ISCO INTERNATIONAL INC
Form 10-K
March 30, 2004
Table of Contents

SECURITIES AND EXCHANGE COMMISSION

Washington, DC 20549

Form 10-K

(Mark On)

x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended December 31, 2003

or

¨ TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from to

Commission File Number 0-22302

ISCO INTERNATIONAL, INC.

(Exact name of registrant as specified in its charter)

Delaware	**36-3688459**
(State or other jurisdiction of incorporation)	**(I.R.S. Employer Identification No.)**

451 Kingston Court

Mt. Prospect, Illinois 60056

(847) 391-9400

(Address and telephone number of principal executive offices)

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

Title of Class	**Name of Exchange on Which Registered**
Common Stock, Par Value $0.001 Per Share and associated Preferred Stock Purchase Rights	**American Stock Exchange**

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes x No ¨

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

Indicate by check mark whether the registrant is an accelerated filer (as defined in Rule 12b-2 of the Act). Yes ¨ No x

On June 30, 2003, 147,974,927 shares of the registrant s Common Stock, par value $0.001 per share (the Common Stock) were outstanding. The aggregate market value on June 30, 2003 of the registrant s Common Stock held by non-affiliates of the registrant was $9.3 million, based on the closing price per share of the registrant s common stock as quoted on the American Stock Exchange. This amount excludes more than 109 million shares of common stock held by affiliates . Exclusion of shares held by any person should not be construed to indicate that such person possesses the power, direct or indirect, to direct or cause the direction of the management or policies of the registrant, or that such person is

controlled by or under common control with, the registrant.

DOCUMENTS INCORPORATED BY REFERENCE

None.

Table of Contents

TABLE OF CONTENTS

Table of Contents

PART I

Item 1. Business

The Company develops and sells solutions designed to optimize the reverse link of wireless networks. Reverse link is the signal from the mobile device (*e.g.*, mobile phone) to the base station. Its array of solutions includes its ANF product line (adaptive notch filter, ANF), the new RF² product line (reverse link radio frequency fidelity, RF²), services and other solutions, all focused on optimizing the reverse link.

The benefits of using the Company s solutions include: allowing carriers (channels) to carry traffic in certain circumstances where they cannot do so, increased cell site capacity and utilization, easier location of new cell sites due to tolerance of interference, reduced mobile transmit power and thus improved battery life, improved voice quality and substantial reduction in dropped calls and failed attempts, culminating in more satisfied customers and increased revenues for wireless operators. These benefits have been documented in field trials and commercial deployments with wireless operators involving existing wireless systems.

In addition, the Company believes that upgrades of existing wireless networks to allow for data throughput (2.5G systems) and further, by the rollout of the next generation of wireless systems (3G or 3rd Generation), operators will need to manage and eliminate interference more effectively in order to meet their performance objectives. The Company believes that with the increased data bit rates required of these systems and the increased usage of these systems due to the wireless internet , that interference levels will increase substantially while tolerance to interference will decrease substantially, thereby requiring an improved filtering system in the base station. The Company believes that its products can be an effective element of that solution.

ANF Technology

One of the difficult tasks facing any wireless operator is the need to resolve interference that is from multiple sources, sporadic or quickly moving. Often, sources of interference prove difficult to locate due to their sporadic nature, and other times are uncontrollable (such as in the case of border sites). Regardless, in-band interference is a fast-growing problem, one that can substantially reduce the ability of the network to carry traffic.

With the acquisition of the ANF (Adaptive Notch Filter) division of Lockheed Martin Canada Corporation during 2000 and subsequent development efforts, the Company owns proprietary technologies to produce filters that monitor RF spectrum and block spontaneous interference occurring within that spectrum. This allows the Company to offer what it believes to be the only product in the world that locates and suppresses in-band interference in a CDMA carrier within 20 milliseconds.

The Company has announced the expansion of the ANF platform to support network-wide deployment in metropolitan service areas. The more flexible platform now has the capability to scan and protect any combination of CDMA carriers in either A-band or B-band cellular networks, along with a web-based network management software package to allow operators to remotely monitor and manage large numbers of sites equipped with ANF technology. This web-based reporting tool has been well-received by customers as a valuable tool for their use in managing their networks, and thus provides a strong competitive advantage to the ANF product line.

Based on customer feedback, the Company has further reinvented and refined its ANF product line to include an ANF on Wheels . This is a rapidly deployable solution to combat immediate problems that also serves as a state-of-the-art reporting tool. Operators can utilize the reporting features of this product to gain critical information of interference events within their networks.

RF² Technology

The Company launched its RF² product line during September 2003, and received commercial orders during the fourth quarter 2003. Designed for network-wide deployment, the RF² drastically reduces the noise figure in a base station, improving the ability of a base station to optimally process wireless signals. The impact of RF² is also felt on the handset in the form of reduced mobile transmit power and increased talk time while improving base station coverage. As a result, operators have fewer dropped calls, fewer connection failures, and most importantly, more satisfied customers. The RF² is only a fraction of the cost of higher-priced solutions, such as HTS units (High Temperature Superconductor filters), yet has been shown to deliver performance which is generally comparable with HTS.

Table of Contents

The Company also has a number of HTS (High Temperature Superconductor filter) solutions available for the proper application, but has focused on the RF² as a value leader in the industry.

Professional Services

Over time, the Company has developed expertise in the area of reverse link issues, including interference mitigation. This expertise is provided to customers in the form of interference audits and analytical tools, thus allowing customers to focus their resources on running their networks instead of focusing on understanding interference problems.

HISTORY

The Company was founded in 1989 by ARCH Development Corporation, an affiliate of the University of Chicago, to commercialize superconductor technologies initially developed by Argonne National Laboratory. The Company was incorporated as Illinois Superconductor Corporation in Illinois on October 18, 1989 and reincorporated in Delaware on September 24, 1993. The Company shifted its focus from that of a superconductive filter provider to a customer-driven interference management Company during 2001, changing its name to ISCO International, Inc. More recently, the Company has broadened its view to the optimization of the reverse link of wireless networks (reverse link is the signal from the mobile device to the base station). The Company s facilities and principal executive offices are located at 451 Kingston Court, Mt. Prospect, Illinois 60056 and its telephone number is (847) 391-9400. The Company maintains a website at *http://www.iscointl.com*. The information contained therein is not incorporated into this annual report.

BUSINESS STRATEGY

The Company s strategic goal is to become the leading supplier of reverse link optimization solutions to wireless operators. ISCO is seeking to accomplish its goal by:

- Marketing its products aggressively to leading wireless operators;
- Providing customers comprehensive interference-control and other front-end solutions for wireless networks;
- Continuing to build on its strong intellectual property position and assert its rights therein; and
- Outsourcing product manufacturing and reducing product cost.

The Company is focusing its continuous efforts on winning the support of the world s leading wireless operators for its reverse-link optimization solutions. The Company believes that its ANF products and RF² products, as well as its professional service support and other products, make it the reverse link specialist in the market. In addition, the Company recently started providing services to operators who need expert advice on understanding and controlling interference and other aspects of their networks.

The Company believes it holds a highly comprehensive intellectual property portfolio in reverse link optimization technology (more than 100 patents issued or pending).

The Company currently outsources production for its products. Management believes that it can maintain or achieve targeted product gross margins and minimize capital needs while reducing product costs. Management believes that offering the lowest product cost will further strengthen the Company s ability to achieve its strategic objectives.

Table of Contents

REVERSE LINK ISSUES, INCLUDING INTERFERENCE, AND WIRELESS SYSTEMS

Reverse link issues are a growing problem limiting cell site coverage, capacity and range, as well as mobile transmit power and related battery-life issues. Reverse link problems cause dropped calls, poor call quality, and other service problems that lead to subscriber dissatisfaction and turnover (churn). Interference enters a carrier s operating frequencies from such sources as: home electronic devices such as portable phones, two-way radios used by commercial enterprises and governmental agencies, air-to-ground radio, police, fire and emergency services radio, military radio, wireless data networking systems, television and radio broadcasts, radar and other cellular networks. Interference is also created by electrical sources used to power cellular base station equipment. Interference may begin within a particular frequency or migrate from another frequency. Increased usage of co-location (multiple providers using the same towers), increased sensitivity of non-voice applications, and the continued surge in wireless traffic result in increasing the impact of Interference on wireless networks.

The Company believes the proliferation of wireless devices and high data rate services will exacerbate the amount of interference bombarding carriers operating frequencies. Conventional cellular base station equipment does not effectively cope with interference issues.

In the face of expanding subscriber bases, increased minutes of cell phone use, demand for high data rate services, the ease of customer churn due to number portability, restricted capital budgets and intense competition, the provisioning and optimization of wireless system infrastructure is a major challenge for operators. As a result of these industry conditions, wireless equipment manufacturers, including independent wireless technology companies and large original equipment manufacturers (OEM s) are working intensely to develop technologies that provide operators the tools necessary to monetize the growing demand for wireless services.

Using the Company s filtering solutions to optimize the reverse link aspect of the wireless network, including the mitigation of interference, the Company believes that operators can capture additional capacity and utilization, expand cell site range and coverage as well as reduce dropped calls to a fraction of what they were prior to the addition of the Company s equipment and to drastically improve overall call quality. Further, the addition of data has placed a tremendous strain on wireless networks, and the Company has encountered cases where its products enabled carriers (channels) to carry traffic where they could not do so without the Company s solutions. These issues, capacity and quality, have been presented as critical wireless operator issues in today s environment.

The Company estimates the economic payback to operators as a result of the use of the Company s filtering solutions should occur in less than one year, depending on cell site traffic levels and dynamics. The Company believes that the short economic payback of its equipment as opposed to other interference control solutions as well as the relatively low capital cost of the Company s products make it s products the best value of all alternatives to system operators.

The higher data rates of 2.5G systems (currently coming online) and 3G systems (up to 10 to 100 times faster than current 2G networks), will require much cleaner signals to support IP protocols (error rates typically 1,000 to 10,000 times better than current 2G specifications). As a result, management believes that system operators will eventually utilize its solutions in a large number of their base stations.

Target Market

The Company believes demand for its products will be primarily driven by the following factors:

1. Existing 2G networks are straining under heavy traffic. According to the Cellular Telecommunications & Internet Association, minutes per user per month increased from 136 minutes in 1998 to 403 minutes in 2002. According to industry sources, the worldwide number of subscribers using mobile wireless networks is expected to increase from 308 million in 1998 to almost 1 billion in 2004, representing an annual compound growth rate of 21%. Regardless of the timing of the introduction of high data rate 2.5G and 3G systems, these trends will drive demand for infrastructure enhancements.

2. As wireless operators install their data-oriented 2.5G overlay networks on top of their existing 2G network, the Company believes data-networks will further strain system capacity resulting in the need for enhanced front-end systems to optimize the reverse link in order to achieve data and error rates specified.

Table of Contents

3. Interference is a primary cause of poor call quality, dropped and lost calls. The Company believes that as a result of increasing use of devices such as cellular phones, wireless data networking equipment, wireless consumer appliances and radar, wireless network operators are coming to view interference management technologies as necessary to protect against their customer bases migrating to other carriers (churn), an especially sensitive topic since number portability (the ability to retain one s phone number when changing wireless operators historically a barrier to changing providers) went into effect.

4. The Company believes that 3G wireless networks will require smaller operating cells and more base stations than existing cellular networks in order to cover the same geographic area. This is based on the requirement for high data rate transmission capability and cleaner error code criterion for 3G networks as well as the fact that transmissions at higher frequencies utilized by 3G networks (expected to operate in the 2100 MHz range) have shorter transmission waves as compared to lower frequency transmissions. Shorter transmission waves tend to limit the distance transmissions can travel without significant degradation.

The 3G Opportunity: A True Wireless Internet

Existing wireless networks are based on technical architectures that were standardized in the late 1980s and early 1990s, and are highly optimized for voice signals. The guiding principle of 2G systems (including TDMA, GSM, CDMA) is signal compression to achieve spectrum efficiency. The basic user data-rate in these networks is typically around 10 kb/s, which is adequate for telephony voice traffic.

3G standards are being developed to meet the needs for a true wireless Internet service. (There are several competing versions of the 3G standard, including W-CDMA and cdma2000. These standards are broadly similar. They are based on wideband CDMA architecture, and will require the same general ultra-clean interference suppression solutions.) These new standards will allow for user data-rates of up to 2 MB/s *nearly two hundred times faster than previous 2G networks*. Moreover, 3G networks will have to support traffic patterns characteristic of Internet connectivity (always on service that may generate several hours of connect time per user per day) rather than today s short voice telephony patterns.

One system element that is especially affected by 3G performance objectives is the receiver front-end, that acquire the desired signal and block interference from other sources. Existing 1G and 2G networks are designed around the less-than-perfect performance characteristics of conventional front-end systems based. These systems allow for a great deal of interference to penetrate the desired signal. There is evidence that even in existing networks (2G CDMA) there are large losses in system capacity more than 50% of nominal capacity lost in many cases, according to recent tests with major CDMA carriers due solely to the imperfections in receiver front-end filtering based on conventional technology. With 3G, extensive testing by NTT DoCoMo and others indicates that conventional front-end technology may not deliver adequate performance.

The Company believes itself to be a highly effective reverse link optimizer. The Company s goal is to position itself to lead the industry in reverse link optimization applications within wireless systems. For example, ISCO s ANF product line is a unique technology that mitigates interference effects, including those that originate inband, one of the most dominant factors in affecting service providers network quality.

TECHNOLOGY OVERVIEW

A wireless base station is divided (roughly) into two halves: the digital portion, and the so-called front-end.

The core expertise of ISCO is the application of technology and experience to wireless front-end systems. The components in the receiver front-end are designed to acquire the desired information-bearing signal and pass it through to the digital portion of the system, where it is processed digitally and the user information is extracted. Typically, much of the signal is lost as it passes through the front-end components. As well, undesired electromagnetic interference (inband and out of band) also leaks into the system due to imperfections in the filtering characteristics of the front-end devices.

Table of Contents

The use of ISCO solutions for wireless front-end systems is based on creating front-end components which block or mitigate the impact of interference, optimize signal processing within the receive path while introducing very little signal loss or degradation, and help operators identify and resolve issues impacting performance.

RF² (Reverse link Radio Frequency Fidelity)

The Company launched a new product line, not based on superconductivity, that optimizes front-end performance. ISCO has developed a cost-effective solution that greatly enhances wireless base station performance. The RF² product is a reverse link low noise front-end solution developed out of ISCO s years of experience with radio frequency and wireless base station performance needs. The RF² product is designed and priced for network wide deployment, improving base station coverage integrity and eliminating dead zones. The impact of RF² is also felt on the handset in the form of reduced mobile transmit power and increased talk time while improving base station coverage. As a result, operators have fewer dropped calls, fewer connection failures, and most importantly, more satisfied customers.

The RF² is easy to install, maintenance-free, and a fraction the cost of HTS solutions. Additionally, it has been shown to deliver results generally comparable to HTS without a cryogenic cooler or other moving parts.

RF² Competition

OEM competition include solution such as adding a carrier to the CDMA cell sites (to increase capacity), cell splitting, or even adding an entirely new base station so as to add capacity and coverage. After-market competition includes repeaters, tower-mounted amplifiers, and HTS receiver front ends. As with the OEM-based solutions, these products may generally improve the coverage of the network.

Adaptive Notch Filters

The Company offers adaptive notch filter products, not based on superconductivity, that continually scan a segment of RF spectrum for interference and block that interference within 20 milliseconds per carrier (channel). The blocking feature is in place as long as needed for noise suppression. These products are especially useful in dealing with sporadic in-band interference as they adapt the Company s interference-management technology to the fluid environment. The complementary nature of these products with the Company s RF² solutions to offer complete reverse link optimization solutions to its customers, rather than force customers to try to isolate the primary cause of their problems prior to looking for an effective solution.

ISCO s ANF product substantially reduces or eliminates altogether the effects of such in-band interference. Each ANF unit continuously monitors up to all seven available CDMA carriers (or seven 1.25MHz channels) being utilized for service, identifying and eliminating narrow-band interferers within the channel whenever and wherever they occur. By dynamically notching out this in-band interference, the coverage integrity and supportable capacity of the cell site are maintained as designed during the network build out. As a direct consequence, the ANF product thereby recovers lost minutes of use, reduces the number of dropped calls and failed call attempts. An entire network of ANF hardware can be managed via the web-based management software that supports the hardware.

The current product is focused on CDMA networks. A product evolution path is planned to extend the range of applications to wide-band CDMA systems (W-CDMA). Other items that will be addressed during future product development include a higher level of integration and a modular design, resulting in a more compact and less expensive product with enhanced functionality, as well as configuration for an outdoor application

ISCO s Adaptive Notch Filter (ANF) unit dynamically identifies and eliminates direct in-band interference in the reverse link of a wide-band system such as CDMA. When such interference is present without being eliminated, the reverse link of such a system will be significantly reduced, often to the point of not allowing any calls on the entire CDMA channel. The ANF unit continuously monitors the power spectral density across the CDMA carriers in use and identifies narrow-band interference in the band of interest. The severity of multiple in-band interferers is prioritized, and the ANF unit dynamically inserts a highly selective notch to eliminate up to three interferers with minimal impact on the desired broadband signal. A single ANF unit supports both the main and diversity paths of a single sector within the cell sites.

Table of Contents

ISCO has also developed a network-wide, web-based network management tool (web monitor), allowing its customers to perform management functions for all ANF units throughout the system. This tool with a graphical user interface allows the service provider to control, configure, and monitor the ANF units remotely from the network management center. This includes:

Remote configuration of parameters within all ANF units;

Remote monitoring of alarm status for all ANF units;

Observe interference and notch activity from all units; and

View on-line event data and reports based on measured performance data.

ISCO has industry leading expertise in the design, deployment and optimization of CDMA networks. To facilitate rapid penetration of ANF, ISCO is offering professional services to the service providers engineering team to identify and quantify interference, and, its effects on network performance. ISCO has already developed the following custom software and hardware tools to perform interference analysis and interference audit. iSMART (Interference from System Metric Analysis Rules Tool): This software tool enables a service provider to identify potential ANF candidate sectors/cell sites by analyzing the system performance metrics data generated in their CDMA network. Automated Test Equipment, ANF-on-wheels and ANF Web Monitor: This software/hardware combination affords us the ability to perform interference audit at cell sites of service providers regardless of the frequency band of operation. This service helps quantify interference and identify new markets (frequency bands) with high interference.

ANF Competition

ISCO has a proprietary technology on ANF but there are alternative solutions that can be categorized as either direct or indirect competition. Direct competition is defined as products that directly address the problem of the issue at hand, namely in-band interference. Indirect competition is categorized as other wireless communication products that do not directly solve the problem of in-band interference, but may be perceived as an alternate solution by service providers. For purposes of this document, the base-station manufacturers will be referred to as the OEMs, whereas manufacturers of auxiliary equipment to augment the base station will be referred to as After-Market Vendors.

Direct Competition After-Market Vendors:

Fixed-frequency notch filters are the main form of direct competition. However, these will only work in a static interference environment, and hence do not satisfy the need of dynamic interference detection and elimination as observed in a vast majority of in-band interference scenarios. Finally, smart antennas were also developed with the intent of in-band interference mitigation. However, the Company believes these solutions have limited applicability and effectiveness in eliminating in-band interference, particularly in a CDMA-based network, and are typically substantially more expensive (in addition to being less effective) than ISCO s ANF solution.

Direct Competition OEMs:

Digital-signal-processing based solutions may be under development by the various OEMs. Even if the manufacturers do develop such a solution for in-band interference, the Company believes that they would have limited dynamic range and hence would only be able to mitigate low-power interference. (This has been confirmed, through discussions with a major OEM, which was interested in incorporating ISCO s ANF product in addition to their own DSP-based solution, so that the ANF product could eliminate the effects of high-power interference.)

Indirect Competition OEMs:

Indirect competition does not directly address the problem of in-band interference, but could be viewed as a method for circumventing the problem without addressing the issues at hand. Some of these are based solely on OEM-based hardware, such as adding a carrier to the CDMA cell sites (to increase capacity), cell splitting, or even adding an entirely new base station so as to add capacity and higher signal-to-noise in a particularly problematic location. However, the Company believes these solutions to be very costly, and, while providing more absolute network capacity, do not guarantee increased performance due to the limiting effects of in-band interference.

Table of Contents

Indirect Competition After-Market Vendors:

Other forms of indirect competition include repeaters, tower-mounted amplifiers, and HTS receiver front ends. As with the OEM-based solutions, the Company does not believe these to directly address the problem of in-band interference, but may generally improve the coverage of the network.

Product Benefits

The Company s products are designed to address the high performance RF front-end needs of domestic and international commercial wireless telecommunication systems by providing the following advantages:

Greater Network Capacity and Utilization. The Company s solutions can increase capacity and utilization by up to 70% or more. In some cases, capacity increases because channels which were previously unusable due to interference are recovered. In other cases, system utilization increases because of lower levels of blocked or dropped calls, and increases in the ability of the system to permit weak signals to be processed with acceptable call quality. In CDMA systems, increased capacity frequently results from lowering the system s noise floor.

Improved Base Station Range. The Company s RF front-end systems can extend the uplink range of a wireless system by up to 30% or more. Greater range can reduce a service operator s capital expenditure per customer in lower density areas by filling in coverage gaps in existing systems or by reducing the number of required cell sites for new system deployments.

Improved Flexibility in Locating Base Stations. The Company s RF front-end products can allow wireless telecommunications service providers to collocate base stations near other RF transmitters. The Company s products allow the base station radio to better tolerate RF interference while reducing out-of band signals that could interfere with other nearby wireless telecommunication operators.

Improved Call Quality Fewer Dropped Calls and Failed Connection Attempts. The Company s products improve call quality by reducing dropped and blocked calls. During commercial installations, the Company s RF filter products have demonstrated drastic reduction in dropped calls, by as much as 50% or more. The Company s products similarly reduce the number of ineffective connection attempts and dead zones within networks.

Improved Digital System Capacity. Tests conducted by wireless operators show that on a single base station test, capacity of the base station increases by as much as 30%. The Company believes that with a system wide deployment of its products, the capacity of the system may increase by more than 70%. Additionally, cases have been presented where a carrier (channel) could not carry data traffic without an ANF solution.

Reduced Mobile Transmit Power. By improving the reverse link, reducing the system s noise floor and mitigating the destructive impact of interference, the Company s solutions greatly reduce required mobile transmit power. This improves battery life, among other benefits.

COMPANY HIGHLIGHTS

Sales and Marketing

Until recently, the Company had historically focused its sales and marketing effort on U.S. wireless service providers for retrofit applications. To date, the Company has sold its products to many of the largest cellular operators in the United States as well as to numerous mid-size and smaller U.S. wireless operators.

Recently, the Company has started targeting certain international customers, marketing both its existing products and presenting the benefits of its interference-management technology in the design and early stages of new systems for 2.5G and 3G Systems.

Table of Contents

Manufacturing

The Company emphasizes the outsourcing of its manufacturing processes in order to provide predictable product yields and can be easily expanded to meet increased customer demand. Toward that end, the Company currently produces all of its ANF^{TM} products through third party manufacturer and designed its RF² product for similar production. The Company believes there are multiple sources available for manufacturing and foresees no problem in future production runs built externally.

The Company s internal manufacturing capability can be found in Mount Prospect, IL.

Research and Development

The Company s R&D efforts have been focused on developing and improving RF products for wireless telecommunications systems. As a result of such efforts, product performance has been improved, product size has been reduced, production costs have been lowered, product functionality has been increased, and product packaging has been streamlined. While the Company expects to continue to invest in R&D to further improve and adapt its products to meet and exceed market expectations, this is expected to require significantly less capital than in the past as it is now primarily a matter of improving existing products as opposed to the initial development of those products. The Company also intends to develop related products that are synergistic with its core filter offerings and which utilize the Company s core technical competencies in the interference-management arena.

The Company s total R&D expenses during 2001, 2002 and 2003 were approximately $7,132,000, $2,737,000, and $988,000 respectively.

Intellectual Property and Patents

The Company regards certain elements of its product design, fabrication technology and manufacturing process as proprietary and protects its rights in them through a combination of patents, trade secrets and non-disclosure agreements. The Company also has obtained exclusive and non-exclusive licenses for technology developed with or by its research partners, Argonne National Laboratory (Argonne) and Northwestern University, and expects to continue to obtain licenses from such research partners and others. The Company believes that its success will depend in part upon the protection of its proprietary information, its patents and licenses of key technologies from third parties, and its ability to operate without infringing on the proprietary rights of others.

HTS Technology

There are two ways of designing an HTS component. So-called *thin-film* techniques use vacuum deposition processes to carefully lay down extremely thin layers of HTS material upon an appropriate substrate. The result is a wafer which can be etched to create components such as a filter, in a process similar to semi-conductor chip fabrication. The advantages of thin-film techniques are a somewhat smaller size of the filter component, and the potential for integration with other components in an Integrated Circuit or chip-type architecture.

Thick-film techniques use a series of processes more similar to the ceramic firing of a coating to create a somewhat thicker HTS layer on the substrate, and are typically employed to coat three-dimensional resonator elements and other larger structures. The manufacturing process is generally much simpler and less expensive (no clean room required as for thin-film). The advantages of thick-film HTS are much higher filter performance (i.e., better selectivity and ultimate rejection; much better intermodulation characteristics; larger numbers of poles can be employed.) as well as the ability to support high-power applications for transmit filters and other transmitter components. ISCO is the only company with intellectual property covering both technologies.

Patents

As of December 31, 2003, the Company had been issued more than 100 patents and patent applications, with no licenses of patents and patent applications held by others. The Company acquired patents, through assignment of a license from the Canadian government, in connection with the purchase of the Adaptive Notch Filtering business unit of Lockheed Martin Canada. One of the Company s patents is jointly owned with Lucent Technologies, Inc. The Company believes that a large number of patent applications have been filed worldwide, and

Table of Contents

many patents have been granted in the U.S. relating to HTS materials. The claims in those patents often appear to overlap and there are interference proceedings pending in the United States Patent and Trademark Office (not currently involving the Company) regarding rights to inventions claimed in some of the HTS materials patent applications. Furthermore, the Company expects to pursue foreign patent rights on certain of its inventions and technologies critical to its products.

Government Regulations

Although the Company believes that its wireless telecommunications products themselves are not licensed or governed by approval requirements of the Federal Communications Commission (FCC), the operation of base stations is subject to FCC licensing and the radio equipment into which the Company s products would be incorporated is subject to FCC approval. Base stations and the equipment marketed for use therein must meet specified technical standards. The Company s ability to sell its RF filter products is dependent on the ability of wireless base station equipment manufacturers and of wireless base station operators to obtain and retain the necessary FCC approvals and licenses. In order to be acceptable to base station equipment manufacturers and to base station operators, the characteristics, quality, and reliability of the Company s base station products must enable them to meet FCC technical standards.

The Company may use certain hazardous materials in its research, development and any manufacturing operations to the extent it manufactures product in the future. As a result, the Company is subject to stringent federal, state and local regulations governing the storage, use and disposal of such materials. It is possible that current or future laws and regulations could require the Company to make substantial expenditures for preventive or remedial action, reduction of chemical exposure, or waste treatment or disposal. The Company believes it is in material compliance with all environmental regulations and to date the Company has not had to incur significant expenditures for preventive or remedial action with respect to the use of hazardous materials.

Employees

As of January 15, 2004, the Company had a total of 18 employees, 4 of whom hold advanced degrees. Of the employees, 2 are engaged in manufacturing and production, 7 are engaged in research, development and engineering, and 4 are engaged in marketing and sales, and 5 are engaged in finance and administration. Additionally, a former employee now provides consulting services within the marketing function. The Company also periodically employs other consultants and independent contractors on as as-needed basis. None of the Company s employees are covered by a collective bargaining agreement. The Company believes its relationship with its employees is good.

FORWARD- LOOKING STATEMENTS

Because ISCO International, Inc. (ISCO or ISCO International or Company) wants to provide investors with more meaningful and useful information, this Annual Report on Form 10-K (Form 10-K) contains, and incorporates by reference, certain forward-looking statements that reflect the Company s current expectations regarding its future results of operations, performance and achievements. The Company has tried, wherever possible, to identify these forward-looking statements by using words such as anticipates, believes, estimates, expects, designs, p intends and similar expressions. These statements reflect the Company s current beliefs and are based on information currently available to the Company. Accordingly, these statements are subject to certain risks, uncertainties and contingencies, including the factors set forth under the caption Risk Factors, which could cause the Company s actual results, performance or achievements for 2004 and beyond to differ materially from those expressed in, or implied by, any of these statements. You should not place undue reliance on any forward-looking statements. Except as otherwise required by federal securities laws, the Company undertakes no obligation to release publicly the results of any revisions to any such forward-looking statements that may be made to reflect events or circumstances after the date of this prospectus or to reflect the occurrence

of unanticipated events.

RISK FACTORS

The following factors, in addition to other information contained herein, should be considered carefully in evaluating the Company and its business.

Table of Contents

RISKS RELATED TO THE OPERATIONS AND FINANCING OF THE COMPANY

History of Losses Raises Doubts About Ability to Continue as a Going Concern

The Company was founded in October 1989 and through 1996 was engaged principally in research and development, product testing, manufacturing, marketing and sales activities. It has incurred net losses since inception. As of December 31, 2003, the accumulated deficit was approximately $150.1 million. The Company has only recently begun to generate revenues from the sale of its ANF and RF² products. Accordingly, although management has announced the expectation of improvement during 2004, it is nonetheless possible that the Company may continue to experience net losses and cannot be certain if or when the Company will become profitable.

These conditions raise substantial doubt about the Company s ability to continue as a going concern. The accompanying consolidated financial statements have been prepared assuming the Company will continue a going concern and do not include any adjustments relating to the recoverability of reported assets or liabilities should the Company be unable to continue as a going concern.

Future Capital Needs

To date, the Company has financed its operations primarily through public and private equity and debt financings, and most recently through financings with affiliates of its two largest shareholders. The Company believes that it has sufficient funds to operate its business as identified herein through 2004, provided that the Company is able to borrow the $1 million remaining under the uncommitted line of credit with affiliates of its two largest shareholders, Elliott Associates, L.P. (Manchester Securities Corporation) and Alexander Finance, L.P. This line is uncommitted, such that the additional borrowing under the facility is subject to the approval of the lenders. Without this credit line, the Company believes it has funds available into the third or fourth quarter 2004, and quite possibly longer, subject to operating results. The Company intends to look into augmenting its existing capital position by utilizing the unused portion of the credit line as identified and through other sources of capital.

The Company s continued existence is therefore dependent upon its continued ability to raise funds through the issuance of its securities or borrowings, and its ability to acquire assets or satisfy liabilities by the issuance of stock. Management s plans in this regard are to obtain other debt and equity financing until such time as the Company profitable operation and positive cash flow are achieved and maintained.

Although management believes, based on the fact that it has raised funds through sales of common stock and from borrowings over the past several years, that it will be able to secure suitable additional financing for the Company s operations, there can be no guarantee that such financing will continue to be available on reasonable terms, or at all. As a result, there is no assurance that the Company will be able to continue as a going concern.

The actual amount of future funding requirements will depend on many factors, including: the amount and timing of future revenues, the level of product marketing and sales efforts to support the Company s commercialization plans, the magnitude of research and product development programs, the ability to improve or maintain product margins, the cost of additional plant and equipment for manufacturing, if needed, and the costs involved in protecting patents or other intellectual property.

Limited Experience in Manufacturing, Sales and Marketing

For the Company to be financially successful, it must either manufacture its products in substantial quantities, at acceptable costs and on a timely basis or enter into an outsourcing arrangement with a qualified manufacturer that will allow it the same. Currently, the Company s manufacturing requirements are met by third party contract manufacturers. The efficient operation of the Company s business will depend, in part, on its ability to have these and other companies manufacture its products in a timely manner, cost effectively and in sufficient volumes while maintaining the required quality. Any manufacturing disruption could impair the Company s ability to fulfill orders and could cause us to lose customers.

In the event that it is unable to enter into a manufacturing arrangement on acceptable terms with a qualified manufacturer, the Company would have to produce the products in commercial quantities in its own facilities.

Table of Contents

Although to date the Company has produced limited quantities of its products for commercial installations and for use in development and customer field trial programs, production of large quantities of its products at competitive costs presents a number of technological and engineering challenges. The Company may be unable to manufacture such products in sufficient volume. The Company has limited experience in manufacturing, and substantial costs and expenses may be incurred in connection with attempts to manufacture larger quantities of the Company s products. The Company may be unable to make the transition to large-scale commercial production successfully.

The Company s sales and marketing experience to date is very limited. The Company may be required to further develop its marketing and sales force in order to effectively demonstrate the advantages of its products over other products. The Company also may elect to enter into arrangements with third parties regarding the commercialization and marketing of its products. If the Company enters into such agreements or relationships, it will be substantially dependent upon the efforts of others in deriving commercial benefits from its products. The Company may be unable to establish adequate sales and distribution capabilities, it may be unable to enter into marketing arrangements or relationships with third parties on financially acceptable terms, and any such third party may not be successful in marketing the Company s products. There is no guarantee that its sales and marketing effort will be successful.

Management of Growth

Growth may cause a significant strain on the Company s management, operational, financial and other resources. The ability to manage growth effectively may require the Company to implement and improve its operational, financial, manufacturing and management information systems and expand, train, manage and motivate employees. These demands may require the addition of new management personnel and the development of additional expertise by management. Any increase in resources devoted to product development and marketing and sales efforts could have an adverse effect on financial performance in future fiscal quarters. If the Company were to receive substantial orders, it may have to expand current facilities, which could cause an additional strain on the Company s management personnel and development resources. The failure of the management team to effectively manage growth could have a material adverse effect on the business, operating results and financial condition.

RISKS RELATED TO THE COMPANY S COMMON STOCK AND CHARTER PROVISIONS

Volatility of Common Stock Price

The market price of the Company s common stock, like that of many other high-technology companies, has fluctuated significantly and is likely to continue to fluctuate in the future. Since January 1, 1999 and through December 31, 2003, the closing price of its common stock has ranged from a low of $0.10 per share to a high of $39.00 per share, but its common stock has not traded above $0.68 per share during 2003. Announcements by us or others regarding the receipt of customer orders, quarterly variations in operating results, acquisitions or divestitures, additional equity or debt financings, results of customer field trials, scientific discoveries, technological innovations, litigation, product developments, patent or proprietary rights, government regulation and general market conditions may have a significant impact on the market price of the common stock. In addition, fluctuations in the price of the Company s common stock could affect the Company s ability to maintain the listing of its common stock on the American Stock Exchange.

Risk of Dilution

As of December 31, 2003, the Company had (i) outstanding warrants to purchase 10 million shares of common stock at a weighted average exercise price of $0.20 per share and (ii) outstanding options to purchase 6,659,557 shares of common stock at a weighted average exercise price of $0.55 per share (646,320 of which have not yet vested) issued to employees, directors and consultants pursuant to the 2003 Equity Incentive Plan and its predecessor 1993 Stock Option Plan as Amended, the merger agreement with Spectral Solutions, and individual agreements with management and directors. In order to attract and retain key personnel, the Company may issue additional securities, including stock options, in connection with the Company s employee benefit plans, or may lower the price of existing stock options.

Table of Contents

During February 2004, the warrant holders exercised all their warrants, resulting in 10 million shares of the Company s common stock being issued. The Company received the $2 million aggregate strike price for the exercise of these warrants.

The exercise of options and warrants for common stock and the issuance of additional shares of common stock and/or rights to purchase common stock at prices below market value would be dilutive to existing stockholders and may have an adverse effect on the market value of the common stock.

Concentration of the Company s Stock Ownership

At the time of this filing, officers, directors and principal stockholders (holding greater than 5% of outstanding shares) together control approximately 45% of the outstanding voting power. Consequently, these stockholders, if they act together, would be able to exert significant influence over all matters requiring stockholder approval, including the election of directors and approval of significant corporate transactions. In addition, this concentration of ownership may delay or prevent a change of control of the Company, even if a change may be in the best interests of the Company s stockholders. The interests of these stockholders may not always coincide with the interests of the Company s or the interests of other stockholders. Accordingly, these stockholders could cause the Company to enter into transactions or agreements that it would not otherwise consider.

Anti-Takeover Provisions

There exist certain arrangements which may be deemed to have a potential anti-takeover effect in that such provisions may delay, defer or prevent a change of control of the Company. In February 1996, the Board of Directors adopted a stockholders rights plan. In addition, the Company s Certificate of Incorporation and By-Laws provide that (i) the Board of Directors has authority to issue series of the Company s preferred stock with such voting rights and other powers as the Board of Directors may determine; (ii) prior specified notice must be given by a stockholder making nominations to the Board of Directors or raising business matters at stockholders meetings; and (iii) the Board of Directors is divided into three classes, each serving for staggered three-year terms. The effect of the rights plan and the anti-takeover provisions in charter documents may be to deter business combination transactions not approved by the Company s Board of Directors, including acquisitions that may offer a premium over market price to some or all stockholders.

TECHNOLOGY AND MARKET RISKS

The Company is Dependent on Wireless Telecommunications

The principal target market for the Company s products is wireless telecommunications. The devotion of substantial resources to the wireless telecommunications market creates vulnerability to adverse changes in this market. Adverse developments in the wireless telecommunications market, which could come from a variety of sources, including future competition, new technologies or regulatory decisions, could affect the competitive position of wireless systems. Any adverse developments in the wireless telecommunications market may have a material adverse effect on the Company s business, operating results and financial condition.

The Company is Dependent on the Enhancement of Existing 2G and 2.5G Networks and the Build-Out of 3G Networks, and the Capital Spending Patterns of Wireless Network Operators

Increased sales of products is dependent on a number of factors, one of which is the build-out of third generation, or 3G, enabled wireless communications networks as well as enhancements of existing infrastructure. Building wireless networks is capital intensive, as is the process of upgrading existing second generation, 2G, equipment. Further, the capital spending patterns of wireless network operators is beyond management s control and depends on a variety of factors, including access to financing, the status of federal, local and foreign government regulation and deregulation, changing standards for wireless technology, the overall demand for wireless services, competitive pressures and general economic conditions. The build-out of 2.5G and 3G enabled networks may take years to complete. The magnitude and timing of capital spending by these operators for constructing, rebuilding or upgrading their systems significantly impacts the demand for the Company s products. Any decrease or delay in capital spending patterns in the wireless communication industry, whether because of a general business slowdown or a reevaluation of the prospective demand for 2.5G and 3G services, would delay the build-out of these networks and may significantly harm business prospects.

Table of Contents

The Company s Success Depends on the Market s Acceptance of its Products

The Company s RF filter products, including its ANF and RF² products, have not been sold in very large quantities and a sufficient market may not develop for these products. Customers establish demanding specifications for performance, and although the Company believes it has met or exceeded these specifications to date, there is no guarantee that the wireless service providers will elect to use these solutions to solve their wireless network problems. Although the Company has received several orders from wireless operators for the Company s products over the past year, there is no assurance that it will continue to receive orders from these customers.

Rapid Technological Change and Future Competitive Technologies Could Negatively Affect Operations

The field of telecommunications is characterized by rapidly advancing technology. The Company s success will depend in large part upon its ability to keep pace with advancing its high performance RF filter technology and efficient, readily available low cost materials technologies. Rapid changes have occurred, and are likely to continue to occur, in the development of wireless telecommunications. Development efforts may be rendered obsolete by the adoption of alternative solutions to current wireless operator problems or by technological advances made by others.

BUSINESS RISKS

Dependence on a Limited Number of Customers

Sales to three of the Company s customers accounted for 98% and 95% of the Company s total revenues for 2003 and 2002, respectively. In addition, a significant amount of the Company s technical and managerial resources have been focused on working with these and a limited number of other operators and OEMs.

The Company expects that if its products achieve market acceptance, a limited number of wireless service providers and OEMs will account for a substantial portion of revenue during any period. Sales of many of the Company s products depend in significant part upon the decision of prospective customers and current customers to adopt and expand their use of these products. Wireless service providers, wireless equipment OEMs and the Company s other customers are significantly larger than, and are able to exert a high degree of influence over the Company. Customers orders are affected by a variety of factors such as new product introductions, regulatory approvals, end user demand for wireless services, customer budgeting cycles, inventory levels, customer integration requirements, competitive conditions and general economic conditions. The failure to attract new customers would have a material adverse effect on the business, operating results and financial condition.

Lengthy Sales Cycles

Prior to selling products to customers, the Company may be required to undergo lengthy approval and purchase processes. Technical and business evaluation by potential customers can take up to a year or more for products based on new technologies. The length of the approval process is affected by a number of factors, including, among others, the complexity of the product involved, priorities of the customers, budgets and regulatory issues affecting customers. The Company may not obtain the necessary approvals or ensuing sales of such products may not

occur. The length of customers approval process or delays could make the Company s quarterly revenues and earnings inconsistent and difficult to trend.

Dependence on Limited Sources of Supply

Certain parts and components used in the Company s RF filter products are only available from a limited number of sources. The Company s reliance on these limited source suppliers exposes it to certain risks and uncertainties, including the possibility of a shortage or discontinuation of certain key components and reduced control over delivery schedules, manufacturing capabilities, quality and costs. Any reduced availability of such parts or components when required could materially impair the ability to manufacture and deliver products on a timely basis and result in the cancellation of orders, which could have a material adverse effect on the business, operating results and financial condition.

Table of Contents

In addition, the purchase of certain key components involves long lead times and, in the event of unanticipated increases in demand for its products, the Company may be unable to manufacture products in quantities sufficient to meet customers demand in any particular period. The Company has few guaranteed supply arrangements with its limited source suppliers, does not maintain an extensive inventory of parts or components, and customarily purchases parts and components pursuant to actual or anticipated purchase orders placed from time to time in the ordinary course of business.

Related to this topic, the Company produces substantially all of its products through third-party contract manufacturers. Like raw materials, the elimination of any of these entities or delays in the fulfillment process, for whatever reason, may impact the Company s ability to fulfill customer orders on a timely basis and may have a material adverse effect on the business, operating results, or financial condition.

To satisfy customer requirements, the Company may be required to stock certain long lead time parts and/or finished product, in anticipation of future orders or otherwise commit funds toward future purchase. The failure of such orders to materialize as forecasted could limit resources available for other important purposes or accelerate the requirement for additional funds. In addition, such excess inventory could become obsolete, which would adversely affect financial performance. Business disruption, production shortfalls or financial difficulties of a limited source supplier could materially and adversely affect the Company by increasing product costs or reducing or eliminating the availability of such parts or components. In such events, the inability to develop alternative sources of supply quickly and on a cost-effective basis could materially impair the ability to manufacture and deliver products on a timely basis and could have a material adverse effect on the business, operating results and financial condition.

Dependence on Key Personnel

The Company s success will depend in large part upon its ability to attract and retain highly qualified management, engineering, manufacturing, marketing, sales and R&D personnel. Due to the specialized nature of the Company s business, it may be difficult to locate and hire qualified personnel. The loss of services of one of the Company s executive officers or other key personnel, or the failure to attract and retain other executive officers or key personnel, could have a material adverse effect on the business, operating results and financial condition.

Failure of Products to Perform Properly Might Result in Significant Warranty Expenses

In general, products carry a warranty of one or two years, limited to replacement of the product or refund of the cost of the product. In addition, the Company offers its customers extended warranties. Repeated or widespread quality problems could result in significant warranty expenses and/or the loss of customer confidence. The occurrence of such quality problems could have a material adverse effect on the business, operating results and financial condition.

Intense Competition, and Increasing Consolidation in the Company s Industry, Could Create Stronger Competitors and Harm the Business

The wireless telecommunications equipment market is very competitive. Many of these companies have substantially greater financial resources, larger research and development staffs and greater manufacturing and marketing capabilities than the Company. Its products compete directly with products which embody existing and future competing commercial technologies. Other emerging wireless technologies, may also provide protection from RF interference and offer enhanced range to wireless communication service providers, potentially at lower prices and/or

superior performance, and may therefore compete with the Company s products. High performance RF filters may not become a preferred technology to address the needs of wireless communication service providers. Failure of its products to improve performance sufficiently, reliably, or at an acceptable price or to achieve commercial acceptance or otherwise compete with conventional and new technologies, will have a material adverse effect on the business, operating results and financial condition.

Table of Contents

LEGAL RISKS

Intellectual Property and Patents

The Company s success will depend in part on its ability to obtain patent protection for its products and processes, to preserve trade secrets and to operate without infringing upon the patent or other proprietary rights of others and without breaching or otherwise losing rights in the technology licenses upon which any of the Company s products are based. As of December 31, 2003, the Company had been issued or was actively pursuing applications for more than 100 US and foreign patents. The Company acquired patent rights in connection with the purchase of the Adaptive Notch Filtering business unit of Lockheed Martin Canada. One of the patents is jointly owned with Lucent Technologies, Inc. The claims in those patents often appear to overlap and there have been interference proceedings pending in the United States Patent and Trademark Office (not currently involving the Company) regarding rights to inventions claimed in certain patent applications. The Company believes there are a large number of patents and patent applications covering RF filter products and other products and technologies that it is pursuing. Accordingly, the patent positions of companies using RF technologies, including the Company, are uncertain and involve complex legal and factual questions. The patent applications filed by the Company or others may not result in issued patents or the scope and breadth of any claims allowed in any patents issued to the Company or others may not exclude competitors or provide competitive advantages. In addition, patents issued to the Company, its subsidiaries or others may not be held valid if subsequently challenged or others may claim rights in the patents and other proprietary technologies owned or licensed by the Company. Others may have developed or may in the future develop similar products or technologies without violating any of the Company s proprietary rights. Furthermore, the loss of any license to technology that the Company might acquire in the future may have a material adverse effect on the business, operating results and financial condition.

Some of the patents and patent applications owned by us are subject to non-exclusive, royalty-free licenses held by various U.S. governmental units. These licenses permit these U.S. government units to select vendors other than us to produce products for the U.S. Government, which would otherwise infringe the Company s patent rights that are subject to the royalty-free licenses. In addition, the U.S. Government has the right to require us to grant licenses (including exclusive licenses) under such patents and patent applications or other inventions to third parties in certain instances.

Older patent applications in the U.S. are currently maintained in secrecy until patents are issued. In foreign countries and for newer U.S. patent applications, this secrecy is maintained for a period of time after filing. Accordingly, publication of discoveries in the scientific literature or of patents themselves or laying open of patent applications in foreign countries or for newer U.S. patent applications tends to lag behind actual discoveries and filing of related patent applications. Due to this factor and the large number of patents and patent applications related to RF materials and technologies, and other products and technologies that the Company is pursuing, comprehensive patent searches and analyses associated with HTS materials, RF technologies and other products and technologies that the Company is pursuing are often impractical or not cost-effective. As a result, patent and literature searches cannot fully evaluate the patentability of the claims in its patent applications or whether materials or processes used by the Company for its planned products infringe or will infringe upon existing technologies described in U.S. patents or may infringe upon claims in patent applications made available in the future. Because of the volume of patents issued and patent applications filed relating to RF technologies and other products and technologies that it is pursuing, the Company believes there is a significant risk that current and potential competitors and other third-parties have filed or will file patent applications for, or have obtained or will obtain, patents or other proprietary rights relating to materials, products or processes used or proposed to be used by the Company. In any such case, to avoid infringement, it would have to either license such technologies or design around any such patents. The Company may be unable to obtain licenses to such technologies or, if obtainable, such licenses may not be available on terms acceptable to the Company or the Company may be unable to successfully design around these third-party patents.

Participation in litigation or patent office proceedings in the U.S. or other countries, which could result in substantial cost to and diversion of effort by the Company, may be necessary to enforce patents issued or licensed to it, to defend itself against infringement claims made by others or to determine the ownership, scope or validity of the proprietary rights of the Company and others. The parties to such litigation may be larger, better capitalized than the Company and better able to support the cost of litigation. An adverse outcome in any such proceedings could subject the Company to significant liabilities to third parties, require it to seek licenses from third parties and/or require it to cease using certain

technologies, any of which could have a material adverse effect on the business, operating results and financial condition.

Table of Contents

Litigation

The Company has been subject to a number of lawsuits and currently has ongoing legal proceedings involving the Company s assertion of patent infringement litigation and related counterclaims raised by the defense. If the Company is not successful in defending itself against these counterclaims, there may be a material and adverse effect on the Company s business, operating results and financial condition. The Company has announced the settlement of the Laves litigation as described elsewhere.

Government Regulations

Although the Company believes that its wireless telecommunications products themselves would not be subject to licensing by, or approval requirements of, the FCC, the operation of base stations is subject to FCC licensing and the radio equipment into which the Company s products would be incorporated is subject to FCC approval. Base stations and the equipment marketed for use therein must meet specified technical standards. The ability to sell the Company s wireless telecommunications products is dependent on the ability of wireless base station equipment manufacturers and wireless base station operators to obtain and retain the necessary FCC approvals and licenses. In order for them to be acceptable to base station equipment manufacturers and to base station operators, the characteristics, quality and reliability of the Company s base station products must enable them to meet FCC technical standards. The Company may be subject to similar regulations of the Canadian federal and provincial governments. Any failure to meet such standards or delays by base station equipment manufacturers and wireless base station operators in obtaining the necessary approvals or licenses could have a material adverse effect on the business, operating results and financial condition. In addition, HTS RF filters are on the U.S. Department of Commerce s export regulation list. Therefore, exportation of such RF filters to certain countries may be restricted or subject to export licenses.

The Company is subject to governmental labor, safety and discrimination laws and regulations with substantial penalties for violations. In addition, employees and others may bring suit against it for perceived violations of such laws and regulations. Defense against such complaints could result in significant legal costs for us. Although the Company endeavors to comply with all applicable laws and regulations, it may be the subject of complaints in the future, which could have a material adverse effect on the business, operating results and financial condition.

Environmental Liability

Certain hazardous materials may be used in research, development and manufacturing operations. As a result, the Company is subject to stringent federal, state and local regulations governing the storage, use and disposal of such materials. It is possible that current or future laws and regulations could require it to make substantial expenditures for preventive or remedial action, reduction of chemical exposure, or waste treatment or disposal. The Company believes it is in material compliance with all environmental regulations and to date has not had to incur significant expenditures for preventive or remedial action with respect to the use of hazardous materials. However, its operations, business or assets could be materially and adversely affected by the interpretation and enforcement of current or future environmental laws and regulations. In addition, although the Company believes that its safety procedures for handling and disposing of such materials comply with the standards prescribed by state and federal regulations, there is the risk of accidental contamination or injury from these materials. In the event of an accident, the Company could be held liable for any damages that result. Furthermore, the use and disposal of hazardous materials involves the risk that the Company could incur substantial expenditures for such preventive or remedial actions. The liability in the event of an accident or the costs of such actions could exceed available resources or otherwise have a material adverse effect on the business, results of operations and financial condition. The Company carries property and workman s compensation insurances in full force and effect through nationally known carriers which include pollution cleanup or removal and medical claims for industrial incidents.

16

Table of Contents

RISKS RELATED TO ACQUISITIONS AND BUSINESS EXPANSION

Risks of Future Acquisitions

In the future, the Company may pursue acquisitions to obtain products, services and technologies that it believes will complement or enhance its current product or services offerings. At present, no agreements or other arrangements exist with respect to any such acquisition. An acquisition may not produce the revenue, earnings or business synergies as anticipated and may attach significant unforeseen liabilities, and an acquired product, service or technology might not perform as expected. If an acquisition is pursued, the Company s management could spend a significant amount of time and effort in identifying and completing the acquisition and may be distracted from the operations of the business. In addition, management would probably have to devote a significant amount of resources toward integrating the acquired business with the existing business, and that integration may not be successful.

International Operations

The Company is in discussions and has agreements in place with companies in non-U.S. markets to form manufacturing, product development joint ventures and other marketing, distribution or consulting arrangements.

The Company believes that non-U.S. markets could provide a substantial source of revenue in the future. However, there are certain risks applicable to doing business in foreign markets that are not applicable to companies doing business solely in the U.S. For example, the Company may be subject to risks related to fluctuations in the exchange rate between the U.S. dollar and foreign currencies in countries in which it does business. In addition, it may be subject to the additional laws and regulations of these foreign jurisdictions, some of which might be substantially more restrictive than similar U.S. ones. Foreign jurisdictions may also provide less patent protection than is available in the U.S., and the Company may be less able to protect its intellectual property from misappropriation and infringement in these foreign markets.

Item 2. Properties

The Company maintains its corporate headquarters in a 35,000 square foot building located in Mt. Prospect, Illinois under a lease which expires in October 2004. Additionally, it maintains a 6,500 square foot facility located in North York, Ontario under a sublease that expires in August 2004, which has been further broken into two segments which have subsequently been subleased to other entities. The Company also has a small office lease in Dallas, Texas (expiring February 2005). The Mount Prospect facility houses the Company s manufacturing, research, development, engineering and marketing activities. The Company believes that this facility is adequate and suitable for its current needs and that additional space would be available on commercial terms as necessary to meet any future needs. As the Company currently outsources manufacturing for its products, it expects to move into a new facility by October 2004.

Item 3. Legal Proceedings

Patent Litigation

In July 2001, the Company filed suit in the United States District Court for the District of Delaware against Conductus, Inc. and Superconductor Technologies, Inc. alleging infringement of U.S. Patent No. 6,263,215, entitled Cryoelectronically Cooled Receiver Front End for Mobile Radio Systems (the 215 patent). This suit alleges that Conductus and Superconductor Technologies base station front-end systems containing cryogenically cooled superconducting filters infringe this patent. The Company seeks a permanent injunction enjoining Conductus and Superconductor Technologies from marketing, selling or manufacturing these products, as well as triple damages and attorneys fees. Conductus and Superconductor Technologies denied these allegations and asked the court to enter a judgment that the patent is invalid and not infringed. Conductus and Superconductor Technologies also asserted the defense of inequitable conduct and a counterclaim for a declaration that the patent is unenforceable as well as federal and state law counterclaims, including claims of unfair competition. Conductus and Superconductor Technologies sought both compensatory and punitive damages as well as attorneys fees and costs.

On March 26, 2002, the Company replied to Conductus and Superconductor Technologies Second Amended Answer and Counterclaims and filed counterclaims alleging that Conductus and Superconductor Technologies also infringe U.S. Patent No. 6,104,934 entitled Cryoelectronic Receiver Front End and U.S. Patent

Table of Contents

No. 6,205,340 B1 entitled Cryoelectronic Receiver Front End For Mobile Radio Systems . On April 17, 2002, the court dismissed these (the Company s) counterclaims without prejudice to the Company s right to assert these counterclaims in a separate action.

On February 10, 2003, the court disposed of various motions for summary judgment filed by each party. The court denied Superconductor Technologies motion for summary judgment of invalidity of the 215 patent as well as Conductus motion for summary judgment limiting computation of damages to a reasonable royalty for sales to Dobson Communications, Inc. On Superconductor Technologies motion for summary judgment of non-infringement, the court granted the motion with respect to claim 13 of the 215 patent and otherwise denied the motion with respect to each of the other asserted claims. With regard to Conductus motion for summary judgment of non-infringement, the court granted the motion with respect to claim 13 of the 215 patent and otherwise denied the motion with respect to each of the other asserted claims. In addition, the court denied Conductus motion for summary judgment of invalidity of all asserted claims for causes of action existing prior to the date of issuance of the certificate of correction and of invalidity of claim 13. The court also denied the Company s motions for summary judgment that Superconductor Technologies internal projects are not prior art to the 215 patent and to dismiss the defendants counterclaims alleging unfair competition and interference with business relations.

On April 3, 2003, the jury returned with its verdict. The jury rejected the Company s positions and determined its patent to be invalid. Additionally, the jury determined that inequitable conduct had occurred and subsequently awarded defendants $3.87 million in damages from the Company. The Company was severely disappointed by this verdict and it engaged in the post-trial motion process to overturn it. On August 21, 2003, the court issued its ruling on the post-trial motions. The court overturned the jury s determination of unfair competition on the part of the Company and denied all requests for damages, including the $3.87 million jury award cited above. The court did not, however, overturn the jury determinations of patent invalidity and unenforceability based on inequitable conduct and denied ISCO s motion for a new trial.

During September 2003, the Company filed an appeal of this verdict requesting the reinstatement of its patent and the rights inherent within that patent, and Superconductor Technologies, Inc. filed a cross-appeal requesting reinstatement of the jury award and attorney s fees.

The Company intends to continue to prosecute its claims vigorously on appeal and continue to defend against defendants counterclaims. The Company believes the patent to be valid, the counterclaims asserted against the Company to be without merit, and that it is in the best interests of the Company and its shareholders to pursue this matter vigorously.

In November 2001, the Company filed suit against Dobson Communications, Inc. for allegedly infringing this patent. The action has been stayed, per agreement between the parties, until resolution of the matter between the Company and Conductus and Superconductor Technologies. The parties have agreed that Dobson Communications will be bound by any and all final, non-appealable determinations, holdings or findings with respect to all liability issues in the Company s case against Conductus.

Laves Litigation

On July 17, 2000 former President and CEO Edward W. Laves filed a two-count Complaint (the Complaint) in the Law Division of the Circuit Court of Cook County, Illinois. Laves named as Defendants the Company and three directors and sued for breach of contract (Count I) and for violation of the Illinois Wage Payment and Collection Act (Wage Act) (Count II). Laves claimed the Defendants constructively terminated him and then failed to pay severance benefits under his employment agreement. On April 8, 2002, Laves was given leave to amend his Complaint and add Count III against the individual director Defendants for tortious interference with contractual obligations. According the Complaint, Laves sought damages against the company in an amount estimated to exceed $12 million, plus attorney s fees under the Wage Act and pre-and post-judgment interest. He sought the same damages against the individual director Defendants, plus $5,000,000 for punitive damages.

During February 2004, the parties reached settlement. Laves was paid $700,000, half of which came from the Company and the remainder from the Company s insurance carrier, and all parties agreed to terminate proceedings, with prejudice. The Company accrued for its portion as a contingent liability as of December 31, 2003.

Table of Contents

Item 4. Submission of Matters to a Vote of Security Holders

At our annual meeting of shareholders held on December 15, 2003, the following proposals were approved by the margins indicated:

		Voted For	Number of Shares	Withheld
1.	To elect one Class I director to the Board of Directors for a term of three (3) years and until his successor is duly elected and qualified.			
	George M. Calhoun	139,563,025		600,433

		Voted For	Number of Shares Against	Withheld
2.	To approve the ISCO International, Inc. 2003 Equity Incentive Plan	79,493,093	1,667,036	210,243
3.	To ratify the appointment of Grant Thornton LLP as the independent auditors of the Company s financial statements for the fiscal year ending December 31, 2003.	139,789,620	254,250	119,588

Table of Contents

PART II

Item 5. Market for Registrant s Common Equity and Related Stockholder Matters

The Common Stock has been quoted since June 2002 on the American Stock Exchange under the symbol ISO. Prior to that, and until April 1999, the stock had been quoted on the OTC Bulletin Board under the symbol ISCO. From 1993 until April 1999, the Common Stock was quoted on the NASDAQ National Market. The following table shows, for the periods indicated, the reported high and low sale prices for the Common Stock. Such prices reflect prices between dealers, without retail mark up, mark down, or commissions and may or may not reflect actual transactions.

	High	Low
FISCAL YEAR ENDING DECEMBER 31, 2002		
First Quarter	$ 0.86	$ 0.45
Second Quarter	$ 0.94	$ 0.40
Third Quarter	$ 0.54	$ 0.18
Fourth Quarter	$ 0.76	$ 0.10
FISCAL YEAR ENDING DECEMBER 31, 2003		
First Quarter	$ 0.46	$ 0.30
Second Quarter	$ 0.43	$ 0.11
Third Quarter	$ 0.62	$ 0.22
Fourth Quarter	$ 0.68	$ 0.18

On December 31, 2003, there were approximately 300 holders of record of the Common Stock. On such date the closing bid price for the Company s common stock as reported on the American Stock Exchange was $0.55.

The Company has never paid cash dividends on the Common Stock and the Company does not expect to pay any dividends on its Common Stock in the foreseeable future.

Recent Sales of Unregistered Securities

During the three months ended December 31, 2003, we issued a total of 1,000,000 shares of our common stock that were not registered under the Securities Act of 1933, as amended (1933 Act) in reliance on an exemption pursuant to Section 4(2) of the 1933 Act. These shares of common stock were issued pursuant to a Settlement Agreement and Release with Morgan and Finnegan L.L.P. (M&F), the Company s former patent counsel. The agreement reflected the resolution of a dispute between the Company and M&F and the shares were issued in consideration for the release of claims by M&F against the Company.

Item 6. Selected Financial Data

The following table presents selected consolidated financial data with respect to the Company as of and for the years ended December 31, 1999, 2000, 2001, 2002 and 2003. The selected consolidated financial data for each of the years in the five-year period ended December 31, 2003 have been derived from the audited consolidated financial statements of the Company. The information set forth below should be read in conjunction with Item 7. Management s Discussion and Analysis of Financial Condition and Results of Operations and Item 8. Financial Statements and Supplementary Data.

Table of Contents

	1999	2000	2001	2002	2003
CONSOLIDATED STATEMENT OF OPERATIONS DATA:					
Net sales	$ 2,408,604	$ 495,885	$ 1,981,001	$ 3,662,805	$ 3,238,402
Costs and expenses:					
Cost of sales	5,923,173	2,672,578	3,978,368	3,565,140	1,639,540
Research and development	1,757,214	3,187,768	7,131,654	2,737,084	988,425
Selling and marketing	1,581,545	1,239,959	3,263,813	2,201,195	959,798
General and administrative	2,617,809	5,967,631	7,738,458	7,972,948	5,264,492
Goodwill amortization		704,165	2,009,974		
Operating loss	(9,471,137)	(13,276,216)	(22,141,266)	(12,813,562)	(5,613,853)
Other income (expense):					
Interest income	98,194	174,919	138,696	62,954	5,087
Interest expense	(12,634,745)	(5,650,572)	(229,568)	(327,224)	(1,197,309)
Other income (expense), net	36,623	(16,017)	(5,957,465)		(350,000)
	(12,499,928)	(5,491,670)	(6,048,337)	(264,270)	(1,542,222)
Loss before extraordinary item	(21,971,065)	(18,767,886)	(28,189,603)	(13,077,832)	(7,156,075)
Extraordinary item-debt extinguishment	(745,197)	(28,297)			
Net loss	(22,716,262)	(18,796,183)	(28,189,603)	(13,077,832)	(7,156,075)
Preferred Stock dividends					
Net loss plus Preferred Stock dividends	$ (22,716,262)	$ (18,796,183)	$ (28,189,603)	$ (13,077,832)	$ (7,156,075)
Basic and diluted loss per common share before extraordinary item	$ (1.71)	$ (0.57)	$ (0.26)	$ (0.09)	$ (0.05)
Extraordinary item-debt extinguishment	(0.06)				
Basic and diluted loss per common share	$ (1.77)	$ (0.57)	$ (0.26)	$ (0.09)	$ (0.05)
Weighted average number of common shares outstanding	12,841,497	33,037,106	107,829,453	142,884,921	148,080,749
CONSOLIDATED BALANCE SHEET DATA:					
Cash and cash equivalents	$ 723,711	$ 2,453,845	$ 1,720,697	$ 216,119	$ 346,409
Working capital	831,724	3,096,173	658,661	1,333,827	735,840
Total assets	6,039,159	23,750,073	20,927,095	19,183,000	17,723,035
Long-term debt/capital lease obligations, less current portion	13,650,885	198	9,425,000	2,000,000	5,000,000
Stockholders equity (net capital deficiency)	(9,291,712)	21,644,211	7,975,219	15,380,306	10,943,247

Item 7. Management s Discussion and Analysis of Financial Condition and Results of Operations

A NOTE CONCERNING FORWARD-LOOKING STATEMENTS

The discussion below contains certain forward looking statements that reflect our current expectations regarding the Company s future results of operations, performance and achievements. Please see the discussion of such forward looking statements under Forward Looking Statements in Item 1 above.

Overview

The Company has shifted from manufacturing in-house to an outsourced manufacturing model. Its products are designed for efficient production in this manner, emphasizing solid-state electronics over mechanical devices with moving parts. The decrease in

cost associated with these developments, coupled with enhanced product functionality, has allowed the Company to realize improved

Table of Contents

margins. Extensions of developed technology, based on substantial input from customers, have allowed the Company to launch the RF² product and consider additional solutions while controlling total R&D cost. The Company has announced several recent events, both during 2003 and early 2004, such as the resolution of the Laves litigation, the resolution of a vendor dispute reserved at $2 million in exchange for 1 million shares of the Company s common stock, the receipt of $2 million from the exercise of all outstanding warrants (which were related to the credit line), and the extension of its credit line debt maturity date from March and October 2004 to April 2005. Despite these improvements, the wireless telecommunications industry is subject to risks beyond the Company s control that can negatively impact customer capital spending budgets (as occurred during 2003) and/or spending patterns. For this and other reasons, the Company s financial statements have been prepared assuming the Company will continue as a going concern.

Results of Operations

Years Ended December 31, 2003 and 2002

The Company s net sales decreased $425,000, or 12%, from $3,663,000 in 2002 to $3,238,000 in 2003, as a result of a focus on more profitable business and due to an industry-wide reduction in capital expenditures during the first half of 2003. Sales of the Company s HTS products were substantially reduced, while revenues from its ANF products increased and revenues began to be realized on its RF² products during the fourth quarter 2003, shortly after the September 2003 product launch. The Company anticipates its net sales to increase during 2004 based on existing and/or anticipated customer orders.

Cost of products sold decreased $1,925,000, or 54% from $3,565,000 in 2002 to $1,640,000 in 2003. This occurred despite only a 12% decrease in revenue, as a result of various cost control measures adopted during the preceding two years, including the continued emphasis on outsourcing manufacturing processes and the focus on profitable business, and the nature and value of products sold (i.e., the reduced sales of HTS products and increased sales of ANF and RF² products). The cost of products sold for 2003 and 2002 consisted of direct material, labor and overhead costs associated with the products that were shipped during the period, as well as other costs consisting primarily of allocated overhead costs incurred to produce units in ending finished goods inventory that exceed net realizable value. The Company expects the cost of products sold as a percentage of revenue to improve during 2004 due to anticipated revenue increases and related efficiencies, certain cost control initiatives, and primarily due to the continued emphasis on outsourcing the manufacture of its products.

The Company s internally funded research and development expenses decreased by $1,749,000, or 64%, from $2,737,000 in 2002 to $988,000 during 2003. These reductions were primarily due to cost-cutting measures and the shift from initial development to product improvement and related product expansion as the focus of development efforts. The emphasis on new products with a greater probability of profitable near-term commercial sales also were significant in this reduction. The Company expects these expenses to remain at approximately the 2003 level.

Selling and marketing expenses decreased $1,241,000, or 56%, from $2,201,000 during 2002 to $960,000 during 2003. This decrease was due to cost reductions implemented during the past year. The Company expects these expenses during 2004 to be at or above the 2003 level.

General and administrative expenses decreased $2,709,000, or 34%, from $7,973,000 in 2002 to $5,264,000 during 2003. This decrease was due to the reduction in expenses in the patent litigation as described elsewhere in this report, which more than offset an increase in non-cash employee compensation. The Company expects general and administrative expenses to decrease further during 2004 due to reduced litigation expenses.

Interest income decreased $58,000, or 92%, from $63,000 in 2002 to $5,000 during 2003. This decrease was due to the timing of the credit line (October 2002). The Company became infused with cash during February 2002 after its Shareholder Rights Offering, increasing interest income during 2002. While operating under its uncommitted line of credit from October 2002 and beyond, the Company has not maintained, and does not expect to maintain, significant amounts of cash on which interest may be earned.

Interest and warrant expense increased $870,000, or 266%, from $327,000 in 2002 to $1,197,000 during 2003. During February 2002, shareholder notes of $9,425,000, plus accrued interest, were repaid following the Shareholder Rights Offering, both of which are described elsewhere in this document. The Company borrowed $2 million during the fourth quarter of 2002 under an uncommitted line of credit with entities affiliated with its two largest shareholders. The Company borrowed an additional $3 million under this line and a related supplement during 2003. As a result of the borrowings on this line, 10 million warrants were issued. The interest expense recorded during 2003 includes $862,000 of non-cash expense related to these warrants.

Table of Contents

An other expense of $350,000 was accrued as of December 31, 2003 as a contingent liability for the Laves litigation settlement. This settlement was negotiated and entered into during February 2004.

Years Ended December 31, 2002 and 2001

The Company s net sales increased $1,682,000, or 85%, from $1,981,000 in 2001 to $3,663,000 in 2002, as a result of higher unit volume of the Company s radio frequency (RF) front-end products. This increase was due to stronger sales volume for its AnWF product.

Cost of products sold decreased $413,000, or 10% from $3,978,000 in 2001 to $3,565,000 in 2002. This occurred despite an 85% increase in revenue as a result of various cost control measures adopted during the preceding 15 months and the continued emphasis on outsourcing manufacturing processes. The cost of products sold for 2002 and 2001 consisted of direct material, labor and overhead costs associated with the products that were shipped during the period, as well as other costs consisting primarily of allocated overhead costs incurred to produce units in ending finished goods inventory that exceed net realizable value. Due to low utilization levels and excess capacity in the Company s manufacturing facility, cost of products sold exceeded net sales for 2001 and nearly did so for 2002.

The Company s internally funded research and development expenses decreased by $4,395,000, or 62%, from $7,132,000 in 2001 to $2,737,000 during 2002. These reductions were primarily due to cost-cutting measures, including the consolidation of the Colorado and Canadian operations into the Illinois facility. The shift from initial development to product improvement as the focus of development efforts on products with a greater probability of commercial sales also were significant in this reduction.

Selling and marketing expenses decreased $1,063,000, or 33%, from $3,264,000 during 2001 to $2,201,000 during 2002. This decrease was due to cost reductions implemented during that year.

General and administrative expenses increased $235,000, or 3%, from $7,738,000 in 2001 to $7,973,000 during 2002. This increase was due to the expenses in the patent litigation as described elsewhere in this report, which were $1.9 million higher during 2002 than they were during 2001 as the case approached the March 2003 trial date. If not for this line item, total general and administrative expenses would have decreased by $1.6 million, or 21%.

Interest income decreased $76,000, or 55%, from $139,000 in 2001 to $63,000 during 2002. This decrease was due, in part, to the timing and magnitude of funding and the vehicles employed. While operating under its uncommitted line of credit, the Company did not expect to maintain significant amounts of cash on which interest may be earned.

Interest expense increased $97,000, or 42%, from $230,000 in 2001 to $327,000 during 2002. During February 2002, shareholder notes of $9,425,000, plus accrued interest, were repaid following the Shareholder Rights Offering. The Company borrowed $2 million during the fourth quarter of 2002 under an uncommitted line of credit with entities affiliated with its two largest shareholders. As a result of the borrowings on this line, warrants were issued. The interest expense recorded during 2002 included $128,000 of non-cash expense related to these warrants.

Liquidity and Capital Resources

The accompanying financial statements have been prepared assuming that the Company will continue as a going concern. As discussed in Note 3 to the financial statements, the Company incurred a net loss of $7,156,000 during the year ended December 31, 2003, and, as of that date, the Company s accumulated deficit is $150,096,000. In addition, the Company has consistently used, rather than provided, cash in its operations. These factors, among others, as discussed in Note 3 to the financial statements, raise substantial doubt about the Company s ability to continue as a going concern. Management s plans in regard to these matters are also described in Note 3. The financial statements do not include any adjustments, including any adjustments relating to the recoverability and classification of recorded asset amounts or amounts and classification of liabilities that might result from the outcome of this uncertainty.

In view of the matters described in the preceding paragraph, recoverability of a major portion of the recorded asset amounts shown in the accompanying balance sheet is dependent upon continued operations of the Company, which in turn is dependent upon the Company s ability to meet its financing requirements on a continuing basis, to maintain present financing, and to succeed in its future operations.

Table of Contents

At December 31, 2003, the Company s cash and cash equivalents, excluding restricted certificates of deposit, were $346,000, an increase of $130,000 from the December 31, 2002 balance of $216,000. Subsequent to the reporting date, the Company received $2 million from the exercise of all outstanding warrants and paid its portion of the Laves settlement ($350,000).

The continuing development of and expansion in sales of the Company s RF product lines, as well as the continued defense of its intellectual property, may require a commitment of funds to undertake product line development and potentially the expansion of manufacturing capabilities and to market and sell its RF front-end products. The actual amount of the Company s future funding requirements will depend on many factors, including: the amount and timing of future revenues, the level of product marketing and sales efforts to support the Company s commercialization plans, the magnitude of its research and product development programs, the ability of the Company to improve or maintain product margins, the potential cost of additional plant and equipment for manufacturing and the costs involved in protecting the Company s patents or other intellectual property.

As of the date of this filing, the Company believes that it has sufficient funds to operate its business as identified herein without the need for substantial future capital sources during 2004, provided that the Company is able to borrow the $1 million remaining under the uncommitted line of credit. Should this credit become unavailable, the Company believes it has sufficient funds to operate until the third or fourth quarter of 2004, and quite possibly longer, subject to operating results. The Company intends to look into augmenting its existing capital position by utilizing the credit line as identified and through other sources of capital.

During December 2003, the Company and Morgan and Finnegan L.L.P. (M&F) entered into a Settlement Agreement and Release. The agreement reflected the resolution of a dispute between the Company and M&F, the Company s former patent counsel. The Company had reserved a two million dollar ($2,000,000) accrued liability related to the dispute. This accrued liability is resolved and no longer necessary due to the resolution of the dispute pursuant to which the Company has issued 1,000,000 shares of common stock to M&F. Both the expense that created the accounting reserve and the reversal of that expense upon termination of the reserve occurred during the fiscal year 2003.

Uncommitted Line of Credit

As of the reporting date, the Company had drawn $5 million of debt financing under a credit line, as described below. During October 2002, the Company entered into an Uncommitted Line of Credit with its two largest shareholders, an affiliate of Elliott Associates, L.P. (Manchester Securities Corporation) and Alexander Finance, L.P. This line provided up to $4 million to the Company. This line was uncommitted, such that each new borrowing under the facility would be subject to the approval of the lenders. Borrowings on this line bore an interest rate of 9.5% and are collateralized by all the assets of the Company. Outstanding loans under this agreement would be required to be repaid on a priority basis should the Company receive new funding from other sources. Additionally, the lenders were entitled to receive warrants to the extent funds were drawn down on the line. The warrants bore a strike price of $0.20 per share of common stock and were to expire on April 15, 2004. The credit line was to mature and be due, including accrued interest thereon, on March 31, 2004. Due to an agreement between the parties that did not provide warrants with respect to the most recent $2 million in borrowings, a maximum of 10 million warrants were issued as a result of this transaction. During February 2004, the warrant holders exercised all of their warrants, contributing $2 million to the Company in exchange for 10 million shares of common stock.

According to existing accounting pronouncements and SEC guidelines, the Company has allocated the proceeds of these borrowings between their debt and equity components. As a result of these borrowings during 2002, the Company will record a non-cash charge of $1.2 million through the outstanding term of the warrants (April, 2004). $217,000 and $862,000 of that amount were recorded during the fourth quarter and full year 2003, respectively.

As announced during October 2003, the Company entered into an agreement with its lenders to supplement the credit line with an additional $2 million, $1 million of which was drawn immediately and $1 million available to be drawn upon the Company s request and subject to the approval of the lenders. This supplemental facility bore a 14% rate of interest and was due October 31, 2004. Unlike the previous credit line, the supplemental facility did not include any stock warrants. The term of the previous credit line were not affected by this supplement, and as such the $4 million borrowed under that line, plus accrued interest, remained due March 31, 2004.

During February 2004, these credit lines were extended to a due date of April 2005, with interest after the initial periods to be charged at 14%. No warrants or other inducements were issued with respect to these extensions. Additionally, lenders exercised their 10 million warrants during February 2004, agreeing to let the Company use the funds for general purposes as opposed to repaying debt.

Table of Contents

After the events listed above, particularly the events subsequent to the reporting date including the debt restructuring (during February 2004), the Company s current liabilities no longer exceeded its cash and current assets.

Critical Accounting Policies

The discussion and analysis of the Company s financial condition and results of operations are based upon the Company s consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States of America. The preparation of these financial statements requires the Company to make estimates and judgments that affect the reported amount of assets and liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities at the date of the Company s financial statements. Actual results may differ from these estimates under different assumptions or conditions.

Critical accounting policies are defined as those that are reflective of significant judgments and uncertainties, and potentially result in materially different results under different assumptions and conditions. The Company believes that its critical accounting policies are limited to those described below. For a detailed discussion on the application of these and other accounting policies, see Note 2 in the notes to the consolidated financial statements.

Revenue Recognition

Revenues from product sales are generally recognized at the time of shipment and are recorded net of estimated returns and allowances. Revenues from services are generally recognized upon substantial completion of the service and acceptance by customer. The Company has, under certain conditions, granted customers the right to return product during a specified period of time after shipment. In these situations, the Company establishes a liability for estimated returns and allowances at the time of shipment and makes the appropriate adjustment in revenue recognized for accounting purposes. During the current year, no revenue was recognized on products that included a right to return at some future date. The Company has established a program which, in certain situations, allows customers or prospective customers to field test the Company s products for a specified period of time. Revenues from field test arrangements are recognized upon customer acceptance of the products. The Company warrants its products against defects in materials and workmanship typically for a 1-2 year period from the date of shipment, though these terms may be negotiated on a case by case basis. A provision for estimated future costs related to warranty expenses is recorded when revenues are recognized. At December 31, 2003 and 2002, respectively, the Company has accrued $100,000 and $63,000 for warranty costs. Returns and allowances were not significant in any period reported.

Goodwill and Other Intangible Assets

On July 20, 2001, the FASB issued Statement of Financial Accounting Standards No. 141 (SFAS No. 141), Business Combinations , and Statement of Financial Accounting Standards No. 142 (SFAS No. 142), Goodwill and Other Intangible Assets. SFAS No. 141 is effective for all business combinations completed after June 30, 2001. SFAS No. 142 is effective for fiscal years beginning after December 15, 2001; however, certain provisions of such Statement apply to goodwill and other intangible assets acquired between July 1, 2001, and the effective date of SFAS No. 142. Major provisions of these Statements and their effective dates for the Company are as follows:

1. All business combinations initiated after June 30, 2001 must use the purchase method of accounting. The pooling of interest method of accounting is prohibited except for transactions initiated before July 1, 2001.

2. Intangible assets acquired in a business combination must be recorded separately from goodwill if they arise from contractual or other legal rights or are separable from the acquired entity and can be sold, transferred, licensed, rented, or exchanged, either individually or as a part of a related contract, assets, or liability.

3. Goodwill, as well as intangible assets with indefinite lives, acquired after June 30,