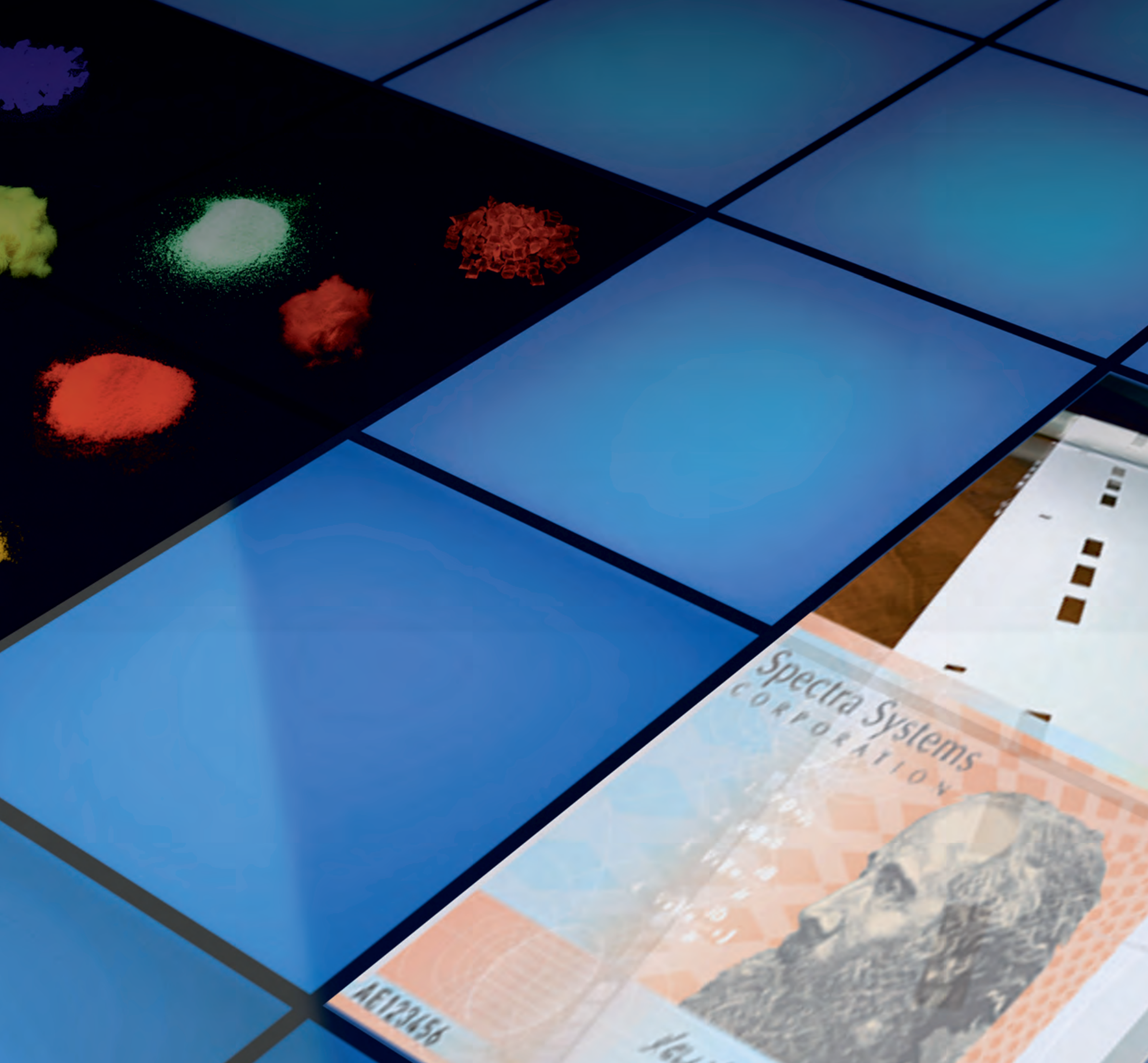
Spectra Systems
CORPORATION

A LEADING PROVIDER OF **ADVANCED TECHNOLOGY-BASED SECURITY SOLUTIONS**

Spectra Systems Corporation
Annual report and accounts 2019

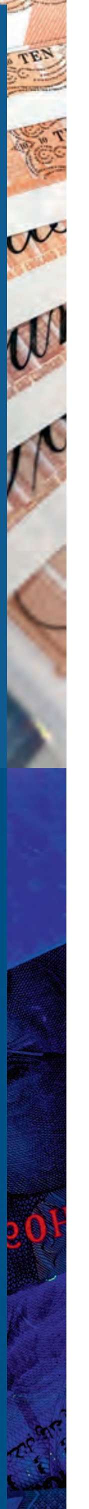


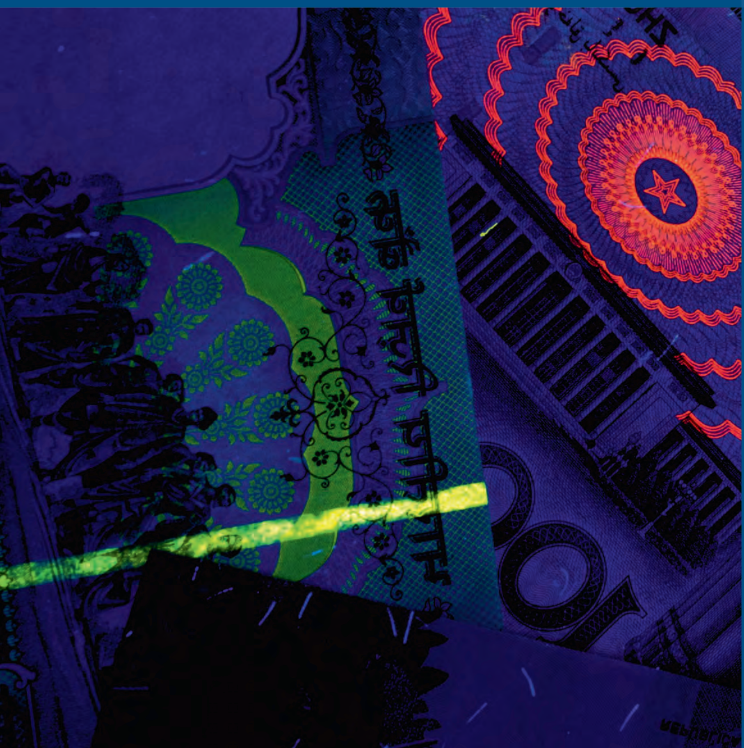
SPECTRA SYSTEMS

WE INVENT, DEVELOP AND MANUFACTURE INTEGRATED SECURITY SOLUTIONS.

Spectra provides integrated solutions comprised of engineered materials for authentication and hardware and software systems which verify the unique signatures of the authentication materials.

Through a series of acquisitions and strategic supply and licensing agreements, Spectra has become an industry leader in the authentication and gaming controls markets.





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Our strategy **Page 4**

Chief Executive Officer's statement **Page 6**

HIGHLIGHTS

Financial highlights

- Revenue up 6% for the year at US$13,234k (2018: US$12,494k)
- Adjusted EBITDA[1] up 8% at US$5,473k (2018: US$5,045k)
- Adjusted PBTA[1] up 9% to US$5,235k (2018: US$4,782k)
- Adjusted earnings[2] per share up 6% to US$10.4 cents (2018: US$9.8 cents)
- Net income up 7% at US$4,335k (2018: US$4,055k)
- Cash generated from operations of US$5,789k (2018: US$4,740k)
- Strong, debt-free balance sheet, with cash[3] of US$14,250k (2018: US$12,662k)
- Declaring special annual dividend up 28.5% to US$0.09 per share to be paid in June to reflect freed-up cash

1 Before stock compensation expense.

2 Before amortization and stock compensation expense.

3 Does not include US$1,344k (2018: US$1,099k) of restricted cash and investments.

Revenue (US$ million)

13.2

(2018: 12.5)

Adjusted PBTA (US$ million)

5.2

(2018: 4.8)

Adjusted earnings per share (US¢)

10.4

(2018: 9.8)

Operational highlights

- Execution of a ten-year agreement with a multinational supplier of polymer for our newly developed machine-readable polymer banknote substrates (MR-BOPP)
- Market introduction of our TruBrand™ product in the Chinese market (>6,000,000 packs) and scheduled machine tests for larger-scale production
- Covert technology submission to a major Asian central bank tender
- Execution of a five-year extension to a supply agreement with one of the world's largest suppliers of security inks
- G7 central bank order for three advanced quality control units used in the manufacturing of banknotes with our materials
- Accelerated research funding for future sensor technology development for a G7 central bank with both phases of two approved and extending through Q1 2021
- New international jurisdiction contract win for the Secure Transactions Group increasing its customers to 17 USA states and three international lotteries and the commencement of a product upgrade effort which will result in downstream personnel savings
- Full qualification of our phosphors with a security thread supplier to a major Asian central bank
- Execution of a five-year service agreement with a major banknote printer and existing licensee and renewal of a five-year service agreement with a G7 central bank

SPECTRA AT A GLANCE

Spectra is a highly responsive organization that develops customized solutions for its customers.

Spectra provides integrated solutions comprised of engineered materials for authentication and hardware and software systems which verify the unique signatures of the authentication materials.

45
billion banknotes with our security features are circulating worldwide.

950
million dollars of energy drinks sold annually that contain our materials.

155
million American passports contain our document technology.

10
million bottles of wine protected by our technology over the past three years.

25
million transactions processed by our ICS technology on a daily basis.

60
million bottles of hair product are protected from counterfeit with our SpectraGuard technology.

Our customers

Our end customers include a G7 central bank organization and one of the world's largest commercial security printers and papermakers, which supplies the Company's technology to a second G7 central bank and numerous other central banks.

Additionally, brand authentication customers use our technologies to protect their consumer goods brands, while our Secure Transactions Group provides solutions for 20 lotteries, 17 in the United States of America and three international.

Our solutions are used by:

- 20 central banks including two G7 central banks;
- commercial security printers and papermakers;
- Crane & Co.;
- suppliers of security threads for world currencies;
- LMI Packaging Solutions;
- multi-national consumer product companies;
- Governments of Turkey, India, Malaysia and Norway;
- Intralot SA;
- Scientific Games International Inc.;
- International Game Technology PLC;
- lotteries in 17 states within the United States of America; and
- national lotteries in three countries.

Our markets

Spectra's market opportunity has expanded with the introduction of our smartphone authentication solutions for products, tax stamps and banknotes.

The ability to empower anyone with a smartphone to authenticate products and banknotes containing our materials transforms the market. Our TruBrand™, TruStamp™ and TruNote™ suite of solutions are the only materials-based smartphone authentication technologies in the world and rely on our proprietary materials. This is a powerful combination of new and disruptive technologies introduced by one company, which, in the span of two years, has gone from concept to market-ready products for sale and in use by large volume tobacco suppliers in Asia.

Spectra's current suite of portable reader-based solutions can be used for authenticating and tracking consumer and tax-bearing products. Our reader-based business has grown considerably in Asia and has several recognizable brand owners as customers.

With over 150 billion banknotes manufactured annually worldwide and 85% of all transactions performed using banknotes, this business has proven to be a high-quality, long-term revenue source for the Company. With 20 central bank customers and newly developed technologies, particularly for polymer banknotes, we expect continued strong earnings from this sector.

Spectra's ICS software products have been augmented with new capabilities and have resulted in revenue growth with existing customers as well as with new ones. Along with the expansion in internet-based lotteries, we expect to provide cloud-based authentication for a potentially large number of customers using our materials-based TruBrand™, TruStamp™ and TruNote™ smartphone authentication.

Our solutions

Authentication systems

Spectra's sophisticated capabilities allow us to invent, develop and manufacture integrated solutions comprised of a system of taggant materials and sensor equipment to authenticate banknotes at all levels of security.

- **Level I:** Provides unique overt, luminescent visual effects, including gas-sensitive materials.
- **Level II:** Provides the public with a smartphone-based solution to examine banknotes for authenticity and denomination.
- **Level III:** Used by 20 central banks, including two G7 banks, our covert materials and sensors provide the highest-level of banknote security worldwide.

Smartphone authentication

Spectra's materials-based technology enables end-users to authenticate consumer brands and banknotes with a smartphone. This technology eliminates the need for costly readers and allows the consumer to authenticate the product themselves.

- TruBrand™, TruNote™ and TruStamp™ are materials-based technologies that do not rely on easily counterfeited images.
- TruTrack™ allows brand owners or government authorities to collect the geographic location, time and authentication status of each scan for monitoring and analysis purposes.

Secure transactions

Spectra's Secure Transactions Group is a leading supplier of real-time fraud control and risk management systems to government-sanctioned gaming operators. Currently deployed in North America, Europe and Asia, our integrity systems monitor and audit more than US$20 billion in annual sales for online, internet and mobile phone-based lotteries and pari-mutuel organizations.

Premier Integrity ICS benefits and advantages:

- is fully automated independent real-time monitoring;
- supports both online and instant lottery games; and
- monitors online systems from all major gaming operators.

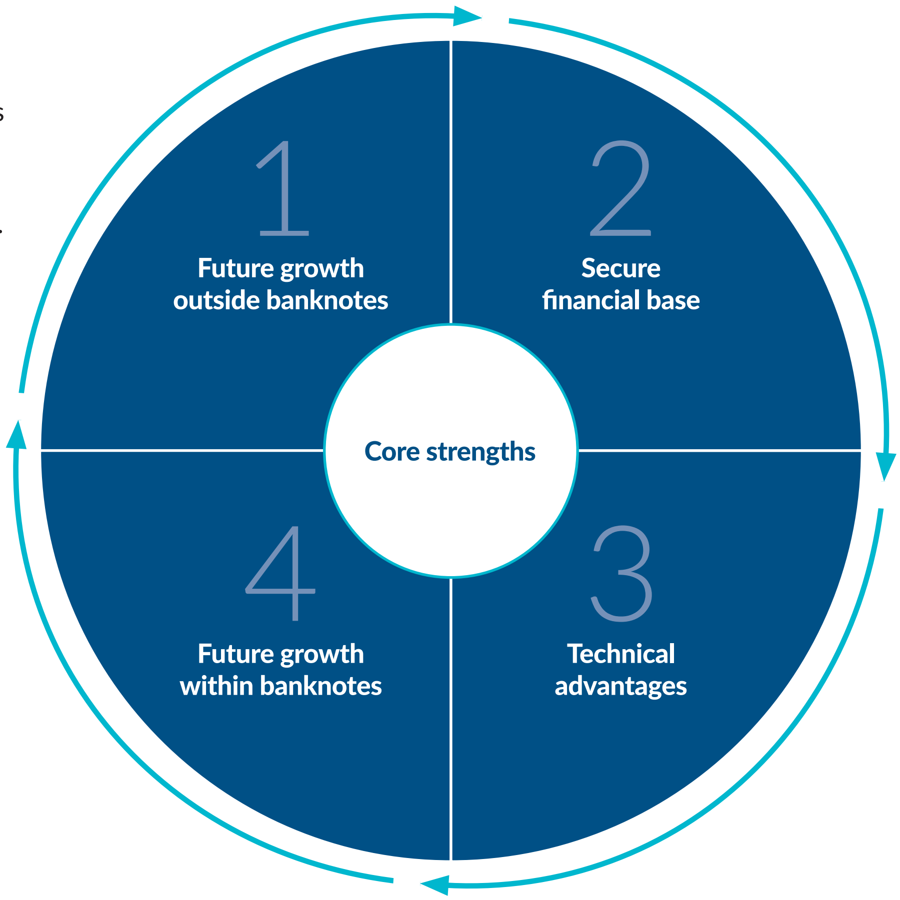
Optical materials

In the course of developing our authentication solutions for over a decade, Spectra has created a large number of unique optical materials which are responsive to various forms of excitation, from light to ambient environmental conditions, including gaseous constituents. Our materials are finding new applications in process control, manufacturing and consumer products.

Focused on our future growth.

Our core strengths

Spectra is a profitable, cash generative technology business with no debt, predictable long-term income streams and excellent growth opportunities.



1. Future growth outside banknotes

- TruBrand™ smartphone authentication technology recently tested by some Chinese Tobacco manufacturers with the potential to transform a brand owner's ability to identify the time and place where counterfeits are found
- New market opportunities for optical materials in quality control and consumer applications

3. Technical advantages

- Very little reliance on third parties
- Manufacturing, Servicing and R&D all managed in-house
- Long-term management team hold the technical expertise and are fully aligned to shareholders with a collective shareholding of 11% (including share options)
- Next generation of products include the potentially transformative growth from banknote cleaning solutions to cloud-based authentication and data metrics

2. Secure financial base

- Successfully commercialized optical technologies across multiple sectors
- Approximately 45 billion banknotes worldwide and 155 million US passports contain our security technologies
- Long-term security features for governments, central banks and global corporations which once installed are near permanent features on multi-year contracts
- For the 12 months to 31 December 2019
  - Generated revenues of $13.2 million
  - Adjusted profit before tax of $5.2 million

4. Future growth within banknotes

- Significant scope to increase market share of the growing banknote authentication market through innovative optical materials
- Growth in use of polymer banknotes is a clear opportunity for Spectra to sell a whole new suite of security solutions
- Smartphone banknote authentication based on optical material signatures and GPS functionality, enable the identification of time and place where counterfeit banknotes were found
- Increase in future revenue visibility following Spectra securing a worldwide technology licensing agreement worth $11.22 million over five years from 2018

Our strategic priorities

Spectra's aim is to generate attractive returns for shareholders made up of capital and income growth (historic dividend yield of 4%).

	Development strategy	Progress	Outlook
Strategic aim Capitalize on existing suite of developed covert material products	– Future development of covert materials and sensors will be primarily externally funded – Increased focus on polymer banknotes – Additional business from existing customers	– Received early stage research funding from a G7 central bank in preparation for the development and supply of further upgraded sensor capability – G7 central bank order for three advanced quality control units used in the manufacturing of banknotes with our materials – Covert technology submission to a major Asian central bank – Developed machine-readable polymer banknote substrates (MR-BOPP) and executed a ten-year agreement with a multinational supplier of polymer to produce our MR-BOPP – Execution of a five-year service agreement with a major banknote printer and existing licensee	– New opportunities include G7 and Asian central banks – The execution of a multi-million dollar sensor development and supply contract with a G7 central bank – A licensing and supply agreement for polymer based technology developed with a major central bank
Strategic aim Advanced smartphone authentication technology	– Leverage TruBrand™ smartphone technology to create new revenue streams for both materials as well as the Secure Transactions Group – Focus on large, billion unit opportunities	– Obtained approval for TruBrand™ materials on tobacco products sold in China – Market introduction of our TruBrand™ product in the Chinese market on 6,000,000 packs of cigarettes and scheduled machine tests for larger scale production	– The utilization of the Secure Transactions Group for cloud-based server authentication of TruBrand™ – The utilization of TruTrack™ to provide geo-tracking in conjunction with TruBrand™ and TruNote™ – Use of TruBrand™ on several billion cigarette packs – Expansion of TruBrand™ usage to other markets such as sports memorabilia and tyres
Strategic aim Increase high margin specialty materials sales	– Expand palette of TruBrand™ taggants – Internal development and licensing of novel phosphors – Restructure staffing to focus on specialty materials	– Increased phosphor sales beyond US banknotes into Asia and Europe through partners – Full qualification of our phosphors with a security thread supplier to a major Asian central bank – Successfully initiated new line of business in consumer products, namely coffee k-cups	– New sales channel for phosphor materials through a banknote security thread manufacturer – Increased opportunities with long-standing G7 customers – The expansion of the optical materials business with compostable K-cup customers

Spectra Systems has delivered an excellent performance for the 2019 financial year, continuing its track record of year to year profit growth.

Introduction

Through achieving key commercial milestones, as described in the Review of Operations below, Spectra Systems has delivered an excellent performance for the 2019 financial year, continuing its track record of year to year profit growth.

Revenue for the year was US$13,234k (2018: US$12,494k) due to early stage research funding for future sensor technology development for a G7 central bank and equipment sales to a major banknote printer. In addition, sales of optical materials deferred from 2018 further enhanced our revenue in 2019. Covert materials revenue was down in comparison to the prior year which contained higher than normal customer orders. Adjusted EBITDA (before stock compensation expense) for the year increased 8% to US$5,473k compared to the prior year of US$5,045k, which resulted in net income up 7% at US$4,335k (2018: US$4,055k) despite a US$219K increase in tax expense as the Company has fully utilized its state net operating loss carryforwards and is now liable for payment of Rhode Island state income taxes.

Having generated cash from operations of US$5,789k (2018: US$4,740k), cash at the period end amounted to US$14,250k (2018: US$12,662k), excluding US$1,344 of restricted cash and investments as of December 31, 2019 (2018: US$1,099k). This is notwithstanding US$3,213k paid to shareholders during June 2019 in the form of the Company's dividend of US$0.07 per share.

With increased clarity on the terms of the Asian central bank bond requirements if we are successful, the Company is therefore declaring an annual dividend up 28.5% at $0.09 per share to be paid in June 2020. This is a onetime special dividend to return capital to shareholders as one of the key reasons for holding cash has been resolved. The Company will continue to have sufficient cash resources thereafter to execute on its growth plans.

Finally, the Board of Directors will be extending the share buy-back authorization of up to 4,500,000 common shares through the end of March 2021, under the same terms as announced on April 10, 2019. A total of 51,000 common shares have already been purchased and canceled under this authority.

$45bn

banknotes with our security features are circulating worldwide

Review of operations

Authentication Systems

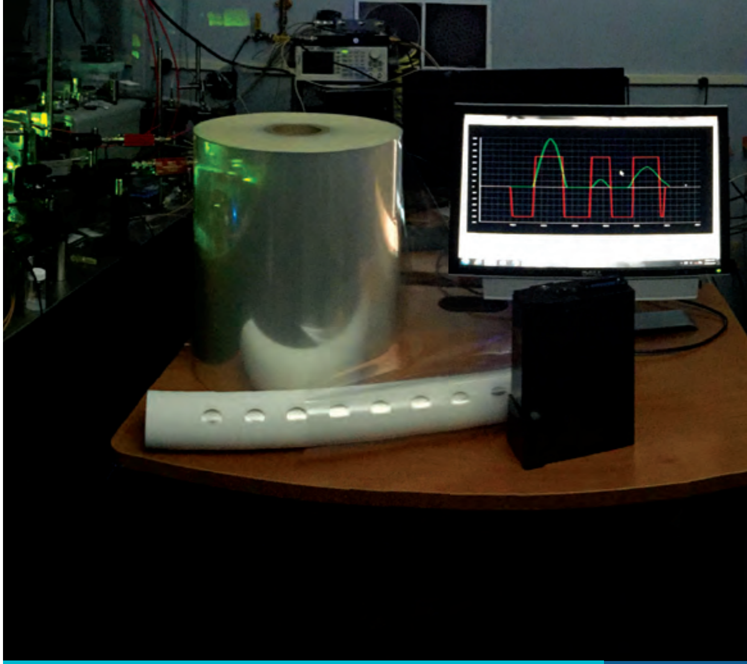
The Authentication Systems business, which includes security phosphor materials, generated revenue of US$11,829k (2018: US$11,204k) and adjusted EBITDA of US$5,065k (2018: US$4,584k). Authentication Systems revenues are driven by sales of covert materials and their associated equipment and service, optical materials and license royalties. We sell covert materials directly to one G7 central bank and indirectly to 19 other central banks through our supply and licensing agreements with a major banknote supplier and printer who pays a license royalty for the exclusive rights to our technology.

The increased revenue is due to early stage research funding for future sensor technology development for a G7 central bank, equipment sales to a major banknote printer and increased sales of optical materials. Covert materials revenue was down in comparison to the prior year which contained higher than normal customer orders.

The TruBrand™ authentication business penetrated the Chinese market with the introduction of our product on over 6 million packs of cigarettes. However, a larger-scale trial on a different printing process has suffered a temporary delay due to the Covid 19 pandemic and is expected to be back on track by the second half of 2020. Once the print trial with our current customer is completed, we expect orders in the hundreds of millions of packs to follow. Further, we have good traction with other opportunities for TruBrand™ in areas ranging from sports memorabilia to tires which are not as directly affected by Covid 19.

Our optical materials-based product which allows k-cups to be compatible and functional with Keurig coffee makers continues to be a success and we are currently in trials with a new and larger supplier of fully compostable coffee pods for the Keurig system.

We have executed a key exclusive supply agreement with a global polymer producer to provide the industry's first and only machine-readable polymer banknote substrate, our MR-BOPP product. This is a key development that could increase authentication revenues by an order of magnitude as we move up the banknote production supply chain through the combination of substrate and security in the polymer substrate. We are featuring our MR-BOPP at the Banknote 2020 conference in Washington DC which has been rescheduled to November 2–5 due to Covid 19 and hope to interest central banks in validating the product performance for their specifications and next tenders for polymer substrates.



Secure Transactions Group

The Secure Transactions Group generated revenue of US$1,405k (2018: US$1,290k) and adjusted EBITDA of US$408k (2018: US$461k). The delays relating to the release of new lottery industry regulations which stalled additional revenue during 2018 from the usual software development related to the introduction of new games continued into 2019. Despite this, revenue increased 9% due to the effect of new contracts from 2018 and system conversions to our 64-bit Premier Integrity product. The Group has also won a new contract with a major European lottery taking its international customer base to three lotteries, and increasing its profile on the international stage as more jurisdictions consider outsourcing the internal control function. The lower EBITDA in 2019 is due to ISO 27001 certification costs and recruiting fees and salaries which are an investment in future lower operating costs, particularly on the software development side of the business. These increased salary costs are expected to last for approximately 18 months and will be recovered in reduced operational costs by 2022.

Spectra launches machine-readable polymer substrate

Spectra Systems Corporation, a leader in machine-readable high speed banknote authentication, brand protection technologies, and gaming security software, is pleased to announce that it has developed a secure, machine-readable polymer substrate through cooperation with a large, technologically driven, global supplier of Biaxially Oriented Polypropylene (BOPP) and has entered into a Supply Agreement with this supplier which will give Spectra the ability to supply more than 2 billion banknotes per year immediately with additional supply volumes as high as 10 billion banknotes per year to follow. The level III polymer technology has been fully production qualified and sensors have been developed which operate at speeds of 15m/second, 50% faster than the fastest transports currently available. The technology has the capability to create a number of specific covert signatures for different central bank customers.

Polymer substrates offer increased wear resistance, but traditionally have been viewed as less secure for higher value denominations as opposed to paper, which can have covert security features within the banknote substrate. BOPP polymer banknotes are used in lower denominations in many countries worldwide, and for all denominations in several countries including Australia, Canada and, anticipated in time, the United Kingdom.

Dr. Nabil Lawandy, Chief Executive Officer, stated: “We are extremely pleased to have formed a long-term partnership with a major multinational supplier of high performance BOPP to bring disruptive new capabilities to the industry and extend our revenue generation potential by combining our core competence in covert security with higher priced polymer substrates. We have created a secure supply chain which can provide substrate with or without opacity and anti-static layers and will be featuring this technology at the upcoming Banknote 2020 conference in Washington DC.”

Review of operations continued

Strategy

The Company's strategy for increasing revenue and earnings continues to be focused on both brand authentication and a robust effort to commercialize our covert security technologies with an emphasis on polymer banknotes and technology driven existing central bank customers. The brand authentication sector offers short-term growth potential and some very large opportunities for smartphone-based technology, while the covert banknote security sector provides stable long-term, multi-decade revenues once new contracts are executed.

We have formed a partnership with one of the largest suppliers of polymer substrates with the goal of eventually being a supplier of polymer substrates with unique covert properties, a capability which has not been possible to date until the introduction of our MR-BOPP product. Our effort in security features for polymer banknotes has been driven by the polymer banknote beginning to outpace paper banknote production; the CAGR of polymer substrate banknotes is estimated to be 18%, far outpacing paper substrates[a]. Our newest machine-readable substrate, MR-BOPP, will allow central banks to use polymer for all denominations, without sacrificing the inherent substrate security previously only obtainable with paper substrates. We believe that once adopted by a central bank, we will not only have effectively expanded the available market beyond its current size, but will do so on an exclusive basis.

Through our close, multi-decade relationship with our direct G7 customer, we have become a trusted supplier of technology and hence have already begun funded hardware work related to our existing sensors as well as new efforts to further improve their anti-counterfeit detection capabilities. We are strategically enabling our long-term G7 customer to use more advanced taggants which will result in higher revenue and increased profitability for many decades to come once implemented.

With a strong and sticky customer base in the banknote sector providing stability and growth, the Company is examining the possibilities of diversifying the business beyond authentication. Other business areas where our core competencies in optics, engineering, physics and chemistry are at the world class level include biotechnology assays, energy conversion, and medical devices. Over the next quarter, we will have concluded this study and will report to shareholders on our findings.

(a) Global Polymer Banknotes Market: Industry Analysis & Outlook, Koncept Analytics (2019).

Prospects

The Company continues to have numerous long-term and shorter-term prospects. The shorter-term opportunities are expected in the 2020–2022 period and the longer-term opportunities are expected in the 2023–2025 time frame.

The important, near-term opportunities are:

- the increased number of tobacco packs sold in China with our TruBrand™ materials and smartphone App. Management is confident that TruBrand™ will reach several hundred million packs once the Covid 19 situation resolves itself and we successfully complete the new print trial with our existing customer;
- the adoption of one of our covert security products by a major Asian central bank which has moved forward and has narrowed the field to Spectra Systems and one other company;
- the adoption of our phosphors for use by a supplier of products to a major Asian central bank;
- additional funding beyond the currently contracted research program with a G7 central bank;

New lottery security contracts

Spectra Systems Corporation, a leader in machine-readable high speed banknote authentication and brand protection technologies, and gaming security software, is pleased to announce that it has been selected by a major European lottery to provide its Premier64 *Integrity* internal control system (ICS).

Spectra has also renewed its contract with a long-term US State lottery customer and will be converting this customer to its Premier64 *Integrity* ICS.

These contracts are for a base period of five and one half years and five years, respectively, both with optional renewals of up to three and five years, respectively.

The aggregate value of the contracts is estimated at US$1.1 million over the full term, assuming both renewal options are exercised, with additional potential of approximately US$0.2 million of customized software development for new games based on averages of our previous domestic and international customers.

Dr. Nabil Lawandy, Chief Executive Officer, stated: "We are delighted to expand our ISO/IEC 27001:2013 certified operations in Europe as well as convert a long-term customer to our Premier64 Integrity product. These contracts further increase the long-term revenue stream from our government contracts segments of the business."

- the execution of a multi-million dollar sensor development contract with a G7 central bank; and
- the expansion of the optical materials business with compostable K-cup customers.

The longer-term opportunities are:

- a licensing and supply agreement for polymer-based technology developed with a major central bank;
- the supply of further upgraded sensor capability to a G7 central bank following the contracted development phase; and
- the introduction of a secure polymer substrate to central banks, which combines high security and a durable substrate in one product.

We are pleased that we were able to supplement our sustained and growing profitability with a number of near-term and longer-term prospects of a significant scale. We believe that we have a number of transformative opportunities ahead in several aspects of our business that will sustain and potentially accelerate our earnings for our shareholders.

With the Company having a fourth year of sustainable profits, reaching their highest levels since listing, and having sufficient resources to execute on its growth plans with its existing cash reserves, the Board is delighted to provide shareholders with a significantly larger annual dividend this year as one of the major reasons for holding cash has been resolved, allowing for this one time, much larger dividend. The Company's dividend policy takes account of the Group's profitability, underlying growth, and the maintenance of sufficient cash reserves for current and in the pipeline requirements. The Board therefore intends to pay an annual dividend of US $0.09 per share on or about June 26, 2020 to shareholders of record as of June 5, 2020.

Nabil M. Lawandy
Chief Executive Officer
March 23, 2020

"The Board is delighted to provide shareholders with a significantly larger annual dividend.

Funding approved for new quality control equipment for G7 central bank

Spectra Systems Corporation, a leader in machine-readable high speed banknote authentication and brand protection technologies, and gaming security software, is pleased to announce that it has received funding approval for a US$1.3 million contract with a G7 central bank to deliver three advanced quality control units used in the manufacturing of banknotes with the Company's materials. Engineering design of the units will commence in 2019 and the units will be delivered in 2020.

Supported by the profits from the new quality control hardware contract, the Company intends to accelerate its G7 material manufacturing throughout 2019 to provide resources for expected material demands related to sample and possible production requirements for a Request for Proposals from an Asian central bank received recently.

"We are delighted that our long-standing G7 customer has provided us with the opportunity to upgrade and replace the current equipment used in banknote production. This new equipment will support our continued sales of materials to our central bank customer for many years to come.

Nabil M. Lawandy
Chief Executive Officer

Our Board of Directors has a collective responsibility to shareholders for the sustainable long-term success of the business.

BJ Penn
Non-executive Chairman
C **G** N

Mr. Penn was Acting Secretary of the US Navy from March to May 2009, having previously been Assistant Secretary of the US Navy (Installations and Environment) since 2005. Mr. Penn began his career as a Naval Aviator and was named EA-6B Pilot of the Year in 1972. Throughout his distinguished career, significant leadership assignments included: Executive Officer/Commanding Officer VAQ 33, Battalion Officer at the US Naval Academy, Air Officer in USS America, Special Assistant to the Chief of Naval Operations, Commanding Officer of NAS North Island, CA, and Deputy Director of the Navy Office of Technology Transfer & Security Assistance. Mr. Penn left the Navy in 1995, joining Loral Corporation as Director of International Business. In 1996, Loral sold its defense electronics and system integration businesses to Lockheed Martin and Mr. Penn was assigned to Lockheed Martin's corporate staff. Mr. Penn returned to the US Navy in 2001 as Director of Industrial Base Assessments.

Mr. Penn received his BS in Industrial Technology from Purdue University and his MS in Human Resource Management and Personnel Administration from the George Washington University. Mr. Penn has also received certificates in Aerospace Safety from the University of Southern California and in National Security for Senior Officials from the Kennedy School, Harvard University. Mr. Penn serves as Trustee at the George Washington University and is on the board of the Naval Aviation Museum.

Nabil Lawandy
President and Chief Executive Officer
A G

Dr. Lawandy is the founder, President and Chief Executive Officer of the Company. Dr. Lawandy started his career at the NASA Goddard Space Flight Center, where he was a pioneer in the development of sub-millimeter optically pumped lasers. From 1981 to 1999, Dr. Lawandy was a tenured full professor of Engineering and Physics at Brown University, where his work focused on instabilities in single and multimode lasers and a wide spectrum of non-linear optics and atom-field interaction problems. In addition to Spectra Systems Corporation, Dr. Lawandy has founded two other companies, Spectra Disc Corporation and Solaris Nanosciences, and has raised over US$80 million in investment capital.

Dr. Lawandy holds a BA in Physics, and an MS and PhD in Chemistry, all from Johns Hopkins University. Dr. Lawandy has authored over 180 reviewed scientific papers and is an inventor on over 80 US and foreign issued patents. His entrepreneurial and scientific work has been covered in several high profile publications including the London Financial Times, the Economist, Scientific American, Science News, the Wall Street Journal, Los Angeles Times, the Boston Globe, Fox News and BBC Television. Dr. Lawandy has also received a Presidential Young Investigator Award, an Alfred P. Sloan Fellowship, a Cottrell Award, a Rolex Award for Enterprise and a Samuel Slater Award for Innovation.

Donald Stanford
Non-executive Director
A **C** N

Mr. Stanford, who was from 1979 until 2001 the Chief Technical Officer of GTECH Corporation, is an Adjunct Professor of Computer Science and Engineering at Brown University and is an instructor in the Program in Innovation, Management, and Entrepreneurship (PRIME). Mr. Stanford is also on the faculty of Brown's School of Professional Studies. Mr. Stanford is a founding member of GTECH (renamed IGT) and, over the course of 30 years, he held every technical leadership position, including Vice President of Advanced Development and Chief Technology Officer. Mr. Stanford serves on several boards including YearUp Providence and the Business Innovation Factory. Mr. Stanford is a founding board member of Times2 STEM Charter School in Providence and served on its board for 20 years. In 2008, Mr. Stanford was re-engaged by IGT as a consultant.

Mr. Stanford is a past member of the RI Science and Technology Advisory Council. Mr. Stanford also served on the Brown advisory councils to the President and the School of Engineering. Mr. Stanford holds a BA in International Relations and an MS in Computer Science and Applied Mathematics, both from Brown University. In 1999, Mr. Stanford received both the Black Engineer of the Year Award for Professional Achievement and the Honorable Thurgood Marshall Award for Community Service from the NAACP. In 2002, Mr. Stanford received the Brown Graduate School's Distinguished Graduate Award and the RI Professional Engineer's Award for Community Service.

Key

A **Audit Committee** C **Compensation Committee** G **Government Security Committee** N **Nominating Committee**

■ **Committee Chairman**

SENIOR MANAGEMENT

Our senior management team highlights our strong internal talent base, providing clear direction and support for all areas of the business.

Martin Jaskel
Non-executive Director

A C N

Mr. Jaskel has over 40 years of involvement in the financial services industry. Mr. Jaskel began in the United Kingdom government bond market as a broker with leading firms, latterly as a Partner in W Greenwell & Co. In 1986, W Greenwell was sold to Midland Bank. In 1988, Mr. Jaskel was appointed Director of Global Sales and Marketing of Midland Montagu Treasury (the treasury division of Midland Bank) after chairing a committee to redesign the distribution of treasury products. In 1990, Mr. Jaskel was appointed Director of Global Sales at NatWest Treasury and rebuilt the franchise's global distribution of treasury and capital markets products.

In 1994, Mr. Jaskel was promoted to Managing Director of Global Trade and Banking Services. Mr. Jaskel sat on the advisory board of ECGD, the UK export–import bank, and sat on several government and Bank of England advisory boards. In 1997, Mr. Jaskel left NatWest and founded a financial services consultancy, which included a consultancy at KPMG Corporate Finance and the corporate FX division of Travelex plc, and an interim appointment as the Managing Director of a private real estate company with a £500 million portfolio of commercial and residential property. In 2005, Mr. Jaskel joined European American Capital Limited, an FCA-authorized and regulated specialized advisory bank, as a Director. Mr. Jaskel has wide experience as a Non-executive Director of both publicly quoted and private companies.

Brian McLain
Chief Financial Officer and Company Secretary

Mr. McLain has been Spectra's Chief Financial Officer since January 2017. With extensive financial experience in both public and private businesses, Mr. McLain is responsible for managing all financial and administrative functions of Spectra Systems. Before joining Spectra, Mr. McLain served as the Corporate Controller for OMNIlife Science, Inc. and was responsible for all financial and accounting operations. Prior to OMNI, Mr. McLain progressed from the role of Corporate Controller to Vice President, Finance & Business Solutions at SeraCare Life Sciences, Inc. which was quoted on NASDAQ prior to being bought out in 2012. Previously, Mr. McLain served in various roles at International Power, a UK-owned power producer, and Excelergy Corporation, a venture-backed software business. Mr. McLain started his career at Arthur Andersen, assisting clients with financial statement preparation and other accounting needs. Mr. McLain holds a BS from Boston College and is a licensed Certified Public Accountant.

William Goltsos
Vice President of Engineering

G

Dr. Goltsos has been Spectra's Vice President, Engineering, from April 2000 to the present. From September 1996 to April 2000, Dr. Goltsos served as a Senior Systems Engineer for Spectra. Prior to that, from 1992 to 1996, Dr. Goltsos served as a Staff Member of the MIT/Lincoln Laboratory's Optical Communications Group. Dr. Goltsos holds a PhD in Physics from Brown University, an MS in Physics from Brown University, and a BS in Physics from Rensselaer Polytechnic Institute.

James Cherry
Director of Business Development

Mr. Cherry serves as Director of Business Development. Mr. Cherry joined the Company in 2002 from Auspex Systems, an enterprise network data storage system business, where he had been involved in marketing and product management for seven years. Prior to that, Mr. Cherry had worked for five years at DuPont in product management.

Andrei Smuk
Director of Research and Development

Dr. Smuk, who joined the Company in 2000, was appointed Director of Research and Development in 2006. Dr. Smuk is responsible for the development of advanced materials and innovative sensor systems. Dr. Smuk received a PhD in Physics from Brown University in 2000 and an MS in Applied Physics from the Moscow Institute of Physics and Technology in 1994.

CORPORATE GOVERNANCE STATEMENT

Chairman's statement

The Board of Directors recognizes the importance of sound corporate governance to give our shareholders and other stakeholders confidence in our business. As Chairman of the Board, I have ultimate responsibility for ensuring that the Board adopts and implements a recognized corporate governance code in accordance with our stock market listing on the AIM market of the London Stock Exchange. The Board has adopted the Quoted Companies Alliance (QCA) Corporate Governance Code 2018. The Chief Executive Officer (CEO) has responsibility for the implementation of governance throughout our organization under the direction of the Board.

The QCA Corporate Governance Code 2018 has ten key principles and we set out below how we apply those principles to our business.

The Honorable BJ Penn
Chairman of the Board
April 2, 2020

PRINCIPLE 1:

Establish a strategy and business model which promotes long-term value for shareholders

Please refer to pages 2 through 5 for the details of our strategy and business model.

PRINCIPLE 2:

Seek to understand and meet shareholder needs and expectations

The Board is committed to understanding and meeting the needs and expectations of its shareholders and believes that maintaining good communications is the best way to do so. The Company informs shareholders through regulatory news announcements and on its corporate website. All shareholders are encouraged to attend the Annual General Meeting. Subject to confidentiality and regulatory restrictions, the CEO meets with shareholders by appointment, which the Board believes has been successful.

PRINCIPLE 3:

Take into account wider stakeholder and social responsibilities and their implications for long-term success

The long-term success of the Company is dependent on its relationships with its various stakeholders: customers, suppliers and employees amongst others. The Company has built strong relationships with its customers and considers itself a business partner, helping its customers develop solutions to meet their needs. The management team is in constant contact with its customers and seeks feedback to determine customer needs. The Company also maintains relationships with its key suppliers to ensure it is updated on new developments that may be utilized to the benefit of its customers. Our employees are also a key factor in the successful growth of the Company. Management is in constant contact with its employees and encourages employees to generate new ideas. To align employees with the long-term success of the Company, key employees have been granted stock options.

PRINCIPLE 4:

Embed effective risk management, considering both opportunities and threats, throughout the organization

As a small cap company quoted on the AIM market of the London Stock Exchange, the Board is sensitive to the impact of risks upon the Company. The Board meets with Company management on a regular basis to monitor the risks facing the Company and identify appropriate measures to mitigate any potential impact. The Board assures itself of the efficacy of risk management and related control systems through corporate performance and periodic reports.

PRINCIPLE 5:

Maintain the Board as a well-functioning, balanced team led by the chair

The Board is responsible for formulating, reviewing and approving the Company's strategy, budgets and corporate actions. Please refer to page 20 for the details of our Board structure and Committees. Given the size of the Board, Committee topics are often discussed by the full Board rather than limited to each Committee's members. This allows the full Board to stay informed of the particular issues being addressed by each Committee. During 2019, each Director attended 100% of the Board meetings and the Committee meetings of which they are members.

PRINCIPLE 6:

Ensure that between them the Directors have the necessary up-to-date experience, skills and capabilities

The Board of Directors brings a broad range of skills to address the challenges faced by a company that sells its products worldwide. The Board consists of highly experienced professionals with complementary backgrounds that meet the needs of the Company. Each Director is responsible for maintaining his or her own skill set, part of which is achieved by remaining active in industry. The Nominating Committee of the Board is tasked with finding and nominating qualified candidates to serve on the Board. Please refer to our Directors' biographies on pages 10 and 11 for more information on our Board of Directors. In addition to the Directors, our Chief Financial Officer and outside General Counsel attend all Board meetings and bring financial, legal and business acumen to Board discussions. The Board and its Committees will also seek external expertise and advice where required.

PRINCIPLE 7:

Evaluate Board performance based on clear and relevant objectives, seeking continuous improvement

The Board evaluation process is designed to identify opportunities for improving the performance of the Board and to ensure it has the necessary skills and experience to fulfill its responsibilities both today and in the future, through adequate succession planning to the degree appropriate given the size of the Company. Given the current size of the Company, the evaluation process is performed internally, by the Board, on an ongoing basis. Any deficiencies identified will be addressed in a constructive manner and, if necessary, changes of the Board will be considered in conjunction with the Nominating Committee.

PRINCIPLE 8:

Promote a corporate culture that is based on ethical values and behaviors

The transnational nature of our business operations requires firm action on our part to work with integrity. As a Company, we strive to conduct ourselves according to the highest standards of ethical conduct. Throughout its operations, Spectra seeks to avoid even the appearance of impropriety in the actions of its Directors, officers, employees and agents. The Board has implemented policies to promote ethical conduct and relies on the management team to ensure ethical values and behaviors are respected.

PRINCIPLE 9:

Maintain governance structures and processes that are fit for purpose and support good decision making by the Board

The Board takes responsibility for the performance of the Company and ensures that all decisions are taken in the best interest of the Company. Although the Board has delegated the operational management of the Company to the CEO and other senior management, the Board retains oversight of their actions and retains approval authority for acquisitions, dividend payments and significant expenditures and contracts.

The Chairman is responsible for leadership of the Board and ensuring its effectiveness. The Chairman, with the assistance of the CEO, sets the Board's agenda and ensures that adequate time is available for proper discussion of all items.

The CEO is responsible for running the business and implementing the decisions and policies of the Board. The CEO is also responsible for accurate, appropriate and timely communications with shareholders.

While not a Board member, the CFO attends all Board meetings. The CFO is responsible for the Company's finances, human resources and compliance activities. The CFO seeks the advice of outside General Counsel when necessary.

The Non-executive Directors are appointed to provide strategic advice and independent oversight as well as to challenge the CEO.

The Board may create or disband Committees depending on the operations of the Company. The Board has established the following Committees to assist with oversight and governance: Audit, Compensation, Nominating and Government Security.

The Audit Committee has primary responsibility for monitoring the quality of internal controls and ensuring that the financial performance of the Company is properly measured and reported on. It will receive and review reports from the Company's management and auditor relating to the interim and annual accounts and the accounting and internal control systems in use throughout the Company. The Audit Committee intends to meet no less than three times each financial year and will have unrestricted access to the Company's auditor. The Audit Committee comprises Martin Jaskel as Chairman, Donald Stanford and Nabil Lawandy.

The Compensation Committee reviews the performance of Executive Directors and makes recommendations to the Board on matters relating to their remuneration and terms of employment. The Committee also makes recommendations to the Board on proposals for the granting of share options and other equity incentives pursuant to any share option scheme or equity incentive scheme in operation from time to time. The Compensation Committee comprises Donald Stanford as Chairman, Martin Jaskel and BJ Penn.

The Nominating Committee comprises Martin Jaskel as Chairman, BJ Penn and Donald Stanford. The Committee seeks and nominates qualified candidates for election or appointment to Spectra's Board of Directors.

The Security Committee is responsible for ensuring the implementation within the Company of all procedures, organizational matters and other aspects pertaining to the security and safeguarding of information, including the exercise of appropriate oversight and monitoring of operations to ensure that protective measures are effectively maintained and implemented. The Security Committee comprises BJ Penn as Chairman and Nabil Lawandy.

PRINCIPLE 10:

Communicate how the Company is governed and is performing by maintaining a dialogue with shareholders and other relevant stakeholders

The Board is committed to maintaining good communication with all of its stakeholders, including shareholders. The Company's website, and its Investor Relations section in particular, provides useful information to assist stakeholders in assessing the performance of the Company.

Results of shareholder meetings and details of votes cast will be publicly announced through the regulatory information system. The Board will seek to understand the reasons behind any significant votes cast against a resolution at any general meeting.

Board Committee reports are included in the Company's annual report.

Audit Committee report

Dear Shareholder

I am pleased to present our Audit Committee report for 2019 which describes our activities and areas of focus during the year ended December 31, 2019. The Board is satisfied that the members of the Audit Committee bring a wide range of skills, expertise, experience and competence relevant to the sector in which the Company operates and that Martin Jaskel possesses the necessary recent and relevant financial experience to effectively chair the Committee.

The main role of the Audit Committee includes:

- monitoring the integrity of the Company's financial statements, including reviewing its annual and half-year financial statements and accounting policies;
- reviewing the effectiveness of the internal controls and risk management; and
- overseeing the relationship with the Company's auditor, Miller Wachman LLP, and assessing the effectiveness of the external audit.

The Audit Committee intends to meet no less than three times each financial year. Given the size of the Company, all Board members typically attend the Audit Committee meetings. In addition, the Chief Financial Officer and the Company's outside General Counsel typically attend the Audit Committee meetings. During 2019, the Audit Committee:

- re-appointed Miller Wachman LLP as the Company's external auditor;
- reviewed and recommended to the Board the approval of the 2018 annual report and the 2019 half-year results announcement;
- reviewed the accounting treatment related to the adoption of the new lease accounting standard; and
- reviewed the audit approach and scope of the audit work to be undertaken by the external auditor and associated fee.

Martin Jaskel
Chairman
April 2, 2020

Nominating Committee report

Dear Shareholder

I am pleased to present our Nominating Committee report for 2019 which describes our activities and areas of focus during the year ended December 31, 2019. The main role of the Committee is to review the structure, size and composition of the Board, identify and propose to the Board suitable candidates to fill Board positions and keep under review the leadership needs of the Company.

Given the size of the Company, all Board members typically attend the Nominating Committee meetings. In addition, the Chief Financial Officer and the Company's outside General Counsel typically attend the Nominating Committee meetings. During 2019, the Nominating Committee reviewed the composition, size and structure of the Board. The Nominating Committee recommended the re-election of the existing Board members at the 2019 Annual General Meeting.

Martin Jaskel
Chairman
April 2, 2020

Compensation Committee report

Dear Shareholder

I am pleased to present our Compensation Committee report for 2019 which describes our activities and areas of focus during the year ended December 31, 2019. The Compensation Committee reviews the performance of Executive Directors and makes recommendations to the Board on matters relating to their compensation and terms of employment. The Committee also makes recommendations to the Board on proposals for the granting of share options and other equity incentives pursuant to any share option scheme or equity incentive scheme in operation from time to time. The Compensation Committee aims to provide a competitive compensation package which will attract and retain Directors and management with the requisite experience and ability to manage the Company and generate superior long-term performance. The four main elements of the compensation package are: base salary, annual bonus, benefits and share options. Given the size of the Company, all Board members typically attend the Compensation Committee meetings. In addition, the Chief Financial Officer and the Company's outside General Counsel typically attend the Compensation Committee meetings.

During 2019, the Compensation Committee:

- assessed the 2018 performance of the Chief Executive Officer and approved a bonus of US$100,000 based on the superb financial results for 2018; and
- reviewed and approved employment agreements for the Company's three most senior Executives: Nabil Lawandy, CEO, Brian McLain, CFO and William Goltsos, Vice President Engineering.

Donald Stanford
Chairman
April 2, 2020

Directors' interests

The Directors' beneficial interests in the common stock of the Company were as follows:

Ordinary shares	December 31, 2019	December 31, 2018
N. Lawandy	**2,184,544**	1,883,540
B. Penn	**30,000**	–
M. Jaskel	**43,829**	71,832
D. Stanford	**35,670**	–
	2,294,043	1,955,372

Directors' compensation

The following table details the Directors' earned compensation for the year ended December 31, 2019:

	Salary and bonus	Benefits	Board fees	Total compensation
Executive Directors				
N. Lawandy	$ 475,000	$ 28,878	$ –	$ 503,878
Non-executive Directors				
B. Penn	–	–	30,000	30,000
M. Jaskel	–	–	30,000	30,000
D. Stanford	–	–	30,000	30,000
Total	**$ 475,000**	**$ 28,878**	**$ 90,000**	**$ 593,878**

Directors' share options

At December 31, 2019, Directors had options or warrants to purchase ordinary shares under the Company's stock option plan as follows:

	Options held at December 31, 2019	Weighted average exercise price	Options vested at December 31, 2019
N. Lawandy	2,552,313	$ 0.50	2,552,313
B. Penn	190,000	0.46	190,000
M. Jaskel	100,000	0.33	100,000
D. Stanford	160,000	0.43	160,000
	3,002,313	**$ 0.49**	**3,002,313**

DIRECTORS' REPORT

for the year ended December 31, 2019

The Directors present their report and the audited consolidated financial statements for the year ended December 31, 2019.

Domicile

Spectra Systems Corporation is a C corporation and is registered and domiciled in the United States of America.

Principal activity

The principal activity of the Company is to invent, develop and sell integrated optical systems that provide customers with increased efficiency, security tracking and product life. The integrated systems combine consumables and engineered optical materials with software and hardware for use in applications. The Company also provides software tools to the lottery and gaming industries for fraud, money laundering and match fixing detection, as well as statistical analysis.

Results and dividends

The Company's statements of income and other comprehensive income are set out on page 23 and show the results for each year.

There are nominal federal and state income tax liabilities on the respective income tax returns due to timing differences arising between items of income and expense recorded on the books and those reported on the tax returns. Additionally, the Company has approximately US$14.7 million in federal net operating loss carryforwards to offset future income reported on the respective tax returns.

The Directors intend to pay a dividend of US$0.09 per share on or about June 26, 2020 to shareholders of record as of June 5, 2020.

Review of business and future developments

A review of the operations of the Group is contained in the Spectra at a glance review on pages 2 and 3.

Principal risks and uncertainties and financial risk management

Complex products

Certain of the products produced by the Company are highly complex and are designed to be used in complex systems. Failure to correct errors or other problems identified after deployment could result in events that may have a negative effect on the Company's business and financial condition.

Technological change

Markets for the Company's products may become characterized by rapidly changing technology, evolving industry standards and increasingly sophisticated customer requirements. The introduction of products embodying new technology and the emergence of new industry standards could render the Company's existing products obsolete and unmarketable and may exert pricing pressure on existing products. If the Company could not then develop products that remain competitive in terms of technology and price and that meet customer needs, this could have a negative impact on the business.

Expiry of patents

All patents have a limited duration of enforceability. US patents generally have a duration of 20 years from the filing date. Once a patent expires, the invention disclosed in the patent may be freely used by the public without accounting to the patent owner, as long as there are no other unexpired patents that embrace an aspect of the invention. There is no certainty that any improvement, new use or new formulation will be patented to extend the protection of the underlying invention or provide additional coverage to adequately protect the invention. As a result, the public may have the right to freely use the invention described in and previously protected by an expired patent.

Dependence on key personnel

The success of the Company's revenues is dependent on a limited number of employees, in particular the Chief Executive Officer and other managers with technological and development input. The Company has endeavored to ensure that its key employees are incentivized but cannot guarantee the retention of these staff.

Forward-looking statements

All statements, other than statements of historical fact, contained in this document constitute "forward-looking statements". In some cases, forward-looking statements can be identified by terms such as "may", "intend", "might", "will", "should", "could", "would", "believe", or the negative of these terms and similar expressions. Such forward-looking statements are based on assumptions and estimates, and involve risks, uncertainties and other factors which may cause the actual results, financial condition, performance or achievements of the Company, or industry results to be materially different from any future results, performance or achievements expressed or implied by such forward-looking statements. New factors may emerge from time to time that could cause the Company's business not to develop as it expects and it is not possible for the Company to predict all such factors. Given these uncertainties, investors are cautioned not to place any undue reliance on such forward-looking statements. Except as required by law, the Company disclaims any obligation to update any such forward-looking statements in this document to reflect future events or developments.

Key performance indicators (in thousands)

- Revenue of US$13,234k (2018: US$12,494k).
- Adjusted EBITDA of US$5,473k (2018: US$5,045k).
- Adjusted PBTA of US$5,235 (2018: US$4,782k).
- Adjusted earnings per share of US10.4₵ (2018: US9.8₵).

Post-reporting date events

None.

Financial instruments

Details of the use of financial instruments by the Company are contained in note B of the financial statements.

Directors’ responsibilities

The Directors are responsible for preparing the Directors’ report and the financial statements on the basis of preparation set out in note A of the financial statements and in accordance with United States Generally Accepted Accounting Principles (US GAAP). The Directors of the Company are responsible for the document in which the financial information is included.

In preparing these financial statements, the Directors are required to:

- select suitable accounting policies and then apply them consistently;
- make judgments and accounting estimates that are reasonable and prudent; and
- state whether they have been prepared in accordance with US GAAP, subject to any material departures disclosed and explained in the financial statements.

The Directors are responsible for keeping adequate accounting records that are sufficient to show and explain the Company’s transactions, disclose with reasonable accuracy at any time the financial position of the Company and enable them to ensure that the financial statements comply with all legal requirements. They are also responsible for safeguarding the assets of the Company and hence for taking reasonable steps for the prevention and detection of fraud and other irregularities.

Substantial shareholdings

The following shareholders held 3% or more of the issued common stock of the Company at December 31, 2019:

	Ordinary shares	% issued
N. Slater	4,666,985	10.17
Sandon Capital	4,255,000	9.27
O. Salam	3,594,464	7.83
Herald Investment Management Ltd.	2,929,300	6.38
Castellina Ventures Limited	2,370,573	5.16
Canaccord Genuity Group Inc.	2,250,000	4.90
N. Lawandy	2,184,544	4.76
H. Heye	1,813,850	3.95
	24,064,716	52.42

Corporate governance

At both December 31, 2019 and the date of this report, the Board comprised one Executive Director, Nabil Lawandy, and three independent Non-executive Directors, BJ Penn as Chairman, Martin Jaskel and Donald Stanford. The Board usually meets at least every three months to closely monitor the progress of the Company towards the achievement of budgets, targets and strategic objectives.

Board attendance in 2019

N. Lawandy	President and Chief Executive Officer	16/16	100%
B. Penn	Non-executive Chairman	16/16	100%
M. Jaskel	Non-executive Director	16/16	100%
D. Stanford	Non-executive Director	16/16	100%

The Board also operates four Committees, the Audit Committee, the Compensation Committee, the Nominating Committee and the Government Security Committee.

The Audit Committee comprises Martin Jaskel as Chairman, Nabil Lawandy and Donald Stanford. It has primary responsibility for monitoring the quality of internal controls and ensuring that the financial performance of the Company is properly measured and reported on. It will receive and review reports from the Company's management and auditor relating to the interim and annual accounts and the accounting and internal control systems in use throughout the Company. The Audit Committee intends to meet no less than three times each financial year and will have unrestricted access to the Company's auditor.

The Compensation Committee comprises Donald Stanford as Chairman, Martin Jaskel and BJ Penn. It reviews the performance of the Executive Directors and makes recommendations to the Board on matters relating to remuneration and terms of employment. The Committee also makes recommendations to the Board on proposals for the granting of share options and other equity incentives pursuant to any share options scheme or equity incentive scheme in operation from time to time.

The Nominating Committee comprises Martin Jaskel as Chairman, BJ Penn and Donald Stanford. The Committee seeks and nominates qualified candidates for election or appointment to Spectra's Board of Directors.

The Government Security Committee comprises BJ Penn as Chairman and Nabil Lawandy. It is responsible for ensuring the implementation within the Company of all procedures, organizational matters and other aspects pertaining to the security and safeguarding of information, including the exercise of appropriate oversight and the monitoring of operations to ensure that protective measures are effectively maintained and implemented.

The Board intends to comply with Rule 21 of the AIM Rules relating to Directors' dealings and will also take all reasonable steps to ensure compliance by the Company's applicable employees. The Company has adopted a share dealing code for this purpose on substantially the same terms as the Model Code.

Website publication

The Directors are responsible for ensuring the annual report and the financial statements are made available on a website. Financial statements are published on the Company's website in accordance with legislation in the United Kingdom governing the preparation and dissemination of financial statements, which may vary from legislation in other jurisdictions. The maintenance and integrity of the Company's website is the responsibility of the Directors. The Directors' responsibility also extends to the ongoing integrity of the financial statements contained therein.

Auditor

All of the current Directors have made themselves aware of any information needed by the Company's auditor for the purpose of its audit and have established that the auditor is aware of that information. The Directors are not aware of any relevant information of which the auditor is unaware.

Miller Wachman LLP has expressed its willingness to continue as the Company's auditor and a resolution to re-appoint Miller Wachman LLP will be proposed at the Annual General Meeting.

By order of the Board

Brian McLain
Company Secretary
April 2, 2020

INDEPENDENT AUDITOR'S REPORT

To the Board of Directors and Stockholders of Spectra Systems Corporation

We have audited the accompanying financial statements of Spectra Systems Corporation, which comprise the balance sheets as of December 31, 2019 and 2018, and the related statements of income and other comprehensive income, stockholders' equity, and cash flows for the years then ended, and the related notes to the financial statements.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with accounting principles generally accepted in the United States of America; this includes the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express an opinion on these financial statements based on our audits. We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditor's judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control. Accordingly, we express no such opinion. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Spectra Systems Corporation as of December 31, 2019 and 2018, and the results of its operations and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Miller Wachman LLP
Boston, Massachusetts
March 23, 2020

BALANCE SHEETS

December 31, 2019 and 2018

		2019		2018
Assets				
Current assets				
Cash and cash equivalents	$	14,250,353	$	12,662,410
Accounts receivable, net of allowance for doubtful accounts of US$69,000 and US$69,592 in 2019 and 2018, respectively		1,496,401		1,075,335
Unbilled and other receivables		294,691		138,615
Inventory		3,080,976		3,269,496
Prepaid expenses		189,373		141,161
Total current assets		19,311,794		17,287,017
Property, plant and equipment, net		1,684,328		1,586,635
Operating lease right-of-use asset, net		1,103,534		–
Other assets				
Intangible assets, net		6,347,183		6,696,867
Restricted cash and investments		1,344,468		1,099,021
Deferred tax assets		1,400,000		1,400,000
Other assets		137,374		150,215
Total other assets		9,229,025		9,346,103
Total assets	$	31,328,681	$	28,219,755
Liabilities and stockholders' equity				
Current liabilities				
Accounts payable	$	357,380	$	269,332
Accrued expenses and other liabilities		636,124		827,376
Operating lease liabilities		190,926		–
Taxes payable		203,378		2,504
Deferred revenue		1,218,532		703,182
Total current liabilities		2,606,340		1,802,394
Non-current liabilities				
Operating lease liabilities		945,007		–
Deferred revenue		666,338		540,389
Total non-current liabilities		1,611,345		540,389
Total liabilities		4,217,685		2,342,783
Commitments and contingencies (note K)				
Stockholders' equity				
Common stock, US$0.01 par value, 125,000,000 shares authorized at December 31, 2019 and 2018; 45,898,631 and 45,504,623 shares issued at December 31, 2019 and 2018, respectively; and 45,897,631 and 45,504,623 shares outstanding at December 31, 2019 and 2018, respectively		458,986		455,046
Additional paid-in capital – common stock		55,504,891		55,389,977
Accumulated other comprehensive loss		(119,138)		(113,600)
Accumulated deficit		(28,732,053)		(29,854,451)
Less: common stock held in treasury at cost, 1,000 shares and 0 shares at December 31, 2019 and 2018, respectively		(1,690)		–
Total stockholders' equity		27,110,996		25,876,972
Total liabilities and stockholders' equity	$	31,328,681	$	28,219,755

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

STATEMENTS OF INCOME AND OTHER COMPREHENSIVE INCOME

for the years ended December 31, 2019 and 2018

		2019		2018
Revenues				
Product	$	8,427,282	$	8,605,015
Service		2,981,484		1,830,339
License and royalty		1,825,023		2,058,209
Total revenues		13,233,789		12,493,563
Cost of sales		3,847,272		3,526,922
Gross profit		9,386,517		8,966,641
Operating expenses				
Research and development		1,741,592		1,830,229
General and administrative		2,850,694		2,570,464
Sales and marketing		445,654		677,101
Total operating expenses		5,037,940		5,077,794
Income from operations		4,348,577		3,888,847
Other income (expense)				
Interest income		197,497		157,630
Foreign currency loss		(10,841)		(10,643)
Total other income, net		186,656		146,987
Income before provision for income taxes		4,535,233		4,035,834
Income tax expense (benefit)		200,000		(19,115)
Net income	$	4,335,233	$	4,054,949
Earnings per share				
Basic	$	0.09	$	0.09
Diluted	$	0.09	$	0.08
Weighted average number of common shares				
Basic		45,868,615		45,463,480
Diluted		48,569,992		48,936,428
Other comprehensive income (loss)				
Unrealized loss on currency exchange	$	(16,379)	$	(18,989)
Reclassification for realized loss in net income		10,841		10,643
Total other comprehensive loss		(5,538)		(8,346)
Comprehensive income	$	4,329,695	$	4,046,603

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

STATEMENTS OF STOCKHOLDERS' EQUITY

for the years ended December 31, 2019 and 2018

	Common stock						
	Shares	Amount	Additional paid-in capital	Treasury stock	Accumulated deficit	Other comprehensive loss	Total stockholders' equity
Balance at December 31, 2017	**45,434,754**	**$ 454,348**	**$ 55,223,989**	**$ —**	**$ (31,121,594)**	**$ (105,254)**	**$ 24,451,489**
Compensation cost related to amortization of stock options	—	—	155,886	—	—	—	155,886
Reclassification for realized loss in net income	—	—	—	—	—	10,643	10,643
Unrealized loss on currency exchange	—	—	—	—	—	(18,989)	(18,989)
Exercise of stock options	69,869	698	10,102	—	—	—	10,800
Dividends paid	—	—	—	—	(2,728,117)	—	(2,728,117)
Net income	—	—	—	—	4,054,949	—	4,054,949
Adoption impact of ASC 606	—	—	—	—	(59,689)	—	(59,689)
Balance at December 31, 2018	**45,504,623**	**$ 455,046**	**$ 55,389,977**	**$ —**	**$ (29,854,451)**	**$ (113,600)**	**$ 25,876,972**
Compensation cost related to amortization of stock options	—	—	87,289	—	—	—	87,289
Reclassification for realized loss in net income	—	—	—	—	—	10,841	10,841
Unrealized loss on currency exchange	—	—	—	—	—	(16,379)	(16,379)
Exercise of stock options	394,008	3,940	27,625	—	—	—	31,565
Repurchase of treasury shares	(1,000)	—	—	(1,690)	—	—	(1,690)
Dividends paid	—	—	—	—	(3,212,835)	—	(3,212,835)
Net income	—	—	—	—	4,335,233	—	4,335,233
Balance at December 31, 2019	**45,897,631**	**$ 458,986**	**$ 55,504,891**	**$ (1,690)**	**$ (28,732,053)**	**$ (119,138)**	**$ 27,110,996**

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

STATEMENTS OF CASH FLOWS

for the years ended December 31, 2019 and 2018

		2019		2018
Cash flows from operating activities				
Net income	$	4,335,233	$	4,054,949
Adjustments to reconcile net income to net cash provided by operating activities:				
Depreciation and amortization		1,037,496		1,005,025
Stock-based compensation expense		87,289		155,886
Lease amortization expense		255,638		–
Deferred taxes		–		(175,000)
Allowance for doubtful accounts		(592)		6,500
Inventory obsolescence		–		250,291
Loss on sale of property and equipment		–		1,428
Changes in operating assets and liabilities:				
Accounts receivable		(420,474)		147,580
Unbilled and other receivable		(156,076)		57,271
Inventory		188,520		234,823
Prepaid expenses		(47,083)		(27,402)
Other assets		–		667
Accounts payable		87,877		69,525
Operating leases		(223,238)		–
Accrued expenses and other liabilities		7,343		(696,405)
Deferred revenue		637,104		(344,759)
Net cash provided by operating activities		5,789,037		4,740,379
Cash flows from investing activities				
Restricted cash and investments		(245,447)		–
Payment of patent and trademark costs		(249,347)		(325,245)
Purchases of property, plant, and equipment		(521,614)		(205,958)
Net cash used in investing activities		(1,016,408)		(531,203)
Cash flows from financing activities				
Dividends paid		(3,212,835)		(2,728,117)
Acquisition of treasury stock		(1,690)		–
Proceeds from exercise of stock options		31,565		10,800
Net cash used in financing activities		(3,182,960)		(2,717,317)
Effect of exchange rate on cash and cash equivalents		(1,726)		(10,027)
Net increase in cash and cash equivalents		1,587,943		1,481,832
Cash and cash equivalents, beginning of the year		12,662,410		11,180,578
Cash and cash equivalents, end of the year	$	14,250,353	$	12,662,410
Supplemental disclosures of cash flow information				
Income taxes (refunded) paid	$	(10,948)	$	111,351
Non-cash investing activities				
Acquisition of patents through accounts payable	$	49,576	$	42,943

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

NOTES TO THE FINANCIAL INFORMATION

for the years ended December 31, 2019 and 2018

Note A – Corporate information

Spectra Systems Corporation (the “Company”) develops and sells integrated optical systems that provide customers with increased efficiency, security tracking and product life. The integrated systems combine consumables and engineered optical materials with software and hardware for use in applications. The Company develops and sells its integrated solutions across a spectrum of markets, including currency manufacturing and cleaning, branded products, industrial logistics and other highly sensitive documents. The Company also provides software tools to the lottery and gaming industries for fraud, money laundering and match fixing detection, as well as statistical analysis.

The Company was incorporated on July 3, 1996 in Delaware as Spectra Acquisition Corp. On August 26, 1996, the Company purchased substantially all of the assets of SSC Science Corporation and changed its name to Spectra Science Corporation. The assets were purchased for US$1,654,000 in cash plus common stock warrants. The acquisition was accounted for using the purchase method of accounting.

On June 8, 2001, the Company changed its name to Spectra Systems Corporation.

On July 25 2011, the Company raised US$20,241,179, net of offering costs, on the London Stock Exchange in a placing of 18,592,320 common shares at a placing price of £0.753 per new common share, representing 41.09% of the enlarged common share capital of the Company. As a result of the offering, anti-dilution provisions found in the Company’s Amended and Restated Certificate of Incorporation converted all of the issued and outstanding preferred shares into 17,185,052 common shares, giving 26,659,050 common shares in issue at the time of the placing.

Note B – Significant accounting policies

Use of estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America (US GAAP) requires management to make estimates and judgments that affect the amounts reported in the financial statements and accompanying notes. The accounting estimates that require management’s most difficult and subjective judgments include the assessment of recoverability of property, plant, and equipment; the valuation of inventory; intangible assets; revenue recognition; stock-based compensation; and the recognition and measurement of income tax assets and liabilities. The actual results may differ materially from management’s estimates.

Cash and cash equivalents

The Company considers highly liquid investment purchases with a maturity of 90 days or less at the date of acquisition to be cash equivalents.

Restricted cash and investments

Restricted cash and investments represent a certificate of deposit held as collateral for certain performance requirements in accordance with terms of a services contract and a money market account held as collateral for a bank guarantee related to the Company’s bid submission for a banknote security feature tender. As of both December 31, 2019 and 2018, the service contract required that US$500,000 be maintained as collateral for contract performance. As of both December 31, 2019 and 2018, the Company collateralized the service contract with a certificate of deposit of US$1,099,021 whose maturity exceeded 90 days at the date of acquisition. As of December 31, 2019, the Company collateralized the bank guarantee related to the bid submission with a money market account of US$245,447. The bank guarantee expires on October 14, 2020 at which time the cash restriction will be removed.

Significant concentrations

Financial instruments, which potentially subject the Company to concentrations of credit risk, consist principally of cash and cash equivalents and trade accounts receivable. The Company’s cash management policies restrict investments to low-risk highly liquid securities, and the Company restricts its transactions to financial institutions with good credit standing. The Company has cash and investments, including restricted, on deposit with financial institutions which are insured by either the Federal Deposit Insurance Corporation up to US$250,000 per institution or the Canadian Deposit Insurance Corporation up to 100,000 Canadian Dollars per institution. The Company also maintains cash on hand which is not subject to insurance. As of December 31, 2019, the amount of cash and investments, including restricted, not insured was US$15,021,511.

Concentrations of credit risk with respect to trade accounts receivable are limited due to the concentration of business with government entities. The Company’s management attempts to minimize credit risk on its accounts receivable by monitoring credit exposure on a regular basis.

The following table summarizes the number of customers that individually comprise greater than 10% of total accounts receivable and their aggregate percentage of the Company’s total accounts receivable as of:

	December 31,	
	2019	2018
Number of significant customers	**3**	2
Percentage of total receivables	**64%**	64%

Note B – Significant accounting policies continued

Significant concentrations continued

The following table summarizes the number of customers that individually comprise greater than 10% of total revenues and their aggregate percentage of the Company's total revenues for the years ended:

	December 31,	
	2019	2018
Number of significant customers	**2**	2
Percentage of total revenue	**52%**	62%

The following table summarizes the geographic concentration of revenue for the years ended:

	December 31,	
	2019	2018
United States of America	**$ 8,319,934**	$ 7,464,636
Europe	**4,422,622**	4,387,901
Rest of World	**491,233**	641,026
	$ 13,233,789	$ 12,493,563

Accounts receivable

Accounts receivable are stated at the amount management expects to collect from outstanding customer accounts. Management provides for uncollectible accounts through a provision for bad debt expense. At December 31, 2019 and 2018, the Company had a US$69,000 and US$69,592 allowance for doubtful accounts, respectively.

Fair value of financial instruments

As of both December 31, 2019 and 2018, the carrying amounts of the Company's financial instruments, which include cash and cash equivalents, accounts receivable and accounts payable, are carried in the financial statements at amounts that approximate their fair market values due to their short-term nature.

Fair value is the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value is estimated by applying the following hierarchy, which prioritizes the inputs used to measure fair value into three levels and bases the categorization within the hierarchy upon the lowest level of input that is available and significant to the fair value measurement:

Level 1 – Quoted prices in active markets for identical assets or liabilities.

Level 2 – Observable inputs other than quoted prices in active markets for identical assets and liabilities, quoted prices for identical or similar assets or liabilities in inactive markets, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities.

Level 3 – Inputs that are generally unobservable and typically reflect management's estimate of assumptions that market participants would use in pricing the asset or liability.

As of both December 31, 2019 and 2018, the Company has certificates of deposit of US$1,099,021 which is included in restricted cash and investments. The Company considers this certificate of deposit as a Level 2 investment.

Foreign currency translation

The functional currency of the Company's foreign operations is the applicable local currency, the Canadian Dollar. The functional currency is translated into US Dollars for balance sheet accounts using currency exchange rates in effect as of the balance sheet date and for revenue and expense accounts using an average exchange rate in effect during the applicable period. The translation adjustments are deferred as a separate component of stockholders' equity in accumulated other comprehensive loss.

Inventory

Inventories are stated at the lower of cost or net realizable value. Cost is determined using the first-in, first-out method. The Company regularly reviews inventory quantities on hand and records a provision to write down excess and obsolete inventory to its estimated net realizable value if less than cost. Inventory includes raw materials, labor and overhead.

Note B – Significant accounting policies continued

Intangible assets

Goodwill represents the excess of purchase price over the fair value of the net assets acquired. Goodwill is not amortized, but is subject to at least an annual assessment for impairment or whenever events or circumstances indicate that it might be impaired.

Other intangible assets consist of patents, trademarks and various intangible assets identified as part of a business combination such as contracts, customer relationships and technology. Patents and trademarks are recorded at cost. For intangible assets identified as part of a business combination, values are assigned using various valuation techniques, including the present value of expected future cash flows. Intangible assets are amortized using the straight-line method over their estimated useful lives ranging from seven to 15 years. The Company evaluates the possible impairment of its intangible assets annually or whenever events or circumstances indicate the carrying value of the assets may not be recoverable.

Property and equipment

Property and equipment is stated on the basis of purchase price. Depreciation is calculated using the straight-line method over the following estimated useful lives:

Laboratory equipment	3–10 years
Computer and office equipment	3–5 years
Furniture and fixtures	7 years
Leasehold improvements	Shorter of lease term or estimated useful life
Software	3–7 years
Manufacturing equipment	3–7 years

Maintenance and repairs are charged to expense as incurred. When assets are retired or otherwise disposed of, the assets and related allowances for depreciation and amortization are eliminated from accounts and any resulting gain or loss is reflected in net income.

Leases

The Company determines if an arrangement is a lease at inception. Operating leases are included in operating lease right-of-use (ROU) assets and operating lease liabilities in our consolidated balance sheets. ROU assets represent the right to use an underlying asset for the lease term and lease liabilities represent the obligation to make lease payments arising from the lease. Operating lease ROU assets and liabilities are recognized at the commencement date of the lease based on the present value of lease payments over the lease term. Certain real estate leases include one or more options to renew, with renewal terms that can extend the lease term for up to five years. The exercise of lease renewal options are at the Company's sole discretion. When deemed reasonably certain of exercise, the renewal options are included in the determination of the lease term and lease payment obligation, respectively. When readily determinable, the Company uses the rate implicit in the lease contract in determining the present value of lease payments. If the implicit rate is not provided, the Company uses its incremental borrowing rate based on information available at the lease commencement date, including the lease term. The operating lease ROU asset also includes any lease payments made and excludes lease incentives. Lease expense for lease payments is recognized on a straight-line basis over the lease term. The Company has lease agreements with lease and non-lease components and has elected to account for the lease and non-lease components as a single lease component.

Investment in affiliates

The Company accounts for investments in affiliates under the cost method of accounting if the Company owns less than 20% of the affiliates' outstanding capital. As of December 31, 2019, the Company held a 19% ownership in an affiliate (SpectraMed), and a 10% ownership in an affiliate (Solaris). These affiliates have had significant losses in prior years and the Company had previously reduced its investments in these affiliates to US$nil.

Accounting for stock-based compensation

In accounting for the employee stock option plan, the Company uses the Black-Scholes option pricing model to calculate compensation costs associated with options granted to employees. Total compensation costs are recorded over the option vesting period, generally three years using the straight-line attribution method. The Company recognizes the effects of forfeitures in compensation cost when they occur.

Revenue recognition

General

On January 1, 2018, the Company adopted ASC 606 "Revenue from Contracts with Customers" (ASC 606) using the modified retrospective method, which was applied to customer contracts that were not completed as of January 1, 2018. The adoption of ASC 606 did not have a material effect on the Company's financial statements.

Note B – Significant accounting policies continued

Revenue recognition continued

General continued

The Company's sources of revenues are as follows:

- Product revenue includes sales of pigments and security taggants and sales of equipment.
- Service revenue includes:
  - Secure Transactions software licensing and support as well as development services to customize our software to meet specific customer needs.
  - Maintenance and repair services related to manufactured equipment.
  - Research and development services.
- License and royalty for the use of the Company's know-how and technology.

Revenue is recognized when control of the promised goods or services is transferred to customers, in an amount that reflects the consideration expected to be entitled to in exchange for those goods or services. This condition normally is met when the product has been delivered or upon performance of services.

When contracts with customers include multiple performance obligations, significant judgment is involved in determining whether each performance obligation is distinct or should be combined with other performance obligations within the contract. In addition, the transaction price is allocated to each distinct performance obligation using an estimate of stand-alone selling price. Estimating the stand-alone selling price requires significant judgment and is generally based on observable prices or a cost plus margin approach.

Product revenue is generally recognized upon transfer of control of the product at a point in time upon delivery of the product to the customer pursuant to the terms of the contract.

Revenues for maintenance and repairs and research and development services are generally recognized over time as the services are performed. Revenues for fixed-price services are generally recognized over time applying input methods to estimate progress to completion.

Generally, our software contracts contain multiple promised goods and services, including the following: (i) term software license; (ii) installation and training; (iii) unspecified future enhancements; (iv) maintenance and support; and (v) optional professional services in the future. The term software license, installation and unspecified future enhancements are considered one performance obligation as the software is dependent on the installation and the enhancements are critical to the utility of the software. As the enhancements are delivered over time, revenue is recognized ratably over the term of the contract. Maintenance and support services are provided over the term of the contract and revenue is recognized over time based on the term of the contact. Future professional services, if any, are recognized over time based on hours incurred.

During 2018, the Company executed both a supply agreement and a technology license agreement with an existing customer to continue supplying an existing product and extend the rights to the underlying technology in perpetuity. The customer will pay reduced rates for the product but will pay approximately US$10,500,000 in eleven payments over five years for the technology license. The extended payment terms were negotiated by the customer to ensure supply of product and therefore do not represent a significant financing component. The Company has combined the contracts as per the guidance in ASC 606 as both contracts were negotiated at the same time. The Company has identified two performance obligations: (i) the option to purchase product; and (ii) the technology and stand-ready obligation as the customer is required to pay the US$10,500,000 regardless of whether or not they purchase product and the technology cannot be used by the customer unless the Company defaults on its obligations within the agreements. The Company allocated approximately US$1,800,000 to the option to purchase product based on observable stand-alone selling prices and will recognize this revenue at each point in time as product is delivered. The Company allocated approximately US$8,700,000 to the technology and stand-ready obligation based on the residual approach and will recognize this revenue over time as royalty revenue, ratably over five years.

Revenue is reported net of incentive rebates and discounts.

The following table summarizes the type of revenue for the years ended:

	December 31,	
	2019	2018
Product	**$ 8,427,282**	$ 8,605,015
Maintenance, repair and research and development services	**1,576,518**	540,143
License and royalty	**1,825,023**	2,058,209
Total Authentication Systems revenue	**11,828,823**	11,203,367
Secure Transactions revenue	**1,404,966**	1,290,196
	$ 13,233,789	$ 12,493,563

Credit terms are predominately short-term in nature. As such, there is not a significant financing component within the customer contracts.

Note B – Significant accounting policies continued

Contract balances and other disclosures

Timing of revenue recognition may differ from the timing of invoicing to customers. The Company records an unbilled receivable when revenue is recognized prior to invoicing and a contract liability (deferred revenue) when cash payments are received or due in advance of performance. Software customers typically pay an upfront license fee and equipment maintenance contracts are typically billed annually in advance. Deferred revenue expected to be realized within one year is classified as a current liability. The following table summarizes the activity in our contract liabilities for the reporting period and the ending balance by operating segment:

	December 31, 2019	December 31, 2018
Balance, beginning of year	$ 1,243,571	$ 1,531,970
Adoption of ASC 606	—	59,689
Currency translation	4,195	(3,327)
Deferral of revenue	4,557,872	2,894,251
Revenue recognized	(3,920,768)	(3,239,012)
Balance, end of year	$ 1,884,870	$ 1,243,571
Authentication Systems	787,958	350,427
Secure Transactions	1,096,912	893,144
	$ 1,884,870	$ 1,243,571

As of December 31, 2019, there is an unbilled receivable of approximately US$132,000 within unbilled and other receivables on the balance sheet which will be invoiced in 2020. There were no unbilled receivables as of December 31, 2018.

Revenue allocated to remaining performance obligations represents contracted revenue that has not yet been recognized ("contracted not recognized revenue"), which includes unearned revenue and amounts that will be invoiced and recognized as revenue in future periods. Contracted not recognized revenue was approximately US$17,200,000 as of December 31, 2019, of which we expect to recognize approximately 34% of the revenue over the next twelve months and the remainder thereafter.

Warranties

If a warranty is applicable, a warranty liability is recorded at the time of sale. The warranty liability is estimated by assessing historical experience to the current applicable population. Warranty costs may differ from those estimated if actual claim rates are higher or lower than our historical rates.

Research and development

Internal research and development costs are expensed as incurred. Certain third party research and development costs are capitalized in connection with contracted work. These costs are expensed as certain milestones are achieved. Overhead, general and administrative and training costs are expensed as incurred.

Costs incurred internally in researching and developing a computer software product to be sold to customers are charged to expense until technological feasibility has been established for the product. Once technological feasibility is established, software costs are capitalized until the product is available for general release to customers. Judgment is required in determining when technological feasibility of a product is established. The amortization of these capitalized software costs is included in cost of revenue over the estimated life of the products which is estimated to be ten years.

Income tax

Deferred income taxes reflect the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income taxes. The benefits from net operating losses carried forward may be impaired or limited in certain circumstances. In addition, a valuation allowance can be provided for deferred tax assets when it is more likely than not that all or some portion of the deferred tax asset will not be realized. For 2019, there is an estimated state tax liability of US$200,000 and no federal income tax liability on those respective income tax returns. For 2018, there is no federal or state income tax liability on those respective income tax returns.

Advertising costs

Advertising costs are charged to expense when incurred. Advertising expense was US$375 and US$7,515 for 2019 and 2018, respectively.

Shipping and handling

The Company reports the cost of shipping and handling as an operating expense. Shipping and handling expense was US$125,261 and US$110,703 for 2019 and 2018, respectively.

Note B – Significant accounting policies continued

Recent accounting guidance

On January 1, 2019, the Company adopted ASU No. 2016-02, "Leases" (Topic 842) utilizing the modified retrospective adoption method which allows entities to not restate the comparative prior periods in the period of adoption when transitioning to Topic 842. Under Topic 842, the Company elected the package of transition practical expedients to not reassess (1) any expired or existing contracts that are leases or contain leases, (2) the classification of any expired or existing leases and (3) initial direct costs for any existing leases. Therefore, the financial statements for 2019 are presented under the new standard, while the comparative periods presented are not adjusted and continue to be reported in accordance with the Company's historical accounting policy. This standard requires all lessees to recognize a right-of-use asset and a lease liability, initially measured at the present value of the lease payments, for all leases with a term greater than twelve months. The adoption of the new lease standard had a significant impact on the Company's balance sheets due to the recognition of right-of-use assets for operating leases and a corresponding lease obligation. The adoption of Topic 842 did not have a material impact on the Company's lease classification or on its statements of income and cash flows.

Note C – Related party transactions

On September 30, 2015, the Company purchased certain assets from Solaris in exchange for US$213,917 in cash. The Company also recorded US$184,000 in contingent payments based on a royalty payment arrangement for anticipated continuing business. The agreement requires the Company to pay Solaris 10% of any revenues hereafter received by the Company from the commercial exploitation of the assets. The Chief Executive Officer of Solaris is also the Chief Executive Officer of Spectra. No royalty payments were made during the years ended December 31, 2019 and 2018.

Note D – Inventories

Inventories consist of the following:

	December 31, 2019	December 31, 2018
Raw materials	$ 2,033,481	$ 2,023,820
Work in process	129,371	–
Finished goods	1,174,385	1,588,393
Total	3,337,237	3,612,213
Less: reserve for excess and obsolete inventory	(256,261)	(342,717)
	$ 3,080,976	$ 3,269,496

Note E – Property and equipment

Property and equipment consists of the following:

	December 31, 2019	December 31, 2018
Laboratory equipment	$ 996,214	$ 711,849
Computer and office equipment	381,820	372,724
Furniture and fixtures	114,354	114,354
Leasehold improvements	1,533,871	1,512,039
Software	371,171	341,964
Manufacturing equipment	1,428,694	1,304,518
Total	4,826,124	4,357,448
Less: accumulated depreciation	(3,141,796)	(2,770,813)
	$ 1,684,328	$ 1,586,635

Depreciation expense amounted to US$425,239 and US$410,669 for the years ended December 31, 2019 and 2018, respectively.

Note F – Leases

The Company holds four real estate leases. During 2018, the Company signed a lease agreement for corporate office space which expires in October 2023. The Company signed a five-year lease agreement for manufacturing and warehouse space in East Providence beginning in November 2013 and expiring in October 2022. To support the ICS business, the Company signed a lease which has been extended through January 2022. The Company's lease for laboratory space in East Providence has been extended through May 31, 2020 for a portion of the space. Certain real estate leases include one or more options to renew, with renewal terms that can extend the lease term for up to five years. Operating lease costs were US$381,189 and US$371,214 for the years ended December 31, 2019 and 2018, respectively.

Future minimum lease payments are as follows:

Year ending December 31,		
2020	$	250,347
2021		206,067
2022		169,609
2023		55,505
	$	681,528

Supplemental information related to leases are as follows:

	Year ending December 31, 2019
Weighted average remaining lease term	**6.5 years**
Weighted average discount rate	**5.7%**

Note G – Intangible assets

Intangible assets consist of the following:

	December 31,			
		2019		2018
Patents	**$**	**3,393,566**	$	3,151,939
Customer relationships		**3,043,000**		3,043,000
Non-compete agreements		**188,440**		188,440
Developed technology		**1,502,000**		1,502,000
Tradename		**30,000**		30,000
Trademarks		**138,905**		131,185
Goodwill		**2,468,863**		2,468,863
Total		**10,764,774**		10,515,427
Less: accumulated amortization		**(4,417,591)**		(3,818,560)
	$	**6,347,183**	$	6,696,867

Amortization expense amounted to US$599,032 and US$594,356 for the years ended December 31, 2019 and 2018, respectively.

Estimated amortization expense is as follows:

Year ending December 31,		
2020	$	494,970
2021		449,623
2022		435,191
2023		430,410
2024		369,859
Thereafter		1,698,267
	$	3,878,320

Note G – Intangible assets continued

Goodwill by operating segment is as follows:

	December 31, 2019	2018
Authentication Systems	$ 1,191,917	$ 1,191,917
Secure Transactions	1,276,946	1,276,946
	$ 2,468,863	$ 2,468,863

Note H – Other assets

Other assets consist of the following:

	December 31, 2019	2018
Rental deposits	$ 18,349	$ 17,965
Capitalized software costs, net	119,025	132,250
	$ 137,374	$ 150,215

Amortization expense of capitalized software costs amounted to US$13,225 for the year ended December 31, 2019. There was no amortization expense for the year ended December 31, 2018.

Note I – Accrued expenses and other liabilities

Accrued expenses and other liabilities consist of the following:

	December 31, 2019	2018
Royalties	$ 28,587	$ 192,917
Employee compensation	258,349	245,680
Contingent costs	180,105	180,105
Sales allowance and rebates	6,245	43,735
Professional fees	105,000	83,000
Property and franchise taxes	11,000	8,000
Other	46,838	73,939
	$ 636,124	$ 827,376

Note J – Income taxes

The approximate components of the income tax provision are as follows:

	December 31, 2019	2018
Income tax provision (benefit) computed at:		
Federal statutory rate – current	$ 988,000	$ 904,000
State statutory rate – current	329,000	300,000
Federal deferred	(8,000)	(40,000)
State deferred	(2,000)	(13,000)
Change in valuation allowance	(1,107,000)	(1,170,000)
Income tax expense (benefit)	$ 200,000	$ (19,000)

A reconciliation of the statutory federal income tax rate with our effective income tax rate was as follows:

	December 31, 2019	2018
Statutory federal rate	21.0%	21.0%
State income taxes, net of income tax benefit	4.2%	0.3%
Non-deductible expenses and other	12.5%	(5.6%)
Change in valuation allowance	(33.3%)	(16.2%)
Effective tax rate	4.4%	(0.5%)

Approximate deferred income tax assets are as follows:

	December 31, 2019	2018
Depreciation and amortization	$ (248,000)	$ (99,000)
Deferred revenue	(155,000)	(335,000)
Federal tax credits	864,000	918,000
Inventory	50,000	56,000
Bad debts	16,000	16,000
Net operating loss carryforward	3,089,000	4,167,000
Valuation allowance	(2,216,000)	(3,323,000)
Total deferred income tax assets	$ 1,400,000	$ 1,400,000

The Tax Cuts and Jobs Act ("Tax Act") was enacted on December 22, 2017. The Tax Act eliminated alternative minimum taxes and lowered the federal corporate income tax rate from 34% to 21% effective January 1, 2018. During the year ended December 31, 2017, the Company remeasured its net deferred tax assets using the new federal corporate income tax rate and posted a one-time reduction of US$2.0 million in deferred tax assets to reflect the lower realization rate to be applied commencing in 2018.

As of December 31, 2019, the Company has net operating loss carryforwards expiring between 2020 and 2036 for US federal income tax purposes of approximately US$14,700,000. A valuation allowance has been established for US$2,216,000 and US$3,323,000 as of December 31, 2019 and 2018, respectively, for the deferred tax benefit related to those loss carryforwards and other deferred tax assets.

At December 31, 2019, the Company also had approximately US$864,000 of tax credit carryforwards that are available to offset federal liabilities. The credits will begin to expire between 2020 and 2030 for federal tax purposes.

The utilization of the tax carryforwards described above is dependent upon future profitability prior to any expiration dates. Additionally, alternative minimum taxes, if any, and substantial changes in ownership and tax laws and regulations may substantially limit their realization.

The Company accounts for the effect of any uncertain tax positions based on a "more likely than not" threshold to the recognition of the tax positions being sustained based on the technical merits of the position under scrutiny by the applicable taxing authority. If a tax position or positions are deemed to result in uncertainties of those positions, the unrecognized tax benefit is estimated based on a "cumulative probability assessment" that aggregates the estimated tax liability for all uncertain tax positions. The Company is not currently under examination by any taxing jurisdiction. The Company's federal and state income tax returns are generally open for examination for three years following the date filed.

Note K – Commitments and contingencies

The Company is involved from time to time in litigation incidental to the conduct of its business. The Company is not currently a party to any lawsuit or proceeding.

License and supply agreements

In 1996, and subsequently amended in 1999 and 2002, the Company entered into a license agreement under which the Company obtained a nonexclusive right to use certain technology through the term of the licensor's patents on such technology. The last of these patents expired during 2018. The license agreement contains provisions for royalties to be paid on sales of products developed under the agreement. For the year ended December 31, 2018, the Company recorded US$36,870 of royalty expense. No expense was recorded for the year ended December 31, 2019 as the patents expired in 2018.

As of December 31, 2019, the Company had commitments to purchase US$256,702 of materials and services during 2020.

Employment contracts

The Company has made contractual commitments to certain employees providing for severance payments, including salary continuation, upon the termination of employment by the Company without substantial cause or by the officer for good reason. The contracts also generally provide for certain protections in the event of a change in control of the Company. These protections include the payment of certain severance benefits, such as salary continuation, upon the termination of employment following a change in control.

Note L – Stockholders' equity

Common and preferred stock

On July 25, 2011, the Company raised US$20,241,179, net of offering costs, on the London Stock Exchange in a placing of 18,592,320 common shares at a placing price of £0.753 per new common share, representing 41.09% of the enlarged common share capital of the Company. As a result of the offering, anti-dilution provisions found in the Company's Amended and Restated Certificate of Incorporation converted all of the issued and outstanding preferred shares into 17,185,052 common shares, giving 26,659,050 common shares in issue at the time of the placing. At December 31, 2019 there were 45,897,631 common shares outstanding and no preferred shares in issue.

Share repurchases

On April 9, 2019, the Board of Directors approved, for an extendable period of twelve months therefrom, a share buy-back authority in respect of up to 4,500,000 common shares of the Company. On May 10, 2019, the Company repurchased 1,000 shares at a total cost of $1,690.

Dividends

The Board of Directors declared the following dividends:

Declaration date	Record date	Payment date	Dividend per share		Amount	
March 25, 2019	June 7, 2019	June 28, 2019	$	0.07	$	3,212,835
March 19, 2018	June 8, 2018	June 29, 2018	$	0.06	$	2,728,117

Stock option plan

In May 2007, the Company adopted the 2007 Stock Plan (the "2007 Plan"), which provided for the grant of incentive stock options and nonqualified stock options, stock awards and stock purchase rights for the purchase of up to 14,100,000 shares of the Company's common stock to officers, employees, consultants and Directors of the Company. The Board of Directors is responsible for administration of the 2007 Plan. The Board determines the term of each option, the option exercise price, and the number of shares for which each option is granted and the rate at which each option is exercisable. Incentive stock options may be granted to an officer or employee at an exercise price per share of not less than the fair value per common share on the date of the grant (not less than 110% of fair value in the case of holders of more than 10% of the Company's voting stock) and with a term not to exceed ten years from the date of the grant (five years for incentive stock options granted to holders of more than 10% of the Company's voting stock). Nonqualified stock options may be granted to consultants or Directors at an exercise price per share of not less than 85% of the fair value of the common stock. Stock options generally vest over three years and are exercisable over a period up to ten years from the date of grant. As of December 31, 2019, options to purchase 4,075,517 shares of common stock were outstanding and 647,261 shares of common stock have been issued under the 2007 Plan. As of December 31, 2019, 9,377,222 shares of common stock were available for grant under the 2007 Plan.

Note L – Stockholders' equity continued

Stock option plan continued

Information related to stock options granted by the Company is summarized as follows:

	December 31, 2019		December 31, 2018	
	Number of shares under option	Weighted average exercise price	Number of shares under option	Weighted average exercise price
Outstanding at beginning of year	5,865,830	$ 0.56	5,588,830	$ 0.50
Granted	—	—	393,000	1.38
Exercised	(394,008)	0.59	(96,000)	0.49
Forfeited/canceled	(1,396,305)	0.60	(20,000)	1.53
Outstanding at end of year	4,075,517	$ 0.54	5,865,830	$ 0.56

The following table summarizes information about stock options outstanding at December 31, 2019:

	Options outstanding			Options exercisable	
Exercise price range	Number of outstanding shares	Weighted average contractual life (years)	Weighted average exercise price	Number of shares	Weighted average exercise price
US$0.30–US$0.84	3,347,517	5.67	$ 0.38	3,264,183	$ 0.38
US$0.85–US$1.54	728,000	4.75	1.30	509,333	1.26
	4,075,517	5.50	$ 0.54	3,773,516	$ 0.50

As of December 31, 2019, the weighted average contractual life for exercisable stock options was 5.29 years.

The Company's stock price closed at US$2.09 (£1.575) on December 31, 2019. As of December 31, 2019, the aggregate intrinsic value for outstanding and exercisable stock options was US$6,296,991 and US$6,007,490, respectively. Intrinsic value for stock options is defined as the difference between the current market value of the stock and the exercise price. The intrinsic value represents the value that would have been received by the option holders had the option holders exercised all of their options as of that date.

The Company currently uses the Black-Scholes option pricing model to determine the fair value of its stock options. The valuations determined using this model are affected by assumptions regarding a number of complex and subjective variables including stock price, volatility, expected life of options, risk free interest rates, and expected dividends, if any. During the year ended December 31, 2018, the weighted average grant date fair value of stock options granted was US$1.38. There were no stock options granted during the year ended December 31, 2019.
The assumptions used to value stock option grants are as follows for the year ended:

	December 31,	
	2019	2018
Risk free rate	n/a	2.6%–3.0%
Expected life (years)	n/a	6.00
Assumed volatility	n/a	46.0%–81.0%
Expected dividends	n/a	3.9%

The following table summarizes stock-based compensation expense for the year ended:

	December 31,	
	2019	2018
Cost of sales	$ 31,607	$ 18,847
Research and development	14,802	25,807
General and administrative	32,337	109,818
Sales and marketing	8,542	1,424
	$ 87,289	$ 155,886

As of December 31, 2019, there was approximately US$91,000 of unrecognized compensation cost, related to unvested stock-based payments granted to our employees and Directors, which is expected to be recognized over a weighted average period of 1.3 years. Total unrecognized compensation cost will be adjusted for future changes in forfeitures and recognized over the remaining vesting periods of the stock grants.

Note M – Employee retirement plan

During 1999, the Company adopted a defined contribution plan, established under the guidelines of Section 401(k) of the Internal Revenue Code (IRC), which covers all employees. Employees are eligible to participate in the employee retirement plan (the "Plan") at the beginning of the first month following the date of hire. Employees may contribute up to the maximum allowed by the IRC of eligible pay on a pretax basis. The Company made a matching contribution of 50% of employee contributions up to 4% of eligible salary. Company matching contributions vest at 25% after one year of service, 50% at the end of two years of service and 100% at the end of three years of service. For the years ended December 31, 2019 and 2018, the Company's matching contributions were US$36,393 and US$31,084, respectively.

Note N – Segment reporting

In accordance with ASC 280, management has identified three operating segments. The first is the Authentication Systems Group, which captures the hardware, software and materials related to the authentication of banknotes, tax stamps and other high-value goods. The second segment is the Secure Transactions Group, which provides an Internal Control System (ICS) software offering to the lottery and gaming industries. ICS provides tools for fraud, money laundering and match fixing detection, as well as statistical analysis. The third segment is the Banknote Cleaning Group, which captures the technology related to cleaning soiled banknotes.

Information for each reportable segment as of December 31, 2019 and 2018 is as follows:

		Gross revenue	Income (loss) from operations	Depreciation and amortization	Capital expense	Segment assets
2018	Secure Transactions	$ 1,290,196	$ 250,187	$ 180,602	$ 24,509	$ 2,222,748
	Authentication Systems	11,203,367	3,689,500	773,583	161,449	25,535,917
	Banknote Cleaning	—	(50,840)	50,840	20,000	461,090
	Total	$ 12,493,563	$ 3,888,847	$ 1,005,025	$ 205,958	$ 28,219,755
2019	Secure Transactions	$ 1,404,966	$ 240,800	$ 153,933	$ 13,828	$ 1,849,914
	Authentication Systems	11,828,823	4,161,476	829,865	507,786	29,050,188
	Banknote Cleaning	—	(53,699)	53,698	—	428,579
	Total	**$ 13,233,789**	**$ 4,348,577**	**$ 1,037,496**	**$ 521,614**	**$ 31,328,681**

Note O – Earnings per share

The calculation of basic earnings per share is based on the net income divided by the weighted average number of common shares outstanding. Diluted earnings per share is calculated by considering the dilutive impact of common stock equivalents under the treasury stock method as if they were converted into common stock as of the beginning of the period or as of the date of grant, if later. Excluded from the calculation of diluted earnings per common share for the year ended December 31, 2018 were 95,063 shares related to stock options because their exercise prices would render them anti-dilutive. For the year ended December 31, 2019, no shares were excluded from the calculation of diluted earnings per common share. The following table shows the calculation of basic and diluted earnings per common share:

	December 31, 2019	December 31, 2018
Numerator		
Net income	**$ 4,335,233**	$ 4,054,949
Denominator		
Weighted average number of common shares outstanding	**45,868,615**	45,463,480
Effect of dilutive securities		
Stock options	**2,701,377**	3,472,948
Diluted weighted average number of common shares outstanding	**48,569,992**	48,936,428
Earnings per common share		
Basic	**$ 0.09**	$ 0.09
Diluted	**$ 0.09**	$ 0.08

Note P – Subsequent events

The Company evaluated all events or transactions that occurred through March 23, 2020, the date these financial statements were available to be issued.

On March 23, 2020, the Company declared a dividend of US$0.09 per share to be paid on or around June 26, 2020 to shareholders of record as of June 5, 2020.

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