

# ZECOTEK PHOTONICS INC.

## MANAGEMENT DISCUSSION AND ANALYSIS FOR THE YEAR ENDED JULY 31, 2008 AND 2007

**Dated at November 28, 2008**

This Management's Discussion and Analysis ("MD&A") should be read in conjunction with the Company's annual audited financial statements for the year ended July 31, 2008 and notes thereto. The significant accounting policies are outlined in Note 2 to the Financial Statements of the Company for the year ended July 31, 2008. All dollar amounts are expressed in Canadian dollars except where noted. The Company's accounts are maintained in Canadian dollars. The business activities of the Company, carried out through its subsidiaries in Singapore are conducted primarily in Singapore dollars. The rate of exchange on July 31, 2008 as reported by the Bank of Canada, for the conversion of one Singapore dollar into Canadian dollars was \$0.75.

### **Company Overview**

Zecotek Photonics Inc. is a photonics technology company developing and commercializing laser systems and components, high-performance crystals, solid-state photo detectors, optical imaging and 3D display technologies. The Company's photonic product portfolio is used in a broad range of commercial and research applications in the major markets of material processing, bio-science, high-energy and new materials research, multimedia and security. Founded in 2003, the Company has focused on building shareholder value by commercializing novel, patented and patent-pending photonic technologies directly and through strategic alliances and joint ventures with leading industry partners such as Northrop Grumman (U.S.A.) for Zecotek's patented LFS scintillation material, Fujikura Ltd. (Japan) for fiber and solid-state laser systems, Malaysian Institute of Microelectronics (Malaysia) for the solid-state MAPD photo detectors and Anteryon BV (Netherlands) for a key component of the 3D display screen.

Zecotek's operational, pre-production and production facilities are located in Singapore. Through its wholly owned subsidiary Zecotek Photonics Singapore Pte Ltd., enabling technologies for use in industrial and medical imaging application are developed by three distinct operating divisions: Zecotek Imaging Systems Pte. Ltd., Zecotek Laser Systems Pte. Ltd. and Zecotek Display Systems Pte. Ltd. The Company's corporate headquarters is located in Vancouver, B.C. with additional research projects and laboratories in Canada, Malaysia, Russia and U.S.A. The Company is a Canadian public company trading on the TSX Venture Exchange under the symbol "ZMS" and on the Frankfurt Stock Exchange under the trading symbol "W11". The Company's website is [www.zecotek.com](http://www.zecotek.com).

### **Lasers Systems**

Zecotek's laser program is targeted at meeting the needs in the biomedical, scientific and material processing industries. The Company's initial focus has been to develop laser and laser components for the biomedical industry, however, Zecotek has expanded its laser program beyond the biomedical industry due to significant demand for lasers from other industrial sectors. The Company is developing the following laser technologies:

- **Fiber lasers** for use in bio-instrumentation, genomics, proteomics, scientific and material processing;
- **Diode pumped solid-state lasers** for drug discovery, clinical diagnostics, scientific and industrial applications;
- **Thin film waveguide micro-lasers** for high speed integrated circuits.
- **Special application dye lasers** for high-precision laser spectroscopy.

Zecotek has initiated sales of a Rare earth Fine Oxide (RFO) Vanadate crystal which was developed to replace the ubiquitous YAG crystal, which is used in approximately 60% of laser applications, ranging from medical lasers to high-power industrial laser systems. Management believes the Company's proprietary RFO crystal growth technology is more efficient and thus more cost effective and provides improved performance when compared with the YAG crystal.

### **Imaging Systems**

Zecotek's imaging strategy is to develop novel technologies that provide superior performance at a competitive price. The focus of the strategy is development and commercialization of important photonic technologies specifically patented Lutetium Fine Silicate (LFS) scintillation crystals used in scientific and medical imaging devices, and new generation of solid-state photo detectors, Micro-pixel Avalanche Photodiodes (MAPD), used in a broad range of medical and non-medical application.

### **3D Display Systems**

Zecotek has successfully developed and demonstrated a colour, 32 inch 3D display prototype that offers multiple viewers with true volumetric visualization while exhibiting depth and parallax. Zecotek's Real-Time 3D2D Display is a novel, proprietary display system for the visualization of images and data. Based on the auto stereoscopic principle, but with substantial patent pending innovation, it represents a new generation of 3D displays. Zecotek's 3D display is particularly powerful when applied to the field of medical imaging. Its design provides for multi-user, multi-view, freedom of movement, high resolution in both 3D and 2D modes, superior image dynamic range in 2D mode, 2D and 3D simultaneous displays, common brightness, compatibility with existing applications and designed to be cost competitive.

### **Zecotek Product Summary**

- Patented LFS scintillation material;
- Patent-pending MAPD solid-state photon counters;
- Proprietary RFO Vanadate crystal;
- Growing portfolio of Lasers:
  - Green Fiber Laser, Model GLF 550 & Model GLF-540-0.2;
  - CW Narrow-Band Ti: Sapphire laser, Model TIS-FD-08/A-scan-WV;
  - CW Single-Frequency Ti: Sapphire Laser, Model TIS-SF-878;
  - CW Single Frequency Ring Dye Laser;
  - CW Ti: Sapphire Laser, Model TIS-SF-777;
  - Solid-State 336nm DPSS Laser;
  - Frequency Doubling Device, Model FD-SE-07;
  - New Surgical Laser, Model SL 1.4 Fiber Coupled Laser;
  - High-Power, High-Resolutions Laser Spectrometer, Model TIS/DYE-FD-08/A-scan.

### **Zecotek Research & Development Programs**

- New scintillation material for medical imaging to eventually serve as a successor material to the LFS;
- Enabling technologies for combined PET-MRI detectors, in development with the University of Washington;
- Various solid-state and fiber lasers, including the Green Fiber Laser;
- Thin film waveguide micro laser technology, being currently in development jointly with UBC;
- Real time auto-stereoscopic 3D display.

### **Recent Developments**

The recent strengthening of the Company's sales and marketing efforts, together with participation at key trade shows and partnerships with key distributors around the world (see below), has resulted in initial product sales and increased sales inquiries and orders for Zecotek's broad range of lasers systems and components. Revenue is increasing and the Company looks to build off of recent sales success to leading research and development institutions:

#### ***T.E.M. Incorporated, Japan***

On July 28, 2008, the Company signed broad ranging distribution agreements with T.E.M., a leading Japanese distributor of laser and electro-optical products. The agreements cover the distribution of Zecotek's fiber and solid-state lasers, MAPD photo detectors, RFO vanadate crystals and patented LFS Scintillation material in Japan. T.E.M. has a proven track record in the key markets of Japan representing companies like IPG Photonics, Promet International and Cambridge Technologies.

#### ***Toyo Ram, Israel***

On May 27, 2008, Zecotek engaged Toyo Ram for sales and distribution of the Company's products in Israel's medical imaging and expanding photonics markets. The agreement covers Zecotek's broad portfolio of photonic technologies: proprietary Green Fiber and Ultra-wide tunable lasers, solid-state MAPD photo detectors combined with the LFS scintillation material, and RFO vanadate laser crystals.

#### ***Market Tech, Inc., United States***

On October, 22, 2007, Zecotek appointed Market Tech, Inc. as their exclusive U.S. sales representative for Zecotek's new line of fiber laser products. Market Tech is a privately-held corporation based in Scotts Valley, CA which provides distribution and sales representation for a variety of photonics manufacturers.

## **Laser Systems**

### ***Sale of RFO Vanadate Crystal***

In September 2008, Zecotek received the first purchase orders for its proprietary Rare-Earth Fine Oxide (RFO) Vanadate Crystals for laser applications. The announcement follows testing and qualification of its neodymium doped yttrium vanadate laser cavity crystals by major U.S and European based laser manufacturers. Zecotek has worked closely with industry leading laser manufactures to align quality testing procedures and standards and reached mutual agreement on final specifications and pricing levels. The vanadate crystals are expected to be used in a new series of high-performance industrial lasers. For competitive reasons terms of the purchase orders remain confidential.

### ***Manufacturing Agreement Signed with Fujikura Ltd.***

On February 25, 2008 Zecotek signed a manufacturing and distribution agreement with Fujikura Ltd. of Japan which has positioned Zecotek to become a leading supplier in the global laser systems and components industry. Zecotek and Fujikura are focusing on the production of Zecotek's proprietary Green Fiber Laser with priority in genomics and a high-power, visible fiber laser for laser machining. Both companies have agreed to pool resources to manufacture new lines of visible wavelength lasers aimed at markets in bio-instrumentation and the processing of a wide range of industrial, consumer based and research materials. Fujikura's strong presence and brand will be used to penetrate key Japanese and Asian markets while Zecotek retains Market Tech U.S.A for non-exclusive distribution within North America and Toyo Ram for exclusive distribution in Israel.

### ***Green Fiber Laser, Model GFL-550 & Model GLF-540-0.2***

The National Cancer Institute, a division of the National Institutes of Health, presented results of successful testing conducted on the Green Fiber Laser, which met or exceeded performance criteria at the 24th International Congress of the International Society for Analytical Cytometry. Management believes that Zecotek's Green Fiber Laser operates in all known wavelengths of the green spectral range 515 to 560nm which is optimal for bio-instrumentation, medical, material processing and fundamental research applications. More specifically the laser emits at a wavelength of 550nm where specific fluorescent probes can be excited more efficiently which improves accuracy and broadens the use of flow cytometry in immunology, hematology, transplantations and biomedical research. Zecotek has filed a patent application with the U.S. Patent Office covering the unique intellectual property related to the Green Fiber Laser.

### ***CW Ti: Sapphire Laser, Model TIS-SF-777 Frequency Doubling Device, Model FD-SE-07***

The Department of Physics at the University of Illinois, Urbana-Champaign, Illinois, U.S.A., ordered Zecotek's proprietary TIS-SF-777 Ti: Sapphire Laser and a FD-SE-07 Resonant Frequency Doubler, which in tandem have the ability to deliver a super-narrow line of powerful radiation in the blue spectral range. The tandem device provides a new tool for application in fields such as nanolithography, nanostructured materials and quantum physics where single atoms and ions can now be cooled, trapped, and precisely manipulated using laser beams.

### ***New Surgical Laser, Model SL 1.4 Fiber Coupled Laser***

The SL 1.4 fiber coupled laser should offer a more effective and less expensive solution than presently used holmium lasers used for surgical applications.

### ***High-Power, High-Resolutions Laser Spectrometer, Model TIS/DYE-FD-08/A-scan***

The Institute for Quantum Computing, University of Waterloo, Canada, received the first fully automated and integrated spectrometer which incorporates Zecotek's CW ultra-wide-tunable laser, which covers a broad spectral range between 275 and 1100 nm, with a high-precision wavelength meter and multiple-function electronic control unit.

### ***CW Narrow-Band Ti: Sapphire Laser, Model TIS-FD-08/A-Scan-WV***

The Institute for Quantum Computing, University of Waterloo, Canada selected Zecotek's CW Narrow-Band Ti: Sapphire laser for use in the field of nano-optics (the investigation of single semiconductor quantum dots) and quantum computing.

### ***CW Single-Frequency Ti: Sapphire Laser, Model TIS-SF-878***

Zecotek initiated commercial production of its new-generation CW Single-Frequency Ti: Sapphire laser, model TIS-SF-878. The TIS-SF-878 offers an ultra-narrow linewidth which, together with its wide tunable range, new level of compactness and frequency-stability, position the laser to be competitive in the growing laser market.

### ***CW Single Frequency Ring Dye Laser***

Korea's Gwangju Institute of Science and Technology (GIST) purchased Zecotek's CW Single Frequency Ring Dye laser for high-precision laser spectroscopy in its Advanced Photonics Research Institute.

### ***Solid-State 336nm DPSS Laser***

Zecotek's proprietary, solid-state 336nm DPSS laser is designed to replace nitrogen gas lasers currently used in a wide range of mass spectrometry applications. Management believes the 336nm DPSS laser offers both superior performance and product lifetime characteristics as compared to existing lasers used in mass spectrometry based on the MALDI-TOF technique.

### ***Sale of Laser Products and Services***

On May 3, 2007, an agency of the Government of India signed a contract with Tekhnoscan to acquire over US\$800,000 worth of laser products and services. Tekhnoscan was selected from a group of world leading laser developers who competed for the Government of India contract. The laser system has been delivered and currently is being installed and tested at the National Centre for Compositional Characterization of Materials, DAE in Hyderabad. The revenues will not be recognized by the Company as the contract was made before the purchase of the technologies of Tekhnoscan.

### ***RFO Vanadate Crystal***

On April 10, 2006 the Company announced the introduction of the Rare earth Fine Oxide (RFO) Vanadate crystal, a technological breakthrough in the development of crystals for solid-state lasers. Zecotek initiated commercial production of its proprietary, RFO Vanadate Crystals in the Company's Singapore laboratory facilities with the installation of a Czochralski crystal growing oven.

## **Imaging Systems**

### ***MAPD Solid-State Photo Detectors***

In June 2008 the Swiss-based Paul Scherrer Institute reported on the performance and stability characteristics of Zecotek's proprietary Micro-pixel Avalanche Photo Diodes (MAPD's) at the 5th International Conference on New Developments in Photo Detection, Palais des Congrès, Aix-les-Bains, France, June 15-20, 2008. Dr. Dieter Renker, Senior Researcher, Particles and Material of the Paul Scherrer Institute noted that test results of the MAPDs, both alone and in conjunction with fast scintillation material, support the potential to deliver improvements in sensitivity, spatial resolution and image quality application in high-performance PET devices.

In April 2008 Zecotek announced a new, proprietary array of Micro-pixel Avalanche Photodiodes. The MAPD Array integrates Zecotek's patented MAPD technologies in an 8 by 8 format, with 64 individual MAPDs each measuring 3mm by 3mm, and scalable to larger dimensions.

In January 2008 the University of Geneva, Switzerland, ordered a quantity of Zecotek's proprietary Micro-pixel Avalanche Photo Diode solid-state photo detectors for use as an alternative to photo multiplier tubes in the development of new calorimeters for high energy physics. The MAPD photo detectors address specific, high-demand requirements in high-energy physics such as particle accelerators where PMT's are vulnerable to the magnetic environment created by the superconducting magnets used in the collimation of particle tracks.

In December 2007 the Institute of High Energy Physics Research ordered a supply of Zecotek's proprietary Micro-pixel Avalanche Photo Diode solid-state photo detectors. The MAPD photo detectors will form a critical component in a new, high-performance hadron calorimeter, a device used in key experiments at the European Centre for High Energy particle Physics (CERN) in Switzerland.

### ***Malaysian Institute for Micro-electronics Systems***

In July 2007 the Company selected the Malaysian Institute for Micro-electronics Systems (MIMOS), Malaysia's center for advanced micro-electronics technology and manufacturing based in Kuala Lumpur, to manufacture Zecotek's new-generation Micro-pixel Avalanche Photo Diodes (MAPD) solid-state photo detectors. In October 2007 MIMOS successfully completed the first commercial production run of the Company's new-generation MAPDs. First-run production samples have been delivered to OEM customers in both medical imaging and high-energy physics for final testing.

### ***University of Washington Lab Tests***

In May 2007 testing conducted by the University of Washington demonstrated Zecotek's MAPD superior performance versus existing photo multiplier tubes (PMT's). The conclusive test results validate that MAPD, in combination with the Company's patented LFS scintillation crystal, outperforms current PMT's in critical imaging parameters. The combination of Zecotek's MAPD and LFS crystals resulted in an equal to or greater than overall signal gain and an improved energy resolution versus PMT's and standard commercial crystals. It is anticipated that these superior capabilities will be utilized in the next-generation of PET-MRI scanner systems currently being developed in the University of Washington laboratory.

### ***Sale of LFS Scintillation Crystals***

In October 2007 the Paul Scherrer Institute based in Switzerland purchased an order of Zecotek's patented Lutetium Fine Silicate (LFS) scintillation crystals for trials in its next-generation Positron Emission Tomography (PET) medical imaging program. The Paul Scherrer Institute PET program is focused on advancing improvements in sensitivity, spatial resolution and image quality in PET scanners, based on the understanding that advances in PET are driven largely by progress in instrumentation, in particular the performance of scintillation materials, photo-detectors and read-out electronics. Higher resolution PET scanners would also widen PET's application in brain function analysis and diagnosis.

## **3D Display Systems**

In September 2008 Zecotek released improved performance parameters for its 3D/2D display system including significant improvements in overall clarity, increasing concurrent perspectives twofold (from 40 to 80) and increasing the effective 3-D viewing angle from 25 to 40 degrees. Other technical achievements include the development of a new, more compact, highly stable and noise-free electro-mechanical module as well as the integration of new, high-power, colour light-emitting diodes, which enhance viewing in ambient light.

In December 2007 the Company initiated a number of demonstrations of a 32" commercial prototype of its proprietary Real-Time 3D2D Display System©, the first 3D display offering multiple viewers true volumetric visualization while exhibiting depth and parallax over a wide viewing angle. The demonstrations were attended by a select group of representatives of potential industry partners, including Insight Media, a leading publishing and consulting firm focused on the display industry. Zecotek has engaged Insight Media to provide advice and guidance on a market entry strategy for the display system.

In July 2007 Anteryon BV of the Netherlands was selected to produce the key screen component of Zecotek's Real-Time 3D2D Display. Anteryon produced Zecotek's proprietary 3D lenticular display in a 32" screen format, considered by management to be the optimum size to demonstrate its potential power and user impact.

## **Corporate Developments**

### ***Patents***

On September 29, 2008 the Canadian Patent Office issued a notice of allowance to Zecotek Imaging Systems Singapore Pte. Ltd., a wholly owned subsidiary of Zecotek Photonics Inc., for its LFS scintillation material. This application is identical to the LFS scintillation applications that have been issued or allowed in the United States, Russia, China, Europe and Japan.

On September 3, 2008, the Company received Notification of Grant of Patent Rights from the Chinese Patent Office for its LFS scintillation material. The grant of these additional Chinese patent rights further validates and strengthens Zecotek's worldwide patent position in its innovative LFS scintillation material.

On April 24, 2008, Zecotek was granted acceptance by the Australian Commissioner of Patents for its Real-Time 3D2D Display System technology. Australian Patent Number 2006200812 provides patent protection for 3 dimensional stereoscopic display systems. The Company has pending U.S. and PCT (Patent Cooperation Treaty) counterpart applications for worldwide patent rights on the same technology.

On March 28, 2008, Zecotek was granted patent rights for its latest Micro-channel Avalanche Photodiode solid-state photo detector by the Agency for Intellectual Property Protection in Russia. The Company has pending U.S. and PCT (Patent Cooperation Treaty) counterpart applications for worldwide patent rights on the same technology.

### ***Financings***

On December 20, 2007, the Company closed a private placement brokered by Loewen, Ondaatje, McCutcheon Limited by issuing 2,156,300 units at a price of \$1.60 per unit for gross proceeds of \$3,450,080. Each unit consisted of one common share and one-half of one common share purchase warrant. Each whole warrant entitled the holder to acquire one common share at an exercise price of \$2.10 per common share for a period of 24 months. The Company paid a finder's fee equal to 7% of the gross proceeds in cash and issued agent's warrants equal to 7% of the units sold (150,941) under the private placement with an exercise price of \$1.60 per share.

On September 6, 2007, the Company closed a non-brokered private placement consisting of 1,563,000 Units at a price of \$1.60 for gross proceeds of \$2,500,800. Each Unit consisted of one common share and one-half of one common share purchase warrant. Each whole warrant entitled the holder to acquire one common share at an exercise price of \$2.00 per common share for a period of 18 months after the date the private placement closes. Under the terms of the private placement, 1,563,000 common shares were issued at \$1.60 per share.

### ***Change to Executive Management***

In July 2008 the Company reported that Mr. Michael Minder, had stepped down as Chief Financial Officer, and the Company's senior financial controller and corporate secretary Mr. Azim Dahya, BSc, CGA, had assumed the position of Chief Financial Officer on an interim basis. Mr. Minder continues to work with the Company in an advisory role. In August 2008, Dr Ahmad Magad resigned as the director of the Company.

### ***Singapore Economic Development Board grants Research Incentives***

In August and October 2008, Zecotek received grant payments under the previously announced Government of Singapore Economic Development Board's (EDB) Research Incentive Scheme for Companies. The payment covers a re-imbusement of a portion of operational expenses in research and development, including salaries, equipment, materials, professional and consulting services and staff training, for Zecotek's Singapore based product development and commercialization programs for the period January 2007 to July 2008. Under the terms of the agreement, grant details remain confidential. General details of EDB's support programs can be found on EDB's website [www.edb.gov.sg](http://www.edb.gov.sg).

### ***Additions to the Advisory Board***

In November 2007 Dr. K.A. Abraham and Dr. Teoh Tiong Ann were appointed to the Company's Advisory Board. Both Dr. Abraham and Dr. Teoh are recognized experts in their respective fields and are expected to assist in the design and development of the combined PET/MRI scanning device, the Optical Coherent Tomography device as well as a range of medical lasers used both in treatment and diagnostics.

## Selected Annual Information

The Company's fiscal year end is July 31. The following is a summary of certain selected audited consolidated financial information for the Company's three most recently completed fiscal years.

	Audited Year Ending July 31, 2008	Audited Year Ending July 31, 2007	Audited Year Ending July 31, 2006
Revenue	\$ 303,859	\$ -	\$ -
Interest and other income	\$ 103,054	\$ 74,040	\$ 44,153
Net loss for the year	\$ (8,403,181)	\$ (8,241,683)	\$ (5,734,665)
Earnings/loss per share	\$ (0.19)	\$ (0.22)	\$ (0.20)
Total assets	\$ 3,550,940	\$ 3,156,031	\$ 4,275,901
Long term debt	\$ 0	\$ 0	\$ 0
Share Capital	\$ 28,985,958	\$ 21,809,339	\$ 16,246,313
Number of Shares	45,455,838	39,813,278	34,692,741
Deficit	\$ (30,446,019)	\$ (22,042,838)	\$ (13,801,155)

## Summary of Quarterly Results

The following table sets out certain financial information for the past eight quarters

Quarters ended (unaudited)	July 31, 2008	April 30, 2008	January 31, 2008	October 31, 2007
<b>Operating Accounts</b>				
Revenue	\$135,620	\$35,820	\$132,419	Nil
Net loss	\$2,111,483	\$1,906,562	\$2,288,606	\$2,096,530
<b>Balance Sheet Accounts</b>				
Total Assets	\$3,550,940	\$5,183,601	\$7,102,587	\$3,889,105
Loss per share	\$0.05	\$0.04	\$0.05	\$0.05
Quarters ended (unaudited)	July 31, 2007	April 30, 2007	January 31, 2007	October 31, 2006
<b>Operating Accounts</b>				
Revenue	Nil	Nil	Nil	Nil
Net loss	\$3,231,748	\$1,788,498	\$1,674,381	\$1,547,056
<b>Balance Sheet Accounts</b>				
Total Assets	\$3,156,031	\$5,694,403	\$3,881,408	\$2,931,039
Loss per share	\$0.08	\$0.07	\$0.04	\$0.04

## Results of Operations

### Revenue

Revenues amounted to \$135,620 in the fourth quarter of 2008 and \$303,859 in the year ended July 31, 2008 compared with nil in the same periods in 2007. These revenues are from the sale of laser equipment (88%), LFS crystals (1%), Vanadate crystals (6%) and MAPDs (5%).

### **Gross Margin**

The gross profit for the fourth quarter of 2008 amounted to \$33,269 on \$135,620 of product sales for an average gross margin of 25 percent. For fiscal 2008, the gross profit amounted to \$86,108 on \$303,859 of product sales for an average gross margin of 28 percent. Higher margins are expected in the fiscal year ending 2009 as the laser equipment will be manufactured by Fujikura.

### **Interest and Other Income**

Interest income amounted to \$10,375 in the quarter ended July 31, 2008, compared with \$15,567 in the same period in 2007, reflecting a decrease of 33%. Interest income totaled \$103,054 in the year ended July 31, 2008, an increase of 39% when compared to \$74,040 in the same period in 2007. These increases in interest income are largely due to the Company's liquidities being higher pursuant to the private placements in September 6, 2007 and December 20, 2007.

### **Operating, General and Administrative Expenses**

Operating, General and administrative ("G&A") expenses amounted to \$1,134,855 in the fourth quarter of 2008, compared with \$1,335,976 in the same period of 2007, representing a decrease in costs of 10%. For fiscal 2008, G&A expenses totaled \$4,036,618, an increase in costs of 10% when compared to \$3,677,218 for the same period in 2007. The increase in costs is due to the setting up of manufacturing operations in Singapore, negotiating agreements with vendors, manufacturing and distribution partners and sales and marketing efforts.

### **Research and Development Expenses**

Research and development ("R&D") expenses amounted to \$762,161 in the fourth quarter of 2008, compared with \$1,457,890 in the fourth quarter of 2007, representing a decrease in costs of 48%. For the year ended July 31, 2008, R&D expenses were \$3,449,646 compared to \$2,919,790 for the same period of 2007, reflecting an increase in costs of 18%. These increases in costs are due to the increased research and development for the commercialization of some of the technologies. Research projects are currently being carried out in laboratories in Canada, Malaysia, Russia and U.S.A.

### **Stock-based Compensation**

Stock-based compensation expenses amounted to \$64,808 in the fourth quarter of 2008, compared with \$365,589 in the same period of 2007, representing a decrease in costs of 82%. For fiscal 2008, stock-based compensation expenses totaled \$656,249 a decrease in costs of 57% when compared to \$1,530,685 for the same period in 2007. The decrease is as a result of reduction in compensation of stock option grants to the employees and consultants of the Company.

### **Foreign Exchange Loss**

Foreign exchange loss amounted to \$19,629 in the fourth quarter of 2008, compared with \$46,564 in the same period of 2007, representing a decrease in the loss of 55%. For fiscal 2008, foreign exchange loss was \$105,782 an increase in costs of 40% when compared to \$75,430 for the same period in 2007. The increase is due to impact of the foreign currency fluctuations.

### **Amortization of property and equipment**

Amortization expense for the fourth quarter of 2008 increased to \$78,906 from \$39,641 in the same period of 2007, an increase of 99%. For fiscal 2008, the amortization was \$247,420 an increase of 123% when compared to \$110,945 for the same period in 2007. The increase is due to the acquisition of capital assets including the plant and laboratory equipment in Singapore for the manufacture of the Vanadate Crystals.

### **Amortization of patent costs**

Amortization expense for the fourth quarter of 2008 increased to \$34,201 from \$1,655 in the same period of 2007, an increase of 1967%. For fiscal 2008, the amortization was \$36,061, an increase of 2079% when compared to \$1,655 for the same period in 2007. The increase is due to the amortization of patent costs for the lasers and imaging technologies in the fourth quarter at the rate of 10% calculated from the time patent costs were incurred. In the prior year only the patent costs related to the LFS crystals technology were amortized.

### **Impairment of patent costs**

Impairment of patent costs for the display technologies amounted to \$60,567 in the current fiscal year. These technologies are still in the developmental stages thus it is difficult for the Company to justify whether the carrying value can be recovered from forecasted cash flows and profitability information, including estimated future operating results, trends and other available information.



## Net Loss

The Company recorded a net loss of \$2,111,483 or \$0.05 per share in the fourth quarter of 2008, compared with \$3,231,748 or \$0.08 per share in the same period of 2007, a decrease of 35%. A net loss of \$8,403,181 or \$0.19 per share was recorded in the fiscal year 2008 compared with \$8,241,683 or \$0.22 per share in the same period of 2007. The change in net loss compared to the previous year is minimal (2%) as the Company did not expand its operations in the current year but changed focus to commercialize their products. The Company was thus involved in research and development in manufacturing processes, setting up the manufacturing facilities for the Vanadate Crystals, outsourcing the manufacturing of the laser equipment and photo detectors and sales and marketing.

## Liquidity and Capital Resources

The Company has suffered recurring losses from operations and currently the revenues do not generate enough cash to sustain its operations. Its ability to conduct operations, including the commercialization of its technologies, development of new technologies and the acquisition of additional technologies is dependent on its ability to raise funds as needed.

At July 31, 2008 the Company had \$308,345 in cash and cash equivalents and \$1,340,000 in short term investments totalling \$1,648,345, an increase of \$70,482 (4%) over the \$1,577,863 cash and cash equivalents available at July 31, 2007. The consolidated working capital was \$1,242,218 at July 31, 2008, a decrease of \$22,501 over the \$1,264,719 of consolidated working capital at July 31, 2007.

## Share Capital

Set out below is the outstanding share data of the Company as at July 31, 2008. For additional detail, see Note 10 to the audited financial statements for July 31, 2008.

<b>At July 31, 2008</b>	<b>Number outstanding</b>
Common shares	45,455,838
Stock options	4,609,000
Common share purchase warrants	1,859,650
Agent's warrants	442,134

Outstanding options represent a total of 4,609,000 common shares issuable. At July 31, 2008, 4,479,000 were exercisable and would provide proceeds of \$5,548,900 to the Company if all the vested options were exercised in full. The exercise of these options is completely at the discretion of the holders and the Company has no indication that any of these options will be exercised.

At July 31, 2008 the Company had outstanding 1,859,650 common share purchase warrants out of which 781,500 were exercisable at \$2.00 per share expiring on March 6, 2009 and 1,078,150 warrants were exercisable at \$2.10 per share expiring on December 20, 2009.

At July 31, 2008 the Company had outstanding 442,134 agent's warrants out of which 213,043 were exercisable at \$0.90 per share expiring on February 18, 2009, 78,150 agent's warrants were exercisable at \$2.00 per share expiring on March 6, 2009 and 150,941 agent's warrants were exercisable at \$1.60 per share expiring on December 20, 2009.

## Escrow shares

As at July 31, 2008 a total of 4,746,878 (2007: 8,795,628) shares were held in escrow, their release subject to a predetermined time schedule.

## Financing

Financing activities resulted in a cash increase of \$7,917,989 during the year ended July 31, 2008, due to \$5,506,486 received from the closing of private placements, \$2,237,848 received from the exercise of warrants, \$118,655 received from the exercise of agent's options and \$55,000 from the exercising of stock options. This compares to a cash increase of \$5,429,436 during the same period in 2007 due to \$3,220,000 received from the closing of private placements, \$1,322,044 received from the exercise of warrants, \$456,392 received from the exercise of agent's options and \$431,000 from the exercising of stock options.

The Company continued to fund its operations during fiscal 2008 by issuing common shares and through the exercise of warrants and options.

### **Contractual Obligations**

The following table summarizes the Company's contractual obligations as at July 31, 2008, and the effect such obligations are expected to have on our liquidity and cash flows in future years. The table excludes amounts already recorded on the consolidated balance sheet as current liabilities and certain other purchase obligations discussed below:

	<b>2009</b>	<b>2010</b>	<b>2011</b>
Rental leases	\$ 299,337	\$ 80,630	-
Research Contracts	726,828	443,908	391,958

Purchase orders for third party components, finished goods and other goods and services are not included in the above table. Management is not able to determine the aggregate amount of such purchase orders that represent contractual obligations, as purchase orders may represent authorizations to purchase rather than binding agreements. For the purpose of this table, contractual obligations for purchase of goods or services are defined as agreements that are enforceable and legally binding on the Company and that specify all significant terms, including: fixed or minimum quantities to be purchased; fixed, minimum or variable price provisions; and the approximate timing of the transaction.

The Company has entered into contracts for other outsourced services. However, the obligations under these contracts are not significant and the contracts generally contain clauses allowing for cancellation without significant penalty. The expected timing of payment of the obligations discussed above is estimated based on current information. The timing of payments and actual amounts paid may be different depending on the time of receipt of goods or services, or for some obligations, changes to agreed-upon amounts.

### **Disclosure Controls and Procedures Related to Financial Reporting**

Disclosure controls and procedures have been designed to ensure that information required to be disclosed by the Company is accumulated and communicated to our management as appropriate to allow timely disclosure. The Company's Chief Executive Officer and the acting Chief Financial Officer have concluded, based on their evaluation as of July 31, 2008, that the Company's disclosure controls and procedures are operating effectively to provide reasonable assurance that material information related to the Company are made known to them by others within the Company. It should be noted that while the Company's Chief Executive Officer and acting Chief Financial Officer believe that the disclosure controls and procedures provide a reasonable level of assurance and that they are effective, they do not expect that the disclosure controls and procedures will prevent all errors and fraud. A control system, no matter how well conceived or operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met.

### **Internal Control over Financial Reporting**

The Chief Executive Officer and acting Chief Financial Officer of the Company are responsible for designing internal controls over financial reporting or causing them to be designed under their supervision in order to provide reasonable assurance regarding the reliability of financial reporting and the presentation of financial statements for external purposes in accordance with Canadian GAAP. The Chief Executive Officer and the acting Chief Financial Officer have assessed the design of internal control over financial reporting as at July 31, 2008 and during the process, they have identified certain weaknesses in internal controls over financial reporting. The weaknesses in the Company's internal control over financial reporting, discussed below, result in a more than remote likelihood that a material misstatement may not be prevented or detected on a timely basis.

There has been no change in the Company's internal control over financial reporting that occurred during the Company's most recent interim period that has materially affected, or is reasonably likely to affect, the Company's internal control over financial reporting other than:

- The Chief Financial Officer is no longer with the Company and an acting Chief Financial Officer has been appointed temporarily until a new Chief Financial Officer is hired;

•Due to the size of the Company and limited staff it is not feasible to achieve complete segregation of incompatible duties.

Management and the Board of Directors work to mitigate the risk of a material misstatement in financial reporting. However, there can be no assurance that this risk can be reduced to less than a remote likelihood of a material misstatement.

### **Audit Committee**

In compliance with the TSX Venture Exchange Policy 3.1 “Directors, Officers and Corporate Governance” section 10.1, the Audit Committee is comprised of 3 members, Erich Sager of Zurich, Switzerland, David Toyoda (independent) of Vancouver, Canada and Dr. Faouzi Zerrouk of Singapore. Mr. Sager is the Chairman of the Audit Committee.

Mr. Sager has many years experience in the private banking sector in Switzerland and serves on several Boards as Director. David Toyoda is a lawyer and serves on several Boards as Director. Dr. Faouzi Zerrouk has many years experience serving on the board of high tech organizations and as a Chief Executive Officer. The Audit Committee will serve until the next Annual General Meeting at which time the new Board of Directors will appoint or re-appoint the Audit Committee.

### **Forward-looking statements**

This discussion may contain forward-looking statements, including statements regarding the business and anticipated financial performance of the Company, which involve risks and uncertainties. These risks and uncertainties may cause the Company's actual results to differ materially from those contemplated by the forward-looking statements. Factors that might cause or contribute to such differences include, among others, Company's ability to successfully complete new product development along the timelines expected; the Company's need for funds to achieve its goals and uncertainties as to the availability and cost of funding; uncertainty as to the continued and future demand for the Company's products; the development of competing technologies and the possibility of increased competition; and other economic trends and conditions in the markets that the Company and its customers serve; and the effect of the risks associated with technical difficulties or delays in product introductions, improvements, implementation, product development, product pricing or other initiatives of the Company and its competitor. Investors are also directed to consider the other risks and uncertainties discussed in the Company's required financial statements and filings. All other companies and products listed herein may be trademarks or registered trademarks of their respective holders.

### **Additional Information**

Additional information relating to the Company, including the Annual Information Form and its audited year end financial statements is available on SEDAR at [www.sedar.com](http://www.sedar.com).