ADVANCED PHOTONIX INC
Form 10-K
June 29, 2009

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 20549

FORM 10-K

(Mark One)

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

For the fiscal year ended March 31, 2009
OR

o **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 1-11056

ADVANCED PHOTONIX, INC.®
(Exact name of registrant as specified in its charter)

Delaware	**33-0325826**
(State or Other Jurisdiction of Incorporation or Organization)	(I.R.S. Employer Identification No.)

2925 Boardwalk, Ann Arbor, Michigan 48104, (734) 864-5600
(Address and telephone number of principal executive offices)

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

Securities registered pursuant to Section 12(g) of the Act:
Class A Common Stock, par value $.001 per share
(Title of class)

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

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 þ

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 þ NO ¨

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 229.405 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 þ

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

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 the definitions of large accelerated filer, accelerated filer and smaller reporting company in Rule 12b-2 of the Exchange Act. (Check one):

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

(Do not check if a 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 þ

The aggregate market value of the voting stock held by non--affiliates of the registrant as of September 26, 2008 was approximately $39,107,833.

Number of shares outstanding of the registrant's Common Stock as of June 24, 2009: 24,284,726 shares of Class A Common Stock and 31,691 shares of Class B Common Stock.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive proxy statement to be filed pursuant to Regulation 14A promulgated under the Securities Exchange Act of 1934 in connection with the 2009 Annual Meeting of Stockholders of registrant have been incorporated by reference into Part III of this Form 10-K.

ADVANCED PHOTONIX, INC.
ANNUAL REPORT ON FORM 10-K
FISCAL YEAR ENDED MARCH 31, 2009

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PART I

The information in this annual report contains certain forward-looking statements, including statements related to our business prospects, the markets for our products, and trends in our business that involve risks and uncertainties. Our actual results may differ materially from the results discussed in these forward-looking statements. Factors that might cause such a difference include those discussed in "Risk Factors," "Management's Discussion and Analysis of Financial Condition and Results of Operations," "Business" and elsewhere in this annual report.

Item 1. Business

General

Advanced Photonix, Inc.® (the Company, we or API), was incorporated under the laws of the State of Delaware in June 1988. The Company is engaged in the development and manufacture of optoelectronic devices and value-added sub-systems and systems. The Company serves a variety of global Original Equipment Manufacturers (OEMs), in a variety of industries. The Company supports the customers from the initial concept and design phase of the product, through testing to full-scale production. The Company has two manufacturing facilities located in Camarillo, California and Ann Arbor, Michigan.

Products and Technology

Our Business

API is a leading supplier of optoelectronic semiconductors packaged into high-speed optical receivers, custom optoelectronic subsystems and Terahertz instrumentation, serving a variety of global OEM markets. Our patented high-speed optical receivers include Avalanche Photodiode technology (APD) and PIN photodiode technology based upon III-V materials, including InP, InAlAs, and GaAs. Our optoelectronic subsystems are based on our silicon Large Area Avalanche Photodiode (LAAPD), PIN (positive-intrinsic-negative) photodiode, FILTRODE® detectors and LED assemblies. Our newly emerging Terahertz sensor product line is targeted at the industrial Non-Destructive Testing (NDT), quality control, homeland security and military markets. Using our patented fiber coupled technology and high speed Terahertz generation and detection sensors, we are engaged in transferring Terahertz technology from the application development laboratory to the factory floor.

We support the customer from the initial concept and design of the semiconductor, hybridization of support electronics, packaging and signal conditioning or processing from prototype through full-scale production and validation testing. The target markets served by us are Industrial Sensing/NDT, Military/Aerospace, Telecom, Medical and Homeland Security.

Technology & Manufacturing Capabilities

Our basic technologies and manufacturing capabilities include the following:

- Optoelectronic semiconductor design and micro fabrication of III-V compound semiconductor (InP and GaAs) and Silicon (Si) devices including photodetectors and terahertz transmitters/receiver antenna,
- MBE growth of high-speed III-V compound semiconductor material including GaAs, InAlAs and InP,
- High speed semiconductor analog amplifier specification, evaluation and design for outside fabrication,
- Opto-electronic hybrid packaging of semiconductor devices combining opto-electronic devices with high-speed electronics and fiber optics,
- Vapor deposition and/or ion implantation for Silicon based PIN & APD photo-detectors,
- Terahertz (THz) systems, subsystems, transmitters and receivers, and
- Femtosecond laser pulse control and system integration.

Core Products

The core product technologies used in the majority of our products are opto-electronic semiconductor devices, including photodiodes and antennae made of Si or III-V compound semiconductor material and high speed semiconductor analog amplifiers. Photodiodes and antennae sense light of varying wavelengths and intensity and convert that light and/or Terahertz wave into electrical signals. Analog amplifiers increase the converted electrical signals output power to a level required to communicate with follow on electrical components. We manufacture photodiodes of varying complexity, from basic PIN photodiode to the more sophisticated APD and antennae that transmit and receive Terahertz signals (Transceiver). The APD is a specialized photodiode capable of detecting very low light levels due to an internal gain phenomenon known as avalanching. All photodiode and THz devices are designed by our experienced engineering staff, and fabricated in state-of-the-art clean rooms. Some of our analog amplifiers are specified and tested by our engineering staff, designed by subcontractors and fabricated by outside suppliers. Our products include the following:

- High Speed Optical Receivers (10Gb/s & 40Gb/s) which are packaged InP, InAlAs, or GaAs PIN and/or APD photodiodes with amplifiers
- Packaged PIN and APD photodiodes in Si and III-V materials (InP, InAlAs, GaAs)
- Packaged Si APD components, with and without thermo-electric coolers
- Packaged Si LAAPD components
- Packaged Si photodiodes with patented FILTRODE® technology integrating optical filters directly on photodiode chips
- Terahertz Systems & subsystems utilizing III-V materials for Terahertz transmitters &/or receivers

Terahertz Technology

The newest technology the Company is pursuing is Terahertz (THz) or the Company's T-Ray® technology. THz is a region of the electromagnetic (EM) Spectrum that is just beginning to be explored. THz lies between microwave and infrared waves on the EM spectrum. While microwaves and infrared waves have been explored and commercialized for decades, THz waves are in the early stages of being explored and commercialized due to the fact that they have historically been very difficult to generate and detect. Recent advances in femtosecond lasers and ultra-fast semiconductor and electro-optic devices combined with fiber-optic packaging technologies have enabled the development of practical T-Ray® instrumentation for the research market and as a result

application/market development of THz technology has recently accelerated. THz can be used to "look" through and beneath materials with high 2-dimensional (2-D) and 3-dimensional (3-D) spatial resolution roughly equivalent to the resolution of the human eye or better. It can also uniquely identify the chemical composition of many hidden or subsurface objects and has been determined to have non-ionizing radiation, which is not harmful to humans at the power levels commonly used today. THz imaging and spectroscopy market applications include industrial quality control through non-destructive testing (including aerospace and pharmaceutical markets); homeland security and defense screening of people, packages and bags for weapons and weapons of mass destruction; medical imaging and other scientific applications.

We have had significant Terahertz technology and product development since 1997, resulting in over 47 patents or patents pending to date. In 2001, we sold the first commercial THz product, the T-Ray® 2000 as a laboratory bench top instrument for application development with spectroscopy and imaging capabilities targeted at the research and development and off-line diagnostic markets. In 2004, we sold the first T-Ray Manufacturing Inspection System (QA1000) for on-line, real-time inspection to NASA for the space shuttle fuel tank inspection in the Return to Flight Program. In March 2008, the Company shipped its next generation THz imaging and spectroscopy system (T-Ray® 4000). The T-Ray® 4000 is significantly smaller, lighter, and more powerful than previous THz generations and incorporates significant technological advancements. The system is 55 pounds and is the size of a briefcase, which is a significant reduction from the 800 pound refrigerator size QA 1000. This system is targeted at the research and industrial NDT quality control market. The T-Ray® 4000 product will also serve as a platform for future industrial process and quality control, homeland security and defense applications.

Markets

Our products serve customers in a variety of global markets, typically North America, Asia, Europe and Australia. The target markets and applications served by us are as follows:

Military:

- Space
- Defense

Industrial/NDT:

- Manufacturing
- Instrumentation
- Display

Medical:

- Diagnostic & Monitoring
- Ophthalmic Equipment
- Medical Imaging

Telecommunications:

- Telecom Equipment
- Test and Measurement

Homeland Security:

- Baggage/Cargo Scanning
- Passenger Screening

Recent Developments

The Company began consolidating semiconductor fabrication into its Ann Arbor, Michigan facility in June 2006. Approximately $2.3 million has been spent to date for operating expenses and $1.9 million for capital expenditures for this consolidation. The Company anticipates spending less than $100,000 in additional operating expense in FY 2010 to complete the re-provisioning of the previous wafer fabrication operations in Camarillo, California to assembly and test facilities. As a result, the Company estimates, the total consolidation operating expenses will be $2.4 million upon completion of the project.

Raw Materials

The principal raw materials used by the Company in the manufacture of its semiconductor components and sensor assemblies are silicon and III-V material (InP, GaAs) wafers, chemicals, gases and metals used in processing wafers, gold wire, solders, electronic components, high speed specialized semiconductor amplifiers and a variety of packages and substrates, including metal, printed circuit board, flex circuits, ceramic and plastic packages. All of these raw materials, except high speed specialized semiconductor amplifiers, can be obtained from several suppliers. High speed specialized semiconductor amplifiers used in our HSOR components are typically sole sourced. From time to time, particularly during periods of increased industry-wide demand, silicon wafers, III-V wafers (InP, GaAs), certain metal packages and other materials have been in short supply. However, the Company has not been materially affected by such shortages. As is typical in the industry, the Company allows for a significant lead-time (2 months or greater) between order and delivery of raw materials.

Research and Development

Since its inception in June 1988, the Company has incurred material research and development (R&D) expenses, with the intent of commercializing these investments into profitable new standard and custom product offerings. During the fiscal years ended in 2009 and 2008, research and development expenses amounted to $4.7 million and $4.2 million, respectively. The Company expects that an increase in research and development funding will be required for new projects/products as well as the continuing development of new derivatives of the Company's current product line. The Company has in the past, and will continue to pursue customer funded, as well as internally funded, research and development projects when they are in support of the Company's development objectives.

As the Company begins the new 2010 fiscal year, the following research and development projects are currently underway:

- HSOR - next generation photodiodes and high-speed optical receivers for both the 40G and 100G telecommunications market,
- 40G DPSK and DQPSK long haul and metro markets
- 40G NRZ short reach market
- 100G DP-QPSK long haul and metro markets
- 100G NRZ short reach market

- Cost Reduction and performance enhancements through vertical integration of strategic 40G and 100G components
- THz
- Application development utilizing the T-Ray® 4000 product platform for industrial quality and process control targeted at the aerospace, pharmaceutical and consumer product markets,
- T-Ray® 4000 cost reduction and durability initiatives for high volume industrial QC markets
- T-Ray® 4000 product platform research and development for homeland security/military markets
- Custom optoelectronics - Si PIN and APD photodiode developments to meet unique customer requirements, such as higher speeds, lower electrical noise, and unique multi-element geometries.

Environmental Regulations

The photonics industry, as well as the semiconductor industry in general, is subject to governmental regulations for the protection of the environment, including those relating to air and water quality, solid and hazardous waste handling, and the promotion of occupational safety. Various federal, state and local laws and regulations require that the Company maintain certain environmental permits. The Company believes that it has obtained all necessary environmental permits required to conduct its manufacturing processes. Changes in the aforementioned laws and regulations or the enactment of new laws, regulations or policies could require increases in operating costs and additional capital expenditures and could possibly entail delays or interruptions of operations.

Backlog and Customers

The Company's sales are made primarily pursuant to standard purchase orders for delivery of products. A substantial portion of our revenues are derived from sales to OEMs pursuant to individual purchase orders with short lead times. However, by industry practice, orders may be canceled or modified at any time. Accordingly, we do not believe that the backlog of undelivered product under these purchase orders is a meaningful indicator of our future financial performance. When customers cancel an order, they are responsible for all finished goods, all costs, direct and indirect, incurred by the Company, as well as a reasonable allowance for anticipated profits. No assurance can be given that the Company will receive these amounts after cancellation.

Customers normally purchase the Company's products and incorporate them into products that they in turn sell in their own markets on an ongoing basis. As a result, the Company's sales are dependent upon the success of its customers' products and our future performance is dependent upon our success in finding new customers and receiving new orders from existing customers.

Marketing

The Company markets its products in the United States and Canada through its own technical sales engineers and through independent sales representatives. International sales, including Europe, the Middle East, Far East and Asia, are conducted direct and through foreign distributors and representatives. The Company's products are primarily sold as components or sub-assemblies to OEM's. The Company markets its products and capabilities through industry specific channels, including the Internet, industry trade shows, and in print through trade journals.

Competition

In its target markets, the Company competes with different companies in each of its product platforms; custom optoelectronic, high-speed optical receiver and THz systems. The Company believes that its principal competitors for sales of custom optoelectronic products are small private companies and medium size public companies. In

the high-speed optical receiver market the Company believes that its competitors are small private companies and medium to large size public companies. Because the THz product offering includes developing technology applications and markets, the Company believes the competition is mainly from small private companies and divisions of large public companies.

Because the Company specializes in devices requiring a high degree of engineering expertise to meet the requirements of specific applications, it generally does not compete with other large United States, European or Asian manufacturers of standard "off the shelf" optoelectronic components or silicon photodetectors.

Proprietary Technology

The Company utilizes proprietary design rules and processing steps in the development and fabrication of its PIN and APD photodiodes, THz transmitters and receivers, fiber-coupled THz subsystems/systems, and THz applications. The Company has a significant number of patents pending and owns the following patents and registered trademarks:

Patent #	Title	Iss Da
142,195	HIGHLY-DOPED P-TYPE CONTACT FOR HIGH-SPEED, FRONT-SIDE ILLUMINATED PHOTODIODE (US)	Apr
660,471	HIGHLY-DOPED P-TYPE CONTRACT FOR HIGH-SPEED, FRONT-SIDE ILLUMINATED PHOTODIODE (KOREA)	Apr
765,715	HIGHLY-DOPED P-TYPE CONTACT FOR HIGH-SPEED, FRONT-SIDE ILLUMINATED PHOTODIODE (AUSTRIA)	Jan
766,174	ENHANCED PHOTODETECTOR (KOREA)	Oct
809,655	METHOD AND APPARATUS TO MONITOR PHASE CHANGES IN MATTER WITH TERAHERTZ RADIATION (KOREA)	Feb
811,365	PLANAR AVALANCHE PHOTODIODE (KOREA)	Feb
817,638	FOCUSING FIBER OPTIC (KOREA)	Ma
934,665	TRADEMARK APPLICATION FOR T-RAY TRADEMARK (MADRID PROTOCOL)	Aug
1,116,280	HIGHLY-DOPED P-TYPE CONTACT FOR HIGH-SPEED, FRONT-SIDE ILLUMINATED PHOTODIODE (EP)	Oct
1,116,280	HIGHLY-DOPED P-TYPE CONTACT FOR HIGH-SPEED, FRONT-SIDE ILLUMINATED PHOTODIODE (FRANCE)	Oct
1,116,280	HIGHLY-DOPED P-TYPE CONTACT FOR HIGH-SPEED, FRONT-SIDE ILLUMINATED PHOTODIODE (GREAT BRITAIN)	Oct

1,116,280	HIGHLY-DOPED P-TYPE CONTACT FOR HIGH-SPEED, FRONT-SIDE ILLUMINATED PHOTODIODE (ITALY)	Oct
DE69937406	HIGHLY-DOPED P-TYPE CONTACT FOR HIGH-SPEED, FRONT-SIDE ILLUMINATED PHOTODIODE (GERMANY)	Oct
1,230,578	COMPACT FIBER PIGTAIL TERAHERTZ IMAGING SYSTEM (EP)	Aug
1,230,578	COMPACT FIBER PIGTAIL TERAHERTZ IMAGING SYSTEM (AUSTRIA)	Aug
1,230,578	COMPACT FIBER PIGTAIL TERAHERTZ IMAGING SYSTEM (FRANCE)	Aug
1,230,578	COMPACT FIBER PIGTAIL TERAHERTZ IMAGING SYSTEM (ITALY)	Aug
1,230,578	COMPACT FIBER PIGTAIL TERAHERTZ IMAGING SYSTEM (GREAT BRITAIN)	Aug
1,570,306	PRECISION FIBER ATTACHMENT (EP)	Aug
1,570,306	PRECISION FIBER ATTACHMENT (ITALY)	Aug
1,570,306	PRECISION FIBER ATTACHMENT (FRANCE)	Aug
1,570,306	PRECISION FIBER ATTACHMENT (GREAT BRITAIN)	Aug
AT406589	PRECISION FIBER ATTACHMENT (AUSTRIA)	Aug
DE60323261	PRECISION FIBER ATTACHMENT (GERMANY)	Aug
1,963,580	PICOMETRIX TRADEMARK	Mar
2,345,153	HIGHLY-DOPED P-TYPE CONTACT FOR HIGH-SPEED, FRONT-SIDE ILLUMINATED PHOTODIODE (CANADA)	Mar
4,180,824	COMPACT FIBER PIGTAIL TERAHERTZ IMAGING SYSTEM (JAPAN)	Sep
4,717,946	THIN LINE JUNCTION PHOTODIODE (by Predecessor Co.)	Jan
4,782,382	HIGH QUANTUM EFFICIENCY PHOTODIODE DEVICES (by Predecessor Co.)	Nov
5,021,854	SILICON AVALANCHE PHOTODIODE ARRAY	Jun

5,057,892	LIGHT RESPONSIVE AVALANCHE DIODE	Oct
5,146,296	DEVICES FOR DETECTING AND/OR IMAGING SINGLE PHOTOELECTRON	Sep
5,311,044	AVALANCHE PHOTOMULTIPLIER TUBE	May
5,477,075	SOLID STATE PHOTODETECTOR WITH LIGHT RESPONSIVE REAR FACE	Dec
5,757,057	LARGE AREA AVALANCHE ARRAY	May
5,801,430	SOLID STATE PHOTODETECTOR WITH LIGHT RESPONSIVE REAR FACE	Sep
6,005,276	SOLID STATE PHOTODETECTOR WITH LIGHT RESPONSIVE REAR FACE	Dec
6,029,988	COMPACT FIBER PIGTAILED TERAHERTZ IMAGING SYSTEM (GREAT BRITAIN)	Aug
6,111,299	ACTIVE LARGE AREA AVALANCHE PHOTODIODE ARRAY	Aug
6,262,465	HIGHLY-DOPED P-TYPE CONTACT FOR HIGH-SPEED, FRONT-SIDE ILLUMINATED PHOTODIODE	Jul-
6,320,191	A DISPERSIVE PRECOMPENSATOR FOR USE IN AN ELECTROMAGNETIC RADIATION GENERATION AND DETECTION SYSTEM	Nov
6,816,647	COMPACT FIBER PIGTAILED TERAHERTZ IMAGING SYSTEM	Nov
6,849,852	SYSTEM AND METHOD FOR MONITORING CHANGES IN STATE OF MATTER WITH TERAHERTZ RADIATION	Feb
6,936,821	AMPLIFIED PHOTOCONDUCTIVE GATE	Aug
7,039,275	FOCUSING FIBER OPTIC	May
7,078,741	HIGH-SPEED ENHANCED RESPONSIVITY PHOTO DETECTOR	Jul-
7,263,266	PRECISION FIBER ATTACHMENT	Aug
7,348,607	PLANAR AVALANCHE PHOTODIODE	Mar
7,348,608	PLANAR AVALANCHE PHOTODIODE	Mar
7,449,695	TERAHERTZ IMAGING SYSTEM FOR EXAMINING ARTICLES	Nov
7,468,503	PIN PHOTODETECTOR	Dec

There can be no assurance that any issued patents will provide the Company with significant competitive advantages, or that challenges will not be instituted against the validity or enforceability of any patent owned by the Company, or, if instituted, that such challenges will not be successful. The cost of litigation to uphold the validity and to prevent the infringement of a patent could be substantial. Furthermore, there can be no assurance that the Company's technology will not infringe on patents or rights owned by others, licenses to which might not be available to the Company. Based on limited patent searches, contacts with others knowledgeable in the field of the Company's technology, and a review of the published materials, the Company believes that its competitors hold no patents, licenses or other rights to technology which would preclude the Company from pursuing its intended operations.

In some cases, the Company may rely on trade secrets to protect its innovations. There can be no assurance that trade secrets will be established, that secrecy obligations will be honored or that others will not independently develop similar or superior technology. To the extent that consultants, key employees or other third parties apply technological information independently developed by them or by others to Company projects, disputes might arise as to the proprietary rights to such information which may not be resolved in favor of the Company.

Employees

As of June 24, 2009 the Company had 153 full time employees (including 3 officers). Included are 33 engineering and development personnel, 9 sales and marketing personnel, 94 operations personnel, and 17 general and administrative personnel (including 3 officers). The Company may, from time to time, engage personnel to perform consulting services and to perform research and development under third party funding. In certain cases, the cost of such personnel may be included in the direct cost of the contract rather than in payroll expense. None of our employees are covered by a collective bargaining agreement. We believe our relations with our employees are good.

Item 1A. Risk Factors

Investing in our Class A Common Stock involves a high degree of risk and uncertainty. You should carefully consider the risks and uncertainties described below before investing in our Class A Common Stock. Our business, prospects, financial condition and results of operations could be adversely affected due to any of the

following risks. In that case, the value of our Class A Common Stock could decline, and you could lose all or part of your investment.

Risks Relating to Our Business

The overall negative economic climate could adversely affect the liquidity and financial condition of our customers and our business.

We believe that many factors affect our industry, including consumer confidence in the economy, interest rates, fuel prices and credit availability. The overall economic climate and changes in Gross National Product growth has a direct impact on our customers and the demand for our products. We cannot be sure that our business will not be adversely affected as a result of an industry or the current general economic downturn.

Our customers may reduce capital expenditures and have difficulty satisfying liquidity needs because of the continued turbulence in the U.S. and global economies, resulting in reduced sales of our products and harming our financial condition and results of operations.

Recent global market and economic conditions have been unprecedented and challenging with tighter credit conditions and recession in most major economies. Continued concerns about the systemic impact of potential long-term and wide-spread recession, energy costs, geopolitical issues, the availability and cost of credit, and the global housing and mortgage markets have contributed to diminished expectations for western and emerging economies. These conditions, combined with volatile oil prices, declining business and consumer confidence and increased unemployment, have contributed to market volatility of unprecedented levels.

As a result of these market conditions, the cost and availability of credit has been and may continue to be adversely affected by illiquid credit markets and wider credit spreads. Concern about the stability of the markets generally and the strength of counterparties specifically has led many lenders and institutional investors to reduce, and in some cases, cease to provide credit to businesses and consumers. This turbulence in the U.S. and international markets and economies has caused certain of our network subsystem and system customers, as well as their network service provider customers, to delay, reduce or cancel capital expenditures. Continued turbulence in the U.S. and international markets and economies and prolonged declines in business consumer spending may adversely affect our liquidity and financial condition, and the liquidity and financial condition of our customers, including our ability to refinance maturing liabilities and access the capital markets to meet liquidity needs.

We are dependent upon several suppliers for a significant portion of raw materials used in the manufacturing of our products and any significant interruption could have a material adverse affect on our manufacturing.

The principal raw materials we use in the manufacture of our semiconductor components and sensor assemblies are silicon and III-IV wafers, chemicals and gases used in processing wafers, gold wire, lead frames, specialized semiconductor amplifiers, and a variety of packages and substrates, including metal, printed circuit board, flex circuits, ceramic and plastic packages. All of these raw materials can be obtained from several suppliers. High speed specialized semiconductor amplifiers used in our HSOR components are typically sole sourced. From time to time, particularly during periods of increased industry-wide demand, silicon wafers, specialized semiconductor amplifiers and other materials have been in short supply. Any significant interruption in the supply of these raw materials could have a material adverse affect on the Company.

Customer acceptance of our products is dependent on our ability to meet changing requirements, and any decrease in acceptance could adversely affect our revenue.

Customer acceptance of our products is significantly dependent on our ability to offer products that meet the changing requirements of our customers, including telecommunication, military, medical and industrial corporations, as well as government agencies. Any decrease in the level of customer acceptance of our products could have a material adverse affect on the Company.

Our inability to find new customers and retain existing customers could have a material adverse affect on our business.

Customers normally purchase our products and incorporate them into products that they in turn sell in their own markets on an ongoing basis. As a result, our sales are dependent upon the success of our customers' products and our future performance is dependent upon our success in finding new customers and receiving new orders from existing customers.

In several of our markets, quality and/or reliability of our products are a major concern for our customers, not only upon the initial manufacture of the product, but for the life of the product. Many of our products are used in remote locations for higher value assembly, making servicing of our products not feasible. Any failure of the quality and/or reliability of our products could have an adverse affect on our business.

If our customers do not qualify our products or if their customers do not qualify their products, our results of operations may suffer.

Most of our customers do not purchase our products prior to qualification of our products and satisfactory completion of factory audits and vendor evaluation. Our existing products, as well as each new product, must pass through varying levels of qualification with our customers. In addition, because of the rapid technological changes in our market, a customer may cancel or modify a design project before we begin large-scale manufacture of the product and receive revenues from the customer. It is unlikely that we would be able to recover the expenses for cancelled or unutilized custom design projects. It is difficult to predict with any certainty whether our customers will delay or terminate product qualification or the frequency with which customers will cancel or modify their projects, but any such delay, cancellation or modification could have a negative effect on our results of operations.

If the end user customers that purchase systems from our customers fail to qualify or delay qualifications of any products sold by our customers that contain our products, our business could be harmed. The qualification and field testing of our customers systems by end user customers is long and unpredictable. This process is not under the control of our company or our customers, and, as a result, timing of our sales is unpredictable. Any unanticipated delay in qualification of one of our customers products could result in the delay or cancellation of orders from our customers for products included in their equipment, which could harm our results of operations.

Our sales to overseas markets expose us to additional, unpredictable risks which could have a material adverse affect on our business.

A growing amount of our sales are being derived from overseas markets. These international sales are primarily focused in Asia, Europe and the Middle East. These operations are subject to unpredictable risks that are inherent in operating in foreign countries and which could have a material adverse affect on our business, including the following:

- foreign countries could change regulations or impose currency restrictions and other restraints;
- changes in foreign currency exchange rates and hyperinflation or deflation in the foreign countries in which we operate;
- exchange controls;
- some countries impose burdensome tariffs and quotas;
- political changes and economic crises may lead to changes in the business environment in which we operate;
- international conflict, including terrorist acts, could significantly impact our financial condition and results of operations; and
- economic downturns, political instability and war or civil disturbances may disrupt distribution logistics or limit sales in individual markets.

In addition, the Company utilizes third-party distributors to act as our representative for the geographic region that they have been assigned. Sales through distributors represent approximately 5% of total revenue. Significant terms and conditions of distributor agreements include FOB source, net 30 days payment terms, with no return or exchange rights, and no price protection. Since the product transfers title to the distributor at the time of shipment by the Company, the products are not considered inventory on consignment. Our success is dependent on these distributors finding new customers and receiving new orders from existing customers.

Customer orders and forecasts are subject to cancellation or modification at any time which could result in higher manufacturing costs.

Our sales are made primarily pursuant to standard purchase orders for delivery of products. However, by industry practice, orders may be canceled or modified at any time. When a customer cancels an order, they are responsible for all finished goods, all costs, direct and indirect, incurred by us, as well as a reasonable allowance for anticipated profits. No assurance can be given that we will receive these amounts after cancellation.

Uncertainty in customer forecasts of their demands and other factors may lead to delays and disruptions in manufacturing, which could result in delays in product shipments to customers and could adversely affect our business.

Fluctuations and changes in our customers demand are common in our industry. Such fluctuations, as well as quality control problems experienced in our manufacturing operations may cause us to experience delays and disruptions in our manufacturing process and overall operations and reduce our output capacity. As a result, product shipments could be delayed beyond the shipment schedules requested by our customers or could be cancelled, which would negatively affect our sales, operating income, strategic position at customers, market share and reputation. In addition, disruptions, delays or cancellations could cause inefficient production which in turn could result in higher manufacturing costs, lower yields and potential excess and obsolete inventory or manufacturing equipment. In the past, we have experienced such delays, disruptions and cancellations.

The markets for many of our products are characterized by changing technology which could cause obsolescence of our products.

The markets for many of our products are characterized by changing technology, new product introductions and product enhancements, and evolving industry standards. The introduction or enhancement of products embodying new technology or the emergence of new industry standards could render existing products obsolete or result in short product life cycles. Accordingly, our ability to compete is in part dependent on our ability to continually offer enhanced and improved products.

We depend on key in-house manufacturing capabilities and a loss of these capabilities could have an adverse affect on our existing operations and new business growth.

We depend on key in-house manufacturing equipment and assembly processes. We believe that these key manufacturing and assembly processes give us the flexibility and responsiveness to meet our customer delivery schedule and performance specification with a custom product. This value proposition is an important component of our offering to our customers. A loss of these capabilities could have an adverse affect on our existing operations and new business growth.

Changes in the spending priorities of the federal government can materially adversely affect our business.

In FY 2009, approximately 31% of our sales were related to products and services purchased by military contractors. Our business depends upon continued federal government expenditures on defense, intelligence, aerospace and other programs that we support. In FY 2009, our sales to military contractors increased 109%. In addition, foreign military sales are affected by U.S. government regulations, regulations by the purchasing foreign government and political uncertainties in the U.S. and abroad. There can be no assurance that the U.S. defense and military budget will continue to grow or that sales of defense related items to foreign governments will continue at present levels. In addition, the terms of defense contracts with the U.S. government generally permit the government to terminate such contracts, with or without cause, at any time. Any unexpected termination of a significant U.S. government contract with a military contractor that we sell our products to could

have a material adverse affect on the Company.

Our industry is highly competitive and fragmented, which can result in future competitors against which we cannot compete.

We compete with a range of companies for the custom optoelectronic requirements of customers in our target markets. We believe that our principal competitors for sales of our products are small to medium size companies. Because we specialize in custom high performance devices requiring a high degree of engineering expertise to meet the requirements of specific applications, we generally do not compete to any significant degree with other large United States, European or Pacific Rim high volume manufacturers of standard "off the shelf" optoelectronic components. We cannot assure you that we will be able to compete successfully in our markets against these or any future competitors.

Decreases in average selling prices of our products may reduce operating profit and net income, particularly if we are not able to reduce our expenses commensurately.

The market for optical components and subsystems continues to be characterized by declining average selling prices resulting from factors such as increased price competition among optical component and subsystem manufacturers, excess capacity, the introduction of new products and increased unit volumes as manufacturers continue to deploy network and storage systems. Recently, we have observed a modest acceleration in the decline of average selling prices. We anticipate that average selling prices will continue to decrease in the future in response to product introductions by our competitors or us, or in response to other factors, including price pressures from significant customers. In order to sustain profitable operations, we must, therefore, continue to develop and introduce new products on a timely basis that incorporate features that can be sold at higher average selling prices. Failure to do so could cause our sales and operating profit to decline.

In the current environment of declining average selling prices, and especially when such declines appear to be accelerating, we must continually seek ways to reduce our costs to maintain our operating profit and net income. Our cost reduction efforts may not allow us to keep pace with competitive pricing pressures. To remain competitive, we must continually reduce the cost of manufacturing our products through design and engineering changes. We may not be successful in redesigning our products or delivering our products to market in a timely manner. We cannot assure you that any redesign will result in sufficient cost reductions enabling us to reduce the price of our products to remain competitive or maintain our operating profit and net income.

Shifts in our product mix may result in declines in operating income and net income.

Our gross profit margins vary among our product platforms, and are generally higher on our HSOR and Terahertz products. Our overall operating income has fluctuated from period to period as a result of shifts in product mix, the introduction of new products, decreases in average selling prices for older products and our ability to reduce product costs, and these fluctuations are expected to continue in the future.

Environmental regulations could increase operating costs and additional capital expenditures and delay or interrupt operations.

The photonics industry, as well as the semiconductor industry in general, is subject to governmental regulations for the protection of the environment, including those relating to air and water quality, solid and hazardous waste handling, and the promotion of occupational safety. Various federal, state and local laws and regulations require that we maintain certain environmental permits. We believe that we have obtained all necessary environmental permits required to conduct our manufacturing processes. Changes in the aforementioned laws and regulations or the enactment of new laws, regulations or policies could require increases in operating costs and additional capital expenditures and could possibly entail delays or interruptions of operations.

If we are unable to protect our intellectual property rights adequately, the value of our products could be diminished.

Our success and ability to compete is dependent in part on our proprietary technology. We rely on a combination of patent, copyright, trademark and trade secret laws, as well as confidentiality agreements and internal

procedures, to establish and protect our proprietary rights. We utilize proprietary design rules and processing steps in the development and fabrication of our PIN photodiodes, APD photodiodes and our THz systems and sensors. In addition, our products rely upon over 105 patents or patents pending. There can be no assurance that any issued patents will provide us with significant competitive advantages, or that challenges will not be instituted against the validity or enforceability of any patent utilized by us, or, if instituted, that such challenges will not be successful. The cost of litigation to uphold the validity and to prevent the infringement of a patent could be substantial and could have a material adverse affect on our operating results. Furthermore, there can be no assurance that our PIN photodiodes, APD photodiodes and THz technology will not infringe on patents or rights owned by others, licenses to which might not be available to us. Based on limited patent searches, contacts with others knowledgeable in the field of PIN photodiodes, APD photodiodes and our THz technology, and a review of the published materials, we believe that our competitors hold no patents, licenses or other rights to the PIN photodiodes, APD photodiodes and our THz technology which would preclude us from pursuing our intended operations.

In some cases, we may rely on trade secrets to protect our innovations. There can be no assurance that trade secrets will be established, that secrecy obligations will be honored or that others will not independently develop similar or superior technology. To the extent that consultants, key employees or other third parties apply technological information independently developed by them or by others to our projects, disputes might arise as to the proprietary rights to such information which may not be resolved in our favor.

Our failure to protect our intellectual property may significantly harm our business.

Our success and ability to compete is dependent in part on our proprietary technology. We rely on a combination of patent, copyright, trademark and trade secret laws, as well as confidentiality agreements and internal procedures, to establish and protect our proprietary rights. Although a number of patents have been issued to us and we have obtained a number of other patents as a result of our acquisitions, we cannot assure you that our issued patents will be upheld if challenged by another party. Additionally, with respect to any patent applications that we have filed, we cannot assure you that any patents will issue as a result of these applications. If we fail to protect our intellectual property, we may not receive any return on the resources expended to create the intellectual property or generate any competitive advantage based on it.

Pursuing infringers of our intellectual property rights can be costly.

Pursuing infringers of our proprietary rights could result in significant litigation costs, and any failure to pursue infringers could result in our competitors utilizing our technology and offering similar products, potentially resulting in loss of a competitive advantage and decreased sales. Despite our efforts to protect our proprietary rights, existing patent, copyright, trademark and trade secret laws afford only limited protection. In addition, the laws of some foreign countries do not protect our proprietary rights to the same extent as do the laws of the United States. Protecting our intellectual property is difficult especially after our employees or our third-party contractors end their employment or engagement. We may have employees leave us and go to work for competitors. Attempts may be made to copy or reverse-engineer aspects of our products or to obtain and use information that we regard as proprietary. Accordingly, we may not be able to prevent misappropriation of our technology or prevent others from developing similar technology. Furthermore, policing the unauthorized use of our products is difficult and expensive. Litigation may be necessary in the future to enforce our intellectual property rights or to determine the validity and scope of the proprietary rights of others. The resulting costs and diversion of resources could significantly harm our business. If we fail to protect our intellectual property, we may not receive any return on the resources expended to create the intellectual property or generate any competitive advantage based on it.

Third parties may claim we are infringing their intellectual property rights and we could be prevented from selling our products, or suffer significant litigation expense, even if these claims have no merit.

Our competitive position is driven in part by our intellectual property and other proprietary rights. Third parties, however, may claim that we, or our products, operations or any products or technology we obtain from other parties are infringing their intellectual property rights, and we may be unaware of intellectual property rights of others that may cover some of our assets, technology and products.

In addition, from time to time we receive letters from third parties that allege we are infringing their intellectual property and asking us to license such intellectual property, and we review the merits of each letter. Any litigation regarding patents, trademarks, copyrights or other intellectual property rights, even those without merit, could be costly and time consuming, and divert our management and key personnel from operating our business. The complexity of the technology involved and inherent uncertainty and cost of intellectual property litigation increases our risks. If any third-party has a meritorious or successful claim that we are infringing its intellectual property rights, we may be forced to change our products or manufacturing processes or enter into licensing arrangement with third parties, which may be costly or impractical, particularly in the event we are subject to a contractual commitment to continue supplying impacted products to our customers. This also may require us to stop selling our products as currently engineered, which could harm our competitive position. We also may be subject to significant damages or injunctions that prevent the further development and sale of certain of our products or services and may result in a material decrease in sales.

We face strong competition for skilled workers which could result in our inability to attract and retain necessary personnel.

Our success depends in large part on its ability to attract and retain highly qualified scientific, technical, management, and marketing personnel. Competition for such personnel is intense and there can be no assurance that we will be able to attract and retain the personnel necessary for the development and operation of our business.

We may not be able to successfully integrate future acquisitions, which could result in our not achieving the expected benefits of the acquisition, the disruption of our business and an increase in our costs.

Over the past four years, we have acquired one business and we continually explore opportunities to acquire related businesses, some of which could be material to us. Our ability to continue to grow may depend upon identifying and successfully acquiring attractive companies, effectively integrating these companies, achieving cost efficiencies and managing these businesses as part of our company.

We may not be able to effectively integrate the acquired companies and successfully implement appropriate operational, financial and management systems and controls to achieve the benefits expected to result from these acquisitions. Our efforts to integrate these businesses could be affected by a number of factors beyond our control, such as regulatory developments, general economic conditions and increased competition. In addition, the process of integrating these businesses could cause the interruption of, or loss of momentum in, the activities of our existing business. The diversion of management□s attention and any delays or difficulties encountered in connection with the integration of these businesses could negatively impact our business and results of operations. Further, the benefits that we anticipate from these acquisitions may not develop.

Risks Relating to Our Class A Common Stock

Our share price has been volatile in the past and may decline in the future.

Our Class A Common Stock has experienced significant market price and volume fluctuations in the past and may experience significant market price and volume fluctuations in the future in response to factors such as the following, some of which are beyond our control:

- quarterly variations in our operating results;
- operating results that vary from the expectations of securities analysts and investors;
- changes in expectations as to our future financial performance, including financial estimates by securities analysts and investors;
- announcements of technological innovations or new products by us or our competitors;

- announcements by us or our competitors of significant contracts, acquisitions, strategic partnerships, joint ventures or capital commitments;
- changes in the status of our intellectual property rights;
- announcements by third parties of significant claims or proceedings against us;
- additions or departures of key personnel;
- future sales of our ordinary shares;
- stock market price and volume fluctuations; and
- general economic conditions.

Stock markets often experience extreme price and volume fluctuations. Market fluctuations, as well as general political and economic conditions, such as a recession or interest rate or currency rate fluctuations or political events or hostilities in or surrounding the United States, could adversely affect the market price of our Class A Common Stock.

In the past, securities class action litigation has often been brought against companies following periods of volatility in the market price of its securities. We may in the future be the target of similar litigation. Securities litigation could result in substantial costs and divert management's attention and resources both of which could have a material adverse affect on our business and results of operations.

Future sales of our Class A Common Stock in the public market could lower our stock price, and conversion of our warrants and any additional capital raised by us may dilute your ownership in the Company.

We may sell additional shares of Class A Common Stock in the future. In addition, holders of warrants or stock options may exercise their warrants or stock options to purchase shares of our Class A Common Stock. We cannot predict the size of future issuances of our Class A Common Stock or the effect, if any, that future issuances and sales of shares of our Class A Common Stock will have on the market price of our Class A Common Stock. Sales of substantial amounts of our Class A Common Stock, including shares issued in connection with the exercise of the warrants or stock options, or the perception that such sales could occur, may adversely affect prevailing market prices for our Class A Common Stock.

Shares eligible for public sale in the future could decrease the price of our Class A Common Stock and reduce our future ability to raise capital.

Sales of substantial amounts of our Class A Common Stock in the public market could decrease the prevailing market price of our Class A Common Stock, which would have an adverse affect on our ability to raise equity capital in the future.

We do not intend to pay dividends.

We have never declared or paid any cash dividends on our Class A Common Stock. We currently intend to retain future earnings, if any, to finance operations and expand our business and, therefore, do not expect to pay any dividends in the foreseeable future.

Item 2. Properties

The Company leases all of its executive offices, research, marketing and manufacturing facilities under non-cancellable operating leases. At March 31, 2009, those leases consisted of approximately 90,100 square feet in two facilities. The lease for our facility located in Camarillo, California was amended in December 2008 and is now leased through February 2014. Our facility located in Ann Arbor, Michigan is comprised of the corporate office and the Picometrix LLC manufacturing plant and is leased through June 2011, with two five year options to renew at the current lease rate with a CPI adjuster. In addition, the Company has the right of first refusal to

purchase the facility. The Company believes that its existing facilities are adequate to meet its needs for the foreseeable future.

Item 3. Legal Proceedings

None

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

No matters were submitted to a vote of our stockholders during the fourth quarter ended March 31, 2009.

PART II

Item 5. Market for Registrant's Common Equity, Related Shareholder Matters and Issuer Purchases of Equity Securities

The Company's Class A Common Stock is traded on the NYSE Amex (AMEX) under the symbol "API".

Stock Performance Graph

The graph below provides an indicator of our cumulative total stockholder return as compared with the AMEX Composite Index and the AMEX Technology Index. The graph assumes an initial investment of $100. The graph covers a period of time beginning in March 28, 2004, through March 31, 2009, which represents the last trading day of the year.

At June 24, 2009, the Company had 120 holders of record for the Class A Common Stock (including shares held in street name), representing approximately 5,000 beneficial owners of the Class A Common Stock.

Quarterly Stock Market Data

The following table sets forth the high and low closing prices of the Company's Class A Common Stock by quarter for fiscal years 2009 and 2008.

	Common Stock Price							
	1st Quarter		2nd Quarter		3rd Quarter		4th Quarter	
	2009	2008	2009	2008	2009	2008	2009	2008
Common Stock[1]								
High	$ 1.90	$ 1.99	$ 2.00	$ 2.20	$ 2.00	$ 2.84	$ 1.08	$ 1.87
Low	$ 1.01	$ 1.55	$ 1.36	$ 1.43	$ .67	$ 1.70	$ .62	$ 1.30

[1] Price ranges on the AMEX.

The Company has never paid any cash dividends on its capital stock. The Company intends to retain earnings, if any, for use in its business and does not anticipate that any funds will be available for the payment of cash dividends on its outstanding shares in the foreseeable future. The holders of Common Stock will not be entitled to receive dividends in any year until the holders of the Class A Redeemable Convertible Preferred Stock receive an annual non-cumulative dividend preference of $.072 per share. To date, a total of 740,000 shares of Class A Redeemable Convertible Preferred Stock have been converted into 222,000 shares of Class A Common Stock, leaving outstanding 40,000 shares of Class A Redeemable Convertible Preferred Stock. The aggregate non-cumulative annual dividend preference of such Class A Redeemable Convertible Preferred Stock is $2,880.

There is no public market for the Company's Class A Redeemable Convertible Preferred Stock or Class B Common Stock; however, such stock is convertible into Class A Common Stock at the option of the holder and upon transfer by the holder of the Class A Redeemable Convertible Preferred Stock.

Item 6. Selected Financial Data

Advanced Photonix, Inc. is a smaller reporting company as defined by Rule 12b-2 of the Exchange Act and is not required to provide the information required under this item.

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

Forward-Looking Statements

Certain statements contained in this Management□s Discussion and Analysis (MD&A), including, without limitation, statements containing the words □may,□ □will,□ □can,□ □anticipate,□ □believe,□ □plan,□ □estimate,□ □continue,□ and similar expressions constitute □forward-looking statements.□ These forward-looking statements reflect our current views with respect to future events and are based on assumptions and sub