# ZECOTEK PHOTONICS INC.

# MANAGEMENT DISCUSSION AND ANALYSIS FOR THE QUARTER ENED OCTOBER 31, 2007 AND 2006

# Dated at December 31, 2007

On October 23, 2007, Zecotek Medical Systems, Inc. announced that it had changed its name to Zecotek Photonics Inc. ("Zecotek" or the "Company") effective November 26, 2007. The name change better reflects the broad range of industry applications of the company's photonic product portfolio.

This MD&A should be read in conjunction with the interim financial statements and notes that follow. For additional information and details, readers are referred to the audited financial statements for the year ended July 31, 2007 and the MD&A for the same period.

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 October 31, 2007 as reported by the Bank of Canada, for the conversion of one Singapore dollar into Canadian dollars was 0.6558.

# **Company Overview**

Zecotek Photonics Inc., formerly known as Zecotek Medical Systems Inc., is a photonics technology company developing and commercializing high-performance crystals, photo-detectors, lasers, optical imaging and 3D display technologies for applications in the medical imaging and high-tech industries. Founded in 2003, the company has focused on the research and development of novel photonic technologies and is presently moving toward commercialization of its technologies. In fiscal 2008, the Company expects to generate revenue through the sale of its imaging and laser technologies.

Zecotek's operational headquarters, pre-production, and production facilities are located in Singapore. Through its wholly owned subsidiary Zecotek Medical Systems Singapore Pte Ltd., enabling technologies for use in the medical imaging and high-performance laser industries 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, U.S.A., and Russia. 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 "W1I". The Company's website is www.zecotek.com.

### **Imaging Systems**

Zecotek's imaging strategy is to develop novel technologies that provide superior performance at a competitive price. The focus of the Company's development of important photonic technologies has concentrated on patented Lutetium Fine Silicate (LFS) scintillation crystals used in scientific and medical imaging devices, new generation solid-state photo detectors used in a broad range of medical and non-medical application, and light sources and configurations used in high resolution optical imaging.

### 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 in biomedical instrumentation, ophthalmology, dentistry, cardiovascular and infectious diseases as the increasing use of lasers, for disease diagnostics and drug discovery plus the growth in patient-paid therapy for vision correction and aesthetic applications have been major contributors to the growth in the medical laser industry. However, Zecotek's laser program has expanded beyond the biomedical industry due to demand for lasers from other industrial sectors. The Company is developing the following laser technologies:

- Diode pumped solid-state lasers for use in medical, scientific and industrial applications;
- Fiber lasers for medical, inspection and measurement applications;
- Thin film lasers for surgical and diagnostic applications in cardiology, ophthalmology and dermatology.
- Special application dye lasers for high-precision laser spectroscopy
- Bio-instrumentation lasers for drug discovery and clinical diagnostics;

Zecotek has also developed a Rare earth Fine Oxide (RFO) Vanadate crystal 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. The Company's proprietary RFO crystal growth technology has shown to be more efficient and thus more cost effective. Furthermore, the RFO crystal provides improved performance when compared with the YAG crystal.

### **3D Display Systems**

Zecotek has successfully developed and demonstrated a compact, colour, true 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. Meeting the requirements of both mass market and professional use, 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-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;

### **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 a solid-state laser for bio-instrumentation;
- Thin film waveguide micro laser technology, being currently in development jointly with UBC;
- Real time auto-stereoscopic 3D display.

# **Recent Developments**

# **Imaging Systems**

### Sale of MAPDs

In December 2007 the Institute of High Energy Physics Research ordered a supply of Zecotek's proprietary Micropixel Avalanche Photo Diodes 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 premier 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 key 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. These superior capabilities will be fully 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.

### Laser Systems

Zecotek's laser program is aimed at meeting the needs of a growing market in scientific, biomedical research and material processing industries. The company has recently introduced and initiated sales of four important laser products and has appointed Market Tech, Inc., a privately-held corporation based in Scotts Valley, CA, as their exclusive U.S. sales representative for Zecotek's new line of fiber laser products.

#### Green Fiber Laser, Model GLF-540-0.2

Zecotek completed the development of a break-through Green Fiber Laser that operates in all known wavelengths of the green spectral range. The company has filed a patent application with the U.S. Patent Office covering the unique intellectual property related to the Green Fiber Laser. With the appointment of Market Tech, Inc., Zecotek received its first order for the GLF-540-0.2 Green Fiber Laser series from a major U.S. based customer.

#### 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-787. The TIS-SF-787 offers an ultra-narrow linewidth which, together with its super-wide tunable range, new level of compactness and frequency-stability, position the laser to be best-in-class in the growing laser market.

### CW Single Frequency Ring Dye Laser

Korea's prestigious 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.

### Sale of Laser Products and Services

On May 3, 2007, an agency of the Government of India signed a purchase agreement to acquire over US\$800,000 worth of laser products and services. Under the agreement Tekhnoscan supplied lasers and consulting services. Tekhnoscan was selected from a group of world leading laser developers who competed for the Government of India contract. The delivery of lasers products and consulting services is expected to be concluded in the first quarter of the Company's 2008 calendar year.

#### **RFO Vanadate Crystal**

On April 10, 2006 the Company announced the introduction of the Rare earth Fine Oxide (RFO) Vanadate crystal, a significant technological breakthrough in the development of crystals for solid-state lasers. The YAG crystal is used in 60% of all laser applications, ranging from medical lasers to high-power industrial laser systems. The Company's proprietary growth technology produces a RFO crystal which is a competitive substitute to YAG and meets or exceeds laser manufacturer's performance requirements with significant cost savings.

Zecotek has initiated commercial production of its proprietary, high-performance RFO Vanadate Crystals in the Company's Singapore laboratory facilities. Cyberstar of France, the manufacturer of Czochralski crystal growing ovens, delivered Zecotek's first crystal growing oven in October 2007. This is the first of an expected four Czochralski crystal growing ovens to be installed in Zecotek's Singapore labs as the company prepares for full commercial production of crystals used in solid-state laser systems.

# **3D Display Systems**

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 November 2006 the Company announced that its 3D display has reached prototype demonstration stage. The first demonstration of its compact, full-colour display took place in early November 2006 at the Company's new Singapore facilities to a delegation of senior engineers and executives of a major Japanese electronics company. Demonstrations were also given to representatives of the Singapore Government.

In July 2007 Anteryon BV of the Netherlands was selected to produce the key screen component of Zecotek's proprietary Real-Time 3D2D Display. Anteryon will produce Zecotek's proprietary 3D lenticular display in a 32" screen format, considered the optimum size to demonstrate its potential power and user impact. The first demonstration model was delivered in October and the Company is preparing to host demonstrations for industry, media and the financial community starting in the last week of November 2007.

# **Corporate Developments**

### Letter of Intent Signed with Fujikura Ltd. of Japan

On October 15, 2007 Zecotek signed a letter of intent with Fujikura Ltd. of Japan (Fujikura) to negotiate terms of a proposed business partnership which would feature the manufacture and distribution of certain technologies and products, including Zecotek's new line of fiber lasers and a detector block consisting of Zecotek's proprietary solid-state photo detectors and LFS scintillation crystals.

### Singapore Economic Development Board grants Research Incentives

In July 2007, the Company's wholly owned subsidiary Zecotek Medical Systems Singapore Pte Ltd, received grant approval for the Singapore Economic Development Board's (EDB) Research Incentive Scheme for Companies program. Under the agreement the terms of the grant details remain confidential. General details of EDB's support programs can be found on EDB's website <u>www.edb.gov.sg</u>.

### 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 make significant contributions to the design and development the combined PET/MRI scanning devise, the Optical Coherent Tomography device as well as a range of medical lasers used both in treatment and diagnostics.

### 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 consists of one common share and one-half of one common share purchase warrant. Each whole warrant entitles the holder to acquire one common share at an exercise price of \$2.10 per common share for a period of 24 months. The private placement was increased from \$3.0 million to \$3.4 million following the exercise in full by Loewen.

The Company raised \$2.3 million from the exercise of share purchase warrants, agents' options and agents' warrants which were supposed to expire on November 12, 2007.

On September 19, 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 consists of one common share and one-half of one common share purchase warrant. Each whole warrant entitles 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.

# **Selected Annual Information**

	Audited Year Ending July 31, 2007	Audited Year Ending July 31, 2006	Audited Year Ending July 31, 2005
Total revenues	\$ 74,040	\$ 44,153	\$ 4,110
Net loss for the year	\$ (8,241,683)	\$ (5,734,665)	\$ (1,342,601)
Earnings/loss per share	\$ (0.22)	\$ (0.20)	\$ (0.13)
Total assets	\$ 3,156,031	\$ 4,275,901	\$ 3,197,577
Long term debt	\$ 0	\$ 0	\$ 0
Share Capital	\$ 21,809,339	\$ 16,246,313	\$ 10,506,895
Number of Shares	39,813,278	34,692,741	15,033,341
Deficit	\$ (22,042,838)	\$ (13,801,155)	\$ (7,778,490)

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.

## Summary Financial Information for the Eight Most Recently Completed Quarters

	October 31, 2007	July 31, 2007	April 30, 2007	January 31, 2007
Operating Accounts		•		
Net sales	Nil	Nil	Nil	Nil
Net loss	\$2,096,530	\$3,231,748	\$1,788,498	\$1,674,381
Balance Sheet Accounts				
Total Assets	\$3,889,105	\$3,156,031	\$5,694,403	\$3,881,408
Loss per share	\$0.05	\$0.08	\$0.07	\$0.04
	October 31, 2006	July 31, 2006	April 30, 2006	January 31, 2006
Operating Accounts		-		-
Net sales	Nil	Nil	Nil	Nil
Net loss	\$1,547,056	\$4,114,168	\$743,791	\$474,415
Balance Sheet Accounts				
Total Assets	\$2,931,039	\$4,275,901	\$2,529,782	\$3,107,112
Loss per share	\$0.04	\$0.18	\$0.05	\$0.03

# Results of Operations First Quarter ended October 31, 2007

For the first quarter ended October 31, 2007, the Company's consolidated net loss from operations was \$2,096,530 (2006 - \$1,547,056). This increase is a result of the Company moving towards the commercialization of some of its technologies.

Analysis of some of the more significant expenses for the quarter ended October 31, 2007 is as follows:

**Research and Development** expenses were \$932,094 (2006 – \$657,200). Research and development costs include: – salaries and benefits paid to the scientists;

- supplies and equipment to build and test the prototypes in the laboratories in Singapore, Vancouver and Russia;
- and research contracts with the scientists in Russia, University of British Columbia and University of Washington.

**Amortization** expense was \$52,724 (2006 - \$8,052). The Company purchased laboratory equipment, office furniture and equipment including computers for it's offices and laboratories in Singapore and Vancouver. The Company also purchase equipment and incurred leasehold improvements in the Singapore facilities to prepare for manufacturing to produce the Vanadate Crystals and Lasers.

**Consulting and professional fees** were \$313,917 (2006 - \$180,950). Consulting fees were \$245,637 (2006 - \$139,475), accounting fees were \$50,262 (2006 - \$12,171) and investor relations were \$18,018 (2006 - 29,304). Consulting fees include fees for the CFO, VP for Business Development, Directors and Consultants for corporate reorganization, marketing and financial services. The increase in consulting fees was due to consultants for marketing activities to promote the company and it's products to assist with the commercialization of some of its technologies.

**Filing fees** was \$18,262 (2006 - (\$4,608)) for filings with the TSX and fees for the transfer agent. The increase was due to the filings for the non-brokered private placement in September 2007.

**Insurance** expense amounting to \$24,210 (2006 - \$0) was for the director's & officer's liability insurance, property and liability insurance for the Singapore laboratory and offices.

**Legal fees** were \$52,664 (2006 – \$23,236) for the private placement and other corporate legal matters including filings and compliance with regulatory authorities.

**Marketing and promotion** was \$29,049 (2006 - \$0) for marketing of the company and its products. This amount includes press releases and website development.

**Office and miscellaneous** were \$33,585 (2006 - \$20,051) for expenses incurred at the UBC and Singapore office and laboratory facilities. This includes office supplies, postage, courier, bank charges, parking, telephone, and utilities.

**Rent and storage** expense was \$91,641 (2006 – \$82,009). This includes rent for office and research facilities at UBC, Vancouver and in Singapore, furnished company apartment used for relocating staff and traveling directors and a furnished residence for the CEO.

Salaries and benefits were \$83,556 (2006 – \$140,732) for management and administrative staff.

**Stock-based compensation** expense of 360,789 (2006 – 366,261). At October 31, 2007, 3,645,250 options have vested at an average weighted exercise price of 1.16. The estimated fair value of options granted to executive officers, directors, and employees and consultants since August 1, 2004 is amortized to expense over the vesting period of the stock options.

**Travel** was \$76,380 (2006 – \$61,499) for accommodations and travel to Vancouver and Singapore by Russian scientists, for directors to attend Board meeting in Switzerland and travel to meet with shareholders and potential investors.

Foreign exchange loss - \$39,332 (2006 - (\$2,458)). The Company recorded a loss on the restatement of payments made in Singapore dollars to Canadian dollars.

### Financing

Financing activities resulted in a cash increase of \$2,513,823 during the quarter ended October 31, 2007, due to \$2,375,760 received from the closing of private placement, \$113,318 received from the exercise of warrants and \$24,745 received from the exercise of agents options.

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

# Liquidity and Capital Resources

The Company has suffered recurring losses from operations but is expected to generate revenues from its technologies. Its ability to conduct operations, including the development and commercialization of its technologies is dependent on its ability to raise funds as needed.

At October 31, 2007 the Company had \$2,151,164 (2006 – \$382,625) in cash and cash equivalents and a consolidated working capital of \$1,971,651 (2006 - \$2,182,263) for ongoing working expenses.

At October 31, 2007 the Company had outstanding 104,344 agents' options exercisable at \$0.90 per option, 2,106,447 purchase warrants and 245,426 agents' warrants exercisable at \$1.30 per share expiring on November 12, 2007. There were also 213,043 outstanding agents' warrants exercisable at \$0.90 per option expiring on February 18, 2009, 781,500 purchase warrants and 78,150 agents' warrants exercisable at \$2.00 per share expiring March 6, 2009.

Outstanding options represent a total of 4,569,000 common shares issuable. At October 31, 2007, 3,645,250 were exercisable and would provide proceeds of \$4,238,450 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.

### Share Capital

### Authorized: Unlimited

Set out below is the outstanding share data of the Company as at October 31, 2007.

At October 31, 2007	Number outstanding	
Common Shares	41,490,940	
Options to Purchase Common Shares	4,569,000	
Agent's Warrants and Options to Purchase Common Shares	640,963	
Warrants to Purchase Common Shares	2,887,947	

#### Escrow shares:

As at October 31, 2007 a total of 8,795,628 shares were held in escrow, their release subject to a predetermined time schedule.

# **Forward Looking Statements**

Certain statements contained herein that are not historical facts are forward-looking statements that involve risks and uncertainties. There can be no assurance that such statements will prove to be accurate as actual results and future events could differ materially from those anticipated in such statements.

# **Internal Control over Financial Reporting**

Management is responsible for designing such internal controls over financial reporting, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP.

No changes were made in the Company's internal control over financial reporting during the Company's most recent interim period that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

# **Disclosure Controls and Procedures**

Disclosure controls and procedures are designed to provide reasonable assurance that all relevant information is gathered and reported to senior management, including the Chief Executive Officer and Chief Financial Officer, on a timely basis so that the appropriate decisions can be made regarding public disclosure.

The Chief Executive Officer and Chief Financial Officer of the Company conducted an evaluation of the disclosure controls and procedures as required by Multilateral Instrument 52-109 issued by the Canadian Securities Administrators. They concluded that as at October 31, 2007, the Company's disclosure controls and procedures

were effective to provide reasonable assurance that material information regarding required disclosures was made known to them on a timely basis.

# 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, British Columbia and Dr. Ahmad Magad (independent) 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. Dr. Magad, CPA, MBA, Doctorate in Business Administration, is a director of several Singapore companies and a Member of Parliament for Singapore's electoral area of Pasir Ris-Punggol. 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.

# **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 <u>www.sedar.com</u>. Copies of this information are available either on SEDAR or upon request to the Secretary of the Company.