop similar or equivalent trade secrets or know-how. If we fail to protect our intellectual property and other proprietary rights, or if such intellectual property and proprietary rights are infringed or misappropriated, our business, results of operations or financial condition could be materially harmed.

In the future, we may need to take legal actions to prevent third parties from infringing upon or misappropriating our intellectual property or from otherwise gaining access to our technology. Protecting and enforcing our intellectual property rights and determining their validity and scope could result in significant litigation costs and require significant time and attention from our technical and management personnel, which could significantly harm our business. We may not prevail in such proceedings, and an adverse outcome may adversely impact our competitive advantage or otherwise harm our financial condition and our business.

We may be involved in intellectual property disputes in the future, which could divert management's attention, cause us to incur significant costs and prevent us from selling or using the challenged technology.

Participants in the markets in which we sell our products have experienced frequent litigation regarding patent and other intellectual property rights. There can be no assurance that third parties will not assert infringement claims against us, and we cannot be certain that our products would not be found infringing on the intellectual property rights of others. Regardless of their merit, responding to such claims can be time consuming, divert management's attention and resources and may cause us to incur significant expenses. Intellectual property claims against us could result in a requirement to license technology from others, discontinue manufacturing or selling

the infringing products, or pay substantial monetary damages, each of could result in a substantial reduction in our revenue and could result in losses over an extended period of time.

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

From time to time, we may choose to or be required to license technology or intellectual property from third parties in connection with the development of our products. We cannot assure you that third party licenses will be available to us on commercially reasonable terms, if at all. Generally, a license, if granted, would include payments of up-front fees, ongoing royalties or both. These payments or other terms could have a significant adverse impact on our results of operations. Our inability to obtain a necessary third-party license required for our product offerings or to develop new products and product enhancements could require us to substitute technology of lower quality or performance standards, or of greater cost, either of which could adversely affect our business. If we are not able to obtain licenses from third parties, if necessary, then we may also be subject to litigation to defend against infringement claims from these third parties. Our competitors may be able to obtain licenses or cross-license their technology on better terms than we can, which could put us at a competitive disadvantage.

If we fail to maintain effective internal control over financial reporting in the future, the accuracy and timing of our financial reporting may be adversely affected. The requirement to have our internal controls audited under Section 404B of the Sarbanes-Oxley act will be effective for our next fiscal year and each subsequent year thereafter, so will require substantial investment in outside consultants, management's time and attention and in additional audit fees to prepare for and pass such inspection.

Preparing our consolidated financial statements involves a number of complex manual and automated processes, which are dependent upon individual data input or review and require significant management judgment. One or more of these elements may result in errors that may not be detected and could result in a material misstatement of our consolidated financial statements. The Sarbanes-Oxley Act in the U.S. requires, among other things, that as a publicly traded company we disclose whether our internal control over financial reporting and disclosure controls and procedures are effective. Until the end of 2020 we qualified as an "emerging growth company" under the JOBS Act, so we did not have to provide an auditor's attestation report on our internal controls. Our "emerging growth company" status is set to expire on December 31, 2021. However, during the course of any evaluation, documentation or attestation, we or our independent registered public accounting firm may identify weaknesses and deficiencies that we may not otherwise identify in a timely manner or at all as a result of the deferred implementation of this additional level of review. In 2021, when we are no longer qualified as an "emerging growth company" our internal controls will be subject to external audit.

Our internal controls cannot guarantee that no accounting errors exist or that all accounting errors, no matter how immaterial, will be detected because a control system, no matter how well designed and operated, can provide only reasonable, but not absolute assurance that the control system's objectives will be met. If we are unable to implement and maintain effective internal control over financial reporting, our ability to accurately and timely report our financial results could be adversely impacted. This could result in late filings of our annual and quarterly reports under the *Securities Act* (Ontario) and the Securities Exchange Act of 1934, or the Exchange Act, restatements of our consolidated financial statements, a decline in our stock price, suspension or delisting of our common stock by the TSX Venture Exchange, or other material adverse effects on our business, reputation, results of operations or financial condition.

Our ability to use our net operating losses and certain other tax attributes may be limited.

As of December 31, 2020, we had accumulated net operating losses ("NOLs"), of approximately $109 million. Varying jurisdictional tax codes have restrictions on the use of NOLs, if a corporation undergoes an "ownership change," the Company's ability to use its pre-change NOLs, R&D credits and other pre-change tax attributes to offset its post-change income may be limited. An ownership change is generally defined as a greater than 50% change in equity ownership. Based upon an analysis of our equity ownership, we do not believe that we have

experienced such ownership changes and therefore our annual utilization of our NOLs is not limited. However, should we experience additional ownership changes, our NOL carry forwards may be limited.

We are subject to governmental export and import controls that could subject us to liability or impair our ability to compete in international markets. Such controls have recently increased for companies in China under the US government's "control list", and may further limit or impair our ability to use certain sub-contractors or to sell directly to companies on the list

We are subject to export and import control laws, trade regulations and other trade requirements that limit which raw materials and technology we can import or export and which products we sell and where and to whom we sell our products. Specifically, the Bureau of Industry and Security of the U.S. Department of Commerce is responsible for regulating the export of most commercial items that are so called dual-use goods that may have both commercial and military applications. A limited number of our products are exported by license under certain classifications. Export Control Classification requirements are dependent upon an item's technical characteristics, the destination, the end-use, and the end-user, and other activities of the end-user. Should the regulations applicable to our products change, or the restrictions applicable to countries to which we ship our products change, then the export of our products to such countries could be restricted. As a result, our ability to export or sell our products to certain countries could be restricted, which could adversely affect our business, financial condition and results of operations. Changes in our products or any change in export or import regulations or related legislation, shift in approach to the enforcement or scope of existing regulations, or change in the countries, persons or technologies targeted by such regulations, could result in delayed or decreased sales of our products to existing or potential customers. In such event, our business and results of operations could be adversely affected.

Our manufacturing operations are subject to environmental regulation that could limit our growth or impose substantial costs, adversely affecting our financial condition and results of operations.

Our properties, operations and products are subject to the environmental laws and regulations of the jurisdictions in which we operate and sell products. These laws and regulations govern, among other things, air emissions, wastewater discharges, the management and disposal of hazardous materials, the contamination of soil and groundwater, employee health and safety and the content, performance, packaging and disposal of products. Our failure to comply with current and future environmental laws and regulations, or the identification of contamination for which we are liable, could subject us to substantial costs, including fines, cleanup costs, third-party property damages or personal injury claims, and make significant investments to upgrade our facilities or curtail our operations. Identification of presently unidentified environmental conditions, more vigorous enforcement by a governmental authority, enactment of more stringent legal requirements or other unanticipated events could give rise to adverse publicity, restrict our operations, affect the design or marketability of our products or otherwise cause us to incur material environmental costs, adversely affecting our financial condition and results of operations.

We are exposed to risks and increased expenses and business risk as a result of Restriction on Hazardous Substances, or RoHS directives, which have been amended but are still in effect.

Following the lead of the European Union, or EU, various governmental agencies have either already put into place or are planning to introduce regulations that regulate the permissible levels of hazardous substances in products sold in various regions of the world. For example, the RoHS directive for EU took effect on July 1, 2006. The labeling provisions of similar legislation in China went into effect on March 1, 2007 and is still in effect, as amended. Consequently, many suppliers of products sold into the EU have required their suppliers to be compliant with the new directive. We anticipate that our customers may adopt this approach and will require our full compliance, which will require a significant amount of resources and effort in planning and executing our RoHS program, it is possible that some of our products might be incompatible with such regulations. In such events, we could experience the following consequences: loss of revenue, damages reputation, diversion of resources, monetary penalties, and legal action.

Failure to comply with the U.S. Foreign Corrupt Practices Act could subject us to penalties and other adverse consequences.

We are subject to the U.S. Foreign Corrupt Practices Act, which generally prohibits companies operating in the U.S. from engaging in bribery or other prohibited payments to foreign officials for the purpose of obtaining or retaining business. In addition, we are required to maintain records that accurately and fairly represent our transactions and have an adequate system of internal accounting controls. Non-U.S. companies, including some that may compete with us, may not be subject to these prohibitions, and therefore may have a competitive advantage over us. If we are not successful in implementing and maintaining adequate preventative measures, we may be responsible for acts of our employees or other agents engaging in such conduct. We could suffer severe penalties and other consequences that may have a material adverse effect on our financial condition and results of operations.

Natural disasters or other catastrophic events could harm our operations.

Our operations in the U.S., Canada, Singapore and China could be subject to significant risk of natural disasters, including earthquakes, hurricanes, typhoons, flooding and tornadoes, as well as other catastrophic events, such as epidemics, terrorist attacks or wars. For example, our testing facility in Singapore is in an area that is susceptible to hurricanes. Any disruption in our facilities or those of our contractors and suppliers arising from these and other natural disasters or other catastrophic events could cause significant delays in the production or shipment of our products until we are able to arrange for third parties to manufacture our products. We may not be able to obtain alternate capacity on favorable terms or at all. Our property insurance coverage with respect to natural disaster is limited and is subject to deductible and coverage limits. Such coverage may not be adequate or continue to be available at commercially reasonable rates and terms. The occurrence of any of these circumstances may adversely affect our financial condition and results of operation.

We may be subject to disruptions or failures in information technology systems and network infrastructures that could have a material adverse effect on our business and financial condition.

We rely on the efficient and uninterrupted operation of complex information technology systems and network infrastructures to operate our business. A disruption, infiltration or failure of our information technology systems as a result of software or hardware malfunctions, system implementations or upgrades, computer viruses, third-party security breaches, employee error, theft or misuse, malfeasance, power disruptions, natural disasters or accidents could cause a breach of data security, loss of intellectual property and critical data and the release and misappropriation of sensitive competitive information and partner, customer, and employee personal data. Any of these events could harm our competitive position, result in a loss of customer confidence, cause us to incur significant costs to remedy any damages and ultimately materially adversely affect our business and financial condition.

A significant disruption in, or breach in security of, our information technology systems or violations of data protection laws could materially adversely affect our business and reputation.

In the ordinary course of business, we collect and store confidential information, including proprietary business information belonging to us, our customers, suppliers, business partners and other third parties and personally identifiable information of our employees. We rely on information technology systems to protect this information and to keep financial records, process orders, manage inventory, coordinate shipments to customers, and operate other critical functions. Our information technology systems may be susceptible to damage, disruptions or shutdowns due to power outages, hardware failures, telecommunication failures and user errors. If we experience a disruption in our information technology systems, it could result in the loss of sales and customers and significant incremental costs, which could materially adversely affect our business. We may also be subject to security breaches caused by computer viruses, illegal break-ins or hacking, sabotage, or acts of vandalism by disgruntled employees or third parties. The risk of a security breach or disruption, particularly through cyberattack or cyber intrusion, including by computer hackers, foreign governments and cyber terrorists, has increased as the number, intensity and sophistication of attempted attacks and intrusions from around the world have increased. Our

information technology network and systems have been and, we believe, continue to be under constant attack. Accordingly, despite our security measures or those of our third-party service providers, a security breach may occur, including breaches that we may not be able to detect. Security breaches of our information technology systems could result in the misappropriation or unauthorized disclosure of confidential information.

The COVID-19 outbreak could delay our development activities and adversely affect our results of operations.

The global outbreak of COVID-19 has resulted in Canada, the United States, Singapore, China and other countries halting or sharply curtailing the movement of people, goods and services. The curtailed activity has negatively affected many businesses, including businesses that operate in our sector. Large-scale shortages across the semiconductor supply chain resulting from the closures during the COVID pandemic has affected our ability to produce products on a timely basis. We cannot predict how long these disruptions in the supply chain will last, nor how it will affect our ability to deliver samples and begin production of our products. Such persistence of disruptions and the resulting prolonged economic impact of COVID-19 remains uncertain. At this point, we believe the conditions may have a material adverse impact on our business, as our suppliers are experiencing major delays resulting from high backlogs of orders and an inability to operate at full capacity. Such delays have resulted in a four to six month delay in the Company achieving certain development objectives, including the fabrication of samples for customer evaluations. Given the rapidly changing developments we cannot accurately predict what effects these developments will have on our business going forward, which will depend on, among other factors, the ultimate geographic spread of the virus, governmental limitations, the duration of the outbreak, travel restrictions and business closures.

The Company may experience these factors in the future and these factors may have a material adverse effect on the Company's business, operating results and financial condition.

Please refer to the Company's Annual Information Forms filed on SEDAR for a detailed discussion of Risks and Uncertainties most recently filed on April 9, 2021.

Additional Information

Additional information relating to the Company is available on SEDAR at www.sedar.com including the information contained in the Company's Annual Information Form filed on SEDAR on April 9, 2021.

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