

Inrad Optics, Inc.  
Form 10-K  
March 30, 2012

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION**

**Washington, D. C. 20549**

**FORM 10-K**

(Mark One)

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

For the fiscal year ended: December 31, 2011

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: 0-11668**

**Inrad Optics, Inc.**

(Exact name of registrant as specified in its charter)

New Jersey 22-2003247  
State or other jurisdiction of incorporation or organization (I. R. S. Employer Identification No.)

**181 Legrand Avenue, Northvale, NJ** 07647  
(Address of principal executive offices) (Zip Code)

Registrant's telephone number, including area code **201-767-1910**

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

Name of each exchange  
Title of each class on which registered

Securities registered pursuant to section 12(g) of the Act:

**Common stock, par value \$.01 Per Share**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.  
Yes  No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes  No

Note – Checking the box above will not relieve any registrant required to file reports pursuant to Section 13 or 15(d) of the Exchange Act from their obligations under those Sections.

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  No

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data file required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).  
Yes

No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§ 229.405 of this chapter) 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.

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Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definition of large accelerated filer, accelerated filer and smaller reporting company in Rule 12b2 of the Exchange Act. (Check one):

Large accelerated filer  Accelerated filer  Non-accelerated filer  Smaller reporting company

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act).

Yes  No

State the aggregate market value of the voting and non-voting common equity held by non-affiliates computed by reference to the price at which the common equity was last sold, or the average bid and asked price of such common equity, as of the last business day of the registrant's most recently completed second fiscal quarter. \$9,434,493 (For purposes of determining this amount, only directors, executive officers and shareholders with voting power of 10% or more of our stock have been deemed affiliates.)

Indicate the number of shares outstanding of each of the registrant's classes of common stock, as of the latest practicable date.

Common Shares outstanding as of March 29, 2012 - 11,864,124 shares

Documents Incorporated by Reference: Portions of the registrant's definitive Proxy Statement for the 2012 Annual Meeting of Shareholders, to be filed with the Commission not later than 120 days after the close of the registrant's fiscal year, have been incorporated by reference, in whole or in part, into Part III Items 10, 11, 12, 13 and 14 of this Annual Report on 10-K.

Inrad Optics, Inc.

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## **PART 1**

### **Caution Regarding Forward Looking Statements**

This Annual Report contains forward-looking statements as that term is defined in the federal securities laws. The Company wishes to insure that any forward-looking statements are accompanied by meaningful cautionary statements in order to comply with the terms of the safe harbor provided by the Private Securities Litigation Reform Act of 1995. The events described in the forward-looking statements contained in this Annual Report may not occur. Generally, these statements relate to business plans or strategies, projected or anticipated benefits or other consequences of the Company's plans or strategies, or projections involving anticipated revenues, earnings, or other aspects of the Company's operating results. The words "may", "will", "expect", "believe", "anticipate", "project", "plan", "intend", "estimate", "continue", and their opposites and similar expressions are intended to identify forward-looking statements. The Company cautions you that these statements are not guarantees of future performance or events and are subject to a number of uncertainties, risks, and other influences, many of which are beyond the Company's control, that may influence the accuracy of the statements and the projections upon which the statements are based. Factors which may affect the Company's results include, but are not limited to, the risks and uncertainties discussed in Items 1A, 7 and 7A. Any one or more of these uncertainties, risks, and other influences could materially affect the Company's results of operations and whether forward-looking statements made by the Company ultimately prove to be accurate. Readers are further cautioned that the Company's financial results can vary from quarter to quarter, and the financial results for any period may not necessarily be indicative of future results. The foregoing is not intended to be an exhaustive list of all factors that could cause actual results to differ materially from those expressed in forward-looking statements made by the Company. The Company's actual results, performance and achievements could differ materially from those expressed or implied in these forward-looking statements. The Company undertakes no obligation to publicly update or revise any forward looking statements, whether from new information, future events, or otherwise, except as otherwise required by law.

### **Item 1. Business**

Inrad Optics, Inc. (the "Company", "Inrad"), was incorporated in New Jersey in 1973. The Company develops, manufactures and markets products and services for use in photonics industry sectors via three distinct but complimentary product areas - "Crystals and Devices", "Custom Optics" and "Metal Optics."

Prior to September 2003 the Company was named and did business as Inrad, Inc. In 2003, the Board of Directors and shareholders approved a name to Photonic Products Group, Inc. (PPGI) and then to Inrad Optics, Inc. on January 18, 2012.

In November 2003, the Company purchased the assets and certain liabilities of Laser Optics, Inc. of Bethel, CT. Laser Optics, Inc. was a custom optics and optical coating services provider, in business since 1966. PPGI integrated the Bethel team and their operations into the Company's Northvale, NJ operations in mid-2004. This integration leveraged Inrad's original crystalline products with the custom optics and optical coating capabilities of Laser Optics to provide an enhanced set of product offerings.

In October 2004, the Company acquired MRC Precision Metal Optics, Inc. of Sarasota, Florida, a precision metal optics and diamond-turned aspheric optics manufacturer, specializing in CNC and single point diamond machining, optical polishing, nickel plating, aluminum, AlBeMet™ and Beryllium machining.

In 2011, the Company undertook a significant review of its brand position within the marketplace and concluded that the Company's name, "Photonics Products Group, Inc.", due to its composition of common words within our industry, had not achieved the anticipated level of brand equity since its inception in 2003. In order to solve this significant business issue, the Company developed and is currently implementing a strategic marketing plan around the brand name of Inrad Optics. In January 2012, the Company's shareholders approved a name change to Inrad Optics, Inc. Changing the Company's name to Inrad Optics, Inc. leverages the positive historical and current brand equity of the Inrad name and more clearly communicates the Company's principal business activities to both our marketplace and the investment community.

The original "Inrad" name was recognized as one of the photonic industry's seminal crystalline products companies. The Company is now a vertically integrated organization specializing in crystal-based optical components and devices, custom optical components from both glass and metal, and precision optical and opto-mechanical assemblies. Manufacturing capabilities include solution and high temperature crystal growth, extensive optical fabrication capabilities, including precision diamond turning and the ability to handle large substrates, optical coatings and in-process metrology expertise.

Inrad Optics' customers include leading corporations in the defense, aerospace, laser systems, process control and metrology sectors of the photonics industry, as well as the U.S. Government, National Laboratories and Universities worldwide.

Administrative, engineering and manufacturing operations are in a 42,000 square foot building located in Northvale, New Jersey, about 15 miles northwest of New York City, and in a 25,000 square foot building located in Sarasota, FL. The headquarters of the Company are located in the Northvale facility.

The products produced by Inrad Optics, Inc. fall into two main categories: Optical Components and Laser System Devices and Instrumentation.

The Optical Components segment of the business is heavily focused on custom optics manufacturing. The Company specializes in high-end precision components. It develops, manufactures and delivers precision custom optics and thin film optical coating services through its Custom Optics and Metal Optics operations. Glass, metal, and crystal substrates are processed using modern manufacturing equipment, complex processes and techniques to manufacture components, deposit optical thin films, and assemble sub-components used in advanced photonic systems. The majority of custom optical components and optical coating services supplied are used in inspection, process control systems, defense and aerospace electro-optical systems, laser system applications, industrial scanners, and medical system applications.

The Laser System Devices and Instrumentation category includes the growth and fabrication of crystalline materials with electro-optic (EO) and non-linear optical properties for use in both standard and custom products. This category also includes the manufactured crystal based devices and associated instrumentation. The majority of crystals, crystal components and laser devices manufactured are used in laser systems, defense EO systems, medical lasers and R&D applications by engineers within corporations, universities and national laboratories.

The following table summarizes the Company's net sales by product categories during the past three years. Laser System Devices and Instrumentation includes all non-linear and electro-optical crystal components.

Category (In thousands)	Years Ended December 31,					
	2011		2010		2009	
	Net Sales	%	Net Sales	%	Net Sales	%
Optical Components	\$11,812	90	\$10,115	92	\$10,350	94
Laser System Devices and Instrumentation	1,365	10	939	8	701	6
TOTAL	\$13,177	100	\$11,054	100	\$11,051	100

## **Products Manufactured by the Company**

### **Optical Components**

#### **a) Custom Optics and Optical Coating Services**



Manufacturing of high-performance custom optics is a major product area for Inrad Optics, Inc. and is addressed in the marketplace by each of the product groups - Crystals and Devices, Custom Optics and Metal Optics.

The Custom Optics product line focuses on products manufactured to specific customer requirements. It specializes in the manufacture of optical components, optical coatings (ultra-violet wavelengths through infra-red wavelengths) and subassemblies for the military, aerospace, industrial and medical marketplace. Planar, prismatic and spherical components are fabricated from glass and synthetic crystals, including fused silica, quartz, germanium, zinc selenide, zinc sulfide, magnesium fluoride and silicon. Components consist of mirrors, lenses, prisms, waveplates, polarizing optics, monochrometers, x-ray mirrors, and cavity optics for lasers.

Most optical components and sub-assemblies require thin film coatings on their surfaces. Depending on the design, optical coatings can refract, reflect, or transmit specific wavelengths. The Custom Optics optical coating specialties include high laser damage resistance, polarizing, highly reflective, anti-reflective, infra-red, and coating to complex multi-wavelength requirements on a wide range of substrate materials. Coating deposition process technologies employed included electron beam, thermal, and ion assist.

The Metal Optics product line is manufactured in our facility in Sarasota, Florida which is a fully integrated precision metal optics and optical assembly operation which employs high precision CNC and diamond machining, polishing, plating of aluminum, AlBeMet™, beryllium and stainless steel. The Metal Optics product line offers opto-mechanical design and assembly services as part of its manufactured deliverables and can support prototyping through production of large and small metal mirrors, thermally stable optical mirrors, low RMS surface finish polished mirrors, diamond machined precision aspheric and planar mirrors, reflective porro prisms, and arc-second accuracy polygons and motor assemblies. Plating specialties include void-free gold and electro-less nickel.

#### b) UV Filter Optical Components

The Crystals and Devices product line includes filter materials of both patented and proprietary materials with unique transmission and absorption characteristics. These materials are used in critical applications in defense systems such as missile warning sensors. Such materials include nickel sulfate, and proprietary materials such as UVC-7 and LAC.

## **Laser Devices and Instrumentation**

The Crystals and Devices product line consists of crystal-based products that are used in, or alongside, laser systems. Developing growth processes for high quality synthetic crystals is a core competency of the Crystals and Devices manufacturing team. These crystals are embedded in the value added devices and instrumentation products manufactured in our crystal growth production facility and include crystals for wavelength conversion, modulation and polarization, Pockels cells, and wavelength conversion instruments. In addition to the filter materials consumed by the UV Filter Optical components described above, current materials produced include Beta Barium Borate (BBO), Lithium Niobate, Zinc Germanium DiPhosphide, and Potassium Dihydrogen Phosphate and Potassium Dideuterium Phosphate. Applications for these materials include defense, homeland security, surgical lasers, and industrial processing lasers. The Crystals and Devices team is also engaged in ongoing R & D efforts to develop new materials for evolving applications and offers contract growth of crystalline materials to customer specifications. Some of the major products produced for the photonics marketplace include:

### **a) Crystal Components**

The Company grows and fabricates electro-optic and nonlinear crystal devices for altering the intensity, polarization or wavelength of a laser beam. Other crystal components, produced as part of the Crystals and Devices product line, are used in laser research and in commercial laser systems.

### **b) Pockels Cells**

A line of Pockels cells and associated electronics is manufactured for sale in multiple market sectors. Pockels cells are devices that include one or more crystal components and are used in applications that require fast switching of the polarization direction of a beam of light. These uses include Q-switching of laser cavities to generate pulsed laser light, coupling light into and out from regenerative amplifiers, and light intensity modulation. These devices are sold to medical and industrial laser original equipment manufacturers, researcher institutes and laser system design engineers.

### **c) Harmonic Generation Systems**

The Company designs and manufactures harmonic generation laser systems and accessories for the laser research R & D community. Harmonic generation systems enable the users of lasers to convert the fundamental frequency of the laser to another frequency required for specific applications. Harmonic generators are used in spectroscopy, semiconductor processing, medical lasers, optical data storage and scientific research.

Many commercial lasers have automatic tuning features, allowing them to produce a range of frequencies. The Company's "Autotracker" product, when used in conjunction with these lasers, automatically generates tunable ultraviolet light or infrared light for use in spectroscopic applications.

### Sales by Market

The photonics industry serves a very broad, fragmented and expanding set of markets. As technologies are discovered, developed and commercialized, the applications for photonic systems and devices, and the components embedded within those devices, grow across traditional market boundaries. While a significant part of the Company's business remains firmly in the defense and aerospace markets, other markets served include the OEM medical and industrial laser market, and the OEM metrology and process control market, university research institutes and national labs worldwide. Scanning, detection and imaging technologies for homeland security and health care markets are beginning to provide opportunities for Inrad Optics, Inc., and these new sectors are expected to account for future growth and demand for Inrad Optics, Inc.'s products and capabilities.

In 2011, 2010 and 2009 the Company's product sales were made to customers in the following market areas:

Market (In thousands)	2011		2010		2009	
Defense/Aerospace	\$6,734	(51 )%	\$6,968	(63 )%	\$7,454	(68 )%
Process control & metrology	4,752	(36 )%	2,751	(25 )%	2,339	(21 )%
Laser systems and other	1,255	(10 )%	796	(7 )%	766	(7 )%
Universities & national laboratories	436	(3 )%	539	(5 )%	492	(4 )%
Total	\$13,177	(100)%	\$11,054	(100)%	\$11,051	(100)%

## **Defense and Aerospace**

This area consists of sales to OEM defense electro-optical systems and subsystems manufacturers, manufacturers of non-military satellite-based electro-optical systems and subsystems, and direct sales to governments where the products have the same end-use.

End-use applications for Inrad Optics' products in the defense and aerospace sector include military laser systems, military electro-optical systems, satellite-based systems, and missile warning sensors and systems that protect aircraft. The dollar volume of shipments of product within this sector depends in large measure on the U.S. Defense Department budget and its priorities, that of foreign governments, the timing of their release of contracts to their prime equipment and systems contractors, and the timing of competitive awards from this customer community to the Company.

Defense/Aerospace sector sales represented approximately 51%, 63% and 68% of sales in 2011, 2010 and 2009. In spite of the decreases in 2011 and 2010, the Company believes that the defense and aerospace sector will continue to represent a significant market for the Company's products and offers an ongoing opportunity for growth given the Company's capabilities in specialty crystal, glass and metal precision optics.

## **Process Control and Metrology**

This area consists of customers who are manufacturers of capital equipment used in manufacturing process implementation and control, optics-based metrology and quality assurance, and inventory and product control equipment. Examples of applications for such equipment include semiconductor (i.e., chip) fabrication and testing and inventory management and distribution control.

Sales in the Process Control and Metrology market sector, the Company's second largest market, increased in 2011, both as a percentage of total sales and in relative sales dollars, compared to 2010. This increase in this sector correlates with the recovery of the semi-conductor market. The Company believes that the optical and x-ray inspection segment of the semiconductor industry offers continued opportunities which match its capabilities in precision optics, crystal products, and monochrometers.

## **Laser Systems and Other**

This market consists principally of customers who are OEM manufacturers of industrial, medical, and R&D lasers which the Company serves as an OEM supplier of standard and custom optical components and laser accessories, as well as, representing market areas that while they may be the object of penetration plans by the Company, are not currently large enough to list individually. Sales to this market increased in 2011 mainly due to the increased demand for custom components from new customers.

The Company also serves the industrial and medical laser industry as an OEM supplier of standard and custom optical components and laser accessories.

### **Universities and National Laboratories**

These sales consist of product sales to researchers at various educational and research institutions. Sales to customers within the University and National Laboratories market sector consist primarily of the Company's legacy systems, Pockels cells and related repairs. Although sales for 2011 decreased as a percentage of total sales from 2010, the total dollar amount from sales to this market remained relatively stable over the past three years and is dependent on research projects and the availability of funding for such projects. In 2010, sales increases reflect the availability of stimulus funding for the National Labs following 2009 when sales were \$492,000 and 4% of total sales.

### **Major Customers**

Historically, the Company's sales have been concentrated within a small number of customers, although the top customers have historically varied from year to year. In 2011, the Company had sales to three major customers that accounted for 20.9%, 15.4% and 10.8% of sales. In 2011, the largest account was an international customer that is in the process control and metrology industry. The other two major customers are electro-optical systems divisions of major U.S. defense industry corporations who manufacture systems for U.S. and allied foreign governments. In 2010, the top three customers represented 15.3%, 10.3% and 10.1% of sales, respectively.

During the past three years, sales to the Company's top five customers represented approximately 58.1%, 54.3% and 55.3% of sales, respectively. These top customers have been manufacturers either in the defense sector or the process control and metrology sector. Given the concentration of sales within a small number of customers, the loss of any of these customers would have a significant negative impact on the Company and its business units.

### **Export Sales**

The Company's export sales, which are primarily to customers in countries within Europe, Asia and Japan, amounted to approximately 22.8%, 14.9%, and 12.5% of product sales in 2011, 2010 and 2009, respectively.

### **Long-Term Contracts**

Certain of the Company's agreements with customers provide for periodic deliveries at fixed prices over a long period of time. In such cases, as in most other cases as well, the Company attempts to obtain firm price commitments, as well as, cash advances from its suppliers for the purchase of the materials necessary to fulfill the order.

### **Marketing and Business Development**

The Company markets its products domestically, through the coordinated efforts of the sales, marketing and customer service teams.

The Company has moved towards a strategy of utilizing these combined sales and marketing resources for cross-selling all products, across all business lines. This strategy is well suited to the diverse and fragmented markets that utilize photonic technologies in multiple form factors.

Independent sales agents are used in countries in major non-U.S. markets, including Canada, the United Kingdom, the European Union, Israel, and Japan.

Sales and marketing efforts of all product lines and all trade show participation, internet-based marketing, media and non-media advertising and promotion, and international sales representative and distributor relationships are coordinated at the corporate level under the auspices of the corporate Vice President – Marketing and Sales.

In 2011, the Company undertook a significant marketing effort in the form of a corporate name change and a new branding strategy around the "Inrad Optics" name which was supported by the development of a completely new website and other brand identity marketing efforts.

### **Backlog**

The Company's order backlog at December 31, 2011 was \$5,021,000, essentially all of which is expected to be shipped in 2012. The Company's order backlog as of December 31, 2010 and 2009 was \$5,047,000 and \$4,359,000,

respectively.

### **Competition**

Within each product category in which the Company's business units are active, there is competition.

Changes in the photonics industry have had an effect on suppliers of custom optics. As end users have introduced products requiring large volumes of optical components, suppliers have responded either by staying small and carving out niche product areas, or by ramping up manufacturing capacity and modernizing their manufacturing methods to meet higher volume production rates. Additionally the availability of an increasingly large variety of inventoried inexpensive catalog optics has led some OEM manufacturers to "design in" these low-cost solutions rather than utilizing custom designed and manufactured products.

Competition for the Company's crystal devices and instrumentation is limited, but competitors' products are generally lower priced for OEM quantities. The Company's laser devices are considered to be high quality and generally offer a combination of features not available elsewhere. As a result of the Company's in-house crystal growth capability, this area of the business is highly vertically integrated, providing a competitive advantage over other suppliers.

Our metal optics product line has several key competitors who are larger and better equipped to compete on high volume work. There are also several large and small competitors who compete with our products on large form factor optics. The Company has made recent inroads within this competitive landscape, and is building brand awareness in the marketplace.

For crystal products, price, quality, delivery and customer service are market drivers. With advancing globalization, many of the Company's competitors who supply non-linear optical crystals are located overseas, and can offer significantly reduced pricing for some crystal materials. On many occasions, the quality of the crystal component drives the ultimate performance of the component or instrument into which it is installed. Quality and technical support are considered to be valuable attributes for a crystal supplier by some, but not all, OEM customers.

Although price is a principal factor in many product categories, competition is also based on product design, performance, customer confidence, quality, delivery, and customer service. Based on its performance to date, the Company believes that it can continue to compete successfully, although no assurances can be given in this regard.

### **Employees**



As of the close of business on March 27, 2012, the Company had 81 full-time employees.

Patents and Licenses

The Company mainly relies on its manufacturing and technological expertise, know-how and trade secrets in addition to its patents, to maintain its competitive position in the industry. The Company takes precautionary and protective measures to safeguard its technical design and manufacturing processes. The Company executes nondisclosure agreements with its employees and customers, where appropriate.

## Regulation

Foreign sales of certain of the Company's products to certain countries may require export licenses from the United States Department of Commerce. Such licenses are obtained when required. All requested export licenses of Inrad Optics products have been granted or deemed not-required.

ITAR regulations govern much of the Company's domestic defense sector business, and the Company is capable of handling its customers' technical information under these regulations. Inrad Optics, Inc. is registered with the Directorate of Defense Trade Controls, and utilizes a supplier base of similarly registered companies.

There are no other federal regulations or any unusual state regulations that directly affect the sale of the Company's products other than those environmental compliance regulations that generally affect companies engaged in manufacturing operations in New Jersey and Florida.

## Item 1A. Risk Factors

The Company cautions investors that its performance (and, therefore, any forward looking statement) is subject to risks and uncertainties. Various important factors, including but not limited to the following, may cause the Company's future results to differ materially from those projected in any forward looking statement.

- a) As general economic conditions deteriorate, the Company's financial results may suffer

Significant economic downturns or recessions in the United States, Europe or Asia could adversely affect the Company's business by causing a temporary or longer term decline in demand for the Company's goods and services and thus its revenues.

- b) The Company has exposure to Government Markets

Sales to customers in the defense industry represent a significant part of our business. These customers in turn generally contract with government agencies. Most governmental programs are subject to funding approval and can be modified or terminated with no warning upon the determination of a legislative or administrative body. The recent economic crisis had significant effects on government spending and it is particularly difficult, at this time, to assess how this will continue to impact our defense industry customers and the timing and volume of business we do with

them, in future periods. The loss or failure to obtain certain contracts or a loss of a major government customer could have a material adverse effect on our business, results of operations or financial condition.

c) The Company's revenues are concentrated in its largest customer accounts

For the year ended December 31, 2011, five customer accounts represented approximately 58% of total revenues, and three customers individually accounted for more than 10% of revenues. These three customers each represented approximately 21%, 15% and 11% of sales, respectively. Since we are a supplier of custom manufactured components to OEM customers, and have a number of large customers in both the commercial and defense markets the relative size and identity of our largest customer accounts changes somewhat from year to year. In the short term, the loss of any of these large customer accounts or a decline in demand in the markets which they represent could have a material adverse effect on business, our results of operations, and our financial condition.

d) The Company depends on, but may not succeed in, developing and acquiring new products and processes

In order to meet the Company's strategic objectives, the Company needs to continue to develop new processes, to improve existing processes, and to manufacture and market new products. As a result, the Company may continue to make investments in the future in process development and additions to its product portfolio. There can be no assurance that the Company will be able to develop and introduce new products or enhancements to its existing products and processes in a way that achieves market acceptance or other pertinent targeted results. The Company also cannot be sure that it will have the human or financial resources to pursue or succeed in such activities.

e) The Company's business success depends on its ability to recruit and retain key personnel

The Company depends on the expertise, experience, and continuing services of certain scientists, engineers, production and management personnel, and on the Company's ability to recruit additional personnel. There is competition for the services of these personnel, and there is no assurance that the Company will be able to retain or attract the personnel necessary for its success, despite the Company's effort to do so. The loss of the services of the Company's key personnel could have a material adverse effect on its business, on its results of operations, or on its financial condition.

f) The Company may not be able to fully protect its intellectual property

The Company currently holds one material patent applicable to an important product, but does not in general rely on patents to protect its products or manufacturing processes. The Company generally relies on a combination of trade secret and employee non-competition and nondisclosure agreements to protect its intellectual property rights. There can be no assurance that the steps the Company takes will be adequate to prevent misappropriation of the Company's technology. In addition, there can be no assurance that, in the future, third parties will not assert infringement claims against the Company. Asserting the Company's rights or defending against third-party claims could involve substantial expense, thus materially and adversely affecting the Company's business, results of operations or financial condition.

g) Many of the Company's customer's industries are cyclical

The Company's business is significantly dependent on the demand its customers experience for their products. Many of their end users are in industries that historically have experienced a cyclical demand for their products. The industries include but are not limited to, the defense electro-optics industry and the manufacturers of process control capital equipment for the semiconductor tools industry. As a result, demand for the Company's products are subject to cyclical fluctuations, and this could have a material adverse effect on our business, results of operations, or financial condition.

h) The Company's manufacturing processes require products from limited sources of supply

The Company utilizes many relatively uncommon materials and compounds to manufacture its products. Examples include optical grade quartz, specialty optical glasses, scarce natural and manmade crystals, beryllium and its alloys, and high purity chemical compounds. The Company's suppliers could fail to deliver sufficient quantities of these necessary materials on a timely basis, or deliver contaminated or inferior quality materials, or to markedly increase their prices. Any such actions could have an adverse effect on the Company's business, despite the Company's efforts to secure long term commitments from its suppliers. Adverse results might include reducing the Company's ability to meet commitments to its customers, compromising the Company's relationship with its customers, adversely affecting the Company's ability to meet expanding demand for its products, or causing the Company's financial results to deteriorate.

i) The Company faces competition

The Company encounters substantial competition from other companies positioned to serve the same market sectors that the Company serves. Some competitors may have financial, technical, capacity, marketing or other resources more extensive than ours, or may be able to respond more quickly than the Company to new or emerging technologies and other competitive pressures. Some competitors have manufacturing operations in low-cost labor regions such as the Far East and Eastern Europe and can offer products at lower prices than the Company. The Company may not be

successful in winning orders against the Company's present or future competitors, and competition may have a material adverse effect on our business, results of operations or financial condition.

j) The Company's stock price may fluctuate widely

The Company's stock is thinly traded. Many factors, including, but not limited to, future announcements concerning the Company, its competitors or customers, as well as quarterly variations in operating results, announcements of technological innovations, seasonal or other variations in anticipated or actual results of operations, changes in earnings estimates by analysts or reports regarding the Company's industries in the financial press or investment advisory publications, could cause the market price of the Company's stock to fluctuate substantially. In addition, the Company's stock price may fluctuate widely for reasons which may be unrelated to operating results. These fluctuations, as well as general economic, political and market conditions such as recessions, military conflicts, or market or market-sector declines, may materially and adversely affect the market price of the Company's Common Stock. In addition, any information concerning the Company, including projections of future operating results, appearing in investment advisory publications or on-line bulletin boards or otherwise emanating from a source other than the Company could in the future contribute to volatility in the market price of the Company's Common Stock.

Item 1B. Unresolved Staff Comments

Not applicable

Item 2. Properties

Administrative, engineering and manufacturing operations are housed in a 42,000 square foot building located in Northvale, New Jersey and in a 25,000 square foot building located in Sarasota, Florida. The headquarters of the Company are in its Northvale facility. On November 1, 2011, the Company negotiated a change to the rate on its Northvale lease and extended the term until October 31, 2013. The Company also has the option of renewing the lease for one year, at fixed terms, through October 31, 2014.

The Company's wholly-owned subsidiary, MRC Precision Metal Optics Inc., (DBA Inrad Optics) has its manufacturing operations in a leased facility located in the Sarasota, Florida pursuant to a net lease expiring on August 31, 2013.

These facilities are adequate to meet current and future projected production requirements.

The total rent for these leases was approximately \$519,000, \$569,000 and \$582,000 in 2011, 2010 and 2009, respectively. The Company also paid real estate taxes and insurance premiums that totaled approximately \$162,000 in 2011, \$165,000 in 2010 and \$172,000 in 2009.

Item 3. Legal Proceedings

There are no legal proceedings involving the Company as of the date hereof.

Item 4. Mine Safety Disclosures

Not Applicable

**PART II**Item 5. Market for Registrant's Common Equity and Related Stockholder Mattersa) Market Information

The Company's Common Stock, with a par value of \$0.01 per share, is traded on the OTC Bulletin Board under the symbol PHPG. The Company has applied for a new symbol to reflect its new name of Inrad Optics, Inc.

The following table sets forth the range of high and low closing prices for the Company's Common Stock in each fiscal quarter from the quarter ended March 31, 2010 through the quarter ended December 31, 2011, as reported by the National Association of Securities Dealers NASDAQ System. Such over-the-counter quotations reflect inter-dealer prices, without retail mark-up, mark-down or commission and may not necessarily represent actual transactions.

	Price	
	High	Low
Quarter ended December 31, 2011	\$1.01	\$0.95
Quarter ended September 30, 2011	1.03	0.95
Quarter ended June 30, 2011	1.25	0.95
Quarter ended March 31, 2011	1.10	0.90
Quarter ended December 31, 2010	1.05	0.90
Quarter ended September 30, 2010	1.15	0.97
Quarter ended June 30, 2010	1.15	1.00
Quarter ended March 31, 2010	1.35	0.90

As of March 27, 2012 the Company's closing stock price was \$0.95 per share.

b) Shareholders

As of March 27, 2012, there were approximately 145 shareholders of record of our Common Stock. The number of shareholders of record of common stock was approximated based upon the Shareholders' Listing provided by the Company's Transfer Agent. As of the same date, the Company estimates that there are an additional 349 beneficial shareholders.

c) Dividends

The Company has not historically paid cash dividends. Payment of cash dividends is at the discretion of the Company's Board of Directors and depends, among other factors, upon the earnings, capital requirements, operations and financial condition of the Company. The Company does not anticipate paying cash dividends in the immediate future.

d) Recent Sales of Unregistered Securities

There were no sales of unregistered securities during the fourth quarter of 2011.



e) Securities Authorized for Issuance under Equity Compensation Plans

	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining for future issuance under equity compensation plans (1)
2000 Equity Compensation Program approved by shareholders	669,676	\$ 1.05	—
2010 Equity Compensation Program approved by shareholders	425,000	\$ 0.92	3,590,000

Item 6. Selected Financial Data

The following data is qualified in its entirety by the financial statements presented elsewhere in this Annual Report on Form 10-K.

	As of December 31, or For the Year Ended December 31,				
	2011	2010	2009	2008	2007
Revenues	\$13,177,194	\$11,054,178	\$11,051,127	\$16,301,209	\$15,099,878
Net income (loss)	164,746	(733,813 )	(2,799,992 )	1,098,421	1,880,081
Net income (loss) applicable to common shareholders	\$164,746	\$(733,813 )	\$(2,799,992 )	\$1,098,421	\$1,641,914
Earnings per share					
Basic earnings (loss) per share	0.01	(0.06 )	(0.25 )	0.10	0.19
Diluted earnings (loss) per share	0.01	(0.06 )	(0.25 )	0.08	0.13
Weighted average shares					
Basic	11,658,891	11,522,297	11,331,258	10,902,061	8,609,822
Diluted	11,753,669	11,522,297	11,331,258	15,619,304	13,777,114
Common stock dividends on Preferred shares	—	—	—	—	238,167
Total assets	11,838,003	12,621,803	12,610,740	15,732,149	16,077,947
Long-term obligations (1)	2,825,633	3,960,874	3,819,946	3,678,663	3,665,730
Shareholders' equity	7,857,995	7,373,752	7,777,715	10,124,175	7,712,799

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

The following discussion and analysis should be read in conjunction with the Company's consolidated financial statements and the notes thereto presented elsewhere herein. The discussion of results should not be construed to imply any conclusion that such results will necessarily continue in the future.

Critical Accounting Policies

The Company's significant accounting policies are described in Note 1 of the Consolidated Financial Statements that were prepared in accordance with accounting principles generally accepted in the United States of America. In preparing the Company's financial statements, the Company made estimates and judgments that affect the results of its operations and the value of assets and liabilities the Company reports. The Company's actual results may differ from these estimates.

The Company believes that the following summarizes critical accounting policies that require significant judgments and estimates in the preparation of the Company's consolidated financial statements.

### Revenue Recognition

The Company records revenue from the sale of its products and services when all four of the following criteria are met: persuasive evidence of an arrangement exists; delivery has occurred or services have been rendered; the sales price is fixed or determinable; and collectability is reasonably assured. Losses on contracts are recorded when identified.

### Inventory

Inventories are stated at the lower of cost (first-in, first-out method) or market. Cost of manufactured goods includes material, labor and overhead.

The Company records a reserve for slow moving inventory as a charge against earnings for all products identified as surplus, slow moving or discontinued. Excess work-in-process costs are charged against earnings whenever estimated costs-of-completion exceed unbilled revenues.

### Goodwill and Intangible assets

Intangible assets with finite lives are amortized on a straight-line basis over the assets' estimated useful life up to 14 years. The Company periodically evaluates on an annual basis, or more frequently when conditions require, whether events or circumstances have occurred indicating the carrying amount of intangible assets may not be recoverable. When factors indicate that intangible assets should be evaluated for possible impairment, the Company uses an estimate of the associated undiscounted future cash flows compared to the related carrying amount of assets to determine if an impairment loss should be recognized.

Goodwill and intangible assets not subject to amortization are tested in December of each year for impairment, or more frequently if events and circumstances indicate that the assets might have become impaired. An impairment loss is recognized to the extent that the carrying amount exceeds the asset's fair value.

### Stock-based compensation

Stock based compensation expense is estimated at the grant date based on the fair value of the award. The Company estimates the fair value of stock options granted using the Black-Scholes option pricing model. The fair value of restricted stock units granted is estimated based on the closing market price of the Company's common stock on the date of the grant. The fair value of these awards, adjusted for estimated forfeitures, is amortized over the requisite service period of the award, which is generally the vesting period.

## **Income Taxes**

Deferred income taxes are provided on the asset and liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carry forwards and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the amounts of assets and liabilities recorded for income tax and financial reporting purposes. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. Deferred tax assets and liabilities are adjusted for the effects of changes in tax laws and rates on the date of enactment.

The Company recognizes the financial statement benefit of an uncertain tax position only after determining that the relevant tax authority would more likely than not sustain the position. For tax positions meeting the more likely than not threshold, the amount recognized in the financial statements is the largest benefit that has a greater than 50 percent likelihood of being realized upon ultimate settlement with the relevant tax authority.

The Company classifies interest and penalties related to income taxes as income tax expense in its Consolidated Financial Statements

## **Results of Operations**

The following table summarizes the Company's product sales by product categories during the past three years:

Category	Years Ended December 31,					
	2011		2010		2009	
	Sales	%	Sales	%	Sales	%
	(In thousands)					
Optical Components	\$11,812	90	\$10,115	92	\$10,350	94
Laser System Devices and Instrumentation	1,365	10	939	8	701	6
TOTAL	\$13,177	100	\$11,054	100	\$11,051	100



The following table provides information on the Company's sales to its major business sectors during the past three years:

Market	2011		2010		2009	
	(In thousands)					
Defense/Aerospace	\$6,734	(51 )%	\$6,968	(63 )%	\$7,454	(68 )%
Process control & metrology	4,752	(36 )%	2,751	(25 )%	2,339	(21 )%
Laser systems and other	1,255	(10 )%	796	(7 )%	766	(7 )%
Universities & national laboratories	436	(3 )%	539	(5 )%	492	(4 )%
Total	\$13,177	(100)%	\$11,054	(100)%	\$11,051	(100)%

The following table sets forth, for the past three years, the percentage relationship of statement of operations categories to total revenues.

	Years ended December 31,		
	2011	2010	2009
Revenues:			
Product sales	100.0%	100.0%	100.0%
Costs and expenses:			
Cost of goods sold	73.0 %	77.3 %	80.5 %
Gross profit margin	27.0 %	22.7 %	19.5 %
Selling, general and administrative expenses	24.7 %	28.1 %	29.7 %
Goodwill impairment charge	—	—	14.1 %
Income (loss) from operations	2.3 %	(5.4 )%	(24.3 )%
Net income (loss)	1.3 %	(6.6 )%	(25.3 )%

## Revenues

Total revenues were \$13,177,000 in 2011, \$11,054,000 in 2010 and \$11,051,000 in 2009 reflecting the consolidated results from all business operations. Revenues in 2011 increased 19.2% compared to 2010, which follows two years for relatively unchanged revenues for 2010 and 2009. The increase in 2011 is mainly due to an increase in orders from both new and existing customers in the process control and metrology markets that we serve which was partially offset by a decrease in sales to customers we serve in the defense/aerospace customers. The net increase in revenues in 2011 is comprised of an increase of 16.8% in sales of optical components and an increase of 45.4% in sales of laser system devices and instrumentation, both as compared to 2010.

Sales in the Defense and Aerospace market declined by 3.4% to \$6,734,000 in 2011 compared to \$6,968,000 in 2010. Sales in 2010 also declined by 6.5% to \$6,968,000 in 2010 compared to \$7,454,000 in 2009 which was also a decline

of 27.8% compared to 2008. Although the rate of the declines are smaller, the Company continued to feel the impact that the economic downturn has had on our customers spending patterns and due to changes in government defense spending on products or systems they supply. For instance, defense spending on existing electro-optical systems over the last three years has slowed, impacting the demand for the Company's services in manufacturing custom products for its OEM customers.

Sales in the Process Control and Metrology market, the Company's second largest market, increased in 2011 by 72.7% to \$4,752,000 compared to \$2,751,000 in 2010. In 2010, sales increase by 17.6% to \$2,751,000 compared to \$2,339,000 in 2009. In addition, as a percentage of total sales, this sector increased to 36% compared to 25% in 2010 and 21% in 2009. The increase in sales was mainly the result of the increasing sales demand many of our customers experienced for systems they sell containing our products. The increase in sales in 2011 and 2010, as compared to 2009, reflect the severe impact of the economic recession, that year, which particularly affected demand for our products by our commercial and semi-conductor customers.

The Company serves the non-military laser industry as an OEM supplier of standard and custom optical components and laser accessories. This market's sales increased to \$539,000 from \$193,000 in 2010 and \$138,000 in 2009. The increases over the past two year have principally come from increased demand in the medical laser industry. The Company includes sales of other products that are not currently large enough to list individually, in this market segment. Sales of these other products have been in the \$500,000 to \$700,000 range historically and were \$716,000 in 2011, \$603,000 in 2010, and \$628,000 in 2009. Overall, the market for laser systems and other products represented 10% of total sales in 2010 and 7% of total sales in 2010 and 2009, respectively.

Sales to customers within the university and national laboratories market sector decreased in 2011 to \$436,000 or 3% of total sales compared with an increase in 2010 to \$539,000 or 5% of total sales from \$492,000 or 4% of total sales in 2009. Although the results as a percentage of total sales vary slightly from year to year the total dollar amount remained relatively unchanged over the past three years and is dependent on research projects and the availability of funding for such projects.

### Bookings

The Company booked new orders totaling \$12.9 million in 2011, an increase from \$12.3 million in 2010. The increase in 2011 was across all the business sectors that the Company serves and consisted of orders from the new customers and increases from most of our existing customer base. While the timing of the orders placed by customers may vary from quarter to quarter, the second half of the year was only slightly better.

In 2010, the Company booked new orders totaling \$12.3 million in 2010, an increase from the \$9.5 million in 2009. The increase in 2010 was incurred across all the business sectors that the Company serves. However, a significant portion of the 2010 bookings were recorded in the second half of the year as the result of orders from the new customers and increases from most of our existing customer base.

The Company's backlog as of December 31, 2011 decreased to \$4.9 million from \$5.4 million as of December 31, 2010. The Company's backlog as of December 31, 2009 was \$4.4 million.

### Cost of Goods Sold and Gross Profit Margin

Cost of goods sold as a percentage of sales was 73.0%, 77.3% and 80.5%, for the years ended December 31, 2011, 2010 and 2009, respectively. In 2011 cost of goods sold was \$9,615,000 increased from \$8,545,000 in 2010 in conjunction with the increase in sales in 2011. Cost of goods sold in 2010 was down 3.9% from \$8,897,000 in 2009 even though revenues remained unchanged.

The increase in cost of goods sold in 2011 compared to 2010 is primarily due to increases in material costs, manufacturing labor and operating costs. Compared to 2010, material costs increased by \$591,000 principally due to product mix which had a higher material costs. In addition, the cost of manufacturing wages and salaries and related fringe benefits increased by \$398,000 principally due to the increase in direct labor required to meet demand.



The slight decrease in cost of goods sold in 2010 compared to 2009 is primarily due to declines in labor and operating costs partially offset by an increase in material costs. Compared to 2009, total manufacturing wages and salaries decreased by \$332,000 as operations continued to implement process improvements and resulted in a decrease in non-labor operating expenses of \$184,000. Conversely, material costs increased by \$213,000 for the Company which was mainly due to product mix at our Florida facility.

The increase in cost of goods sold percentage in 2009 compared to 2008 is primarily due to the significant decline in sales volume during the year, net of cost reductions implemented by the Company during the year. Compared to the prior year, material cost as a percentage of sales remained unchanged from 2008 although in dollar terms material costs declined by \$913,000, as expected with the lower sales volume levels. Total manufacturing wages and salaries declined by approximately \$832,000 but rose by 5.6 percentage points, as a percentage of sales. Non-labor operating costs excluding depreciation also fell in dollar terms in 2009 by approximately \$606,000 or 26.7% from 2008, but as a percentage of sales, increased by about 1.1 percentage points from the prior year.

Gross margin in 2011 was \$3,562,000 or 27.0% which is an increase from 2010 gross margin of \$2,509,000 or 22.7%. This compares with a gross margin of \$2,154,000 or 19.5% in 2009.

#### Selling, General and Administrative Expenses

Selling, general and administrative expenses (“SG&A”) were \$3,255,000 in 2011, an increase of \$150,000 or 4.8% from 2010. As a percentage of sales, SG&A expenses decreased to 24.7% of 2011 sales compared to 28.1% of sales in 2010. The decline in SG&A expenses, as a percentage of sales, reflects the impact of cost reductions in SG&A salaries and wages and fringe benefits from personnel reductions started in the second half of the prior year, offset by higher expenses related to the increase in sales in the current year.

SG&A expenses were \$3,105,000 in 2010, down \$174,000 or 5.3% from 2009. As a percentage of sales, SG&A expenses were 28.1% of 2010 sales compared to 29.7% of sales in 2009. The decline resulted mainly from reductions in SG&A salaries and wages and fringe benefits from personnel reductions in the second half of the year and continued cost management of other SG&A expenses throughout the year.

#### Operating Income (Loss)

The Company had an operating income of \$307,000 in 2011 which was an improvement after the losses incurred during the past two years. In 2010, the Company had an operating loss of \$596,000 and in 2009 the Company had an operating loss of \$1,124,000 excluding a non-cash charge for the impairment of goodwill of \$1,558,000. The losses in 2010 and 2009, primarily, reflect a significant decrease in sales due to the economic recession which severely impacted the Company during this period.



Other Income and Expenses

Net interest expense of \$130,000 in 2011 decreased 5.3% from \$138,000 in 2010. Interest expense was \$163,000 in 2011 compared to \$164,000 in 2010 which is the result of the Company's normal scheduled debt repayments. Interest income for 2011 increased to \$33,000 from \$26,000 in 2010 mainly as a result of changes in short term cash balances and bank money market interest rates.

Net interest expense of \$138,000 in 2010 increased 5.7% from \$130,000 in 2009. Interest expense was \$164,000 in 2010 compared to \$167,000 in 2009 which is the result of the Company's normal scheduled debt repayments. Interest income for 2010 was \$26,000 down from \$38,000 in 2009 mainly as a result of reductions in bank interest rates on invested cash balances.

In 2011, the Company sold surplus equipment and recorded a loss \$1,003 on the sales.

Income Taxes

In 2011, the Company recorded a current provision for state tax and federal alternative minimum tax in the amount of \$11,000. In 2010 and 2009, the Company did not record a current provision for either state tax or federal alternative minimum tax due to the losses incurred for both income tax and financial reporting purposes.

The Company recognizes deferred tax liabilities and assets for the expected future tax consequences of events that have been recognized in the Company's financial statements or tax returns. Deferred tax liabilities and assets are determined based on the difference between the financial statements carrying amounts and the tax basis of assets and liabilities using enacted tax rates in effect in the years in which the differences are expected to reverse.

At December 31, 2011, the Company had a net deferred tax asset balance of \$2,860,000, an increase of \$73,000 from a \$2,787,000 in 2010 and \$344,000 from \$2,516,000 in 2009.

As of December 31, 2011, 2010 and 2009, the Company recognized a portion of the net deferred tax assets in the amount of \$408,000 which the Company's management is reasonably assured will be fully utilized in future periods. Although the Company's current year financial results were positively affected by the strengthening economy, primarily in the second half of the year, we increased the valuation allowance to \$2,452,000 to fully offset the increase

in the deferred tax asset. In evaluating the Company's ability to recover deferred tax assets in future periods, management considers the available positive and negative factors, including the Company's recent operating results, the existence of cumulative losses and near term forecasts of future taxable income that is consistent with the plans and estimates that management is using to manage the underlying business.

The valuation allowance as of December 31, 2011 will be maintained until management concludes that it is more likely than not that the remaining deferred tax assets will be realized. When sufficient positive evidence exists, the Company's income tax expense will be reduced by the decrease in its valuation allowance. An increase or reversal of the Company's valuation allowance could have a significant negative or positive impact on the Company's future earnings.

### Net Income (Loss)

In 2011, net income was \$165,000, compared to a net loss of \$734,000 in 2010 primarily as a result of higher sales and the positive leveraging of higher sales on the Company's relatively fixed cost structure. In 2009, the Company had a net loss of \$2,800,000 which included a \$1,558,000 non-cash charge for goodwill impairment. Both 2010 and 2009 results were impacted by the reduced sales volumes during the recession and the negative impact on profit margins, which was somewhat offset by manufacturing and SG&A cost reductions in 2010 and 2009.

### Liquidity and Capital Resources

The Company's primary source of cash in recent years has been from operating cash flows. Other sources of cash include proceeds received from the exercise of stock options and issuance of common stock. The Company's major uses of cash in the past three years have been for capital expenditures and for repayment and servicing of outstanding debt and accrued interest.

Supplemental information pertaining to our source and use of cash is presented below:

Selected Sources (uses) of cash	Years ended December 31,		
	2011	2010	2009
	(In thousands)		
Net cash (used) provided by operations	\$ (358 )	\$ 576	\$ 815
Net Proceeds from issuance of common stock, exercise of stock options and warrants	18	7	162
Capital Expenditures	(304 )	(278 )	(211 )

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Precious Metals	(318 )	—	(37 )
Principal payments on debt obligations	(9 )	(9 )	(137 )

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In 2011, the Company used cash to accelerate the payment of accrued interest of \$1,125,000 on Related Party Convertible Notes Payable, as well as paying current interest on debt obligations, and financing capital expenditures. In 2010 and 2009, the Company primarily used excess cash to finance capital expenditures and repay outstanding debt.

In 2011, proceeds from the exercise of 20,000 stock options and issuance of 6,239 common shares totaled \$18,260. In 2010, proceeds from the exercise of 10,000 stock options and issuance of 5,906 common shares totaled \$7,102. During 2009, 84,500 stock options were exercised for proceeds of \$96,575 at a weighted exercise price of \$1.14 per share and converted into an equivalent number of shares of the Company's common stock.

During 2009, a total of 50,000 warrants issued pursuant to a 2004 private placement were exercised by warrant holders with a total exercise price of \$67,500. Also in July 2009, 893,790 warrants with an exercise price of \$1.35 expired unexercised. These warrants were originally issued as part of a private placement of common stock in 2004.

In March 2011, the maturity dates of a \$1,500,000 Subordinated Convertible Promissory Note to Clarex Limited ("Clarex") and a \$1,000,000 Subordinated Convertible Promissory Note to an affiliate of Clarex were extended to April 1, 2013. The remaining terms and conditions of the notes were unchanged. These notes were previously issued on April 1, 2009 and had a maturity date of April 1, 2011. The notes bear interest at 6%. Interest accrues yearly, is payable on maturity and unpaid interest along with principal may be converted into securities of the Company as follows: The notes are convertible in the aggregate into 1,500,000 Units and 1,000,000 Units, respectively, with each unit consisting of one share of common stock and one warrant. Each warrant allows the holder to acquire 0.75 shares of common stock at a price of \$1.35 per share and have an expiration date of April 1, 2016. Clarex is a significant shareholder of the Company.

During 2011, the Company paid a total of \$1,125,000 of accrued interest, on the two notes. In addition, the Company paid \$150,000 of current interest on the notes in 2011. The Company intends to stay current with interest payments for amounts that would accrue against these notes. Therefore, the Company expects to make a payment of \$37,500 each quarter in 2012 and through the maturity date to satisfy the amounts of accrued interest each quarter.

In May 2009, the Company repaid a Promissory Note prior to maturity, in the amount of \$125,000 and accrued interest of \$4,212, which represented the balance of a Note issued by the Company as part of the purchase price of MRC in 2004, to the sole shareholder of the acquired company.

In 2009, certificate of deposits totaling \$800,000 were redeemed compared to an investment of \$800,000 in certificates of deposit 2008.

In 2011, capital expenditures of \$304,000 were primarily to replace or refurbish both operating facilities, purchase equipment upgrades to the computer information system and manufacturing equipment. In 2011, the company purchased additional manufacturing tools made from platinum at a net cost of \$318,000 to further increase our crystal growth capacity at our Northvale, New Jersey facility.

The Company had capital expenditures in 2010 in the amount of \$278,000, primarily to replace or refurbish manufacturing equipment and for additional equipment required to increase our crystal growth capacity at our Northvale, New Jersey location. For the year ended December 31, 2009 capital expenditures of \$211,000 included planned expenditures primarily for manufacturing and optical testing equipment designed to increase production efficiency at our Northvale, New Jersey location. In addition, the Company purchased a manufacturing tool made from platinum at a net cost of \$53,000. The cost was offset by proceeds from the sale of platinum for \$16,000, as part of the purchase arrangement.

In 2011, cash decreased by \$965,000 compared to an increase of \$296,000 in 2010. In 2010, cash increased by \$296,000 compared to an increase of \$597,000 for 2009 (excluding proceeds from the redemption of certificates of deposit in the amount of \$800,000).

A summary of the Company's contractual cash obligations at December 31, 2011 is as follows:

Contractual Obligations	Total	Less than 1 Year	1-3 Years	4-5 Years	Greater Than 5 Years
	(In thousands)				
Convertible notes payable	\$2,500	\$ —	\$ 2,500	\$ —	\$ —
Notes payable-other, including interest	503	23	69	46	365
Operating leases	1,086	440	646	—	—
Total contractual cash obligations	\$5,167	\$ 503	\$ 4,229	\$ 46	\$ 389

Overview of Financial Condition

As shown in the accompanying financial statements, the Company reported a net income of \$165,000 in 2011 compared to a net loss of \$734,000 and \$2,800,000 in 2010 and 2009, respectively. The net loss in 2009 included a non-cash charge for goodwill of \$1,558,000. During 2011, the Company's working capital requirements were provided by cash from operations and available cash balances. In 2010 and 2009, the Company's working capital requirements were provided by positive cash flow from its operations.

In 2011, net cash used by operations was \$358,000 compared to net cash provided by operations of \$576,000 in 2010. The decrease was primarily the results of net changes in working capital which resulted from the payment of accrued interest on the Related Party Convertible Note Payable, an increase in inventory (excluding reserve) during the year and a decrease in customer advances, offset by a decrease in accounts receivable and an increase in accounts payable and accrued liabilities. The Company's management expects that future cash flow from operations and its existing cash reserves will provide adequate liquidity for the Company's operations and working capital requirements in 2012.

Off-Balance Sheet Arrangements

The Company did not have any off-balance sheet arrangements at December 31, 2011 and 2010.

**Item 7A. Quantitative and Qualitative Disclosures about Market Risk**

N/A

Item 8. Financial Statements and Supplementary Data

The financial statements and supplementary financial information required to be filed under this Item are presented commencing on page 24 of the Annual Report on Form 10-K, and are incorporated herein by reference.

Item 9. Changes In and Disagreements with Accountants on Accounting and Financial Disclosure

None



Item 9A. Controls and Procedures

a) Evaluation of Disclosure Controls and Procedures

The Company's management, including the Chief Executive Officer and the Chief Financial Officer, has evaluated the effectiveness of the design and operation of the Company's disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) as of the end of the period covered by this Annual Report on Form 10-K. Based upon that evaluation, the Company's Chief Executive Officer and Chief Financial Officer have concluded that the disclosure controls and procedures as of December 31, 2011 are effective to ensure that information required to be disclosed in the reports the Company files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and that such information is accumulated and communicated to the Company's management, including the Chief Executive Officer and the Chief Financial Officer, to allow timely decisions regarding disclosure.

b) Management's Annual Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining an adequate system of internal control over financial reporting. Our internal control over financial reporting includes those policies and procedures that:

pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets;

provide reasonable assurance that transactions are recorded as necessary to permit preparation of our financial statements in accordance with generally accepted accounting principles in the United States, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and

provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of our assets that could have a material effect on the financial statements.

Due to its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. All internal control systems, no matter how well designed, have inherent limitations. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation. Because of the inherent limitations of internal control, there is a risk that material misstatements may not be prevented or detected on a timely basis by internal control over financial reporting. However, these inherent limitations are known features of the financial reporting process. Therefore, it is possible to

design into the process safeguards to reduce, though not eliminate, this risk.

Our management assessed the effectiveness of our system of internal control over financial reporting as of December 31, 2011. In making this assessment, management used the framework in Internal Control — Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). Based on our assessment and the criteria set forth by COSO, management has concluded that the Company maintained effective internal control over financial reporting as of December 31, 2011.

c) Changes in Internal Control over Financial Reporting

There have been no significant changes in the Company’s internal control over financial reporting identified in connection with the evaluation that occurred during the Company’s last fiscal quarter that have materially affected, or that are reasonably likely to materially affect, the Company’s internal controls over financial reporting.

Item 9B Other Information

None

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PART III

Item 10. Directors and Executive Officers of the Registrant and Corporate Governance

The information required under this item is incorporated by reference to the Company's Proxy Statement for the 2012 Annual Meeting of Stockholders.

Item 11. Executive Compensation

The information required under this item is incorporated by reference to the Company's Proxy Statement for the 2012 Annual Meeting of Stockholders.

Item 12. Security Ownership of Certain Beneficial Owners and Management

The information required under this item is incorporated by reference to the Company's Proxy Statement for the 2012 Annual Meeting of Stockholders.

Item 13. Certain Relationships and Related Transactions

The information required under this item is incorporated by reference to the Company's Proxy Statement for the 2012 Annual Meeting of Stockholders.

Item 14. Principal Accountant Fees and Services

The information required under this item is incorporated by reference to the Company's Proxy Statement for the 2012 Annual Meeting of Stockholders.

PART IV

Item 15. Exhibits and Financial Statement Schedules

**(a) (1) Financial Statements.**

Reference is made to the Index to Financial Statements and Financial Statement Schedule commencing on Page 24.

**(a) (2) Financial Statement Schedule.**

Reference is made to the Index to Financial Statements and Financial Statement Schedule on Page 24. All other schedules have been omitted because the required information is not present or is not present in amounts sufficient to require submission of the schedule, or because the information required is included in the Financial Statements or Notes thereto.

**(a) (3) Exhibits.**

Exhibit No. Description of Exhibit

- |     |   |
|-----|---|
| 3.1 | Restated Certificate of Incorporation of Photonics Products Group, Inc. (incorporated by reference to Exhibit 3.1 to the Company's Registration Statement on Form S-1 filed with the Securities and Exchange Commission on August 25, 2004)   |
| 3.2 | By-Laws of Photonic Products Group, Inc. (incorporated by reference to Exhibit 3.2 to the Company's Registration Statement on Form S-1 filed with the Securities and Exchange Commission on August 25, 2004)  |
| 3.3 | Certificate of Amendment to Restated Certificate of Incorporation of Photonics Products Group, Inc., dated June 2, 2010 (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed with the Securities and Exchange Commission on June 7, 2010).         |
| 3.4 | Certificate of Amendment to Restated Certificate of Incorporation of Photonics Products Group, Inc., dated January 23, 2012 (incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K filed with the Securities and Exchange Commission on January 23, 2012). |
| 4.1 | Specimen Common Stock Certificate (incorporated by reference to Exhibit 4.1 to the Company's Registration Statement on Form S-1 filed with the Securities and Exchange Commission on August 25, 2004)   |
| 4.2 | Promissory Note Dated June 30, 2003 held by Clarex, Ltd. (incorporated by reference to Exhibit 4.4 to the Company's Registration Statement on Form S-1 filed with the Securities and Exchange Commission on August 25, 2004)  |

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- 4.3 Subordinated Convertible Promissory Note dated April 1, 2004 held by Clarex, Ltd. (incorporated by reference to Exhibit 4.5 to the Company's Registration Statement on Form S-1 filed with the Securities and Exchange Commission on August 25, 2004)
- 4.4 Warrant dated March 31, 2004 issued to Clarex, Ltd. (incorporated by reference to Exhibit 10.2 to the Company's Registration Statement on Form S-1 filed with the Securities and Exchange Commission on August 25, 2004)
- 4.5 Warrant dated May 19, 2004 issued to Clarex, Ltd. (incorporated by reference to Exhibit 10.3 to the Company's Registration Statement on Form S-1 filed with the Securities and Exchange Commission on August 25, 2004)
- 4.6 Subordinated Convertible Promissory Note dated April 1, 2009 held by Clarex, Ltd. (incorporated by reference to Exhibit 4.12 to the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 31, 2009)
- 4.7 Subordinated Convertible Promissory Note dated April 1, 2009 held by Welland, Ltd. (incorporated by reference to Exhibit 4.13 to the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 31, 2009)
- 4.8 Subordinated Convertible Promissory Note dated April 1, 2011 held by Clarex, Ltd. (which will supersede document 4.10) (incorporated by reference to Exhibit 4.12 to the Company's Annual Report on 10-K filed with the Securities and Exchange Commission on March 31, 2011)
- 4.9 Subordinated Convertible Promissory Note dated April 1, 2011 held by Welland, Ltd. (which will supersede document 4.10) (incorporated by reference to Exhibit 4.13 to the Company's Annual Report on 10-K filed with the Securities and Exchange Commission on March 31, 2011)
- 10.1 2000 Equity Compensation Program (incorporated by reference to Exhibit 10.1 to the Company's Registration Statement on Form S-1 filed with the Securities and Exchange Commission on August 25, 2004)
- 10.2 2010 Equity Compensation Program (incorporated by reference to Exhibit B to the Company's Proxy Statement for the 2010 Meeting of Stockholders filed with the Securities and Exchange Commission on April 30, 2010)
- 14.1 Code of Ethics (incorporated by reference to Exhibit 14.1 to the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 31, 2006)
- 21.1 List of Subsidiaries (incorporated by reference to Exhibit 21.1 to the Company's Annual Report on Form 10-K filed with the Securities and Exchange Commission on March 31, 2006)
- 23.1 Consent of Holtz Rubenstein Reminick LLP Independent Registered Public Accounting Firm
- 31.1 Certification of Chief Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- 31.2 Certification of Chief Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
- 32.1 Certification of Chief Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
- 32.2 Certification of Chief Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

IRAD OPTICS, INC.

By: /s/ Joseph J. Rutherford  
Joseph J. Rutherford  
Chief Executive Officer

Dated: March 30, 2012

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ Jan M. Winston Jan M. Winston	Chairman of the Board of Directors	March 30, 2012
/s/ Luke P. LaValle, Jr. Luke P. LaValle, Jr.	Director	March 30, 2012
/s/ Dennis G. Romano Dennis G. Romano	Director	March 30, 2012
/s/ N.E. Rick Strandlund N.E. Rick Strandlund	Director	March 30, 2012
/s/ Joseph J. Rutherford Joseph J. Rutherford	President, Chief Executive Officer and Director	March 30, 2012
/s/ William J. Foote William J. Foote	Chief Financial Officer, Secretary and Treasurer	March 30, 2012

**INRAD OPTICS, INC. AND SUBSIDIARIES**

**INDEX TO THE CONSOLIDATED FINANCIAL STATEMENTS**

**THREE YEARS ENDED DECEMBER 31, 2011**

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**Report of Independent Registered Public Accounting Firm**

Board of Directors and Shareholders

Inrad Optics, Inc. and Subsidiaries

Northvale, New Jersey

We have audited the accompanying consolidated balance sheets of Inrad Optics, Inc. (formerly known as Photonic Products Group, Inc.) and Subsidiaries as of December 31, 2011 and 2010, and the related consolidated statements of operations, shareholders' equity and cash flows for each of the three years in the period ended December 31, 2011. We have also audited the schedule listed in Item 15(a)(2) of this Form 10-K for the years ended December 31, 2011, 2010 and 2009. These consolidated financial statements and financial statement schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements and financial statement schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. Our audits included consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion. An audit includes examining on a test basis, evidence supporting the amounts and disclosures in the consolidated financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as, evaluating the overall consolidated financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Inrad Optics, Inc. and Subsidiaries as of December 31, 2011 and 2010, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2011, in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

/s/Holtz Rubenstein Reminick LLP

New York, New York

March 30, 2012

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**INRAD OPTICS, INC. AND SUBSIDIARIES****CONSOLIDATED BALANCE SHEETS**

	December 31,	
	2011	2010
Assets		
Current assets:		
Cash and cash equivalents	\$3,400,205	\$4,365,045
Accounts receivable (net of allowance for doubtful accounts of \$15,000 in 2011 and 2010)	2,052,887	2,224,592
Inventories, net	2,909,520	2,390,876
Other current assets	185,298	119,243
Total Current Assets	8,547,910	9,099,756
Plant and equipment:		
Plant and equipment at cost	15,172,428	14,879,508
Less: Accumulated depreciation and amortization	(13,629,311)	(12,876,163)
Total plant and equipment	1,543,117	2,003,345
Precious Metals	474,960	157,443
Deferred Income Taxes	408,000	408,000
Goodwill	311,572	311,572
Intangible Assets, net of accumulated amortization	515,888	594,452
Other Assets	36,556	47,235
Total Assets	\$11,838,003	\$12,621,803
Liabilities and Shareholders' Equity		
Current Liabilities:		
Current portion of notes payable -other	\$9,800	\$9,000
Accounts payable and accrued liabilities	877,757	836,190
Customer advances	266,818	441,987
Total Current Liabilities	1,154,375	1,287,177
Related Party Convertible Notes Payable	2,500,000	2,500,000
Accrued Interest on Related Party Convertible Note Payable	—	1,125,000
Notes Payable – Other, net of current portion	325,633	335,874
Total Liabilities	3,980,008	5,248,051
Commitments		
Shareholders' equity:		
Common stock: \$.01 par value; 60,000,000 authorized shares 11,713,564 issued at December 31, 2011 and 11,562,656 issued at December 31, 2010	117,137	115,626
Capital in excess of par value	17,720,514	17,402,528
Accumulated deficit	(9,964,706 )	(10,129,452)

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	7,872,945	7,388,702
Less - Common stock in treasury, at cost (4,600 shares)	(14,950 )	(14,950 )
Total Shareholders' Equity	7,857,995	7,373,752
Total Liabilities and Shareholders' Equity	\$11,838,003	\$12,621,803

See notes to consolidated financial statements

**INRAD OPTICS, INC. AND SUBSIDIARIES****CONSOLIDATED STATEMENTS OF OPERATIONS**

	Years Ended December 31,		
	2011	2010	2009
Revenues			
Net sales	\$ 13,177,194	\$ 11,054,178	\$ 11,051,127
Cost and expenses			
Cost of goods sold	9,614,875	8,545,153	8,896,539
Selling, general and administrative expense	3,255,073	3,105,063	3,278,161
Goodwill Impairment	—	—	1,558,074
	12,869,948	11,650,216	13,732,774
Operating (loss) income	307,246	(596,038 )	(2,681,647 )
Other (expense) income			
Interest expense, net	(130,497 )	(137,775 )	(130,387 )
(Loss) gain on sale of plant and equipment	(1,003 )	—	4,671
Gain on sale of precious metals	—	—	7,371
	(131,500 )	(137,775 )	(118,345 )
Income (loss) before income taxes	175,746	(733,813 )	(2,799,992 )
Income tax provision	11,000	—	—
Net income (loss)	\$ 164,746	\$ (733,813 )	\$ (2,799,992 )
Net income (loss) per share - basic	\$0.01	\$(0.06 )	\$(0.25 )
Net income (loss) per share - diluted	\$0.01	\$(0.06 )	\$(0.25 )
Weighted average shares outstanding - basic	11,658,891	11,522,297	11,331,258
Weighted average shares outstanding – diluted	11,753,669	11,522,297	11,331,258

See notes to consolidated financial statements

## INRAD OPTICS, INC. AND SUBSIDIARIES

## CONSOLIDATED STATEMENTS OF SHAREHOLDERS' EQUITY

	Common Stock		Capital in	Accumulated	Treasury	Total
	Shares	Amount	excess of	Deficit	Stock	Shareholders'
			par value			Equity
Balance, January 1, 2009	11,230,678	\$ 112,306	\$ 16,622,466	\$(6,595,647 )	\$(14,950)	\$ 10,124,175
401K contribution	66,469	664	178,404	—	—	179,068
Common stock issued on exercise of options	84,500	845	95,730	—	—	96,575
Common stock issued on conversion of warrants	50,000	500	67,000	—	—	67,500
Common stock issued on vesting of stock grants	11,700	118	(2,679 )	—	—	(2,561 )
Stock-based compensation expense	—	—	112,950	—	—	112,950
Net loss for the year	—	—	—	(2,799,992 )	—	(2,799,992 )
Balance, December 31, 2009	11,443,347	114,433	17,073,871	(9,395,639 )	(14,950)	7,777,715
401K contribution	103,403	1,034	153,501	—	—	154,535
Common stock issued on exercise of options	10,000	100	8,400	—	—	8,500
Common stock issued on vesting of stock grants	5,906	59	(1,298 )	—	—	(1,239 )
Stock-based compensation expense	—	—	168,054	—	—	168,054
Net loss for the year	—	—	—	(733,813 )	—	(733,813 )
Balance, December 31, 2010	11,562,656	115,626	17,402,528	(10,129,452)	(14,950)	7,373,752
401K contribution	124,669	1,249	128,749	—	—	129,998
Common stock issued on exercise of options	20,000	200	18,800	—	—	19,000

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Common stock issued on vesting of stock grants	6,239	62	(802 )	—	—	(740 )
Stock-based compensation expense	—	—	171,239	—	—	171,239
Net income for the year	—	—	—	164,746	—	164,746
Balance, December 31, 2011	11,713,564	\$117,137	\$17,720,514	\$(9,964,706 )	\$(14,950)	\$7,857,995

See notes to consolidated financial statements

**INRAD OPTICS, INC AND SUBSIDIARIES****CONSOLIDATED STATEMENTS OF CASH FLOWS**

	Years Ended December 31,		
	2011	2010	2009
Cash flows from operating activities:			
Net income (loss)	\$ 164,746	\$(733,813 )	\$(2,799,992)
Adjustments to reconcile net income (loss) to net cash (used in) provided by operating activities:			
Depreciation and amortization	835,788	941,941	1,008,310
Goodwill impairment charge	—	—	1,558,074
401K common stock contribution	129,998	154,535	179,068
Accrued interest on Related Party Convertible Note Payable	—	150,000	150,000
Loss (gain) on sale of plant and equipment	1,003	—	(4,671 )
(Gain) on sale of precious metals	—	—	(7,371 )
Stock-based compensation expense	171,239	168,054	112,950
Change in inventory reserve	55,174	(154,326 )	94,628
Changes in operating assets and liabilities:			
Accounts receivable	171,705	(296,920 )	882,930
Inventories	(573,818 )	29,423	371,735
Other current assets	(66,055 )	44,838	24,003
Other assets	10,679	(2,043 )	34,107
Accounts payable and accrued liabilities	41,567	178,540	(678,015 )
Customer advances	(175,169 )	95,558	(110,325 )
Accrued interest on Related Party Convertible Note Payable	(1,125,000)	—	—
Total adjustments	(522,889 )	1,309,600	3,615,423
Net cash (used in) provided by operating activities	(358,143 )	575,787	815,431
Cash flows from investing activities:			
Proceeds from sale of certificates of deposit	—	—	800,000
Purchase of plant and equipment	(303,999 )	(278,241 )	(210,563 )
Purchase of precious metals	(317,517 )	—	(53,538 )
Proceeds from disposal of plant and equipment	6,000	—	4,671
Proceeds from disposal of precious metals	—	—	16,317
Net cash (used in) provided by investing activities	(615,516 )	(278,241 )	556,887
Cash flows from financing activities:			
Net proceeds from issuance of common stock	18,260	7,261	161,514
Principal payments of notes payable-other	(9,441 )	(9,072 )	(136,609 )
Net cash provided by (used in) financing activities	8,819	(1,811 )	24,905



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Net (decrease) increase in cash and cash equivalents	(964,840 )	295,735	1,397,223
Cash and cash equivalents at beginning of the year	4,365,045	4,069,310	2,672,087
Cash and cash equivalents at end of the year	\$3,400,205	\$4,365,045	\$4,069,310
Supplemental Disclosure of Cash Flow Information:			
Interest paid	\$1,289,000	\$14,000	\$19,000
Income taxes (refund) paid	\$18,000	\$(74,000 )	\$(8,000 )

See notes to consolidated financial statements

**INRAD OPTICS, INC. AND SUBSIDIARIES**

**NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**

**THREE YEARS ENDED DECEMBER 31, 2011**

1. Nature of Business and Operations and Summary of Significant Accounting Policies and Estimates

a. Nature of Business and Operations

Inrad Optics, Inc. and Subsidiaries (the “Company”), formerly known as Photonic Products Group, Inc., was incorporated in the state of New Jersey and is a manufacturer of crystals, crystal devices, electro-optic and optical components, and sophisticated laser subsystems and instruments. The Company has manufacturing operations in Northvale, New Jersey and Sarasota, Florida. Its principal customers include commercial instrumentation companies and OEM laser manufacturers, research laboratories, government agencies, and defense contractors. The Company’s products are sold domestically using its own sales staff, and in major overseas markets, principally Europe and Japan, and Asia, using independent sales agents.

b. Principles of consolidation

The accompanying consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. Upon consolidation, all inter-company accounts and transactions are eliminated.

c. Use of estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make certain estimates and assumptions. These estimates and assumptions affect the reported amounts in the financial statements and accompanying notes. Actual results could differ from these estimates.

d. Cash and cash equivalents

The Company considers cash-on-hand and highly liquid investments with original maturity dates of three months or less at the date of purchase to be cash and cash equivalents. Investments with original maturity dates exceeding three months are separately disclosed on the Consolidated Balance Sheets and as cash flows from investing activities on the Consolidated Statements of Cash Flows.

e. Accounts receivable

Accounts receivable are carried at net realizable value, net of write-offs and allowances. The Company establishes an allowance for doubtful accounts based on estimates as to the collectability of accounts receivable. Management specifically analyzes past-due accounts receivable balances and, additionally, considers bad debt history, customer credit-worthiness, current economic trends and changes in customer payment terms when evaluating the adequacy of the allowance for doubtful accounts. Uncollectible accounts receivable are written-off when it is determined that the balance will not be collected.

f. Inventories

Inventories are stated at the lower of cost (first-in, first-out method) or market. Cost of manufactured goods includes material, labor and overhead.

The Company records a reserve for slow moving inventory as a charge against earnings for all products identified as surplus, slow moving or discontinued. Excess work-in-process costs are charged against earnings whenever estimated costs-of-completion exceed unbilled revenues.

g. Plant and Equipment

Plant and equipment are depreciated using the straight-line method over the estimated useful lives of the related assets which range between 5 and 7 years. Amortization of leasehold improvements is computed using the straight-line method over the lesser of 10 years or the remaining term of the lease including optional renewal periods, as appropriate, when failure to renew the lease imposes an economic penalty on the Company in such an amount that renewal appears to be probable. In determining the amount of the economic penalty, management considers such factors as (i) the costs associated with the physical relocation of the offices, manufacturing facility and equipment, (ii) the economic risks associated with business interruption and potential customer loss during relocation and transition to new premises (iii) the significant costs of leasehold improvements required at any new location to custom fit our specific manufacturing requirements, and (iv) the economic loss associated with abandonment of existing leasehold improvements or other assets whose value would be impaired by vacating the facility.

Maintenance and repairs of property and equipment are charged to operations and major improvements are capitalized. Upon retirement, sale or other disposition of property and equipment, the cost and accumulated depreciation are eliminated from the accounts and a gain or loss is recorded.

h. Income taxes

Deferred taxes are provided on the asset and liability method whereby deferred tax assets are recognized for deductible temporary differences and operating loss and tax credit carry forwards and deferred tax liabilities are recognized for taxable temporary differences. Temporary differences are the differences between the amounts of assets and liabilities recorded for income tax and financial reporting purposes. Deferred tax assets are reduced by a valuation allowance when, in the opinion of management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. Deferred tax assets and liabilities are adjusted for the effects of changes in tax laws and rates on the date of enactment.

The Company recognizes the financial statement benefit of an uncertain tax position only after determining that the relevant tax authority would more likely than not sustain the position. For tax positions meeting the more likely than not threshold, the amount recognized in the financial statements is the largest benefit that has a greater than 50 % likelihood of being realized upon ultimate settlement with the relevant tax authority.

The Company classifies interest and penalties related to income taxes as income tax expense in its Consolidated Financial Statements.

The Company had no unrecognized tax benefits or liabilities, and no adjustment to its financial position, results of operations, or cash flows relating to uncertain tax positions taken on all open tax years. The Company is no longer subject to federal, state or local income tax examinations by tax authorities for the years before 2008.

i. Impairment of long-lived assets

Long-lived assets, such as plant and equipment and purchased intangibles with finite lives, which are subject to amortization, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to estimated undiscounted future cash flows expected to be generated by the asset. If the carrying amount of an asset exceeds its estimated future cash flows, an impairment charge is recognized by the amount by which the carrying amount of the asset exceeds the fair value of the assets. Long-lived assets held for sale would be separately presented in the balance sheet and reported at the lower of the carrying amount or fair value less costs to sell and would no longer be depreciated.

j. Goodwill and intangible assets with indefinite lives

Goodwill represents the excess of purchase price and related costs over the fair value assigned to the net tangible and identifiable assets of business acquisitions. Goodwill and intangible assets with indefinite lives are not amortized. The Company tests for impairment of goodwill and intangible assets with indefinite lives on an annual basis in December of each year, or more frequently whenever events occur or circumstances exist that indicates that impairment may exist.

k. Stock-based compensation

Stock based compensation expense is estimated at the grant date based on the fair value of the award. The Company estimates the fair value of stock options granted using the Black-Scholes option pricing model. The fair value of restricted stock units granted is estimated based on the closing market price of the Company's common stock on the date of the grant. The fair value of these awards, adjusted for estimated forfeitures, is amortized over the requisite service period of the award, which is generally the vesting period.

l. Revenue recognition

The Company records revenue from the sale of products and services used in the photonics industry when all four of the following criteria are met:

- persuasive evidence of an arrangement exists;
- delivery has occurred or services have been rendered;
- the sales price is fixed or determinable; and
- Collectability is reasonably assured.

Losses on contracts in progress are recorded when identified.

m. Internal research and development costs

Internal research and development costs are charged to expense as incurred.

n. Precious metals

Precious metals consist of various fixtures used in the high temperature crystal growth manufacturing process. They are valued at the lower of cost or net realizable value.

o. Advertising costs

Advertising costs included in selling, general and administrative expenses were \$16,000, \$29,000 and \$32,000 for the years ended December 31, 2011, 2010 and 2009, respectively. Advertising costs are charged to expense when the related services are incurred or related events take place.

p. Statement of cash flows and non-cash transactions

For purposes of the consolidated statements of cash flows, the Company considers all highly liquid debt instruments purchased with a maturity of three months, or less when purchased, to be cash equivalents.

q. Concentrations and credit risk

The Company may invest its excess cash in certificates of deposits with major financial institutions. Generally, the investments range over a variety of maturity dates usually, within three to nine months, and therefore, are subject to little risk. The Company has not experienced losses related to these investments.

The concentration of credit risk in the Company's accounts receivable is mitigated by the Company's credit evaluation process, familiarity with its small base of recurring customers and reasonably short collection terms and the geographical dispersion of revenue. The Company generally does not require collateral but, in some cases, the

Company negotiates cash advances prior to the undertaking of the work. These cash advances are recorded as current liabilities on the balance sheet until corresponding revenues are realized.

The Company utilizes many relatively uncommon materials and compounds to manufacture its products and relies on outside vendors for certain manufacturing services. Therefore, any failure by its suppliers to deliver materials of an adequate quality and quantity could have an adverse effect on the Company's ability to meet the commitments of its customers.

For the year ended December 31, 2011, the Company's top five customer accounts in the aggregate represented approximately 58% of total revenues, and the top three customers accounted for 47% of revenues. These three customers each represented approximately 21%, 15% and 11% of sales, respectively. Since the Company is a supplier of custom manufactured components to OEM customers, the relative size and identity of the largest customer accounts changes somewhat from year to year. In the short term, the loss of any one of these large customer accounts could have a material adverse effect on business, results of operations, and financial condition.

r. Fair value measurements

The Company follows U.S. GAAP accounting guidance which establishes a framework for measuring fair value and expanded related disclosures. The framework requires fair value to be determined based on the exchange price that would be received for an asset, or paid to transfer a liability (an exit price), in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants.

The valuation techniques required are based upon observable and unobservable inputs. Observable inputs reflect market data obtained from independent sources, while unobservable inputs reflect the Company's market assumptions. The accounting guidance requires the following fair value hierarchy:

Level 1 - Quoted prices (unadjusted) for identical assets and liabilities in active markets that the Company has the ability to access at the measurement date.

Level 2 - Quoted prices for similar assets and liabilities in active markets; quoted prices for identical or similar assets and liabilities in markets that are not active; and inputs other than quoted prices that are observable for the asset or liability, including interest rates, yield curves and credit risks, or inputs that are derived principally from or corroborated by observable market data through correlation.

Level 3 - Values determined by models, significant inputs to which are unobservable and are primarily based on internally derived assumptions regarding the timing and amount of expected cash flows.





Long-lived assets, including goodwill and other intangible assets, may be measured at fair value if such assets are held for sale or if there is a determination that the asset is impaired. Managements' determination of fair value, although highly subjective, is based on the best information available, including internal projections of future earnings and cash flows discounted at an appropriate interest rate, quoted market prices when available, market prices for similar assets, broker quotes and independent appraisals, as appropriate.

s. New Accounting Guidance

In May 2011, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update ("ASU") No. 2011-04, "Amendments to Achieve Common Fair Value Measurement and Disclosure Requirements in U.S. GAAP and International Financial Reporting Standards ("IFRS')." This pronouncement was issued to provide a consistent definition of fair value and ensure that the fair value measurement and disclosure requirements are similar between U.S. GAAP and IFRS. ASU 2011-04 changes certain fair value measurement principles and enhances the disclosure requirements particularly for Level 3 fair value measurements. This pronouncement is effective for reporting periods beginning on or after December 15, 2011, with early adoption prohibited. The new guidance will require prospective application. The Company expects that the adoption will not have a significant impact on its Consolidated Financial Statements.

In June 2011, the FASB issued ASU No. 2011-05, "Presentation of Comprehensive Income" which was issued to enhance comparability between entities that report under U.S. GAAP and IFRS, and to provide a more consistent method of presenting non-owner transactions that affect an entity's equity. ASU 2011-05 eliminates the option to report other comprehensive income and its components in the statement of changes in stockholders' equity and requires an entity to present the total of comprehensive income, the components of net income and the components of other comprehensive income either in a single continuous statement or in two separate but consecutive statements. This pronouncement is effective for fiscal years, and interim periods within those years, beginning after December 15, 2011 and full retrospective application is required. The Company expects that the adoption will not have a significant impact on its Consolidated Financial Statements.

In September 2011, the FASB issued Accounting Standards Update ("ASU") No. 2011-08, Intangibles-Goodwill and Other – Testing Goodwill for Impairment ("ASU No. 2011-08"). ASU No. 2011-08 permits an entity to make a qualitative assessment of whether it is more likely than not that a reporting unit's fair value is less than its carrying amount before automatically applying the two-step goodwill impairment test, which has been the required test since 2002. If an entity determines that this is the case, it is necessary to perform the currently prescribed two-step goodwill impairment test to determine the amount, if any, of impaired goodwill. Otherwise, the two-step goodwill impairment test is not required. This new guidance is effective for annual and interim goodwill impairment tests performed for fiscal years beginning after December 15, 2011 with early adoption permitted. The Company has not elected early adoption and expects that the adoption of the new standard will not have a significant impact on its Consolidated Financial Statements.

**2. Inventories, net**

Inventories are comprised of the following and are shown net of inventory reserves of \$1,310,000 for 2011 and \$1,255,000 for 2010:

	December 31,	
	2011	2010
	(In thousands)	
Raw materials	\$1,072	\$1,103
Work in process, including manufactured parts and components	984	806
Finished goods	854	482
	\$2,910	\$2,391

**3. Plant and Equipment**

Plant and equipment are comprised of the following:

	December 31,	
	2011	2010
	(In thousands)	
Office and computer equipment	\$1,461	\$1,339
Machinery and equipment	11,514	11,436
Leasehold improvements	2,197	2,104
	15,172	14,879
Less accumulated depreciation and amortization	(13,629)	(12,876)
	\$1,543	\$2,003

Depreciation expense recorded by the Company totaled \$757,000, \$863,000 and \$929,000 for 2011, 2010 and 2009, respectively. Plant and equipment with a net book value of \$7,003, \$944 and \$0 was disposed of in 2011, 2010 and 2009, respectively.

The Company evaluates its property and equipment and intangible assets with finite lives for impairment when events or circumstances indicate and impairment may exist. Management concluded that an impairment of its long-lived assets was not required at December 31, 2011 and December 31, 2010.

#### **4. Goodwill**

The carrying value of goodwill was \$312,000 at December 31, 2011 and 2010.

The Company tests for impairment of goodwill in December of each year. The testing for goodwill impairment is a two-step process. The first step compares the fair value of each reporting unit to its carrying value. If the fair value of the reporting unit exceeds its carrying amount, goodwill is not considered to be impaired as of the measurement date. Otherwise, if the carrying value exceeds the fair value, a second step must be followed to determine the level of impairment. In establishing the fair value of the reporting unit, the Company uses both a market based approach and an income based approach as part of its valuation methodology. Since quoted market prices in an active market are not separately available for the Company's reporting units, the market based method estimates the fair value of the reporting unit utilizing an industry multiple of projected earnings before interest taxes, depreciation and amortization ("EBITDA"). Due to the small capitalization value of the Company, the low trading volume of its stock and the niche market served by its products, the application of available industry comparables in establishing fair value requires a high degree of management judgment, and the actual fair value that could be realized could differ from those used to evaluate the impairment of goodwill. The income approach determines fair value based on the estimated discounted cash flows that each reporting unit is expected to generate in the future. For each method, the sensitivity of key assumptions are tested by using a range of estimates and the results of each method are corroborated as part of management's determination of fair value.

The second step of the testing process, if necessary, involves calculating the fair value of the individual assets and liabilities of the reporting unit and measuring the implied fair value of the goodwill against its carrying value to determine whether an adjustment to the carrying value of goodwill is required. This process also has inherent risks and uncertainties and requires significant management judgment.

Based on the results of the tests performed, management concluded that there is no impairment of goodwill at December 31, 2011.

**5. Intangible Assets**

Intangible assets include acquired intangible assets with finite lives, consisting principally of non-contractual customer relationships, completed technology and trademarks. Intangible assets with finite lives are amortized on a straight-line basis over the assets' estimated useful life up to 14 years. The Company evaluates whether events or circumstances have occurred indicating the carrying amount of intangible assets may not be recoverable. When factors indicate that intangible assets should be evaluated for possible impairment, the Company uses an estimate of the associated undiscounted future cash flows compared to the related carrying amount of assets to determine if an impairment loss should be recognized. An impairment loss is recognized to the extent that the carrying amount exceeds the asset's fair value.

Amortization expense was approximately \$79,000 for the years ended December 31, 2011 and December 31, 2010, respectively. Aggregate amortization for the five succeeding years from January 1, 2012 through December 31, 2016 is expected to be approximately \$395,000, accumulating at the rate of \$79,000 per year. The weighted average remaining life of the Company's intangible assets is approximately 6.5 years.

The following schedule details the Company's intangible asset balance by major asset class.

	At December 31, 2011		
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
	(In thousands)		
Customer-related	\$550	\$ (292)	) \$ 258
Completed technology	363	(193)	) 170
Trademarks	187	(99)	) 88
Total	\$1,100	\$ (584)	) \$ 516

	At December 31, 2010		
	Gross Carrying	Accumulated	Net Carrying
	Amount	Amortization	Amount
	(In thousands)		
Customer-related	\$550	\$ (252	) \$ 298
Completed technology	363	(167	) 196
Trademarks	187	(87	) 100
Total	\$1,100	\$ (506	) \$ 594

## 6. Related Party Transactions

In March 2011, the maturity dates of a \$1,500,000 Subordinated Convertible Promissory Note to Clarex Limited (“Clarex”) and a \$1,000,000 Subordinated Convertible Promissory Note to an affiliate of Clarex were extended to April 1, 2013. The remaining terms and conditions of the notes were unchanged. These notes were previously issued on April 1, 2009 and had a maturity date of April 1, 2011. The notes bear interest at 6%. Interest accrues yearly, is payable on maturity and unpaid interest along with principal may be converted into securities of the Company as follows: The notes are convertible in the aggregate into 1,500,000 Units and 1,000,000 Units, respectively, with each unit consisting of one share of common stock and one warrant. Each warrant allows the holder to acquire 0.75 shares of common stock at a price of \$1.35 per share and have an expiration date of April 2, 2016. Clarex is a significant shareholder of the Company.

During 2011, the Company paid the accrued interest of \$645,000 and \$480,000 on the \$1,500,000 Note and the \$1,000,000 Note, respectively that was outstanding as of December 31, 2010. In addition, the Company prepaid \$150,000 for the interest that currently accrued on the Notes in 2011. The Company expects to continue to prepay its currently accruing quarterly interest obligations on the Notes of \$37,500 per quarter through the maturity date

## 7. Notes Payable – Other

Notes payable - Other consist of amounts payable to the U.S. Small Business Administration.

	December 31,	
	2011	2010
	(rounded to the nearest 000's)	
Notes payable - Other, payable in aggregate monthly installments of approximately \$1,925 and bearing an interest rate of 4.0% and expiring in April 2032	\$ 335,000	\$ 345,000
Less current portion	(10,000 )	(9,000 )
Notes payable - Other, excluding current portion	\$ 325,000	\$ 336,000

Notes payable - Other, mature as follows:

Year ending	
December 31:	
2011	\$9,800
2012	10,200
2013	10,600
2014	11,100
2015	11,500
Thereafter	281,800
	\$335,000

### **8. Accounts Payable and Accrued Expenses**

Accounts payable and accrued expenses are comprised of the following:

	December 31,	
	2011	2010
	(In thousands)	
Trade accounts payable and accrued purchases	\$ 483	\$ 424
Accrued vacation	85	179
Accrued payroll	102	87
Accrued 401K common stock contribution	152	130
Accrued expenses – other	56	16
	\$ 878	\$ 836

**9. Income Taxes**

The Company's income tax provision consists of the following:

	Years Ended December 31,		
	2011	2010	2009
Current:			
Federal provision for AMT	\$6,000	\$ —	\$ —
State provision	5,000	—	—
	11,000	—	—
Deferred:			
Federal tax benefit	—	—	—
State	—	—	—
	—	—	—
Total	\$11,000	\$ —	\$ —

A reconciliation of the income tax provision computed at the statutory Federal income tax rate to our effective income tax rate follows (in percent):

	Years Ended December 31,		
	2011	2010	2009
Federal statutory rate	34.0 %	(34.0)%	(34.0)%
State statutory rate	8.0	(7.4 )	(6.5 )
Goodwill impairment charge	—	—	22.0
Change in Valuation Allowance	(41.5)	37.0	13.4
Permanent Differences	6.7	—	—
Prior year adjustments	—	4.4	5.1
Other	0.9	—	—
Effective income tax rate	6.3 %	— %	— %

At December 31, 2011, the Company estimated Federal and State net operating loss carry forwards of approximately \$5,716,000 and \$1,164,000, respectively. These tax loss carry forwards expire at various dates through 2031.

Internal Revenue Code Section 382 places a limitation on the utilization of Federal net operating loss and other credit carry forwards when an ownership change, as defined by the tax law, occurs. Generally, this occurs when a greater

than 50 percentage point change in ownership occurs. Accordingly, the actual utilization of the net operating loss and carryforwards for tax purposes may be limited annually to a percentage (based on the risk free interest rate) of the fair market value of the Company at the time of any such ownership change. The Company has not prepared an analysis of ownership changes but does not believe that a greater than 50% change of ownership has occurred and such limitations would not apply to the Company.

Deferred tax assets (liabilities) are comprised of the following:

	December 31,	
	2011	2010
Account receivable reserves	\$7,000	\$7,000
Inventory reserves	551,000	528,000
Inventory capitalization	178,000	154,000
Accrued vacation	36,000	76,000
Depreciation	76,000	(154,000 )
Loss carry forwards	2,012,000	2,176,000
Gross deferred tax assets	2,860,000	2,787,000
Valuation allowance	(2,452,000)	(2,379,000)
Net deferred tax asset	\$408,000	\$408,000



In evaluating the Company's ability to recover deferred tax assets in future periods, management considers the available positive and negative factors, including the Company's recent operating results, the existence of cumulative losses and near term forecasts of future taxable income that is consistent with the plans and estimates management is using to manage the underlying business. As of December 31, 2011 and 2010, the Company has a deferred tax asset of \$408,000 which we estimate will be recoverable in future periods, net of a valuation allowance of \$2,452,000 and \$2,379,000, respectively.

The Company files income tax returns in the United States, which typically provides for a three-year statute of limitations on assessments. However, because of net operating loss carryforwards, substantially all of our tax years remain open to federal tax examination.

The guidance for accounting for uncertainties in income taxes requires that we recognize the financial statement effects of a tax position when it is more likely than not, based on the technical merits, that the position will be sustained upon examination. There were no unrecognized tax benefits that impacted our effective tax rate and accordingly, there was no material effect to our financial position, results of operations or cash flows.

Our policy is to recognize interest and penalties related to the underpayment of income taxes as a component of income tax expense. To date, there have been no interest or penalties charged to us in relation to the underpayment of income taxes.

We do not anticipate that our unrecognized tax benefits will significantly increase in the next 12 months.

## **10. Equity Compensation Program and Stock-based Compensation**

### **a. 2010 Equity Compensation Program**

The Company's 2010 Equity Compensation Program was approved by the shareholders of the Company at the Annual Meeting which was held on June 2, 2010. The Company's 2010 Equity Compensation Program provides for grants of options, stock appreciation rights and restricted stock awards to employees, officers, directors, and others who render services to the Company. The Program is comprised of four parts including: (i) the Incentive Stock Option Plan which provides for grants of "incentive stock options", (ii) the Supplemental Stock Option Plan which provides for grants of stock options that shall not be "incentive stock options", (iii) the Stock Appreciation Rights Plan which allows the granting of stock appreciation rights and, (iv) the Restricted Stock Award Plan which provides for the granting of restrictive shares of Common Stock and restricted stock units. The plan is administered by the Compensation Committee of the Board of Directors. Under this plan, an aggregate of up to 4,000,000 shares of common stock may be granted.

b. 2000 Equity Compensation Program

The Company's 2000 Equity Compensation Program expired on June 2, 2010. All outstanding grants of options, stock appreciation rights and performance shares issued under the Program will remain outstanding and shall expire on the date determined by the terms of the original grant. The latest date of expiration for outstanding grants under the plan is March 28, 2020.

c. Stock Option Expense

The Company's results for the years ended December 31, 2011, 2010 and 2009 include stock-based compensation expense for stock option grants totaling \$165,000, \$127,000 and \$65,000, respectively. Such amounts have been included in the Consolidated Statements of Operations within cost of goods sold (\$68,000 for 2011, \$48,000 for 2010 and \$7,000 for 2009), and selling, general and administrative expenses (\$97,000 for 2011, \$79,000 for 2010 and \$58,000 for 2009).

As of December 31, 2011, 2010 and 2009, there were \$382,300, \$194,300 and \$311,300 of unrecognized compensation costs, net of estimated forfeitures, related to non-vested stock options, which are expected to be recognized over a weighted average period of approximately 2.3 years, 2.3 years and 3.0 years, respectively.

The weighted average estimated fair value of stock options granted in the three years ended December 31, 2011, 2010 and 2009 was \$0.86, \$1.00 and \$1.22, respectively. The fair value of options at the date of grant was estimated using the Black-Scholes option pricing model. The expected volatility is based upon historical volatility of our stock and other contributing factors. The risk-free rate is based on the U.S. Treasury yield curve in effect at the time of the grant. The expected term is based upon the contractual term of the option.

The following range of weighted-average assumptions were used for to determine the fair value of stock option grants during the years ended December 31, 2011, 2010 and 2009:

	Years Ended					
	December 31,		2010		2009	
	2011		2010		2009	
Dividend yield	—	%	—	%	—	%
Volatility	94 – 100	%	226 - 236	%	180 - 232	%
Risk-free interest rate	2.0 - 3.4	%	2.7 - 3.7	%	2.5 - 3.45	%
Expected life	10 years		10 years		10 years	

d. Stock Option Activity

A summary of the Company's outstanding stock options as of and for the years ended December 31, 2011, 2010 and 2009 is presented below:

	Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (In Years)	Aggregate Intrinsic Value(a)
Outstanding as of January 1, 2009	1,030,139	\$ 1.50		
Granted	305,084	1.22		
Exercised	(84,500 )	1.14		
Forfeited/Expired	(35,000 )	1.10		
Outstanding as of December 31, 2009	1,215,723	1.46		
Granted	10,000	1.00		
Exercised	(10,000 )	.85		
Forfeited/Expired	(417,247 )	2.11		
Outstanding as of December 31, 2010	798,476	1.13		
Granted	409,000	.97		
Exercised	(20,000 )	.95		
Forfeited /Expired	(108,400 )	1.66		
Outstanding as of December 31, 2011 <sup>(b)</sup>	1,079,676	\$ 1.02	6.7	\$ 63,105
Exercisable as of December 31, 2011	578,086	\$ 1.03	4.6	\$ 63,105

(a) Intrinsic value for purposes of this table represents the amount by which the fair value of the underlying stock, based on the respective market prices as of December 31, 2011 exceeds the exercise prices of the respective options. All of the options used in the calculation of the aggregate intrinsic value for outstanding options are exercisable as of December 31, 2011.

(b) Based on the Company's historical forfeiture rate, the number of options expected to vest is the same as the total outstanding at December 31, 2011.

The following table represents non-vested stock options granted, vested, and forfeited for the year ended December 31, 2011.

Non-vested Options	Options	Weighted-Average Grant-Date Fair Value - \$
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Non-vested - January 1, 2011	254,525	1.14
Granted	409,600	.86
Vested	(157,135)	1.11
Forfeited	(5,400 )	.91
Non-vested – December 31, 2011	501,590	.92

The total fair value of options vested during the years ended December 31, 2011, 2010 and 2009, was \$175,100, \$59,600 and \$49,000, respectively.

The following table summarizes information about stock options outstanding at December 31, 2011:

Range of Exercise Price	Options Outstanding			Options Exercisable	
	Number Outstanding	Weighted Average Remaining Contractual Life in Years	Weighted Average Exercise Price	Number Outstanding	Weighted Average Exercise Price
\$0.50 - \$1.03	912,700	6.9	\$ 0.91	437,607	\$ 0.84
\$1.20 - \$1.75	166,976	6.0	\$ 1.61	140,479	\$ 1.60

e. Restricted Stock Unit Awards

During 2011, the Company granted 15,000 restricted stock units under the 2010 Performance Share Program with an estimated fair value of \$14,550 based on the closing market price of the Company's stock on the grant date. These grants vest over a three year period contingent on continued employment over the vesting period. The Company recognized related stock compensation expense of \$7,000 (\$0 in Cost of Goods Sold and \$7,000 in Selling, General and Administrative expenses) in 2011, \$41,000 (\$5,000 in Cost of Goods Sold and \$36,000 in Selling, General and Administrative expenses) in 2010 and \$48,000 (\$5,000 in Cost of Goods Sold and \$43,000 in Selling, General and Administrative expenses) in 2009, related to these and previously issued grants.

There were no Restricted Stock Unit awards in 2010 and 2009.

A summary of the Company's non-vested restricted stock unit awards shares is as follows:

	# of Units	Weighted Average Grant Date Fair Value
		\$
Outstanding as of January 1, 2009	31,500	3.72
Granted	—	—
Vested	(13,504 )	3.79
Forfeited/Expired	—	—
Outstanding as of December 31, 2009	17,996	3.68
Granted	—	—
Vested	(6,998 )	3.59
Forfeited/Expired	(4,000 )	4.00

Outstanding as of December 31, 2010	6,998	3.59
Granted	15,000	.97
Vested	(6,998 )	3.59
Forfeited/Expired	—	—
Outstanding as of December 31, 2011	15,000	.97

The total fair value of restricted stock units which vested during 2011, 2010 and 2009 was \$6,900, \$8,500 and \$20,800, respectively, as of the vesting date.

### **11. Net Income (Loss) per Share**

Basic income (loss) per common share is computed by dividing net income (loss) by the weighted average number of common shares outstanding. Diluted income (loss) per common share is computed by dividing net income (loss) by the weighted average number of common shares and common stock equivalents outstanding, calculated on the treasury stock method for options, stock grants and warrants using the average market prices during the period, including potential common shares issuable upon conversion of outstanding convertible notes, except if the effect on the per share amounts is anti-dilutive. For the year ended December 31, 2011, a total of 94,778 common share equivalents were assumed to be outstanding at the end of the year. A total of 2,500,000 anti-dilutive common shares issuable upon conversion of outstanding convertible notes have been excluded from the diluted computation because their effect is anti-dilutive.

For the year ended December 31, 2010 and 2009, all common equivalent shares outstanding have been excluded from the diluted computation because their effect is anti-dilutive.

This included a weighted average of 2,500,000 anti-dilutive common shares issuable upon conversion of outstanding convertible notes and 1,125,000 anti-dilutive common shares issuable on conversion of accrued interest. The weighted average number of outstanding anti-dilutive warrants excluded from the computation of diluted net income per common share year ended December 31, 2010 was 2,718,750 and the weighted average number of outstanding anti-dilutive common stock options was 798,476. In addition, a total weighted average of 6,998 shares of non-vested restricted stock with a grant date fair value in excess of the average market price of the common shares during the year was excluded from the computation because their effect is anti-dilutive.

A reconciliation of the shares used in the calculation of basic and diluted earnings per common share is as follows:

	Years ended December 31,		
	2011	2010	2009
Numerators			
Net income (loss) applicable to common shareholders - basic	\$ 164,786	\$(733,813 )	\$(2,799,992 )
Interest on Convertible Debt	—	—	—
Net income (loss) applicable to common shareholders - diluted	\$ 164,786	\$(733,813 )	\$(2,799,922 )
Denominators			
Weighted average shares outstanding-basic	11,658,891	11,522,297	11,331,258
Stock options	83,843	—	—
Restricted stock units	10,935	—	—
Weighted average shares outstanding – diluted	11,753,669	11,522,297	11,331,258

## 12. Commitments

a.

### Lease commitments

The Company occupies approximately 42,000 square feet of space located at 181 Legrand Avenue, Northvale, New Jersey pursuant to a net lease. Under the terms of the lease, the Company is obligated for all real estate taxes, maintenance and operating costs of the facility. On November 1, 2011, the Company negotiated a change to the rate on its Northvale lease and extended the term until October 31, 2013. The Company also has the option of renewing the lease for one year, at fixed terms, through October 31, 2014.

The Company's wholly-owned subsidiary, MRC Precision Metal Optics, Inc., occupies approximately 25,000 square feet of space located at 6405 Parkland Drive, Sarasota, FL pursuant to a net lease originally expiring on August 31, 2006. Under the terms of the lease, the Company is obligated for all real estate taxes, maintenance and operating costs of the facility. During 2006, the Company negotiated terms for the renewal of the lease until August 31, 2008 and in 2008, the Company elected to extend the lease until August 31, 2010. In August 2010, the Company negotiated terms for the renewal of the lease until August 31, 2013.

The total rent for these leases was approximately \$519,000, \$569,000 and \$582,000 in 2011, 2010 and 2009, respectively.

Future minimum annual rentals which cover the remaining lease terms, excluding uncommitted option renewal periods are as follows:

Year ending December 31:	
2012	\$ 440,000
2013	393,000
2014	253,000
	\$ 1,086,000

b. Retirement plans

The Company maintains a 401(k) savings plan (the “Plan”) for all eligible employees (as defined in the plan). The 401(k) plan allows employees to contribute up to 20% of their compensation on a salary reduction, pre-tax basis up to the statutory limitation. The 401(k) plan also provides that the Company, at the discretion of the Board of Directors, may match employee contributions based on a pre-determined formula.

In 2011, the Company matched employee contributions of \$151,775 in the form of 152,460 shares of the Company’s common stock, which were issued to the Plan in March 2012. In 2010, the Company matched employee contributions of \$129,998 in the form of 124,669 shares of the Company’s common stock, which were issued to the Plan in March 2011. In 2009, the Company matched employee contributions of \$154,535 in the form of 103,403 shares of the Company’s common stock, which were issued to the Plan in March 2010. The Company records the distribution of the common shares in the Consolidated Statement of Shareholders’ Equity as of the date of distribution to the 401(k) plan administrator.



**13. Product Sales, Foreign Sales and Sales to Major Customers**

The following table summarizes the Company's net sales by product categories during the past three years:

Year Ended December 31, Category	2011		2010		2009	
	Net Sales	%	Net Sales	%	Net Sales	%
Optical Components	\$11,812,000	90	\$10,115,000	92	\$10,350,000	94
Laser System Devices and Instrumentation	1,365,000	10	939,000	8	701,000	6
Total	\$13,177,000	100	\$11,054,000	100	\$11,051,000	100

The Company's export sales, which are primarily to customers in countries within Europe, Asia and Japan, amounted to approximately 22.8%, 14.9%, and 12.5% of product sales in 2011, 2010 and 2009, respectively

The Company had sales to three major customers which accounted for 20.9%, 15.4% and 10.8% of sales in 2011. The largest is an international customer that is in the process control and metrology industry. Both of the other major customers are electro-optical systems divisions of major U.S. defense industry corporations who manufactures systems for U.S. and allied foreign governments. In 2010, the same three customers represented 10.1%, 10.3% and 15.3% of sales, respectively. In 2009, the same three customers represented 5.5%, 4.7% and 17.7% of sales, respectively.

During the past three years, sales to the Company's top five customers represented approximately 58.1%, 54.3% and 55.3% of sales, respectively. Given the concentration of sales within a small number of customers, the loss of any of these customers would have a significant negative impact on the Company and its business units.

**14. Shareholders' Equity**

a. Common shares reserved at December 31, 2011, are as follows:

2010 Equity compensation plan	4,000,000
2000 Equity compensation plan	669,676
Subordinated convertible notes	2,500,000
Warrants issuable on conversion of Subordinated convertible notes	1,875,000
	9,044,676

b. Warrants

The Company had no outstanding warrants as of December 31, 2011 and 2010. As of December 31, 2009, the Company had 60,000 outstanding warrants with an exercise price of \$1.35 and a fair value of \$1.31 which expired in May 2010. During the year ended December 31, 2009, a total of 50,000 warrants were exercised with a fair value of \$1.29 and an exercise price of \$1.35 each or \$67,500, in total. A total of 893,790 warrants with an exercise price of \$1.35 and fair value of \$1.29 expired in 2009.

### **15. Fair Value of Financial Instruments**

The methods and assumptions used to estimate the fair value of the following classes of financial instruments were:

**Current Assets and Current Liabilities:** The carrying amount of cash, certificates of deposits, current receivables and payables and certain other short-term financial instruments approximate their fair value as of December 31, 2011 due to their short-term maturities.

**Long-Term Debt:** The fair value of the Company's long-term debt, including the current portion, for notes payable and subordinated convertible debentures, was estimated using a discounted cash flow analysis, based on the Company's assumed incremental borrowing rates for similar types of borrowing arrangements. The carrying amount of debt at December 31, 2011 in the amount of \$2,835,000 approximates fair value.

**16. Quarterly Data** (Unaudited)

Summary quarterly results were as follows:

Year 2011	First	Second	Third	Fourth
Net sales	\$3,241,434	\$3,221,234	\$3,328,761	\$3,385,765
Gross profit	872,537	784,060	907,905	997,817
Net income (loss)	34,729	(95,750 )	83,731	142,036
Net income (loss) per share - Basic	0.00	(0.01 )	0.01	0.01
Net income (loss) per share – Diluted	0.00	(0.01 )	0.01	0.01

Year 2010	First	Second	Third	Fourth
Net sales	\$2,808,046	\$2,164,491	\$2,478,581	\$3,603,060
Gross profit	540,494	255,712	494,678	1,218,141
Net loss	(274,469 )	(648,898 )	(281,755 )	471,309
Net loss per share - Basic	(0.02 )	(0.06 )	(0.02 )	0.04
Net loss per share - Diluted	(0.02 )	(0.06 )	(0.02 )	0.04

Year 2009	First	Second	Third	Fourth
Net sales	\$2,815,097	\$2,620,437	\$2,664,963	\$2,950,630
Gross profit	381,687	419,098	606,530	747,273
Net loss	(314,409 )	(336,998 )	(2,122,330)	(26,225 )
Net loss per share - Basic	(0.03 )	(0.03 )	(0.19 )	(0.00 )
Net loss per share - Diluted	(0.03 )	(0.03 )	(0.19 )	(0.00 )

**Schedule II –Valuation and Qualifying Accounts**

INRAD OPTICS, INC.

## SCHEDULE II VALUATION AND QUALIFYING ACCOUNTS

	Balance at Beginning of Period	Charged (Credited) to Expenses	Additions (Deductions) to Other Accounts	Deductions	Balance at End of Period
Allowance for Doubtful Accounts					
Year ended December 31, 2011	\$ 15,000	—	—	—	\$ 15,000
Year ended December 31, 2010	\$ 15,000	—	—	—	\$ 15,000
Year ended December 31, 2009	\$ 15,000	—	—	—	\$ 15,000
Valuation Allowance for Deferred Tax Assets					
Year ended December 31, 2011	\$ 2,379,000	—	73,000	—	\$ 2,452,000
Year ended December 31, 2010	\$ 2,108,000	—	271,000	—	\$ 2,379,000
Year ended December 31, 2009	\$ 1,733,000	—	375,000	—	\$ 2,108,000