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 UNITED STATES  
 SECURITIES AND EXCHANGE COMMISSION  
 WASHINGTON, D.C. 20549  
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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, 1999

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: 0-24085

AMERICAN XTAL TECHNOLOGY, INC.

(EXACT NAME OF REGISTRANT AS SPECIFIED IN ITS CHARTER)

DELAWARE 94-3031310  
 (STATE OR OTHER JURISDICTION OF (I.R.S. EMPLOYER IDENTIFICATION NO.)  
 INCORPORATION OR ORGANIZATION)

4281 TECHNOLOGY DRIVE, FREMONT, CALIFORNIA 94538  
 (ADDRESS OF PRINCIPAL EXECUTIVE OFFICES) (ZIP CODE)

REGISTRANT'S TELEPHONE NUMBER, INCLUDING AREA CODE: (510) 683-5900

SECURITIES REGISTERED PURSUANT TO SECTION 12(b) OF THE ACT: NONE

SECURITIES REGISTERED PURSUANT TO SECTION 12(g) OF THE ACT: COMMON STOCK, \$.001  
 PAR VALUE

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

The aggregate market value of the voting stock held by non-affiliates of the registrant, based upon the closing sale price of the common stock on December 31, 1999 as reported on the Nasdaq National Market, was approximately \$248,780,000. Shares of common stock held by each officer, director and by each person who owns 5% or more of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not a conclusive determination for other purposes.

As of December 31, 1999, 18,658,919 shares, \$.001 par value, of the registrant's common stock were outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the definitive proxy statement for the registrant's 2000 annual

meeting of stockholders to be filed with the Commission pursuant to Regulation 14A not later than 120 days after the end of the fiscal year covered by this form are incorporated by reference into Part III of this Form 10-K report.

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2

## PART I

This report includes forward-looking statements which reflect our current views with respect to future events and our potential financial performance. These forward-looking statements are subject to certain risks and uncertainties, including those discussed in "Business", "Management's Discussion and Analysis of Financial Condition and Results of Operations", and elsewhere in this report, that could cause actual results to differ materially from historical results or those anticipated. In this report, the words "anticipates," "believes," "expects," "intends," "future" and similar expressions identify forward-looking statements. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date of this report.

### ITEM 1. BUSINESS

American Xtal Technology, Inc., or AXT designs, develops, manufactures and distributes high-performance compound semiconductor substrates, laser-diodes, light-emitting diodes, or LEDs and consumer and commercial products utilizing laser-diodes and LEDs.

AXT expanded its markets in 1999 through the acquisition of Lyte Optronics, Inc. (See note 2 to the consolidated financial statements). The Lyte Optronics business now operates as two separate divisions of AXT: the visible emitter division, focusing on the manufacture of LEDs and laser-diodes, and the consumer products division, focusing on the design and marketing of laser-pointing, laser-alignment and LED products. The Substrate division comprises the third operating unit of AXT.

### BACKGROUND

#### Substrate Division:

At our substrate division, we use a proprietary vertical gradient freeze technique, commonly referred to as "VGF," to produce high-performance compound semiconductor substrates which are used in a variety of electronic and opto-electronic applications such as wireless and fiber optic telecommunications, lasers, LEDs, satellite solar cells and consumer electronics. We primarily manufacture and sell gallium arsenide, called GaAs, substrates. Sales of GaAs substrates accounted for approximately 80.1% of division revenues and 56.3% of company revenues in 1999. We also manufacture and sell indium phosphide, or InP, and germanium, or Ge, substrates and are currently developing other high-performance compound substrates including gallium nitride, or GaN.

Recent advances in communications and information technologies have created a growing need for power efficient, high-performance electronic systems that operate at very high frequencies, have increased computational and display capabilities, and can be produced cost-effectively in commercial volumes. In the past, electronic systems manufacturers have relied on advances in silicon semiconductor technology to meet many of these demands. Silicon-based semiconductor devices, however, have performance limitations in power efficient, high-performance electronic applications. In addition, silicon-based semiconductor devices currently do not possess the electrical properties necessary to be used effectively in most opto-electronic applications such as LEDs and lasers.

As a result of the limitations of silicon, semiconductor device manufacturers are increasingly utilizing alternative substrates to improve the performance of semiconductor devices or to enable new applications. These alternative substrates may be composed of a single element, such as Ge, or

multiple elements, which may include:

- gallium,
- aluminum,
- indium,
- arsenic,
- phosphorus, and
- nitrogen.

1

3

Substrates that consist of more than one element are commonly referred to as "compound substrates" and include GaAs, InP, gallium phosphide (GaP) and GaN. GaAs is currently the most widely used compound substrate. In comparison to silicon, compound substrates have electrical properties that allow semiconductor devices to operate at much higher speeds or at the same speed with lower power consumption. For example, electrons move up to five times faster in GaAs than in silicon. Compound substrates also have better opto-electronic characteristics than silicon which allow them to convert energy into light and lasers, or to detect light and convert light into electrical energy. The GaAs substrate market is divided into two segments, semi-insulating and semi-conducting.

Semi-insulating GaAs substrates. The market for semi-insulating GaAs substrates is the fastest growing segment of the GaAs market. According to projections by Dataquest, IDC and Strategies Unlimited, the market for semi-insulating GaAs substrates was estimated at \$125 million in 1998 and is expected to grow to approximately \$400 million by the year 2002. This growth is being driven by increasing demand for semi-insulating GaAs substrates in a variety of power-efficient, high-performance applications, including cellular phones, radars, satellite communication systems and direct broadcast systems.

Manufacturers integrate semi-insulating GaAs substrates into devices using either an ion implantation or epitaxial process. Ion implantation is the process of implanting ions directly into the semi-insulating GaAs substrate to modify the electrical parameters of the substrate so that it can be used to manufacture many of today's high-performance electronic devices. This process requires the electrical parameters of the substrate to be as uniform as possible. Epitaxy, a more recently developed process, involves the growth of layers of other materials onto the semi-insulating GaAs substrate. While generally more expensive than the ion implantation process, the epitaxial process enables devices to achieve even greater performance advantages. The epitaxial process requires that the GaAs substrate have an extremely smooth surface, few physical imperfections, uniform electrical properties and low dislocation density, which is a measurement of the crystalline perfection of the substrate material.

Traditionally, crystals for semi-insulating GaAs substrates for the ion implantation and epitaxy markets have been grown using the liquid-encapsulated czochralski, or LEC technique. The LEC technique requires a high temperature gradient in the manufacturing process. Because the temperature gradient in the LEC technique is high, the resulting crystals have a relatively high dislocation density, which weakens a crystal's physical structure and increases the risk of breakage of the GaAs substrate during device manufacturing. In addition, as semi-insulating GaAs substrates continue to grow in size to support increasingly complex devices, the manufacturing challenges facing the LEC technique increase.

Semi-conducting GaAs substrates. We believe that the market for semi-conducting GaAs substrates, based on 1999 market data and annual growth rates projected by Dataquest, IDC and Strategies Unlimited, was approximately \$90 million in 1998 and we expect that the market will continue to grow. The market for semi-conducting GaAs substrates is being driven by increasing demand for a number of opto-electronic applications such as LEDs and lasers, which are

incorporated into a variety of products including:

- traffic lights,
- digital versatile discs, more commonly known as DVD players,
- CD players,
- CD-ROMs,
- laser printers,
- automobile lights and
- electronic displays.

In contrast to semi-insulating GaAs substrates which undergo either an ion implantation or epitaxial process, semi-conducting GaAs substrates only undergo an epitaxial process. As with semi-insulating GaAs substrates, semi-conducting GaAs substrates that undergo the epitaxial process must have a smooth surface, few physical imperfections, uniform electrical properties and a low dislocation density. The traditional method of growing crystals for producing semi-conducting GaAs substrates is the Horizontal Bridgeman, or HB,

2

4

technique. With the HB technique, the crystal is grown in a semi-cylindrical container, which results in a semi-circular, or D-shaped, substrate. In order to produce a round semi-conducting GaAs substrate, the HB technique requires that the D-shaped substrate be cut into a circle, resulting in a large amount of discarded substrate. In addition, crystals grown using the HB technique generally have a relatively high dislocation density and less uniform electrical properties. These and other inherent technical difficulties limit the ability of the HB technique to be used to cost-effectively produce high-quality substrates greater than three inches in diameter.

Other high-performance substrates. We believe that opportunities also exist in the markets for other high-performance substrates. For example, we believe that the markets for InP and GaP substrates, based on 1998 market data and annual growth rates projected by Dataquest, IDC and Strategies Unlimited, were an aggregate of approximately \$150 million in 1998 and we expect that these markets will continue to grow. Semi-insulating InP substrates are used in power-efficient, high-performance electronic applications such as wireless and high-bandwidth communications and semi-conducting InP substrates are used in such applications as fiber optic communications and lasers. GaP substrates are used by manufacturers of LEDs. The traditional method for growing crystals for InP and GaP substrates has been the LEC, technique. In addition to compound substrates, the market for the element Ge is developing in response to the growing demand for solar cells in satellite communications. We believe that the market for Ge substrates used to manufacture solar cells was approximately \$60 million in 1998 and we expect that the market will continue to grow in relation to the demand for satellites. This application requires the use of Ge substrates which must be manufactured with few defects and minimal breakage. We believe the further development of these markets depends on the ability of suppliers to cost-effectively manufacture power-efficient, high-performance compound and single-element substrates

The AXT Solution. We use a proprietary VGF technique to produce high-performance GaAs and other substrates for use in a variety of electronic and opto-electronic applications. We believe that our VGF technique, which we have developed over the past 13 years, provides certain significant advantages over traditional manufacturing methods for growing crystals used in the production of semi-insulating and semi-conducting GaAs substrates. We believe that we are currently the only high-volume supplier of GaAs substrates manufactured by using the VGF technique and are positioned to become a leading manufacturer and supplier of other compound and Ge substrates.

In the GaAs substrate market, crystals grown using our proprietary VGF technique have a dislocation density that is significantly lower than crystals grown using either the LEC or HB technique. As a result, we believe our GaAs substrates have greater mechanical strength, which often results in reduced breakage during the ion implantation and epitaxial growth processes. Furthermore, we believe the low dislocation density of our semi-insulating and semi-conducting GaAs substrates translates into fewer defects in the materials layered onto the substrate during the epitaxy process. In addition, semi-insulating GaAs substrates produced using our VGF technique have more uniform electrical properties than LEC-produced GaAs substrates, which is important for the ion implantation process. In the semi-conducting GaAs substrate market, VGF-grown crystals, unlike those grown using the traditional HB technique, can be processed into round substrates with minimal wasted material. Using our VGF technique, we have been able to produce GaAs substrates as large as six inches in diameter.

In addition to the GaAs substrate market, we believe we can leverage our expertise in the VGF technique to manufacture and produce commercial volumes of other compound and single-element substrates. In 1999, we shipped over \$9 million of Ge and InP substrates to customers and qualified our wafers with many more potential customers.

#### Visible Emitter Division:

The Visible Emitter division designs, develops, manufactures and sells visible semiconductor laser-diode chips and high brightness visible light-emitting diodes, or HBLEDs. Our laser-diode chips are currently sold primarily into the laser pointer market. Sales of laser-diodes accounted for approximately 85.8% of division revenues and 19.6% of company revenues in 1999. Our laser-diodes and red, amber and yellow HBLEDs are

3

5

built on our proprietary aluminum indium gallium phosphide, or AlInGaP material technology. The red, amber and yellow HBLEDs are sold as wafers that are processed into LED chips and lamps by our customers. Sales of HBLEDs accounted for approximately 5.1% of division revenues and 1.2% of company revenues in 1999.

The advancement of the material and device technology for the LEDs made in the last decade has resulted in increased device efficiency. LEDs with efficiencies higher than incandescent light bulbs are commonly available. The HBLED is a class of LED that is visible under normal sunlight. In the past, HBLEDs were cost prohibitive in applications requiring large quantities. However, improvements in technology have reduced the cost sufficiently to enable the HBLEDs to be used in applications such as full color video display signs, back lighting for LCD displays in cell phones and automobile instrument panels and white LED illumination. Management estimates that the current HBLED market is approximately \$600 million.

In the fourth quarter of 1999, we began shipping a blue LED product in pilot quantities. This new 470 nm aluminum indium gallium nitride, or AlInGaN-based high brightness blue LED has approximately 1.5 milliwatt power output at 20 milliamps. The new blue LED builds upon the company's current offering of AlInGaP products. The blue LED product will be sold as chips to be packaged by our customers for use in full color displays, back lighting for cellular phones and automobile panels and general illumination lighting. We expect that the blue LED chips will account for an increasing portion of division and company revenues in future periods.

#### Consumer Products Division:

The consumer products division designs, develops, manufactures and sells visible laser and LED products for consumer, commercial and industrial applications. Our products utilize laser-diodes made from our GaAs substrates

and the LEDs fabricated in other AXT divisions to make premium consumer products, alignment and targeting systems and industrial modules. Approximately 50% of sales are generated from laser pointers, 40% from laser targeting systems and 10% from industrial products.

We sell laser pointers into the business presentation and office products markets. We utilize 635nm laser-diodes in many of our product lines, which contain the highest beams allowable under FDA guidelines. These pointer markets are becoming mature in terms of the volume of shipments and have experienced significant decreases in average selling prices during the past three years.

We also sell laser alignment systems for industrial markets such as the garment industry. Since laser light is directed in a straight line, companies use lasers to increase accuracy in their manufacturing operations. We supply these companies with customized laser modules for their unique applications. In addition, we sell laser-targeting sights for the weapons industry.

## STRATEGY

### Substrate Division:

Our strategy is to be the leading developer and supplier of high-performance GaAs substrates for both the semi-insulating and semi-conducting markets, and to continue to expand into the development and supply of other substrates. The key elements of our strategy include:

Advance VGF technology leadership. We pioneered the commercial use of the VGF technique and have continued to develop and enhance our technology through substantial investments in research and development. Our efforts have led to significant improvements in the dislocation density, mechanical strength and uniformity of the electrical properties of GaAs substrates. We believe that our experience and expertise in VGF technology provides us with a competitive advantage over more recent market entrants who are utilizing variations of the VGF technology. We intend to continue to advance our VGF technology through continued investment in research and development and participation in certain government sponsored research programs.

4

6

Extend leadership in GaAs market. We are currently one of the largest suppliers of GaAs substrates worldwide. Historically, we have been a leading supplier of GaAs substrates in the epitaxy segment of the semi-insulating market and in the semi-conducting market for GaAs substrates for lasers. We intend to continue to provide high-quality, price-competitive substrates. In addition, in the semi-insulating GaAs substrate market, we intend to leverage our demonstrated success in the epitaxy segment to further penetrate the ion implantation segment. In the semi-conducting GaAs substrate market, we also intend to capitalize on our leadership to further penetrate the high-volume, cost-sensitive LED market.

Leverage VGF technology to manufacture additional substrates. We believe our VGF technology is a platform that we can leverage to rapidly develop and cost-effectively manufacture additional high-quality compound substrates for emerging applications in markets such as wireless and fiber optic communications. For example, we have shipped InP and Ge substrates developed using our VGF technique to customers. Unlike the more traditional methods of growing crystals, we can use our VGF technology to grow the crystals for these other substrates without having to make a significant investment in new capital equipment.

Increase manufacturing capacity to target high-volume markets. We increased our manufacturing capacity by approximately 30,000 square feet in the fourth quarter of 1998. In addition, in June 1998, we purchased an additional 58,000 square foot facility in Fremont, California. In January 1999, we announced the receipt of a business license for operations in Beijing, China and the purchase of a 31,000 square foot facility in a major tax-free industrial

park in Beijing. We recently announced we have acquired an additional 31,000 square foot facility in this same industrial park in Beijing and plan to commence production by the middle of 2000. We believe that this increased manufacturing capacity will enable us to further lower unit production costs and provide our high-performance substrates at competitive prices for high-volume markets such as LEDs.

Leverage existing customer relationships. We currently sell our GaAs substrates to over 200 customers, some of our largest include:

- EMCORE
- Hewlett Packard
- Motorola
- NEC
- Nortel
- Siemens
- Sony
- TRW

We intend to expand our past success by providing high-quality GaAs substrates to these customers and to supply them additional substrates as their needs develop. For example, we have shipped InP substrates to TRW, which currently purchases a significant portion of its GaAs substrates from us. In addition, we intend to establish alliances and joint development arrangements with customers to develop new products, increase manufacturing efficiencies and more effectively serve our customers' needs.

#### Visible Emitter Division:

Our strategy is to become a leading provider of HBLEDs for the full range of colors, including red, yellow, amber, blue and green LEDs.

Develop high brightness AlInGaP-based red, amber and yellow-green LEDs. We will continue to invest in research and development of AlInGaP material and device fabrication techniques to further improve LED brightness and performance.

Develop AlInGaN-based blue and green HBLEDs. We will continue to invest in AlInGaN material and device fabrication techniques to further improve LED brightness and performance.

5

7

Develop a high volume low cost manufacturing model and become the market leader in the supply of AlInGaN-based HBLEDs. We will continue to invest in our domestic production capability and to expand our operations in Xiamen, China to increase capacity and to lower manufacturing costs.

#### Consumer Products Division:

Focus on the premium segment of the laser pointer market. We will continue to manufacture and sell laser-pointing devices primarily to the middle to premium price segments of the marketplace. An agreement with the 3M Corporation, to exclusively distribute and market premium laser pointers to the office products retailers, has solidified our position in this important market segment.

Develop proprietary new laser and LED-based consumer products. We are designing and developing new visible laser and LED products that capitalize on our visible laser and LED technologies.

We have announced that we expect to introduce a new home security device in the second quarter of 2000 that guides people out of a fire with three lasers, named Safe Escape. Most home fires occur late at night and wake people from a deep sleep. After breathing carbon monoxide and waking to the panic of a fire, it is common for even the most athletic individuals to have difficulty finding their way out of their own homes.

Safe escape activates based on the sound of a smoke detector and projects three bright and safe laser arrows to the ground that cut through smoke and guide people to a safe exit. Safe Escape utilizes digital sound activation technology to listen for the sound of a smoke detector while discriminating against other common sounds.

Another new product we are introducing in the first quarter of 2000 is our LED flashlight called MiniBrite, which is our first product utilizing super bright LEDs. Offered in five extremely bright colors, this product can be used as a mini flashlight that attaches to a key chain. This relatively low cost product has an LED that we believe will last up to ten years of constant use.

Establish relationships with key Asian suppliers. We are reducing our dependence on U.S. based manufacturing and creating alliances with quality oriented Asian manufacturers. This direction will allow us to reduce labor, overhead and material costs while focusing attention on developing and marketing new products.

#### CUSTOMERS

In 1999, our top ten customers accounted for 36.1% of our total revenues. No customer accounted for more than 10.0% of our total revenues in 1997, 1998 and 1999. In 1997, 1998, and 1999, our five largest customers accounted for 20.4% and 27.9% and 22.9%, respectively, of our total revenues. Generally, we do not have long-term or other non-cancelable commitments from our customers and usually sell products pursuant to customer purchase orders. The loss of any major customer could have a material adverse effect on our business and operating results.

We have historically entered into significant contracts with a number of government agencies and customers for the development of certain products. For more information regarding our development efforts, see "Research and Development."

#### TECHNOLOGY

##### Substrate Division:

AXT's VGF technique. Our proprietary VGF technique produces high-quality crystals from which we produce high-performance compound and single-element substrates for use in a variety of electronic and opto-electronic applications.

Our VGF technique is designed to control the crystal-growth process with minimal temperature variation. Unlike traditional techniques, our VGF technique places the hot GaAs melt above the cool crystal, thereby reducing the turbulence of the GaAs melt which results when the melt and crystal are inverted. The temperature gradient between the melt and the crystal in the VGF technique is significantly lower than in

traditional techniques. These aspects of the VGF technique enable us to grow crystals that have a relatively low dislocation density and high uniformity. One of the benefits of these characteristics is that the crystal, and the substrate into which the crystal is manufactured, are mechanically strong. The mechanical strength often results in substrates with lower breakage rates during a customer's manufacturing process.



Under the VGF technique, the GaAs melt and growing crystal are contained in a closed chamber. A number of benefits result from the use of this closed system. Because the VGF system is sealed and the crystal growth is isolated, both semi-insulating and semi-conducting crystals can be grown in the same system without the time consuming and expensive process of completely reconfiguring the system. The closed system isolates the crystal from the outside environment during growth and significantly reduces potential contamination of the crystal by impurities. The closed system also allows for more precise control of the gallium-to-arsenic ratio, which results in better consistency and uniformity of the crystals. Therefore, crystals grown using the VGF technique are consistently of a high quality. In addition, the use of cylindrical crucibles, which are sized to meet a customer's requirements, enables us to produce circular substrates with a minimum amount of discarded material.

The VGF technique is highly automated and the temperature gradient is controlled electronically rather than by physically moving the crystal or furnace. As a result, there is no physical movement to disturb the sensitive crystal. The entire crystal growth process is run under computer control with minimal operator intervention. A single operator can supervise the control of many VGF furnaces which results in significant cost savings.

We believe the VGF technology is a platform, which we can leverage to rapidly develop and cost-effectively manufacture additional high-quality substrates. Unlike the more traditional methods of growing crystals, we can use the VGF technology to grow crystals from these other substrates without having to make a significant investment in new capital equipment. For example, we use the proprietary VGF technique to manufacture InP and Ge substrates.

VGF compared to traditional techniques for producing GaAs substrates. We believe our proprietary VGF technique provides significant advantages over the traditional crystal growth techniques. The LEC technique is the traditional method for producing semi-insulating GaAs substrates. Unlike the VGF technique, the LEC technique is designed so that the hotter GaAs melt is located beneath the cooler crystal, which results in greater turbulence in the melt. The LEC technique requires a temperature gradient between the GaAs melt and the cool crystal, which is approximately 50 to 200 times higher than the temperature gradient of the VGF technique. The turbulence and the high temperature gradient cause LEC-grown crystals to have a higher dislocation density than VGF-grown crystals. This characteristic results in a higher rate of breakage of the LEC-developed substrate during the device manufacturing process. In addition, the LEC technique is essentially an open process whereby the melt and growing crystal are exposed to the environment for the entire duration of the crystal growth process. This exposure results in greater propensity for impurity contamination as well as difficulty in controlling the ratio of gallium to arsenic. Because the crystal is not contained in a crucible, fluctuations in temperature cause the diameter of the crystal to vary. Thus, to ensure proper size with the LEC technique, the crystal must be grown significantly larger than the desired size of the resulting substrate. During the LEC process the crystal is grown by dipping a seed crystal through molten boric oxide into a melt and slowly pulling the seed up into the cool zone above the boric oxide where the crystal hardens. As the GaAs melt is consumed, the crucible containing the remaining liquid must be raised in coordination with the pulling of the crystal. These moving parts and the relative complexity of the system result in higher maintenance costs. Unlike the VGF technique, the LEC technique uses large, complex electro-mechanical systems that are expensive to acquire and require highly skilled personnel to operate.

The HB technique is the traditional method for producing semi-conducting GaAs substrates. The HB technique holds the GaAs melt in a semi-cylindrical "boat." Because of the semi-cylindrical shape of the boat, semi-conducting GaAs crystals grown using the HB technique have a semi-circular cross-section. As a result of this semi-circular shape, more crystal material must be discarded to cut the crystal ingot into a cylindrical shape from which round substrates can be produced. Furthermore, crystals grown using the HB technique have a higher dislocation density than VGF-grown crystals. These and other inherent technical difficulties

limit the ability of the HB technique to be used to cost-effectively produce high-quality substrates greater than three inches in diameter. Since the HB technique uses a quartz crucible during the growth process which can contaminate the GaAs melt with silicon impurities, the HB technique is also unsuitable for making semi-insulating GaAs substrates.

#### Visible Emitter Division:

Our material technology utilizes a metal-organic chemical vapor deposition, or MOCVD technique to synthesize compound semiconductor thin films on substrates such as GaAs and sapphire (Al<sub>2</sub>O<sub>3</sub>). The thin film, which consists of multiple layers, is actually where the LED or laser-diode devices are formed. The device performance is closely related to the design of the layered structure and how it is synthesized in the MOCVD process. The same layered structure can be made under different process conditions and result in a different device performance.

The MOCVD process is a chemical reaction between metal-organic material, such as trimethylgallium (TMGa), and hydride, such as arsine (AsH<sub>3</sub>). The chemical reaction takes place on the surface of a heated substrate like GaAs. When TMGa and AsH<sub>3</sub> react on a heated GaAs substrate, a thin GaAs film is then deposited on the GaAs substrate. In theory, many different compounds can be deposited this way such as aluminum gallium arsenide (AlGaAs), indium gallium arsenide phosphide InGaAsP, and aluminum indium gallium phosphide (AlInGaP).

Because it is a relatively low cost production process, MOCVD reactors have become the choice of the opto-electronic industry for fabricating thin film devices such as LEDs, laser-diodes and high-speed electronic circuits. Commercial MOCVD reactors are now available from more than one vendor. These reactors usually can process multiple wafers and some reactors can even do more than 35 wafers per run. In general, the larger the size of the reactor, the more economic the production cost. However, larger reactor geometry also presents higher technical challenges for wafer uniformity. The visible emitter division currently has several multi-wafer MOCVD reactors in operation. Proprietary processes have been developed to grow high quality AlInGaP thin films on GaAs and aluminum indium gallium nitride (AlInGaN) thin films on sapphire. The devices fabricated from these materials have demonstrated performance comparable to the high end products on the market.

#### Consumer Products Division:

Our laser pointers, targeting systems and industrial products all utilize a type of laser module. A laser module usually consists of a laser-diode, collimating optics or lenses, a tuned control circuit and a protective brass or steel housing. Often, an additional optic is included to shape the projected dot into a line, cross or some other pattern. Our visible emitter division supplies the laser-diode chips and our consumer products division adds automatic power control circuitry, a collimating lens and assembles the product. Our lenses often use a proprietary active alignment process to align the beam axis to the housing. Pattern generating optics are then added where required.

We are currently developing digital control circuits for visible laser products to control lasers directly from small micro controllers.

#### PRODUCTS

##### Substrate Division:

We currently sell the compound substrates GaAs and InP, and the single-element substrate Ge. We supply various sizes of substrates in 2, 3, 4, and 6 square inches according to our customers' specifications and work closely with our customers to ensure that we manufacture substrates to each customer's particular specifications.

The table below sets forth our products, their available sizes and selected applications:

SUBSTRATE MATERIAL	DIAMETER (IN INCHES)	APPLICATIONS
GaAs semi-insulating	2,3,4,6	- Cellular phones - Direct broadcast television - High-performance transistors - Satellite communications
GaAs semi-conducting	2,3,4	- LEDs - Lasers - Optical couplers - Displays
InP semi-insulating	2,3,4	- Fiber optic communications - Satellite communications - High-performance transistors - Automotive collision avoidance radars
InP semi-conducting	2	- Fiber optic communications - Lasers
Ge	4	- Satellite solar cells

#### Visible Emitter Division:

We sell laser-diodes primarily for the pointer industry and we sell LED products for use in displays, traffic lights, back lighting for a variety of products and for general illumination purposes. Both the laser diodes and LEDs must meet customer specifications.

#### Consumer Products Division:

We sell laser pointers, laser alignment and targeting systems and industrial module products utilizing laser-diodes and LEDs manufactured by our visible emitter division. We offer 15 products within our laser pointer line primarily directed at the office products and business presentation markets. We offer approximately twenty products in our laser alignment line including laser-targeting sights for training purposes. In our industrial module business, we offer laser modules for the garment industry and other industrial uses such as levelers. Our industrial products are sold within the OEM markets.

We have announced two new products for shipment in the first half of 2000. Our Safe Escape product, which utilizes lasers to guide people from a burning house or building, is expected to ship in the second quarter of 2000. Our MiniBrite LED flashlight, which is a super bright LED personal light, began shipping in the first quarter of 2000.

#### MANUFACTURING

##### Substrate Division:

Our manufacturing operations, which include crystal growth, slicing, testing, edge grinding, polishing, inspecting and packaging the substrates for shipment, are located at our headquarters in Fremont, California. Our Fremont facilities are ISO 9002 certified. Many of our manufacturing operations are computer monitored or controlled, enhancing reliability and yield.

We depend on a single or limited number of suppliers for certain critical materials, including gallium, for use in the production of substrates. We generally purchase these materials through standard purchase orders and not pursuant to long-term supply contracts. We seek to maintain sufficient levels of inventory for certain materials to guard against interruptions in supply and to meet our near term needs. To date, we have been able to obtain sufficient supplies of materials in a timely manner. However, a stoppage or delay in supply, receipt of defective or contaminated materials, or increases in the pricing of such raw materials could materially adversely affect our operating results.

In the third quarter of 1998, we completed the expansion of our approximately 50,000 square foot facility located in Fremont, California by approximately 30,000 square feet to meet anticipated production needs

through 1999. Because we currently perform all steps in our manufacturing process at our Fremont facility, any interruption resulting from earthquake, fire, equipment failures or other causes would have a material adverse effect on our results of operations. For more information regarding the risks relating to our manufacturing process and our new facility, see "Factors Affecting Future Results -- If we do not achieve acceptable yields of crystals and the successful and timely production of substrates, the shipment of our products would be delayed and our business adversely affected," and "Factors Affecting Future Results -- We are subject to additional risks as a result of the recent completion of a new manufacturing facility," respectively.

In connection with further expanding our manufacturing capacity, we purchased an additional 58,000 square foot facility in Fremont, California in June 1998 and a 31,000 square foot facility in Beijing, China in 1998. We have recently acquired an additional 31,000 square foot facility in Beijing and plan to commence production by the middle of 2000.

Visible Emitter Division:

Our visible emitter division currently operates in three facilities, two in Southern California and one in China. Our office and device production is located in Monterey Park, California, our MOCVD wafer production is located in El Monte, California and most of our laser chip assembly is done in Xiamen, China. We purchased an additional 27,000 square foot facility in El Monte, California in late 1998. This new facility will be used primarily for MOCVD expansion. Improvements are being planned and we expect the facility to be fully functional by the second half of 2000. This additional space will allow us to more than double our LED production.

MOCVD equipment currently has about a six to nine month lead-time for delivery and is supplied by two major companies. Our substrate materials or raw wafers are primarily purchased from our substrate division based upon six to ten week forecasts of production.

We are currently developing processes and procedures that comply with ISO standards and we are working toward ISO certification.

Consumer Products Division:

Our consumer products division operates a 15,000 square foot manufacturing facility in Torrance, California. This facility is designed to optimize the product flow and minimize material handling. The major manufacturing processes include receiving and testing of raw materials, storage of raw material inventories, product assembly, inspection of finished products, finished goods storage and shipping. A number of our products, including laser pointers, are being sourced in Asia as we move to reduce product costs and manufacturing overhead. We have established quality control procedures and personnel in Asia to support this function. We currently have several sources for assembly of our pointers located in China.

We are currently developing processes and procedures that comply with ISO standards and we anticipate our production facilities will be ISO certified by the end of 2000.

SALES AND MARKETING

Substrate Division:

We sell our products worldwide through our direct sales force as well as

through independent international sales representatives. Our direct sales force consists of sales engineers who are knowledgeable in the manufacturing and use of compound and single-element substrates. Our direct sales force operates out of our corporate office in Fremont, California and our Japanese subsidiary. Our sales engineers work with customers during all stages of the substrate manufacturing process, from developing the precise composition of the substrate through manufacturing and processing the substrate to the customer's exact specifications. We believe that maintaining a close relationship with customers and providing customers with ongoing technical support improves customer satisfaction and will provide us with a competitive advantage in selling other substrates to our customers.

10

12

International sales, excluding Canada, as a percentage of total revenues in 1997, 1998, and 1999 were 26.8%, 29.6%, and 45.1%, respectively. In addition to our direct sales force in Japan, we have independent sales representatives in France, Japan, South Korea, Taiwan and the United Kingdom. Except for sales by our Japanese subsidiary, which are denominated in yen, we receive all payments for products in U.S. dollars.

In order to raise market awareness of our products, we advertise in trade publications, distribute promotional materials, publish technical articles, conduct marketing programs and participate in industry trade shows and conferences. For more information regarding the risks relating to our international operations, see "Factors Affecting Future Results -- We derive a significant portion of our revenues from international sales and our ability to sustain and increase our international sales involve significant risks".

#### Visible Emitter Division:

The majority of our laser-diode chips are sold in China and elsewhere in Asia. We primarily rely upon independent sales representatives for the sale of laser-diodes in China and in Asia. We also conduct some sales in Asia on a direct basis.

We anticipate the new LED product line to be introduced during 2000 will initially be sold into lamp packaging manufacturers in Taiwan and China. We intend to sell products through independent local sales representatives and our direct sales force. We also intend to make subsequent sales of our HBLEDS, in particular our blue LEDs, into U.S. and European markets. We anticipate utilizing our own direct sales force for this sales effort.

#### Consumer Products Division:

We currently sell our products through a combination of our own direct sales force and independent sales representatives. Our direct sales force consists of professionals experienced in all phases of major account sales within the consumer products industry. Independent sales representatives are primarily used for our sighting and alignment products with over 45 representatives covering the majority of the United States. The vast majority of our sales are to customers in the United States.

For our international sales of our consumer products, we utilize independent agents and expect to increase our reliance on independent agents in future periods. We also participate in major trade shows and fund cooperative customer advertising to promote our products to the end users.

#### RESEARCH AND DEVELOPMENT

Our research and development efforts are focused on developing new substrates and LEDs and improving the performance of existing products and processes, and reducing costs in the manufacturing process. We have assembled a multi-disciplinary team of highly skilled scientists, engineers and technicians to meet our research and development objectives. Among other projects, we have research and development projects involving the development of GaN and high

purity GaAs epitaxy substrates.

Our internally-funded research and development expenses in 1997, 1998, and 1999 were \$1.3 million, \$2.7 million, and \$3.1 million respectively.

In addition to internally-funded research and development, we have also funded a significant portion of our research and development efforts through contracts with the U.S. government and customer funded research projects. Under our contracts, we retain rights to the VGF and wafer fabrication technology which we develop. The U.S. government retains the rights to utilize the technologies we develop for government purposes only. In 1997, 1998, and 1999, we received \$2.3 million, \$1.8 million, and \$1.6 million, respectively, from U.S. government agencies and customer funded research contracts. Over the same periods, we expensed \$1.5 million, \$.8 million, and \$1 million respectively of externally-funded research and development proceeds. In future periods, we expect our government contracts will significantly decline as we shift to internally-funded research and development projects.

11

13

Our total internally-funded and externally-funded research and development costs for 1997, 1998, and 1999 were \$2.8 million, \$3.5 million, and \$4.1 million respectively.

We expect to continue to expend substantial resources on research and development. The development of compound and single-element substrates and LEDs is highly complex. There can be no assurance that we will successfully develop and introduce new products in a timely and cost-effective manner or that our development efforts will successfully permit our products to meet changing market demands. For more information regarding the risks relating to our research and development efforts, see "Factors Affecting Future Results -- We must effectively respond to rapid technological changes by continually introducing new products that achieve broad market acceptance."

#### COMPETITION

##### Substrate Division:

The markets for GaAs substrates are intensely competitive. Our principal competitors in the market for semi-insulating GaAs substrates currently include:

- Freiburger;
- Hitachi Cable;
- Litton Airtron; and
- Sumitomo Electric.

In the semi-conducting GaAs substrate market, our principal competitors currently are Sumitomo Electric and Hitachi Cable. We also face competition from manufacturers that produce GaAs substrates for their own use. In addition, we face competition from companies, such as IBM, that are actively developing alternative materials to GaAs. As we enter new markets, such as the Ge and InP substrate markets, we expect to face competitive risks similar to those for its GaAs substrates. Many of our competitors and potential competitors have been in the business longer than us and have greater manufacturing experience, more established technologies than our VGF technique, broader name recognition and significantly greater financial, technical and marketing resources than us. We cannot assure you that we will compete successfully against these competitors in the future or that our competitors or potential competitors will not develop enhancements to the LEC, HB or VGF techniques that will offer price and performance features that are superior to ours. Increased competitive pressure could also lead to intensified price-based competition, resulting in lower prices and margins, which would materially adversely affect our business, financial condition and results of operations.

We believe that the primary competitive factors in the markets in which our products compete are:

- quality,
- price,
- performance,
- customer support and satisfaction, and
- customer commitment to competing technologies.

Our ability to compete in target markets also depends on factors such as:

- the timing and success of the development and introduction of new products by us and our competitors,
- the availability of adequate sources of raw materials, and
- protection of our products by effective utilization of intellectual property laws and general economic conditions.

12

14

In order to remain competitive, we believe we must invest significant resources in developing new substrates and in maintaining customer satisfaction worldwide.

Visible Emitter Division:

The LED industry is very competitive. LED manufacturers in Taiwan and China have a competitive pricing advantage due to low overhead and small research and development investment. In order to remain competitive, we intend to continue to invest technological advances for our products. Currently, our primary competitors include:

- Cree Research
- Hewlett Packard
- Nichia Chemicals
- Toyoda Gosei
- United Epitaxy
- Epistar

Many of our competitors or potential competitors have been in business longer than we have and have greater manufacturing experience, broader name recognition and significantly greater financial, technical and marketing resources than we do. In addition, our Asian competitors may have greater success in Asian markets.

Consumer Products Division:

The pointer market has experienced a reduction in competition due to market and price erosion for laser-diodes and finished products. We are at risk from direct competition with Asian sources. In many instances our products are purchased directly from Asian companies and repackaged under our product brands. One risk factor for the consumer products division is our customers are able to buy similar products from the same or other Asian sources at low cost, thus eroding our profit margins. We offer many advantages such as domestic warranties, FDA required specifications, shorter delivery times and special

marketing programs. However, we are at risk from lower cost products. Our principal competitors in the pointer market include:

- Mega Power
- Transverse
- Opcom

The targeting sight market has seen an increase in competitors over the past twelve months and our principal competitors include:

- Alpec
- Clear Line
- Beam Shot

We believe that the primary competitive factors for which our products compete are:

- Quality
- Price
- Product performance
- Customer service
- Customer satisfaction

There can be no assurance that any of our products in any of our divisions will continue to compete favorably or that we will be successful in the face of competition from existing competitors or new companies entering our target markets. If we fail to compete successfully, our financial condition and results of operation would be materially adversely affected.

#### PROTECTION OF OUR INTELLECTUAL PROPERTY

Our success and competitive position for our VGF technique depends materially on our ability to maintain trade secrets, patents and other intellectual property protections. To protect our trade secrets, we take certain measures to ensure their secrecy, such as executing non-disclosure agreements with our employees, customers and suppliers. Despite our efforts, we cannot assure you that others will not gain access to our trade secrets, or that we can meaningfully protect our intellectual property. In addition, effective trade secret protection may be unavailable or limited in certain foreign countries. Although we intend to protect our rights vigorously, these measures may not be successful.

We rely primarily on the technical and creative ability of our personnel, rather than on patents, to maintain our competitive position. To date, we have been issued one U.S. patent, which relates to our VGF technique, and have two patent applications, one of which relates to our VGF technique, pending. We have one pending application for a Japanese patent but no issued foreign patents. There can be no assurance that our pending applications or any future U.S. or foreign patent applications will be approved, that any issued patents will protect our intellectual property or will not be challenged by third parties, or that the patents of others will not have an adverse effect on our ability to do business. Moreover, the laws of certain foreign countries may not protect our intellectual property rights to the same extent as the laws of the United States. We believe that, due to the rapid pace of technological innovation in the GaAs and other substrate markets, our ability to establish and maintain a position of technology leadership in the industry depends more on the skills of



our development personnel than upon the legal protections afforded our existing technologies.

Although there are currently no pending material lawsuits against us or unresolved notices that we are infringing intellectual property rights of others, we may be notified in the future that we are infringing the patent and/or other intellectual property rights of others. Litigation may be necessary in the future to enforce our patents and other intellectual property rights, to protect our trade secrets, to determine the validity and scope of the proprietary rights of others, or to defend against claims of infringement or invalidity. We cannot assure you that we would prevail in any future litigation. Any litigation, whether or not determined in our favor or settled by us, would be costly and would divert the efforts and attention of our management and technical personnel from normal business operations, which would have a material adverse effect on our business, and results of operations. Adverse determinations in litigation could result in the loss of our proprietary rights, subject us to significant liabilities, require us to seek licenses from third parties or prevent us from licensing our technology, any of which could have a material adverse effect on our business and results of operations.

#### ENVIRONMENTAL REGULATIONS

We are subject to federal, state and local laws and regulations concerning the use, storage, handling, generation, treatment, emission, release, discharge and disposal of certain materials used in our research and development and production operations, as well as laws and regulations concerning environmental remediation and employee health and safety. The growing of crystals and the production of substrates involve the use of certain hazardous raw materials, including, but not limited to, arsenic. We cannot guarantee that our control systems will be successful in preventing a release of these materials or other adverse environmental conditions. Any release or other failure to comply with present or future environmental laws and regulations could result in the imposition of significant fines against us, the suspension of production or a cessation of operations. In addition, there can be no assurance that existing or future changes in laws or regulations will not require expenditures or liabilities to be incurred by us, or in restrictions on our operations.

We are cooperating with Cal-OSHA in an investigation regarding higher than permissible levels of potentially hazardous materials in certain areas of the manufacturing facility in Fremont, California. The Company has put in place engineering, administrative and personnel protective equipment programs to

14

16

address this issue. No accidents or injuries resulted from this matter and the facility is in full operation. Civil and criminal charges can be imposed by Cal-OSHA, although the current focus is on civil enforcement.

#### BACKLOG

We include in backlog only those customer orders which have been accepted by us and which shipment is generally expected within 12 months. As of December 31, 1999, our backlog was approximately \$16.6 million.

Backlog can fluctuate greatly based upon, among other matters, the timing of orders. In addition, purchase orders in our backlog are subject to changes in delivery schedules or to reduction in size or cancellation at the option of the purchaser without significant penalty. We have experienced, and may continue to experience, cancellation, reduction and rescheduled delivery of orders in our backlog. Our backlog may vary significantly from time to time depending upon the level of capacity available to satisfy unfilled orders. Accordingly, although useful for scheduling production, backlog as of any particular date may not be a reliable indicator of sales for any future period.

#### EMPLOYEES

As of December 31, 1999, we had 888 full-time employees, of whom 749 were principally engaged in manufacturing, 112 in sales, general and administration and 27 in research and development. Of these employees, 554 are located in the US and 326 at our facilities in China. Our success is in part dependent on our ability to attract and retain highly skilled workers, who are in high demand in the Silicon Valley area. None of our employees is represented by a union and we have never experienced a work stoppage. Management considers its relations with its employees to be good.

EXECUTIVE OFFICERS

As of December 31, 1999, our executive officers and directors were as follows:

NAME ----	AGE ---	POSITION -----
Morris S. Young, Ph.D	54	Chairman of the Board of Directors, President and Chief Executive Officer
Theodore S. Young, Ph.D	59	Senior Vice President, Marketing and Director
Davis Zhang	43	Senior Vice President, Production
Gary S. Young	56	Vice President, Sales
Guy D. Atwood	57	Vice President and Chief Financial Officer, Treasurer and Secretary
Xiao Gordon Liu	35	Vice President, Engineering and Development
Jesse Chen (1)(2)	41	Director
B.J. Moore (1)(2)	63	Director
Donald L. Tatzin (1)(2)	47	Director

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- (1) Member of the compensation committee.
  - (2) Member of the audit committee.

Morris S. Young, Ph.D. co-founded AXT in 1986 and has served as our chairman of the board of directors since February 1998 and president and chief executive officer, as well as a director since 1989. Dr. Young holds a B.S. in Metallurgical Engineering from Chengkung University, Taiwan, an M.S. in Metallurgy from Syracuse University and a Ph.D. in Metallurgy from Polytechnic University.

Theodore S. Young, Ph.D. co-founded AXT in 1986 and has served as our senior Vice President, Marketing since 1989 and served as President from 1987 to 1989. He has also acted as a director since our inception, including as the Chairman of the Board of Directors from January 1987 to January 1998. Dr. Young holds a B.S. in Physics from National Taiwan University, an M.S. in Geophysics from the University of Alaska and a Ph.D. in Plasma Physics from the Massachusetts Institute of Technology.

Davis Zhang co-founded AXT in 1986 and has served as our senior Vice President, Production since January 1994. From 1987 to 1993, Mr. Zhang served as our Senior Production Manager. Mr. Zhang holds a B.S. in Mechanical Engineering from Northern Communication University, Beijing, China.

Gary S. Young joined us in 1991 and has served as our Vice President, Sales since July 1993. From 1991 to 1993, Mr. Young served as our Sales and Administrative Manager. From 1973 to 1991, Mr. Young worked in various capacities with several companies, including as a Systems Engineer for IBM and as a software engineer for Boole & Babbage, Inc., an independent software vendor. Mr. Young holds a B.S. in Mathematics from National Taiwan Normal University, an M.A. in Mathematics from Northeast Missouri State University and an M.S. in Operations Research from Purdue University.

Guy D. Atwood joined us in August 1997 as our Vice President and Chief Financial Officer and has served as our Treasurer and Secretary since February 1998. From 1991 to August 1997, Mr. Atwood served at various times as Chief Financial Officer for several private companies, most recently the alumni association for the University of California at Berkeley and AvenuSoftware, a film and video software company, of which he was also its President. Mr. Atwood was self-employed as a financial consultant from 1994 to 1995, and also provided services in such capacity to us from June to September 1995. Mr. Atwood holds a B.S. in Accounting from the University of California at Berkeley.

Xiao Gordon Liu joined us in 1995 as Senior Engineer and was promoted to Vice President, Engineering and Development in November 1998. Prior to joining us, Mr. Liu was a postdoctoral fellow and associate specialist at University of California at Berkeley and a research associate at the University of Lund, Sweden. Mr. Liu holds a Ph.D in Physics from the University of Lund, Sweden and has published more than 30 scientific papers.

Jesse Chen has served as a director of AXT since February 1998. Since May 1997, Mr. Chen has served as a Managing Director of Maton Venture, an investment company. Prior to that, Mr. Chen co-founded BusLogic, Inc., a computer peripherals company and served as its Chief Executive Officer from 1990 to 1996. Mr. Chen serves on the Board of Directors of several private companies. Mr. Chen has a B.S. degree in Aeronautical Engineering from Chenkung University, Taiwan and an M.S. in Electrical Engineering from Loyola Marymount University.

B.J. Moore has served as a director of AXT since February 1998. Since 1991, Mr. Moore has been self-employed as a consultant and has served as a director to several technology-based companies. Mr. Moore currently serves on the Board of Directors for Adaptec, Inc., a computer peripherals company and Dionex Corporation, an ion chromatography systems company, as well as several private companies. From 1986 to 1991, Mr. Moore served as President and Chief Executive Officer of Outlook Technology, an electronics test equipment company. Mr. Moore holds a B.S. and an M.S. degree in Electrical Engineering from the University of Tennessee.

Donald L. Tatzin has served as a director of AXT since February 1998. Since 1993, Mr. Tatzin has served as Executive Vice President of Showboat, Inc., a gaming company. In addition, Mr. Tatzin served as a director for Sydney Harbour Casino, an Australian gaming company from 1995 to 1996 and as its Chief Executive Officer from April to October 1996. Prior to that, Mr. Tatzin was a director and consultant with Arthur D. Little, Inc. from 1976 to 1993. Mr. Tatzin holds an S.B. in Economics and an S.B. and masters degrees in City Planning from the Massachusetts Institute of Technology and an M.S. in Economics from Australian National University.

## ITEM 2. PROPERTIES

In the third quarter of 1998, we completed the expansion of our approximately 50,000 square feet facility located in Fremont, California by approximately 30,000 square feet to meet anticipated production needs through 1999. Additionally, in connection with further expanding our manufacturing capacity, we purchased an additional 58,000 square foot facility in Fremont, California and a 31,000 square foot facility in Beijing, China in 1998.

16

18

The principal operating company properties are included on the following table.

We consider each facility to be in good operating condition and adequate for its present use, and believe that each facility has sufficient plant capacity to meet its current and anticipated operating requirements.

LOCATION	PROPERTY DESCRIPTION	SQUARE FEET	
		OWNED	LEASED
Fremont, CA	Production and Administration	58,000	
Fremont, CA	Production	80,000	
Beijing, China	Production	31,000	
Monterey Park, CA	Production and Administration	22,000	
El Monte, CA	Production	27,000	
El Monte, CA	Production		7,000
Xiamen, China	Production		14,000
Torrance, CA	Administration		7,000
Torrance, CA	Production		15,000

ITEM 3. LEGAL PROCEEDINGS

None.

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

None.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY AND RELATED STOCKHOLDER MATTERS

AXT common stock has been trading publicly on the Nasdaq National Market under the symbol "AXTI" since May 20, 1998, the date we consummated our initial public offering. The following table sets forth, for the periods indicated, the range of quarterly high and low closing sales prices for AXT's common stock on the Nasdaq National Market.

	HIGH	LOW
Fiscal 1998		
January 1, 1998 through May 19, 1998.....	Not Applicable	
May 20, 1998 through June 30, 1998.....	\$15.000	\$10.125
Third Quarter ended September 30, 1998.....	\$15.500	\$ 7.000
Fourth Quarter ended December 31, 1998.....	\$10.813	\$ 6.000
Fiscal 1999		
First Quarter ended March 31, 1999.....	\$22.500	\$ 9.063
Second Quarter ended June 30, 1999.....	\$27.000	\$19.375
Third Quarter ended September 30, 1999.....	\$35.125	\$17.750
Fourth Quarter ended December 31, 1999.....	\$23.875	\$12.063

As of December 31, 1999, there were 164 holders of record of our common stock. Because many shares of AXT's common stock are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders.

We have never paid or declared any cash dividends on our common stock and do not anticipate paying cash dividends in the foreseeable future.

ITEM 6. SELECTED CONSOLIDATED FINANCIAL DATA

YEARS ENDED DECEMBER 31,

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 1995 (3) 1996 (3) 1997 (3) 1998 (2) 1999 (1)  
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(IN THOUSANDS, EXCEPT PER SHARE DATA)

STATEMENT OF OPERATIONS DATA:

Revenues.....	\$24,117	\$31,272	\$43,313	\$61,314	\$81,521
Cost of revenues.....	14,773	21,037	29,650	38,949	57,369
Gross profit.....	9,344	10,235	13,663	22,365	24,152
Operating expenses:					
Selling, general, and administrative.....	4,774	5,534	9,921	11,538	14,016
Research and development.....	448	592	1,289	2,684	3,086
Acquisition costs.....	--	--	--	--	2,810
Total operating expenses.....	5,222	6,126	11,210	14,222	19,912
Income from operations.....	4,122	4,109	2,453	8,143	4,240
Interest expense.....	(12)	(170)	(793)	(1,481)	(2,150)
Interest and other income (expense).....	282	(72)	(57)	598	729
Income before provision for income taxes.....	4,392	3,867	1,603	7,260	2,819
Provision for income taxes.....	1,599	1,516	783	2,976	2,139
Income before extraordinary item.....	2,793	2,351	820	4,284	680
Extraordinary item -- early extinguishment of debt.....	--	--	--	--	508
Net income.....	\$ 2,793	\$ 2,351	\$ 820	\$ 4,284	\$ 172
Basic net income (loss) per share:					
Income before extraordinary item.....	\$ 0.96	\$ 0.65	\$ 0.22	\$ 0.27	\$ 0.04
Extraordinary item.....	--	--	--	--	(0.03)
Net income.....	0.96	0.65	0.22	0.27	0.01
Diluted net income (loss) per share:					
Income before extraordinary item.....	\$ 0.23	\$ 0.19	\$ 0.06	\$ 0.26	\$ 0.03
Extraordinary item.....	--	--	--	--	(0.03)
Net income.....	0.23	0.19	0.06	0.26	\$ --
Shares used in basic net income per share calculations.....	2,921	3,595	3,697	16,076	18,655
Shares used in diluted net income per share calculations.....	11,913	12,524	13,598	16,325	19,771

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 (1) Includes Substrates, Consumer Products, and Visible Emitters for the full year.

(2) Includes Substrates and Consumer Products for the full year, and Visible Emitters for the three months ended December 31, 1998.

(3) Includes Substrates and Consumer Products only.

18

20

YEARS ENDED DECEMBER 31,

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 1995 (2) 1996 (2) 1997 (2) 1998 (1) 1999 (1)  
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(IN THOUSANDS)

BALANCE SHEET DATA:

Cash, cash equivalents, and short-term investments.....	\$ 1,121	\$ 1,171	\$ 3,199	\$ 16,438	\$ 6,062
Working capital.....	5,144	6,866	12,612	41,644	40,462
Total assets.....	15,067	23,178	37,796	102,283	115,762
Long-term debt, net of current portion.....	2,350	5,833	7,728	19,842	18,501
Stockholders' equity.....	7,869	10,237	17,387	61,164	62,459

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 (1) Includes Substrates, Consumer Products, and Visible Emitters

(2) Includes Substrates and Consumer Products

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

This Management's Discussion and Analysis of Financial Condition and Results of Operations includes a number of forward-looking statements which reflect current views with respect to future events and financial performance. These forward-looking statements are subject to certain risks and uncertainties, including those discussed in the "Factors Affecting Future Results" and elsewhere in this report that could cause actual results to differ materially from historical results or those anticipated. In this report, the words "anticipates," "believes," "expects," "future," "intends," and similar expressions identify forward-looking statements. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date hereof.

RESULTS OF OPERATIONS

Overview

We use a proprietary VGF technique to produce high-performance compound semiconductor substrates for use in a variety of electronic and opto-electronic applications. We were founded in 1986 and commenced substrate sales in 1990. We currently sell GaAs, InP and GaN substrates to manufacturers of semiconductor devices for use in applications such as wireless and fiber optic telecommunications, lasers, LEDs, and consumer electronics. We also sell Ge substrates for use in satellite solar cells.

On May 28, 1999, we completed our acquisition of Lyte Optronics, Inc., a Nevada corporation, with operations in Southern California and The People's Republic of China. Lyte Optronics is a manufacturer of LED's and laser-diodes. Lyte Optronics also designs and markets laser-pointing and alignment products for the consumer, commercial and industrial markets. Lyte Optronics is operated as two separate divisions of AXT: the visible emitter division, focusing on the manufacture of LED's and laser diodes, and the consumer products division, focusing on the design and marketing of laser-pointing and alignment products. Of the approximately 380 employees of Lyte Optronics retained after the acquisition about 320 are with the visible emitter division, with about 200 employees located in China.

Under the terms of the acquisition, we issued approximately 2,363,000 shares of common stock and 983,000 shares of preferred stock with a \$4 million liquidation preference over common stock, in exchange for all of the issued and outstanding shares of capital stock of Lyte Optronics. Ten percent of the shares issuable to the Lyte Optronics' shareholders will be held in escrow for up to one year to satisfy any claims that we may bring under the agreement during that period. The transaction was accounted for as a pooling of interests. In connection with the acquisition, we reported a charge of \$2.8 million in the second quarter of 1999 to reflect transaction costs and other one-time charges incurred in connection with the acquisition.

We have been profitable on an annual basis since 1990. Our total revenues were \$43.3 million for the year ended December 31, 1997, \$61.3 million for the year ended December 31, 1998 and \$81.5 million for the year ended December 31, 1999. Total revenues primarily consist of product revenues. Product revenues are generally recognized upon shipment of products to customers. Historically, a significant portion of our product

revenues have been derived from sales of GaAs substrates and laser-pointing and alignment products. In the years ended December 31, 1997, GaAs substrates accounted for 50.4%, 55.4% in 1998 and 56.3% in 1999 of our total revenues and laser-pointing and alignment products accounted for 41.5%, 20.0% and 7.5%, respectively. Since October 1998, we have included the sales of products from our visible emitter division in our financial results. In 1999, sales from our visible emitter division generated 22.9% of total revenues. We began selling InP

and Ge substrates to our customers in late 1997, GaN substrates in late 1998 and in late 1999 we began selling LED's to our customers.

Historically, revenues generated from research and development contracts with U.S. government agencies and customer-funded research projects comprised more than 5.0% of our total revenues. We expect our contract revenue to decline to less than 1.0% of our total revenues in future periods as a result of our shift to internally generated research and development projects from government and customer-funded contracts.

In 1995, we established a wholly-owned subsidiary in Japan to distribute our products. This subsidiary serves primarily as a direct sales and support office for our customers in Japan. We also utilize independent sales representatives in France, Japan, South Korea, Taiwan and the United Kingdom. Domestic sales are generated by our direct sales force. International sales, excluding Canada, accounted for 26.8% of total revenues for the year ended December 31, 1997, 29.6% in 1998, and 45.1% in 1999. Except for sales in Japan and some sales in Taiwan, which are denominated in yen, we denominate and collect our international sales in U.S. dollars. Doing business in Japan subjects us to fluctuations in exchange rates between the U.S. dollar and the Japanese yen. During the year ended December 31, 1997, we incurred foreign transaction exchange loss of \$186,000, a loss of \$24,000 in 1998, and a gain of \$652,000 in 1999. During the year ended December 31, 1999, we bought foreign exchange contracts to hedge against certain trade accounts receivable in Japanese yen. The outstanding commitments with respect to such foreign exchange contracts had a total value of approximately \$1.9 million as of December 31, 1999.

From July 1996 to October 1998, we conducted all of our substrate operations in a 50,000 square foot office and production facility located in Fremont, California. Prior to transitioning our manufacturing operations to this facility, we leased a 20,000 square foot manufacturing facility in Dublin, California. In late 1998, we expanded the size of our current manufacturing facility by approximately 30,000 square feet to meet our anticipated future production needs through 2000. In June 1998, we purchased an additional 58,000 square foot facility in Fremont, California directly across the street from our existing manufacturing facility and moved marketing, sales, engineering and administrative personnel into a portion of the building. We believe that this new facility will not be used for production of substrates until late 2000. In January 1999, we received a business license for operations in Beijing, China and purchased a 31,000 square foot facility in a major tax-free industrial park in Beijing. This facility became operational during the third quarter of 1999. We intend to expand this facility by another 31,000 square feet beginning in the first quarter of 2000. We expect that our proprietary VGF crystal growth operations will continue to be housed in Fremont, California, and our other manufacturing operations will be conducted in both Fremont and Beijing.

Our consumer product division's operations have been located in Torrance, California since 1998 and consist of a 22,000 square foot office and production facility. Prior to 1998, a portion of the consumer products division was located in Arizona and a portion in Los Angeles, California. Since 1997, our visible emitter division has been located in a 22,000 square foot office and production facility in Monterey Park, California and a 7,000 square foot production facility in El Monte, California. In 1998, we acquired another 27,000 square foot facility in El Monte for future production in 2000. In late 1998, we acquired a 14,000 square foot production facility in Xiamen, China for processing laser diodes.

In connection with the granting of stock options, we recorded aggregate deferred compensation of \$322,000 for the year ending December 31, 1997, \$203,000 in 1998 and \$0 in 1999, representing the difference between the deemed fair value of the Common Stock for accounting purposes and the option exercise price at the date of grant. This deferred compensation will be amortized over the vesting period of the applicable options of which \$102,000 was amortized during the year ended December 31, 1997, \$96,000 in 1998 and \$110,000 in 1999.

The following table sets forth certain operating data as a percentage of total revenues for the periods indicated.

	YEARS ENDED DECEMBER 31,		
	1997	1998	1999
Revenues.....	100.0%	100.0%	100.0%
Cost of revenues.....	68.5%	63.5%	70.4%
Gross margin.....	31.5%	36.5%	29.6%
Operating expenses:			
Selling, general and administrative.....	22.9%	18.8%	17.2%
Research and development.....	3.0%	4.4%	3.8%
Acquisition costs.....	0.0%	0.0%	3.5%
Total operating expenses.....	25.9%	23.2%	24.5%
Income from operations.....	5.6%	13.3%	5.1%
Interest expense.....	(1.8)%	(2.4)%	(2.6)%
Interest and other income (expense).....	(0.1)%	1.0)%	0.9%
Income before provision for income taxes.....	3.7%	11.9%	3.4%
Provision for income taxes.....	1.8%	4.9%	2.6%
Income before extraordinary item.....	1.9%	7.0%	0.8%
Extraordinary item -- early extinguishment of debt.....	0.0%	0.0%	0.6%
Net income.....	1.9%	7.0%	0.2%

#### YEAR ENDED DECEMBER 31, 1998 COMPARED TO YEAR ENDED DECEMBER 31, 1999

Revenues. Revenues increased 33.0%, or \$20.2 million from \$61.3 million for the year ended December 31, 1998 to \$81.5 million for the year ended December 31, 1999. The increase in revenues resulted primarily from a \$13.7 million increase in sales of GaAs and InP substrates to existing domestic and international customers and the addition of new customers, a \$12.7 million increase due to the inclusion of the visible emitter division for a full year in 1999 compared to only the fourth quarter in 1998, and a \$6.0 million decrease in consumer product sales reflecting declining sales prices for laser pointer products, an increase in sales returns due to product quality problems, and a change in government regulations regarding the allowable strength of laser products sold to the consumer product market in Europe.

International revenues, excluding Canada, increased from 29.5% of total revenues, or \$18.1 million, for the year ended December 31, 1998, to 45.1% or \$36.8 million for the year ended December 31, 1999. The increase in international revenues resulted primarily from a \$7.3 million increase in GaAs and InP sales to new and existing international customers and a \$10.0 million increase due to the inclusion of the visible emitter division for a full year in 1999 compared to only the fourth quarter in 1998.

Gross margin. Gross margins decreased from 36.5% for the year ended December 31, 1998, to 29.6% for the year ended December 31, 1999. The gross margins for substrates decreased slightly from 41.4% to 40.2%, primarily due to a decline in sales prices. The gross margins on products sold by the visible emitter division that was included for the full year in 1999 compared to only the fourth quarter in 1998 was 36.2% in 1998 compared to 11.7% in 1999. The decrease in margins at the visible emitter division was primarily due to significant sales price decreases for laser diodes, a \$1.5 million charge to settle a patent dispute, and a \$2.4 million charge to write down obsolete inventory. Excluding these charges, the gross margin was 32.6% in 1999. Gross margins on products sold by the consumer products division decreased from 18.7% in 1998 to (19.3)% in 1999, due to significant sales prices decreases for laser pointer products and a \$2.1 million charge to write down obsolete inventory.



Excluding these charges, the gross margin was 14.9% in 1999.

Selling, general and administrative expenses. Selling, general and administrative expenses increased 21.5%, or \$2.5 million, from \$11.5 million for the year ended December 31, 1998 to \$14.0 million for the year

21

23

ended December 31, 1999. The inclusion of the visible emitter division for the full year in 1999 compared to only the fourth quarter of 1998 resulted in an increase of \$3.3 million. Substrate division expenses increased \$1.2 million primarily due to increases in personnel and related expenses required to support additional sales volume. These increases were offset by a decrease of \$2.0 million by the consumer products division as a result of the closing of a manufacturing facility located in Arizona in 1998. Selling, general and administrative expenses as a percentage of total revenues decreased from 18.8% for the year ended December 31, 1998 to 17.2% for the year ended December 31, 1999. This decrease was primarily due to an increase in total revenues.

Research and development expenses. Research and development expenses increased 15.0%, or \$402,000, from \$2.7 million for the year ended December 31, 1998, to \$3.1 million for the year ended December 31, 1999. This increase resulted primarily from the inclusion of the visible emitter division for a full year in 1999 compared to only the fourth quarter in 1998. Also, historically the consumer products division did not separately account for its research and development expenses which were included as part of its cost of product revenues and selling, general and administrative expenses and are now classified as research and development. Research and development expenses as a percentage of total revenues decreased from 4.4% of total revenues for the year ended December 31, 1998 to 3.8% of revenues for the year ended December 31, 1999. This decrease was primarily due to an increase in total revenues.

Acquisition cost. As a result of the acquisition of Lyte Optronics in May 1999, we incurred a number of one-time expenses associated with the transaction in the approximate amount of \$2.8 million. Such expenses include fees paid to our investment bankers, accountants, attorneys, and other outside consultants and related transaction expenses.

Interest expense. Interest expense increased 45.2%, or \$669,000 from \$1.5 million for the year ended December 31, 1998, to \$2.2 million for the year ended December 31, 1999. This increase was primarily the result of the interest expense associated with equipment and real estate debt by the inclusion of the visible emitter division for a full year in 1999 compared to only the fourth quarter in 1998 and increased borrowing on the line of credit.

Interest and other income (expense). Interest and other income (expense) increased 21.9%, or \$131,000 from \$598,000 for the year ended December 31, 1998 to \$729,000 for the year ended December 31, 1999. The increase was primarily the result of foreign exchange gains on short-term contracts to hedge against certain accounts receivable denominated in Japanese yen.

Provision for income taxes. Income tax expense, adjusted for acquisition costs of approximately \$2.8 million, decreased from 41.0% to 38.0% of income before provision for income taxes for the years ended December 31, 1998 and 1999, respectively.

Extraordinary item, net of tax benefit. In connection with the acquisition of Lyte Optronics in May 1999, we incurred fees associated with a loan that we repaid as part of the transaction.

YEAR ENDED DECEMBER 31, 1997 COMPARED TO YEAR ENDED DECEMBER 31, 1998

Revenues. Revenues increased 41.6%, or \$18.0 million from \$43.3 million for the year ended December 31, 1997 to \$61.3 million for the year ended December 31, 1998. The increase in revenues resulted primarily from a \$17.8 million increase in the volume of sales of GaAs and InP substrates to existing

domestic and international customers, the addition of new customers and the introduction of Ge substrates in the fourth quarter of 1997. Additionally, there was a \$5.9 million increase due to the inclusion of the visible emitter division for the fourth quarter of 1998, offset by a \$5.7 million decrease in revenues at the consumer products division reflecting declining sales prices for laser pointer products and a change in government regulations reducing the allowable strength of lasers sold to the consumer market in Europe.

International revenues, excluding Canada, increased from 26.8% of total revenues for the year ended December 31, 1997, to 29.6% for the year ended December 31, 1998. The increase in international revenues resulted primarily from a \$3.8 million increase in substrate sales to new and existing international customers and a \$5.1 million increase due to the inclusion of the visible emitter division for the fourth quarter of 1998 of which sales are primarily sold in Asia, offset by a \$2.4 million decrease in sales to Europe by the consumer

22

24

products division caused by governmental regulation changes reducing the allowable strength of lasers sold to the consumer market.

Gross margin. Gross margins increased from 31.5% for the year ended December 31, 1997, to 36.5% for the year ended December 31, 1998. The gross margins for substrates increased slightly from 40.6% in 1997 to 40.8% in 1998 reflecting higher yields achieved in GaAs and InP production, partially offset by lower margins on Ge substrates. Total gross margins also benefited from the inclusion of the visible emitter division for the fourth quarter of 1998, which had a 36.2% gross margin. Gross margins on products sold by the consumer products division decreased slightly from 19.8% in 1997 to 18.7% in 1998 due to declining prices for laser pointer products.

Selling, general and administrative expenses. Selling, general and administrative expenses increased 16.3%, or \$1.6 million, from \$9.9 million for the year ended December 31, 1997 to \$11.5 million for the year ended December 31, 1998. Substrate division expenses increased \$2.1 million primarily due to increases in personnel and related expenses required to support additional sales volume. The inclusion of the visible emitter division for the fourth quarter of 1998 added \$1.0 million. These increases were offset by a \$1.4 million decrease at the consumer products division as a result of closing a manufacturing facility located in Arizona in 1998. Selling, general and administrative expenses as a percentage of total revenues decreased from 22.9% for the year ended December 31, 1997 to 18.8% for the year ended December 31, 1998. This percentage decrease was primarily due to the 41.6% increase in revenues.

Research and development expenses. Research and development expenses increased 108.2%, or \$1.4 million, from \$1.3 million for the year ended December 31, 1997, to \$2.7 million for the year ended December 31, 1998. This increase resulted primarily from hiring additional engineers and the purchase of materials at the substrate division to develop new products and to enhance existing products. Also, historically the consumer products division did not separately account for its research and development expenses which were included as part of its cost of product revenues and selling, general and administrative expenses and are now classified as research and development. Research and development expenses as a percentage of total revenues increased from 3.0% for the year ended December 31, 1997 to 4.4% for the year ended December 31, 1998, primarily as a result of the increase in spending.

Interest expense. Interest expense increased 86.8%, or \$688,000 from \$793,000 for the year ended December 31, 1997, to \$1.5 million for the year ended December 31, 1998. This increase was primarily the result of additional borrowings to finance the purchase and lease of buildings and equipment at the substrate and consumer products divisions.

Interest and other income (expense). Interest and other income (expense) increased from an expense of \$57,000 for the year ended December 31, 1997 to

income of \$598,000 for the year ended December 31, 1998. This increase was primarily the result of interest income earned on the \$25.8 million in net proceeds raised from our initial public offering in May, 1998.

Provision for income taxes. Income tax expense decreased from 48.8% of income before provision for income taxes in the year ended December 31, 1997 to 41.0% in 1998, due to a decrease in state income taxes caused by the realization of tax benefits of Lyte Optronics related to operating losses for which realization was uncertain prior to the merger.

SELECTED QUARTERLY RESULTS OF OPERATIONS

The following table sets forth unaudited quarterly results in dollars and percentages for the eight quarters ended December 31, 1999. We believe that all necessary adjustments, consisting only of normal recurring adjustments, have been included in the amounts stated below to present fairly such quarterly information. The operating results for any quarter are not necessarily indicative of results for any subsequent period.

	QUARTERS ENDED (IN THOUSANDS)							
	MAR. 31, 1998 (2)	JUNE 30, 1998 (2)	SEPT. 30, 1998 (2)	DEC. 31, 1998 (1)	MAR. 31, 1999 (1)	JUNE 30, 1999 (1)	SEPT. 30, 1999 (1)	DEC. 31, 1999 (1)
Revenues.....	\$13,186	\$13,532	\$13,942	\$20,654	\$18,897	\$20,783	\$20,017	\$21,824
Cost of revenues.....	8,144	9,189	8,911	12,705	16,240	13,971	13,077	14,081
Gross profit.....	5,042	4,343	5,031	7,949	2,657	6,812	6,940	7,743
Operating expenses:								
Selling, general and administrative.....	2,460	2,238	2,540	4,300	3,647	3,196	3,113	4,060
Research and development.....	640	714	819	511	662	858	670	896
Acquisition costs.....	--	--	--	--	--	2,810	--	--
Total operating expenses.....	3,100	2,952	3,359	4,811	4,309	6,864	3,783	4,956
Income from operations.....	1,942	1,391	1,672	3,138	(1,652)	(52)	3,157	2,787
Interest expense.....	(238)	(274)	(325)	(644)	(53)	(730)	(752)	(615)
Interest and other income (expense).....	19	(48)	248	379	116	29	235	349
Income before provision for income taxes.....	1,723	1,069	1,595	2,873	(1,589)	(753)	2,640	2,521
Provision for income taxes.....	707	437	559	1,273	(604)	782	1,003	958
Income before extraordinary item.....	1,016	632	1,036	1,600	(985)	(1,535)	1,637	1,563
Extraordinary item -- early extinguishment of debt.....	--	--	--	--	--	508	--	--
Net income.....	\$ 1,016	\$ 632	\$ 1,036	\$ 1,600	\$ (985)	\$ (2,043)	\$ 1,637	\$ 1,563

	QUARTERS ENDED							
	MAR. 31, 1998 (2)	JUNE 30, 1998 (2)	SEPT. 30, 1998 (2)	DEC. 31, 1998 (1)	MAR. 31, 1999 (1)	JUNE 30, 1999 (1)	SEPT. 30, 1999 (1)	DEC. 31, 1999 (1)
Revenues.....	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
Cost of revenues.....	61.8%	67.9%	63.9%	61.5%	85.9%	67.2%	65.3%	64.5%
Gross margin.....	38.2%	32.1%	36.1%	38.5%	14.1%	32.8%	34.7%	35.5%
Operating expenses:								
Selling, general and administrative.....	18.7%	16.5%	18.2%	20.8%	19.3%	15.4%	15.6%	18.6%
Research and development.....	4.9%	5.3%	5.9%	2.5%	3.5%	4.1%	3.3%	4.1%
Acquisition costs.....	0.0%	0.0%	0.0%	0.0%	0.0%	13.5%	0.0%	0.0%
Total operating expenses.....	23.5%	21.8%	24.1%	23.3%	22.8%	33.0%	18.9%	22.7%
Income from operations.....	14.7%	10.3%	12.0%	15.2%	(8.7)%	(0.3)%	15.8%	12.8%
Interest expense.....	(1.8)%	(2.0)%	(2.3)%	(3.1)%	(0.3)%	(3.5)%	(3.8)%	(2.8)%
Interest and other income (expense).....	0.1%	(0.4)%	1.8%	1.8%	0.6%	0.1%	1.2%	1.6%
Income before provision for income taxes.....	13.1%	7.9%	11.4%	13.9%	(8.4)%	(3.6)%	13.2%	11.6%

Provision for income taxes.....	5.4%	3.2%	4.0%	6.2%	(3.2)%	3.8%	5.0%	4.4%
Income before extraordinary item.....	7.7%	4.7%	7.4%	7.7%	(5.2)%	(7.4)%	8.2%	7.2%
Extraordinary item -- early extinguishment of debt.....	--	--	--	--	--	2.4%	--	--
Net income.....	7.7%	4.7%	7.4%	7.7%	(5.2)%	(9.8)%	8.2%	7.2%

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- (1) Includes Substrates, Visible Emitters and Consumer Products  
(2) Includes Substrates and Consumer Products only

24

26

The following table sets forth the restatement of the first three quarters of 1999 related to adjustments of account balances at Lyte Optronics, Inc.

	(IN THOUSANDS)					
	Q1 REPORTED	Q1 RESTATED	Q2 REPORTED	Q2 RESTATED	Q3 REPORTED	Q3 RESTATED
Revenue.....	19,023	18,897	21,025	20,783	21,389	20,017
Net income (loss).....	1,259	(985)	(538)	(2,043)	2,818	1,637

#### LIQUIDITY AND CAPITAL RESOURCES

During the past five years, we have funded our operations primarily from cash provided by operations, short-term and long-term borrowings and a private financing of \$5.9 million for preferred stock completed in March 1997. We completed our initial public offering in May 1998, and raised net proceeds of approximately \$25.8 million. As of December 31, 1999, we had working capital of \$40.5 million, including cash and cash equivalents of \$6.1 million, compared to working capital at December 31, 1998 of \$41.6 million, including cash of \$16.4 million.

During the year ended December 31, 1997, net cash used in operations of \$2.1 million was due primarily to increases in inventory of \$5.6 million and accounts receivable of \$2.0 million, offset by net income of \$820,000, depreciation of \$1.3 million and an increase in accounts payable and accrued liabilities of \$4.1 million. The increases in inventory, accounts receivable, accounts payable and accrued liabilities were primarily the result of a 38.5% increase in revenues from the prior year. The inventory turnover ratio decreased from 3.9 turns per year at December 31, 1996 to 3.3 turns per year at December 31, 1997 primarily due to an increase Ge inventory. Days sales outstanding decreased slightly from 56 days at December 31, 1996 to 55 days at December 31, 1997.

During the year ended December 31, 1998, net cash used in operations of \$8.7 million was primarily due to increases in inventory of \$11.1 million, accounts receivable of \$4.2 million, prepaid assets of \$1.6 million, and deferred income taxes of \$1.1 million, offset by net income of \$4.3 million, depreciation of \$3.0 million and an increase in accounts payable and accrued liabilities of \$2.1 million. The increases in inventory, accounts receivable, prepaid assets, accounts payable and accrued liabilities were primarily the result of the 41.6% increase in revenues from the prior year. Additionally, the increase in accounts receivable was in part due to increased international sales that generally have longer payment cycles. International sales were 26.8% of revenues in 1997 compared to 29.6% of revenues in 1998. The increase in deferred taxes was the result of recognizing a tax benefit for prior year losses of Lyte Optronics as a result of the acquisition. The inventory turnover ratio declined from 3.3 turns per year at December 31, 1997 to 2.1 turns per year at December 31, 1998 primarily due to our decision to maintain the Ge substrates production line during the fourth quarter of 1998 in anticipation of large orders, although

shipments to a large customer had been deferred. Days sales outstanding increased from 55 days at December 31, 1997 to 61 days at December 31, 1998.

During the year ended December 31, 1999, net cash used in operations of \$7.8 million was primarily due to increases in inventory of \$10.1 million, accounts receivable of \$4.4 million and prepaid expenses of \$5.7 million, offset in part by net income of \$172,000, depreciation and amortization of \$6.2 million, and increases in accounts payable and accrued liabilities of \$4.4 million. The increases in inventory, accounts receivable, accounts payable and accrued liabilities were primarily the result of the 33.0% increase in total revenues from the prior year. Additionally, the increase in accounts receivable was in part due as a result of increased international sales that generally have longer payment cycles. International sales were 29.6% of revenues in 1998 compared to 45.1% of revenues in 1999. The increase in prepaid expenses was primarily due to an increase in income tax receivables as a result of current year operating losses at the visible emitter and consumer products divisions. The inventory turnover ratio decreased slightly from 2.1 turns per year at December 31, 1998 to 1.9 turns per year at December 31, 1999. Days sales outstanding increased from 61 days at December 31, 1998 to 69 days at December 31, 1999.

Net cash used in investing activities was \$5.2 million, \$16.6 million, and \$7.5 million for the years ended December 31, 1997, 1998 and 1999, respectively, which amounts were attributed in each period to the purchase of property, plant and equipment. For the year ended December 31, 1998, the property acquired

25

27

included our new 58,000 square foot building at a cost of \$9.0 million and the 30,000 square foot addition in Fremont for \$2.0 million.

Net cash provided by financing activities was \$9.4 million for the year ended December 31, 1997, \$38.3 million for 1998 and \$7.9 million for 1999. For the year ended December 31, 1997, net cash provided by financing activities resulted primarily from the issuance of \$5.9 million of preferred stock and \$2.7 million for long-term bank borrowings. For the year ended December 31, 1998, net cash provided by financing activities consisted primarily of net proceeds of \$25.8 million from our initial public offering and long-term net borrowings of \$13.1 million, offset by repayments of short-term borrowings of \$2.3 million. Long-term net borrowings primarily reflected the issuance of \$11.6 million in taxable variable rate revenue bonds in November 1998 and repayment of existing long-term debt in the amount of \$5.6 million. Long-term borrowings were primarily used for the purchase of the new 58,000 square foot facility, for construction of the additional 30,000 square foot manufacturing space and related equipment in Fremont. For the year ended December 31, 1999, net cash provided by financing activities resulted primarily from short-term bank borrowings that were used to finance inventories and receivables, deposits for equipment orders, and to pay off high interest long-term debt acquired in the acquisition of Lyte Optronics.

We have generally financed our equipment purchases through secured equipment loans over five-year terms at interest rates ranging from 6.0% to 9.0% per annum. Our manufacturing facilities have been financed by long-term borrowings, most of which were repaid by the taxable variable rate revenue bonds in 1998. The taxable variable rate revenue bonds have a term of 25 years and mature in 2023 with an interest rate at 200 basis points below the prime rate and are traded in the public market. Repayment of principal and interest under the bonds is secured by a letter of credit from our bank and is paid on a quarterly basis. We have the option to redeem in whole or in part the bonds during their term. At December 31, 1999, \$11.1 million was outstanding under the taxable variable rate revenue bonds.

We currently have a \$15.0 million line of credit with a commercial bank at an interest rate equal to the prime rate plus one-half percent. This line of credit is secured by all business assets, less equipment, and expires in May 2000. This line of credit is subject to certain financial covenants regarding

current financial ratios and cash flow requirements, which were met as of December 31, 1998. We must obtain the lender's approval to obtain additional borrowings or to further pledge our assets, except for borrowings secured by the pledge of equipment or obtained in the normal course of business. At December 31, 1999, \$8.8 million was outstanding under the \$15.0 million line of credit.

We anticipate that the combination of existing working capital and the borrowings available under current credit agreements will be sufficient to fund working capital and capital expenditure requirements for the next 12 months. Our future capital requirements will depend on many factors, including the rate of revenue growth, our profitability, the timing and extent of spending to support research and development programs, the expansion of selling and marketing and administrative activities, and market acceptance of our products. We expect that we may need to raise additional equity or debt financing in the future, although we are not currently negotiating for additional financing nor do we have any plans to obtain additional financing at this time. There can be no assurance that additional equity or debt financing, if required, will be available on the acceptable terms or at all. If we are unable to obtain such additional capital, if needed, we may be required to reduce the scope of our planned product development and selling and marketing activities, which would have a material adverse effect on our business, financial condition and results of operations. In the event that we do raise additional equity financing, further dilution to our investors will result.

#### YEAR 2000 READINESS

During 1999, we successfully completed our program to achieve year 2000 readiness. "Year 2000 ready" meant that the performance or functionality of our internal systems would not be significantly affected by the dates prior to, during, and after the year 2000, to include leap year calculations and specific day-of-the-week calculations. As expected, we have not experienced a material adverse impact on our business, products, results of operations, or financial condition as a result of the year 2000 issue.

26

28

Costs directly attributed to our internal year 2000 initiative were in line with the original estimate of approximately \$400,000. These costs were expensed as incurred and were comprised primarily of the costs of hardware and software required to complete year 2000 testing within the enterprise and consulting fees.

We will continue to monitor our critical processes, and those of significant suppliers, third-party external interface suppliers, and utility organizations that are critical to our operations, for potential year 2000-related problems.

#### RECENT ACCOUNTING PRONOUNCEMENTS

In June 1998, the Financial Accounting Standards Board issued Statement of Financial Accounting Standard No 133, "Accounting for Derivative Instruments and Hedging Activities" ("SFAS 133"). SFAS 133 established a new model for accounting for derivatives and hedging activities and supersedes and amends a number of existing accounting standards. SFAS 133 requires that all derivatives be recognized in the balance sheet at their fair market value. In addition, corresponding derivative gains and losses should be either reported in the statement of operations or stockholders' equity, depending on the type of hedging relationship that exists with respect to such derivatives. Adopting the provisions of SFAS 133, which will be effective in fiscal year 2000, is not expected to have a material effect on the Company's consolidated financial statements.

#### FACTORS AFFECTING FUTURE RESULTS

In addition to the other information in this report, the following factors should be considered carefully in evaluating our business before purchasing

shares of our stock.

#### RISKS RELATING OUR ACQUISITION OF LYTE OPTRONICS, INC.

Our success depends on our ability to assume and integrate the operations of Lyte Optronics with our operations. The success of our acquisition of Lyte Optronics depends in substantial part on our ability to assume and integrate the operations of Lyte Optronics in an efficient and effective manner. The assumption of a new business will require the dedication of management resources, which may temporarily distract attention from our day-to-day operations. We cannot assure you that we will be able to integrate the business operations of Lyte Optronics smoothly or successfully. Our inability to do so could hurt the performance of our business, which may cause the price of our stock to decline.

The success of our acquisition of Lyte Optronics depends in part on our ability to retain Lyte Optronics' current customers. We cannot guarantee that the current customers of Lyte Optronics will continue to seek our services now that the acquisition is completed. If a substantial number of Lyte Optronics' customers elect not to seek our services, our operating results will suffer.

We incurred substantial costs in connection with our acquisition of Lyte Optronics, including the assumption of approximately \$11.0 million of debt, much of which has had to be repaid or renegotiated, resulting in a decline of cash available. We incurred one-time charges and merger-related expenses of \$2.8 million and the extraordinary item of \$508,000 in the quarter ended June 30, 1999 as a result of the acquisition. We may incur additional unanticipated expenses related to our assumption of Lyte Optronics' business. If these expenses are substantial, they may adversely affect our operating results and cause our stock price to fall.

#### RISKS RELATING TO OUR OPERATIONS

A number of factors could cause our quarterly financial results to be worse than expected, resulting in a decline in our stock price. Although we have been profitable on an annualized basis since 1990, we believe that period-to-period comparisons of our operating results cannot be relied upon as an indicator of our future performance. It is likely that in some future quarter, our operating results may be below the expectations of public market analysts or investors. If this occurs, the price of our common stock would likely decrease. For more information regarding our results, see "Management's Discussion and Analysis of Financial Condition and Results of Operations."

27

29

Our quarterly and annual revenues and operating results have varied significantly in the past and may vary significantly in the future due to a number of factors, including:

- our recent acquisition of Lyte Optronics and the integration of its business and separate operations and facilities with our operations;
- fluctuations in demand for our substrates due to reduction in the value on Asian currencies and the turmoil in the Asian financial markets;
- fluctuations in demand for laser pointing and alignment products and decreases in the prices of these products;
- our expense levels and expected research and development requirements;
- our ability to develop and bring to market new products on a timely basis;
- the volume and timing of orders from our customers;
- the availability of raw materials;

- fluctuations in manufacturing yields;
- our manufacturing expansion in Beijing, China and the assumption, integration and operation of the Chinese operations of Lyte Optronics;
- introduction of products and technologies by our competitors; and
- costs relating to possible acquisitions and integration of technologies or businesses.

For more information regarding our results, see "Management's Discussion and Analysis of Financial Condition and Results of Operations."

We acquired Lyte Optronics in May 1999, as part of our business strategy, and we may engage in future acquisitions. These acquisitions must be successfully integrated into our business and may dilute our stockholders and cause us to assume contingent liabilities. As part of our business strategy, we may in the future review acquisition prospects that would complement our current product offerings, augment our market coverage or enhance our technical capabilities, or that may otherwise offer growth opportunities. In the event of any future acquisitions, we could:

- issue equity securities which would dilute current stockholders' percentage ownership;
- incur substantial debt; or
- assume contingent liabilities.

Any of these actions could materially adversely affect our operating results and/or the price of our common stock. Any future acquisitions creates risks for us, including:

- difficulties in the assimilation of acquired personnel, operations, technologies or products;
- unanticipated costs associated with the acquisition could materially adversely affect our operating results;
- diversion of management's attention from other business concerns;
- adverse effects on existing business relationships with suppliers and customers;
- risks of entering markets where we have no or limited prior experience;
- potential loss of key employees of acquired organizations; and
- loss of customers that, through product acquisition, now become competitors.

These risks and difficulties could disrupt our ongoing business, distract our management and employees and increase our expenses. We may not be able to successfully integrate any businesses, products, technologies or

personnel that we might acquire in the future, and our failure to do so could materially adversely affect our operating results.

The sales cycle for our GaAs substrates is long and we may incur substantial, non-recoverable expenses or devote significant resources to sales that do not occur as anticipated. Our GaAs substrates typically have a lengthy sales cycle, ranging from three months to a year or more. During this time, we may expend substantial funds and sales, marketing and management efforts while



the potential customer evaluates our substrates. However, there is a significant risk that these expenditures may not result in sales. If sales forecasted from a specific customer for a particular quarter are not delivered in that quarter, we may be unable to compensate for the shortfall, which could materially adversely affect our operating results. In addition, if a customer decides at the design stage not to incorporate our substrates into its products, we may not have another opportunity to sell substrates for those products for many months or even years. We anticipate that sales of any future products under development will have similar lengthy sales cycles and will, therefore, be subject to risks substantially similar to those inherent in the lengthy sales cycle of our GaAs substrates.

The loss of one or more of our key customers would significantly hurt our operating results. A small number of customers have historically accounted for a substantial portion of our revenues. We expect that a significant portion of our future sales will be due to a limited number of customers. Our top five customers accounted for approximately 20.4%, 27.9% and 22.9% of our revenues in the years ended December 31, 1997, 1998 and 1999, respectively. If any of these major customers reduces, delays or cancels its orders with us, our revenues will decline, which will likely cause our stock price to fall.

Our customers are not obligated to purchase any specified quantity of products or to provide us with binding forecasts of product purchases. In addition, our customers may reduce, delay or cancel orders at any time without any significant penalty. For example, we recently announced the suspension of our Ge substrates from a major customer who had excess inventories and was experiencing a slow down in business.

VGF is a new technique for producing substrates, which must achieve widespread acceptance if we are to succeed. We believe that our competitors principally utilize the traditional LEC or HB crystal growing processes for producing semi-insulating and semi-conducting GaAs substrates. We further believe that we are the only high-volume supplier of semi-insulating and semi-conducting GaAs substrates which utilize the VGF technique, a newer technology than either the LEC or HB techniques, however, we believe that one of our competitors has recently begun shipping, in low volume, GaAs substrates which utilize a similar technology. We cannot assure you that our current customers will continue to use our VGF-produced substrates or that additional companies will purchase our products manufactured from the VGF technique. Failure to gain increased market acceptance of our VGF technique by either current or prospective customers could materially adversely affect our operating results, which in turn could cause our stock price to fall.

A significant portion of our prospective customers for our substrates are wireless communications manufacturers, fiber optic communications manufacturers and manufacturers of other high-speed semiconductor devices that are produced from GaAs substrates using either the LEC or HB techniques. To establish the VGF technique as a preferred process for producing substrates for these prospective customers, we must offer products with superior prices and performance on a timely basis and in sufficient volumes. We must also overcome the reluctance of these customers to purchase our GaAs substrates due to possible perceptions of risks relating to concerns about the quality and cost-effectiveness of our GaAs substrates when compared to substrates produced by the traditional LEC or HB techniques. In addition, potential GaAs substrate customers may be reluctant to rely on a relatively small company for critical materials used to manufacture their semiconductor devices.

If we do not achieve acceptable yields of crystals and the successful and timely production of substrates, the shipment of our products will be delayed and our revenues will decline. The highly complex processes of growing crystals as well as other steps involved in manufacturing substrates that we engage in can be adversely affected by the following factors:

- chemical or physical defects in the crystals;
- contamination of the manufacturing environment;

- substrate breakage;
- equipment failure; and
- performance of personnel involved in the manufacturing process.

Our operating results have been adversely affected in the past due to the occurrence of a combination of these factors, which resulted in product shipment delays and adversely affected our business.

A significant portion of our manufacturing costs are fixed. As a result, we must increase the production volume of substrates and improve yields in order to reduce unit costs, increase margins and maintain and improve our results of operations. Any significant decrease in production volume and yields could materially harm our business.

In the past, we have sometimes manufactured substrates that have not met the manufacturing process requirements of our customers. We have fixed these occurrences through minor changes to the substrates or the manufacturing process. Recurrence of these problems and our inability to solve them may materially hurt our performance.

In 1997, we began producing and shipping Ge and InP substrates in commercial volume. We also understand that we must achieve the same manufacturing capability for six inch GaAs wafers. We cannot assure you that we will be able to manufacture the larger GaAs substrate in commercial volumes with acceptable yields. Our business and results of operations will be materially adversely affected if we experience low yields of these successfully developed substrates.

Because substantially all of our revenues of our AXT substrate division are derived from sales of our GaAs substrates, we are dependent on widespread market acceptance of these products. We currently derive substantially all of our substrate revenues from sales of our GaAs substrates. If there is a decrease on demand for GaAs substrates by semiconductor device manufacturers or if our competitors introduce new substrates for electronics applications, such as wireless communications, fiber optic communications and other high-speed semiconductor devices, and opto-electronic applications, such as lasers and LEDs, our revenues may decline and our business will be materially adversely affected. We expect that revenues from GaAs substrates will account for a significant majority of our revenues for the next several years.

Further, other companies, including IBM, are actively involved in developing other devices which could provide the same high-performance, low power capabilities as GaAs-based devices at competitive prices, such as silicon-germanium based devices for use in certain wireless applications. If these silicon-germanium based devices are successfully developed and semiconductor device manufacturers adopt them, demand for GaAs substrates could decrease. This development could cause our revenues to fall.

To be successful, we must develop and introduce in a timely manner new substrates and continue to improve our current substrates to address customer requirements and compete effectively on the basis of price and performance. We must also continue to develop our light-emitting and laser diode products, and develop new markets for this technology, as well as for our laser pointing and alignment products. We cannot assure you that our product development efforts will be successful or that our new products will achieve market acceptance. To the extent that product improvements and new product introductions do not achieve market acceptance, our business will be materially adversely affected. In 1997, we began commercial shipments of Ge and InP substrates and are currently developing other substrates, including galliumnitride and silicon carbide. Factors that may affect the success of product improvements and product introductions include the development of markets for such improvements and substrates, achievement of acceptable yields, price and market acceptance. Many of these factors are beyond our control.

Our limited ability to protect our intellectual property may adversely affect our ability to compete. We rely on a combination of patents, copyrights, trademarks and trade secret laws and contractual restrictions on employees, consultants and third parties from disclosure to protect our intellectual property rights. Despite our efforts to protect our proprietary rights, unauthorized parties may attempt to copy or otherwise obtain and use our products or technology. Policing unauthorized use of our products is difficult, and we cannot be certain that the steps we have taken will prevent misappropriation of our technology, particularly in foreign countries

30

32

where the laws may not protect our proprietary rights as fully as in the United States. We believe that, due to the rapid pace of technological innovation in the GaAs and other substrate markets, our ability to establish and maintain a position of technology leadership in the industry depends more on the skills of our development personnel than upon the legal protections afforded our existing technologies.

To date, we have been issued one U.S. patent, which relates to the VGF technique, and have two U.S. patent applications pending, one that relates to the VGF technique. Additionally, we have one pending application for a Japanese patent but no issued foreign patents. We do not have any patents on our light-emitting or laser diode technology, although we do have six patents relating to our laser pointing and alignment products. We cannot assure you that:

- the pending or any future U.S. or foreign patent applications will be approved;
- any issued patents will protect our intellectual property;
- third parties will not challenge the ownership rights of the patents or the validity of the patent applications;
- the patents owned by others will not have an adverse effect on our ability to do business; or
- others will not independently develop similar or competing technology or design around any patents issued to us.

Moreover, the laws of certain foreign countries may not lend protection to our patents to the same extent as the laws of the United States.

If we infringe the proprietary rights of others, we may be forced to enter costly royalty or licensing agreements. We could in the future receive a claim that we are infringing the patent, trademark, copyright or other proprietary rights of other third parties. If any claims were asserted against us for violation of patent, trademark, copyright or other similar laws as a result of the use by us, our customers or other third parties of our products, those claims would be costly and time-consuming to defend, would divert our attention and could cause product delays. In addition, if we discovered we violated other third party rights, we could be required to enter into costly royalty or licensing agreements as a result of those claims. These royalty or licensing agreements may adversely affect our operating results.

If we fail to comply with stringent environmental regulations, we may be subject to significant fines or the cessation of our operations. We are subject to federal, state and local environmental laws and regulations. Any failure to comply with present or future environmental laws and regulations could result in the imposition of significant fines on us, the suspension of production or a cessation of operations. In addition, existing or future changes in laws or regulations may require us to incur further significant expenditures or liabilities, or additional restriction in our operations. We are cooperating with Cal-OSHA in an investigation regarding higher than permissible levels of potentially hazardous materials in certain areas of the manufacturing facility

in Fremont, California. Although no accidents or injuries have resulted from this matter and the facility is in full operation, civil and criminal penalties could be imposed against us by Cal-OSHA.

We purchase critical raw materials required to grow crystals from single or limited sources, and could lose sales if these sources fail to fill our needs. We do not have any long-term supply contracts, except for Ge, with any of our suppliers, and we currently purchase raw materials required to grow crystals from single or a limited number of suppliers. For example, we purchase a majority of the gallium we use from GEO Gallium.

Due to our reliance on a limited group of suppliers, we are exposed to several risks including the potential inability to obtain adequate supply of materials, reduced control overpricing of our products and meeting customer delivery schedules.

We have experienced delays receiving orders of certain materials due to shortages. We may continue to experience these delays due to shortages of materials and as a result be subject to higher costs. If we are unable to receive adequate and timely deliveries of critical raw materials, relationships with current and future customers could be harmed, which could cause our revenues to decline.

31

33

We are subject to additional risks as a result of our recent acquisition of new manufacturing facilities. In connection with further expanding our manufacturing capacity, we purchased an additional 58,000 square foot facility in Fremont, California and a 31,000 square foot facility in Beijing, China, in 1998. These new facilities subject us to significant risks, including:

- unavailability or late delivery of process equipment;
- unforeseen engineering problems;
- work stoppages;
- unanticipated cost increases; and
- unexpected changes or concessions required by local, state or federal regulatory agencies with respect to necessary licenses, land use permits and building permits.

If any of the above occur, our operations at the new facilities would be adversely affected, which may cause our sales to decline and the price of our stock to fall.

The additional fixed operating expenses associated with the new facilities may only be offset by sufficient increases in product revenues. We cannot assure you that the demand for our products will grow as we currently expect, and if this does not occur, we may not be able to offset the costs of operating the new facilities, which may materially adversely affect our results of operations.

We currently only have two machines (MOCVD's) capable of producing light-emitting diode wafers. Damage to or failure of these machines could cause production to stop or delay while repairs or replacements are being made. We do not keep substantial inventory of LED wafers to enable production to continue while the MOCVD machine is being repaired. Any delay in production of the LED wafers while the MOCVD is being repaired could result in loss of revenue.

We must effectively respond to rapid technological changes by continually introducing new products that achieve broad market acceptance. We and our customers compete in a market that is characterized by rapid technological changes and continuous improvements in substrates. Accordingly, our future success depends upon whether we can apply our proprietary VGF technique to develop new substrates that meet the needs of customers and compete effectively

on the basis of quality, price and performance. Our success in the light-emitting and laser diode markets depends in part upon our ability to further our development of this technology and develop additional markets and uses for the products. If we are unable to timely develop new, economically viable products that meet market demands, our revenues will decline, which could adversely affect our results of operation and cause the price of our stock to fall.

It is difficult to predict accurately the time required and the costs involved in researching, developing and engineering new products. Thus, our actual development costs could exceed budgeted amounts and our product development schedules could require extension. We have experienced product development delays in the past and may experience similar delays in the future. Any significant delays could harm our business. For example, our introduction of InP substrates was delayed approximately six months as a result of delays in the finalization of the manufacturing process for these substrates.

If we are unable to introduce reliable quality products, we could suffer from reduced orders, higher manufacturing costs, product returns and additional service expenses, all of which could result in lower revenues.

Our substrates are typically one of many components used in semiconductor devices that our customers produce. Demand for our products is therefore subject to many factors beyond our control, including:

- demand for our customers' products;
- competition faced by our customers in their particular industries;
- the technical, sales and marketing and management capabilities of our customers; and
- the financial and other resources of our customers.

32

34

If, as a result of any of these factors, demand for our products declines, our business will suffer.

Intense competition in the market for GaAs substrates could prevent us from increasing revenues and sustaining profitability. The market for GaAs substrates is intensely competitive. If we cannot successfully compete in this market, our operating results will be harmed. In the semi-insulating GaAs substrates market, our principal competitors include:

- Freiburger Compound Materials;
- Hitachi Cable;
- Litton Airtron; and
- Sumitomo Electric Industries.

We also compete with manufacturers that produce GaAs substrates for their own use. In addition, we compete with companies, such as IBM, that are actively developing alternative materials to GaAs. As we enter new markets, such as the Ge and InP substrate markets, we expect to face competitive risks similar to those for our GaAs substrates.

Many of our competitors and potential competitors have a number of significant advantages over us, including:

- having been in the business longer than we have;
- more manufacturing experience;
- more established technologies than our VGF technique;

- broader name recognition; and
- significantly greater financial, technical and marketing resources.

Our competitors could develop enhancements to the LEC, HB or VGF techniques that are superior to ours in terms of price and performance. Our competitors also could intensify price-based competition, which would result in lower prices and reduced margins.

The market for laser-pointing and alignment devices is highly competitive and subject to pressure to decrease the price at which the devices are sold. Lyte Optronics has opened a manufacturing facility in China enabling production of components at reduced cost; however this facility has only recently begun operating and may not be able to handle the volume production that may be required to meet customer demand. In addition, while we continue to remain competitive in our pricing structure of laser pointing and alignment devices, if prices continue to fall, we may not be able to produce and sell these products at a profit.

We derive a significant portion of our revenues from international sales and our ability to sustain and increase our international sales involves significant risks. Our ability to grow will depend in part on the expansion of international sales and operations, which have and are expected to constitute a significant portion of our revenues. Our failure to successfully expand our international operations may cause our revenues not to grow as much as we anticipate, which could cause our stock price to fall.

International sales, excluding Canada, represented 29.6% and 45.1% of our total revenues in the years ended December 31, 1998 and December 31, 1999, respectively. Sales to customers located in Japan and other Asian countries represented 22.3% and 34.9% of our total revenues in the years ended December 31, 1998 and December 31, 1999. We expect that sales to customers outside the United States, including device manufacturers located in Japan and other Asian countries that sell their products worldwide, will continue to represent a significant portion of our revenues.

Our dependence on international sales involves a number of risks, including:

- import restrictions and other trade barriers;
- unexpected changes in regulatory requirements;

33

35

- longer periods to collect accounts receivable;
- export license requirements;
- political and economic instability, in particular, the current instability of the economies of Japan and other Asian countries; and
- unexpected changes in diplomatic and trade relationships.

Our sales, except for sales to our Japanese and Taiwanese customers, are denominated in U.S. dollars. Thus, increases in the value of the dollar could increase the price of our products in non-U.S. markets and make our products more expensive than competitors' products in such markets. For example, doing business in Japan subjects us to fluctuations in the exchange rates between the U.S. dollar and the Japanese yen. In the year ended December 31 1998, we incurred foreign exchange losses of \$24,000, and a foreign exchange gain of \$652,000 in the year ended December 31, 1999. If we do not effectively manage the risks associated with international sales, our business and financial condition could be materially adversely affected. To minimize our foreign exchange risk, we have purchased foreign exchange contracts to hedge against

certain trade accounts receivable in Japanese yen. Because we currently denominate sales in U.S. dollars except in Japan and Taiwan, we do not anticipate that the adoption of the Euro as a functional legal currency of certain European countries will materially affect our business.

If we lose key personnel or are unable to hire additional qualified personnel as necessary, we may not be able to successfully manage our business or achieve our objectives. Our success depends to a significant degree upon the continued service of Morris S. Young, Ph.D., AXT's President and Chief Executive Officer, as well as other key management and technical personnel. We neither have long-term employment contracts with, nor key person life insurance on, any of our key personnel, including any of the key personnel from our acquisition of Lyte Optronics. In addition, our management team has limited experience as executive officers of a public company.

We believe our future success will also depend in large part upon our ability to attract and retain highly skilled managerial, engineering, sales and marketing, finance and manufacturing personnel. The competition for these employees is intense, especially in Silicon Valley, and we cannot assure you that we will be successful in attracting and retaining new personnel. The loss of the services of any of our key personnel, the inability to attract or retain qualified personnel in the future or delays in hiring required personnel, particularly engineers, could make it difficult for us to manage our business and meet key objectives, including the introduction of new products on time.

Continued rapid growth may strain our operations. In addition to our recent acquisition of Lyte Optronics, we have recently experienced a period of rapid growth and expansion that has placed, and continues to place, a significant strain on our operations. To accommodate this anticipated growth, we will be required to:

- improve existing and implement new operational and financial systems, procedures and controls;
- hire, train and manage additional qualified personnel;
- effectively manage multiple relationships with our customers, suppliers and other third parties; and
- maintain effective cost controls.

If we are not able to install adequate control systems in an efficient and timely manner, or if our current or planned personnel systems, procedures and controls are not adequate to support our future operations, our sales may not grow and our business will suffer. We are in the process of installing a new management information system; however, the functionality of this new system has not been fully implemented. The difficulties associated with installing and implementing these new systems, procedures and controls has placed and will continue to place a significant burden on our management and our internal resources. In addition, international growth will require expansion of our worldwide operations and enhance our communications infrastructure. Any delay in the implementation of these new or enhanced systems, products and controls, or any disruption in the transition to these new or enhanced systems, products and controls, could adversely affect

our ability to accurately forecast sales demand, manage manufacturing, purchasing and inventory levels, and record and report financial and management information on a timely and accurate basis. Our inability to manage growth effectively could affect our revenues and adversely impact our profitability.

In addition, Lyte Optronics maintains separate operational and financial systems, procedures and controls that must be integrated with or replaced by our systems. This integration will take time and divert management attention and resources. If we are unable to timely integrate or replace these systems, we

maybe unable to accurately forecast sales demand, manage manufacturing, purchasing and inventory levels for the two divisions acquired with Lyte Optronics, nor record and report financial and management information on a timely basis for these divisions, which could adversely affect our ability to timely produce consolidated financial information.

We may need additional capital to fund our future operations, which may not be available. We believe that our cash balances and cash available from credit facilities and future operations will enable us to meet our working capital requirements for at least the next 12 months. If cash from future operations is insufficient, or if cash is used for acquisitions or other currently unanticipated uses, we may need additional capital. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the issuance of such securities could result in dilution to existing stockholders.

In December 1998, we raised approximately \$11.6 million by issuing variable rate taxable demand revenue bonds series 1998 for:

- the purchase of a commercial building and to finance tenant improvements at 4281 Technology Drive, Fremont, California;
- the refinance an existing loan and to finance tenant improvements on our principal offices; and
- the permanent financing for an existing bank construction loan.

These debt securities have rights, preferences and privileges that are senior to holders of common stock. We cannot assure you that if we required additional capital, it will be available on acceptable terms, or at all. If we are unable to obtain additional capital, we may be required to reduce the scope of our planned product development and marketing efforts, which would materially adversely affect our business, financial condition and operating results. See "Management's Discussion and Analysis of Financial Condition and Results of Operations."

Our executive officers and directors control 19% of our common stock and are able to significantly influence matters requiring stockholder approval. Executive officers, directors and entities affiliated with them currently own approximately 19% of our outstanding common stock. These stockholders, if acting together, are able to significantly influence all matters requiring our stockholder approval, including the election of directors and the approval of mergers or other business combination transactions. This concentration of ownership could delay or prevent a change of control of AXT and could reduce the likelihood of an acquisition of AXT at a premium price.

Provisions in our charter or agreements may delay or prevent a change of control. Provisions in our amended and restated certificate of incorporation and bylaws may have the effect of delaying or preventing a merger or acquisition or a change of control or changes in our management. These provisions include:

- the division of the board of directors into three separate classes of three year terms;
- the right of the board to elect the director to fill a space created by the expansion of the board;
- the ability of the board to alter our bylaws;
- authorizing the issuance of up to 2,000,000 shares of "blank check" preferred stock; and
- the requirement that at least 10% of the outstanding shares are needed to call a special meeting of stockholders.



Furthermore, because we are incorporated in Delaware, we are subject to the provisions of section 203 of the Delaware General Corporation Law. These provisions prohibit large stockholders, in particular those owning 15% or more of the outstanding voting stock, from consummating a merger or combination with a corporation unless:

- 66 2/3% of the shares of voting stock not owned by this large stockholder approve the merger or combination, or
- the board of directors approves the merger or combination or the transaction which resulted in the large stockholder owning 15% or more of our outstanding voting stock.

Our stock price has been and may continue to be volatile and is dependent on external and internal factors. Our stock has fluctuated significantly since we began trading on the Nasdaq National Market. For the fiscal year ended December 31, 1999, our stock price closed as low as \$9.063 and as high as \$35.125. Various factors could cause the price of our common stock to continue to fluctuate substantially, including:

- actual or anticipated fluctuations in our quarterly or annual operating results;
- changes in expectations as to our future financial performance or changes in financial estimates of securities analysts;
- announcements of technological innovations by us or our competitors;
- new product introduction by us or our competitors;
- large customer orders or order cancellations; and
- the operating and stock price performance of other comparable companies.

In addition, the stock market in general has experienced extreme volatility that often has been unrelated to the operating performance of particular companies. These broad market and industry fluctuations may adversely affect the trading price of our common stock, regardless of our actual operating performance.

#### ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

Since many of our Japanese invoices are denominated in yen, we have bought foreign exchange contracts to hedge against certain trade accounts receivable in Japanese yen. As of December 31, 1999, our outstanding commitments with respect to the foreign exchange contracts had a total value of approximately \$1.9 million equivalent. Many of the contracts were entered six months prior to the due date and the dates coincide with the receivable terms we have on the invoices. By matching the receivable collection date and contract due date, we attempt to minimize the impact of foreign exchange fluctuation.

#### ITEM 8. CONSOLIDATED FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

The Consolidated Financial Statements and Supplementary Data required by this item are set forth at the pages indicated at Item 14 (a).

#### ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURES

None.

### PART III

The SEC allows us to include information required in this report by referring to other documents or reports we have already or will soon be filing. This is called "Incorporation by Reference." We intend to file our definitive proxy statement pursuant to Regulation 14A not later than 120 days after the end

of the fiscal year covered by this report, and certain information therein is incorporated in this report by reference.

36

38

ITEM 10. DIRECTORS AND EXECUTIVE OFFICERS OF THE REGISTRANT.

The information required by this Item is incorporated by reference to information set forth in our definitive proxy statement under the heading "Proposal No.1 -- Election of Directors" and in Part I of this report under the heading "Executive Officers of the Registrant."

The information required by this Item with respect to compliance with Section 16(a) of the Securities Exchange Act of 1934 is incorporated by reference to information set forth in the definitive Proxy Statement under the heading "Executive Compensation and Other matters."

ITEM 11. EXECUTIVE COMPENSATION.

The information required by this Item is incorporated by reference to information set forth in our definitive proxy statement under the heading "Executive Compensation and Other matters."

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT.

The information required by this Item is incorporated by reference to information set forth in our definitive proxy statement under the heading "Security Ownership of Certain Beneficial Owners and Management."

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS.

The information required by this Item is incorporated by reference to information set forth in our definitive proxy statement under the heading "Certain Relationships and Related Transactions."

37

39

PART IV

ITEM 14. EXHIBITS, FINANCIAL STATEMENT SCHEDULES, AND REPORTS ON FORM 8-K

(a) The following documents are filed as part of this report:

(1) Financial Statements:

INDEX TO CONSOLIDATED FINANCIAL STATEMENTS

	PAGE
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Report of Independent Accountants.....	39-40
Consolidated Balance Sheets as of December 31, 1998 and 1999.....	41
Consolidated Income Statements for the Years Ended December 31, 1997, 1998, and 1999.....	42
Consolidated Statements of Stockholders' Equity for the Years Ended December 31, 1997, 1998 and 1999.....	43
Consolidated Statements of Cash Flows for the Years Ended December 31, 1997, 1998, and 1999.....	44
Notes to Consolidated Financial Statements.....	45

(2) Financial Statement Schedules

All schedules have been omitted because the required information is not present or not present in amounts sufficient to require submission of the schedules or because the information required is included in the Consolidated Financial Statements or Notes thereto.

(3) Exhibits

See Index to Exhibits on page 59 hereof. The exhibits listed in the accompanying Index to Exhibits are filed as part of this report.

(b) Reports on Form 8-K

None

38

40

REPORT OF INDEPENDENT ACCOUNTANTS

To the Board of Directors  
and Shareholders of  
American Xtal Technology, Inc.

In our opinion, based on our audits and the report of other auditors, the accompanying consolidated balance sheets and the related consolidated statements of income, of shareholders' equity and of cash flows present fairly, in all material respects, the financial position of American Xtal Technology, Inc. and its subsidiaries at December 31, 1999 and 1998, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 1999 in conformity with accounting principles generally accepted in the United States. These financial statements are the responsibility of the Company's management; our responsibility is to express an opinion on these financial statements based on our audits. The consolidated financial statements give retroactive effect to the merger of Lyte Optronics, Inc. on May 28, 1999 in a transaction accounted for as a pooling of interests, as described in Note 2 to the consolidated financial statements. We did not audit the financial statements of Lyte Optronics, Inc. at December 31, 1998 and the results of its operations and its cash flows for each of the two years in the period ended December 31, 1998, which statements reflect total assets of \$25,435,000 as of December 31, 1998 and total revenues of \$17,978,000 and \$18,137,000 for each of the two years in the period ended December 31, 1998. Those statements were audited by other auditors whose report thereon has been furnished to us, and our opinion expressed herein, insofar as it relates to the amounts included for Lyte Optronics, Inc., is based solely on the report of the other auditors. We conducted our audits of these statements in accordance with auditing standards generally accepted in the United States, which require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. We believe that our audits and the report of other auditors provide a reasonable basis for the opinion expressed above.

PricewaterhouseCoopers LLP

San Jose, California  
March 20, 2000

39

41

REPORT OF INDEPENDENT ACCOUNTANTS

To the Board of Directors of Lyte Optronics, Inc.:

We have audited the consolidated balance sheet of Lyte Optronics, Inc. (a Nevada corporation) and Subsidiaries as of December 31, 1998, and the related consolidated statements of operations, stockholders' investment and cash flows for the two years in the period ended December 31, 1998 (not presented herein). These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of Lyte Optronics, Inc. and Subsidiaries as of December 31, 1998, and the results of their operations and their cash flows for the two years in the period ended December 31, 1998 in conformity with accounting principles generally accepted in the United States.

ARTHUR ANDERSEN LLP

Los Angeles, California  
May 27, 1999

40

42

AMERICAN XTAL TECHNOLOGY, INC.

CONSOLIDATED BALANCE SHEETS  
(IN THOUSANDS, EXCEPT SHARE DATA)

	DECEMBER 31,	
	1998	1999
ASSETS		
Current assets		
Cash and cash equivalents.....	\$ 16,438	\$ 6,062
Accounts receivable, net of allowance for doubtful accounts of \$948 and \$728.....	13,128	17,561
Inventories.....	25,300	35,470
Prepaid expenses and other current assets.....	3,271	8,945
Deferred income taxes.....	2,452	3,210
	-----	-----
Total current assets.....	60,589	71,248
Property, plant and equipment, net.....	37,624	40,865
Receivable from officers and stockholders.....	369	596
Other assets.....	1,558	809
Goodwill, net.....	2,843	2,244
	-----	-----
Total assets.....	\$102,983	\$115,762
	=====	=====
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Short-term bank borrowing.....	\$ 1,191	\$ 8,798
Accounts payable.....	8,587	10,794
Accrued liabilities.....	5,242	7,464
Current portion of long-term debt.....	3,044	2,550
Current portion of capital lease obligation.....	881	1,180
	-----	-----

Total current liabilities.....	18,945	30,786
Long-term debt, net of current portion.....	19,842	18,501
Long-term capital lease, net of current portion.....	2,428	3,606
Note payable to officers and stockholders.....	604	410
	-----	-----
Total liabilities.....	41,819	53,303
	-----	-----

Contingencies (Note 11)

Stockholders' equity:

Preferred stock,

\$ .001 par value per share; 1,000,000 shares authorized; 980,655 shares issued and outstanding.....	1	1
Additional paid-in capital.....	3,999	3,989

Common stock,

\$ .001 par value per share; 100,000,000 shares authorized; 18,393,113 and 18,658,919 shares issued and outstanding, respectively.....	18	19
Additional paid-in capital.....	45,248	46,321
Deferred compensation.....	(327)	(217)
Retained earnings.....	12,198	12,370
Cumulative translation adjustments.....	27	(24)
	-----	-----

Total stockholders' equity..... 61,164 62,459

Total liabilities and stockholders' equity..... \$102,983 \$115,762

=====

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

AMERICAN XTAL TECHNOLOGY, INC.

CONSOLIDATED INCOME STATEMENTS  
(IN THOUSANDS, EXCEPT SHARE AND PER SHARE DATA)

	YEARS ENDED DECEMBER 31,		
	1997	1998	1999
	-----	-----	-----
Revenues.....	\$43,313	\$61,314	\$81,521
Cost of revenues.....	29,650	38,949	57,369
	-----	-----	-----
Gross profit.....	13,663	22,365	24,152
Operating expenses:			
Selling, general and administrative.....	9,921	11,538	14,016
Research and development.....	1,289	2,684	3,086
Acquisition costs.....	--	--	2,810
	-----	-----	-----
Total operating expenses.....	11,210	14,222	19,912
	-----	-----	-----
Income from operations.....	2,453	8,143	4,240
Interest expense.....	(793)	(1,481)	(2,150)
Interest and other income.....	(57)	598	729
	-----	-----	-----
Income before provision for income taxes.....	1,603	7,260	2,819
Provision for income taxes.....	783	2,976	2,139
	-----	-----	-----
Income before extraordinary item.....	820	4,284	680
Extraordinary item, net of tax benefits.....	--	--	508
	-----	-----	-----
Net income.....	\$ 820	\$ 4,284	\$ 172
	=====	=====	=====
Basic income per share:			
Income before extraordinary item.....	\$ 0.22	\$ 0.27	\$ 0.04
Extraordinary item.....	--	--	(0.03)
Net income.....	0.22	0.27	0.01

Diluted income per share:			
Income before extraordinary item.....	\$ 0.06	\$ 0.26	\$ 0.03
Extraordinary item.....	--	--	(0.03)
Net income.....	0.06	0.26	0.01
Shares used in net income per share calculations:			
Basic.....	3,697	16,076	18,655
Diluted.....	13,598	16,325	19,771

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

42

44

AMERICAN XTAL TECHNOLOGY, INC.

CONSOLIDATED STATEMENT OF STOCKHOLDERS' EQUITY  
(IN THOUSANDS, EXCEPT SHARE DATA)

	PREFERRED STOCK		COMMON STOCK		DEFERRED COMPENSATION	RETAINED EARNINGS	ACCUMULATED OTHER COMPREHENSIVE INCOME CUMULATIVE TRANSLATION ADJUSTMENTS
	SHARES	AMOUNT	SHARES	AMOUNT			
Balance at January 1, 1997.....	8,928,737	\$2,618	3,648,315	\$ 629	\$ --	\$ 7,094	\$ (104)
Common stock options exercised.....			84,825	154			
Issuance of Series C convertible preferred stock.....	1,200,000	5,935					
Issuance of Employee Stock Purchase Plan stock.....			67,000	232			
Deferred compensation.....				322	(322)		
Amortization of deferred compensation.....					102		
Comprehensive income							
Net income.....						820	
Other comprehensive income							
Currency translation adjustment.....							(93)
Balance at December 31, 1997.....	10,128,737	\$8,553	3,800,140	\$ 1,337	\$ (220)	\$ 7,914	\$ (197)
Common stock options exercised.....			71,407	138			
Issuance of common stock.....			123,153	724			
Issuance of common stock and Series A preferred stock in connection with the acquisition of Alpha Photonics, Inc.....	980,655	4,000	1,266,464	7,500			
Issuance of common stock as settlement of trade payables.....			4,105	25			
Reacquisition and retirement of common stock.....			(60,689)				
Issuance of common stock in connection with financing.....			184,796	994			
Conversion of Series C convertible preferred stock to common stock.....	(10,128,737)	(8,553)	10,128,737	8,553			
Issuance of common stock upon initial public offering.....			2,875,000	25,792			
Deferred compensation.....				203	(203)		
Amortization of deferred compensation.....					96		
Comprehensive income							
Net income.....						4,284	
Other comprehensive income							
Currency translation adjustment.....							224
Balance at December 31, 1998.....	980,655	\$4,000	18,393,113	\$45,266	\$ (327)	\$12,198	\$ 27
Common stock options exercised.....			200,679	648			
Repurchase of shares of common stock in connection with the early extinguishment of debt.....			(21,064)	(211)			
Acquisition costs paid by shareholders.....		(10)		(139)			
Issuance of Employee Stock Purchase Plan stock.....			86,191	776			
Deferred compensation.....					--		
Amortization of deferred compensation.....					110		
Comprehensive income							
Net income.....						172	
Other comprehensive income							
Currency translation adjustment.....							(51)
Balance at December 31, 1999.....	980,655	\$3,990	18,658,919	\$46,340	\$ (217)	\$12,370	\$ (24)
	=====	=====	=====	=====	=====	=====	=====
	TOTAL	COMPREHENSIVE INCOME					
	-----	-----					
Balance at January 1, 1997.....	\$10,237						
Common stock options exercised.....	154						
Issuance of Series C convertible preferred stock.....	5,935						
Issuance of Employee Stock Purchase Plan stock.....	232						
Deferred compensation.....	--						
Amortization of deferred							

compensation.....	102		
Comprehensive income			
Net income.....	820	\$	820
Other comprehensive income			
Currency translation			
adjustment.....	(93)	(93)	
	-----	-----	
Balance at December 31, 1997.....	\$17,387	\$	727
		=====	
Common stock options exercised....	138		
Issuance of common stock.....	724		
Issuance of common stock and Series			
A preferred stock in connection			
with the acquisition of Alpha			
Photonics, Inc.....	11,500		
Issuance of common stock as			
settlement of trade payables....	25		
Reacquisition and retirement of			
common stock.....	--		
Issuance of common stock in			
connection with financing.....	994		
Conversion of Series C convertible			
preferred stock to common			
stock.....	--		
Issuance of common stock upon			
initial public offering.....	25,792		
Deferred compensation.....	--		
Amortization of deferred			
compensation.....	96		
Comprehensive income			
Net income.....	4,284	4,284	
Other comprehensive income			
Currency translation			
adjustment.....	224	224	
	-----	-----	
Balance at December 31, 1998.....	\$61,164	\$4,508	
		=====	
Common stock options exercised....	648		
Repurchase of shares of common			
stock in connection with the			
early extinguishment of debt....	(211)		
Acquisition costs paid by			
shareholders.....	(149)		
Issuance of Employee Stock Purchase			
Plan stock.....	776		
Deferred compensation.....	--		
Amortization of deferred			
compensation.....	110		
Comprehensive income			
Net income.....	172	172	
Other comprehensive income			
Currency translation			
adjustment.....	(51)	(51)	
	-----	-----	
Balance at December 31, 1999.....	\$62,459	\$	121
	=====	=====	

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

43

45

AMERICAN XTAL TECHNOLOGY, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS  
(IN THOUSANDS)

	YEARS ENDED DECEMBER 31,		
	1997	1998	1999
	-----	-----	-----
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net income.....	\$ 820	\$ 4,284	\$ 172
Adjustments to reconcile net income to cash provided by (used in) operations:			
Depreciation.....	1,341	2,959	5,616
Deferred income taxes.....	(518)	(1,126)	758
Amortization of goodwill.....		149	599
Stock compensation.....	102	96	110
Other.....	94	5	--
Changes in assets and liabilities:			
Accounts receivable.....	(1,984)	(4,192)	(4,433)
Inventories.....	(5,616)	(11,074)	(10,170)
Prepaid expenses.....	(435)	(1,610)	(5,674)
Other assets.....	(49)	(248)	749
Accounts payable.....	1,928	1,540	2,207
Accrued liabilities.....	2,168	533	2,222
	-----	-----	-----
Net cash provided by (used in) operating activities.....	(2,149)	(8,684)	(7,844)

CASH FLOWS FROM INVESTING ACTIVITIES:	-----	-----	-----
Purchases of property, plant and equipment.....	(5,227)	(17,175)	(7,527)
Net cash received in connection with purchase of Alpha....		539	--
	-----	-----	-----
Net cash used in investing activities.....	(5,227)	(16,636)	(7,527)
	-----	-----	-----
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from (payments of):			
Issuance of common stock.....	386	27,648	1,074
Issuance of convertible preferred stock.....	5,935	--	--
Capital leases.....	(33)	(263)	(1,379)
Long-term debt borrowings.....	2,654	18,739	3,072
Long-term debt borrowings.....		(5,574)	(4,907)
Line of credit.....	779	(2,320)	7,607
Notes payable to officers and shareholders.....	(252)	110	(421)
	-----	-----	-----
Net cash provided by financing activities.....	9,469	38,340	5,046
	-----	-----	-----
Effect of exchange rate changes.....	(65)	219	(51)
	-----	-----	-----
Net increase in cash and cash equivalents.....	2,028	13,239	(10,376)
Cash and cash equivalents at the beginning of the period....	1,171	3,199	16,438
	-----	-----	-----
Cash and cash equivalents at the end of the period.....	\$ 3,199	\$ 16,438	\$ 6,062
	=====	=====	=====
Non cash activity:			
Purchase of property, plant and equipment through capital leases.....	\$ --	\$ --	\$ 2,856
	=====	=====	=====
SUPPLEMENTAL DISCLOSURES:			
Interest paid.....	\$ 802	\$ 1,481	\$ 2,288
	=====	=====	=====
Income taxes paid.....	\$ 1,814	\$ 4,338	\$ 6,268
	=====	=====	=====

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

44

46

AMERICAN XTAL TECHNOLOGY, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

NOTE 1. THE COMPANY AND SUMMARY OF ACCOUNTING POLICIES

The Company

American Xtal Technology, Inc., or AXT designs, develops, manufactures and distributes high-performance compound semiconductor substrates, laser-diodes, light-emitting diodes, or LEDs and consumer and commercial products utilizing laser-diodes and LEDs.

AXT expanded its markets in 1999 through the acquisition of Lyte Optronics, Inc. (See note 2). The Lyte Optronic's business now operates as two separate divisions of AXT: the Visible Emitter Division, focusing on manufacturing LEDs and laser-diodes, and the Consumer Products division, focusing on designing and marketing of laser-pointing, laser-alignment and LED products. The Substrate division comprises the third operating unit of AXT.

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from these estimates.



## Principles of Consolidation

The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. All material intercompany accounts and transactions have been eliminated.

## Foreign Currency Translation

The functional currencies of the Company's Japanese and Chinese subsidiaries are the local currencies. Transaction gains and losses resulting from transactions denominated in currencies other than the US dollar for the Company or other than the local currencies for the subsidiaries are included in the results of operations for the year.

The assets and liabilities of the subsidiaries are translated at the rates of exchange on the balance sheet date. Income and expense items are translated at the average rate of exchange for the period. Gains and losses from foreign currency translation are included as a separate component of stockholders' equity.

## Revenue Recognition

Product revenues are generally recognized upon shipment. We provide an allowance for estimated returns at the time revenue is recognized. Contract revenues are recognized under the percentage of completion method based on costs incurred relative to total contract costs.

## Concentration of Credit Risk

The Company manufactures and distributes GaAs, InP and Ge substrates, visible semiconductor laser diode chips, light emitting diodes, laser pointer products and performs services under research and development contracts. Financial instruments which potentially subject the Company to concentration of credit risk consist primarily of trade accounts receivable. The Company invests primarily in money market accounts and commercial paper instruments. Cash equivalents are maintained with high quality institutions and their composition and maturities are regularly monitored by management.

45

47

AMERICAN XTAL TECHNOLOGY, INC.

## NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

The Company performs ongoing credit evaluations of our customers' financial condition, and limit the amount of credit extended when deemed necessary, but generally do not require collateral.

No customer represented greater than 10% of product revenues in fiscal year 1997, 1998 or 1999.

No customer accounted for 10% or more of the trade accounts receivable balance as of December 31, 1998, and 1999.

## Cash Equivalents

The Company considers all highly liquid debt instruments purchased with an original maturity of three months or less to be cash equivalents.

## Inventory

Inventory is stated at the lower of cost or market, cost being determined using the weighted average method.

## Property, Plant and Equipment

Property, plant and equipment are stated at cost less accumulated

depreciation computed using the straight-line method over the estimated economic lives of the assets, generally five years. Leasehold improvements are amortized over the shorter of the estimated useful life or the term of the lease.

#### Impairment of Long-Lived Assets

Pursuant to Statement of Financial Accounting Standard No. 121, "Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to be Disposed of" ("SFAS 121"), the Company reviews long-lived assets based upon a gross cash flow basis and will reserve for impairment whenever events or changes in circumstances indicate the carrying amount of the assets may not be fully recoverable. Based on its most recent analysis, the Company believes that there was no impairment of its property, plant, equipment and goodwill as of December 31, 1999.

#### Stock-Based Compensation

The Company accounts for stock-based employee compensation arrangements using the intrinsic value method as prescribed in Accounting Principles Board Opinion No. 25, "Accounting for Stock Issued to Employees" and related Interpretations thereof. Accordingly, compensation costs for stock options is measured as the excess, if any, of the market price of the Company's stock at the date of grant over the stock option exercise price. In addition, the Company complies with the disclosure provisions of Statement of Financial Accounting Standard No. 123, "Accounting for Stock-Based Compensation" ("SFAS 123").

#### Income Taxes

The Company accounts for deferred income taxes using the liability method, under which the expected future tax consequences of timing differences between the book and tax basis of assets and liabilities are recognized as deferred tax assets and liabilities.

#### Comprehensive Income

In 1998, the Company adopted Statement of Financial Accounting Standard No. 130 "Reporting Comprehensive Income" ("SFAS 130"). Comprehensive income is defined as the change in equity of a company during a period from transactions and other events and circumstances excluding transactions resulting from investment by owners and distribution to owners. The difference between net income and

46

48

AMERICAN XTAL TECHNOLOGY, INC.

#### NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

comprehensive income for the Company relates to foreign currency translation adjustments. Comprehensive income for the years ended December 31, 1997, 1998, and 1999 is disclosed in the Statement of Stockholders' Equity.

#### Segment Reporting

In 1998, the Company adopted Statement of Financial Accounting Standard No. 131, "Disclosures about Segments of an Enterprise and Related Information" ("SFAS 131"). SFAS 131 requires that companies report separately, in the financial statements, certain financial and descriptive information about operating segment profit or loss, certain specific revenue and expense items, and segment assets. Additionally, companies are required to report information about the revenues derived from their products and service groups, about geographic areas in which the Company earns revenues and holds assets, and about major customers.

#### Recent Accounting Pronouncements

In June 1998, the Financial Accounting Standards Board issued Statement of Financial Accounting Standard No. 133, "Accounting for Derivative Instruments

and Hedging Activities" ("SFAS 133"). SFAS 133 established a new model for accounting for derivatives and hedging activities and supersedes and amends a number of existing accounting standards. SFAS 133 requires that all derivatives be recognized in the balance sheet at their fair market value. In addition, corresponding derivative gains and losses should be either reported in the statement of operations or stockholders' equity, depending on the type of hedging relationship that exists with respect to such derivatives. Adopting the provisions of SFAS 133, which will be effective in fiscal year 2000, is not expected to have a material effect on the Company's consolidated financial statements.

NOTE 2. ACQUISITION

On May 28, 1999, the Company completed a merger with Lyte Optronics, Inc., a Nevada corporation and all of its subsidiaries, including Alpha Photonics, Inc., Lyte Optronics Ltd. (a United Kingdom company) and Advanced Semiconductor (a Xiamen, Peoples Republic of China company). Lyte Optronics, Inc. and its subsidiaries manufacture and distribute visible semiconductor laser diode chips, high brightness visible light emitting diodes and laser pointers.

Under the terms of the merger agreement, the Company issued approximately 2,363,000 shares of our common stock in exchange for all the outstanding shares of Lyte's common stock as well as the outstanding shares of Lyte's Series A preferred stock. The Company also issued approximately 983,000 shares of Series A preferred stock in exchange for all the outstanding shares of Lyte's Series B preferred stock. In addition, the Company assumed and converted Lyte's options and warrants representing 115,000 shares of the Company's common stock.

The merger has been accounted for as a pooling of interests; accordingly, all prior period consolidated financial statements have been restated to include the combined results of operations, financial position, and cash flows of Lyte Optronics, Inc.

The Company incurred costs of approximately \$2,810,000 associated with the merger, which was charged to operations during the quarter ended June 30, 1999, the period in which the merger was consummated.

See Note 9 for selected financial information by business segments.

AMERICAN XTAL TECHNOLOGY, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

NOTE 3. BALANCE SHEET DETAIL

	DECEMBER 31,	
	1998	1999
	(IN THOUSANDS)	
Inventories:		
Raw materials.....	\$ 9,928	\$13,503
Work in process.....	13,171	16,151
Finished goods.....	2,201	5,816
	-----	-----
	\$25,300	\$35,470
	=====	=====
Prepaid expenses:		
Income taxes.....	\$ 312	\$ 4,013
Other.....	2,959	4,932
	-----	-----

	\$ 3,271	\$ 8,945
	=====	=====
Property, plant and equipment:		
Land.....	\$ 2,446	\$ 2,447
Building.....	17,429	18,507
Machinery and equipment.....	23,544	31,058
Leasehold improvements.....	476	2,704
Construction in progress.....	3,144	1,008
	-----	-----
	47,039	55,724
Less: Accumulated depreciation and amortization.....	(9,415)	(14,859)
	-----	-----
	\$37,624	\$40,865
	=====	=====
Accrued liabilities:		
Accrued compensation and other.....	\$ 934	\$ 1,019
Allowance for sales returns.....	1,036	264
Others.....	3,272	6,181
	-----	-----
	\$ 5,242	\$ 7,464
	=====	=====

#### NOTE 4. DEBT

In March 1998, the Company obtained a \$15.0 million line of credit, or LOC which expires in May 2000. The LOC is secured by the Company's business assets, excluding equipment. Borrowings under the LOC bear interest at the bank's prime interest rate plus .5%. The LOC is subject to certain financial covenants regarding current financial ratios and cash flow requirements which have all been met as of December 31, 1999. At December 31, 1998 and 1999, the balances outstanding under the LOC were 0 and \$8.8 million respectively.

On September 11, 1995, the Company obtained a bank loan of up to \$4.5 million to finance the construction of a new commercial building in Fremont, California. The loan, which was due on September 11, 1996, was refinanced with two new loans:

1) On October 1, 1996, the Company obtained a loan for \$3.5 million from a commercial bank. The loan has an interest rate of 8.3% per annum, matures in 2006 and is secured by the land and building. The loan was fully repaid as of December 31, 1998.

2) On August 15, 1996, the Company obtained a \$1.0 million debenture loan from the Bay Area Employment Development Company guaranteed by the U.S. Small Business Administration. The loan

#### NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

has an interest rate of 7.3% per annum, matures in 2016 and is subordinate to the \$3.5 million bank loan. As of December 31, 1998 and 1999, \$0.9 million and \$0.9 million was outstanding under this debenture loan, respectively.

The Company obtained equipment loans from several different banks through two financing companies to finance the purchase of new manufacturing equipment. These loans have a maturity of five years with interest rates ranging from 6.0% to 9.0% per annum. These loans are secured by the machinery and equipment purchased with the loans. As of December 31, 1998 and 1999, \$5.5 million and \$7.2 million was outstanding under these loans, respectively.

In December 1998, the Company completed the sale of \$11.6 million bonds. The bonds, which are secured by a letter of credit from a bank, have a term of

25 years, bear interest at 200 basis points below prime. Repayment of principal and interest under the bonds is by installment payment on a quarterly basis. The Company has an option to redeem in whole or in part of the bonds during the term of the bonds. As of December 31, 1998 and 1999, \$11.6 million and \$11.1 million was outstanding under these loans, respectively.

The Company obtained various notes from banks. The notes bearing interest at rates of prime rate plus 0.5% to 0.75% were secured by assets of the Company. As of December 31, 1998 and 1999, \$3.3 million and \$1.8 million was outstanding under these loans, respectively.

In 1998, the Company also obtained a note from a financing institution in connection with common stock issuance. As of December 31, 1998, the outstanding balance of the note was \$1.5 million, with a face value of \$2.6 million, net of \$1.1 million of unamortized discount. In June 1999, the Company repaid the note. The repayment resulted in an extraordinary loss in the amount of \$508,000, net of tax benefit of \$311,000.

The aggregate future repayments of long-term debt outstanding at December 31, 1999 are \$2.5 million in 2000, \$2.8 million in 2001, \$2.6 million in 2002, \$3.5 million in 2003, \$865,000 in 2004 and \$8.7 million thereafter.

Following the merger with Lyte, the Company repaid Lyte debt that had been obtained at an unfavorable interest rate. The repayment resulted in an extraordinary loss in the amount of \$508,000, net of tax benefits.

NOTE 5. INCOME TAXES

The components of the provision for income taxes were as follows:

	YEARS ENDED DECEMBER 31,		
	1997	1998	1999
	(IN THOUSANDS)		
Current:			
Federal.....	\$1,571	\$ 3,774	\$2,274
State.....	79	442	376
Foreign.....	84	51	247
	-----	-----	-----
Total current	1,734	4,267	2,897
Deferred:			
Federal.....	(808)	(1,097)	(663)
State.....	(143)	(194)	(95)
	-----	-----	-----
Total deferred.....	(951)	(1,291)	(758)
	-----	-----	-----
Total provision.....	\$ 783	\$ 2,976	\$2,139
	=====	=====	=====

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

The following is a reconciliation of the effective income tax rates and the U.S. statutory federal income tax rate:

	YEARS ENDED DECEMBER 31,		
	1997	1998	1999
	-----		

	----	----	----
Statutory federal income tax rate.....	34.0%	34.0%	34.0%
State income taxes, net of federal tax benefits.....	13.5%	2.6%	5.4%
Foreign sales corporation benefit.....	(5.6)%	(3.2)%	(4.8)%
Foreign income taxed at higher rate.....	4.2%	0.8%	0.0%
Acquisition costs.....	0.0%	0.0%	33.9%
Other.....	2.7%	6.9%	7.3%
	----	----	----
Effective tax rate.....	48.8%	41.1%	75.8%
	====	====	====

Deferred tax assets (liabilities) are summarized as follows:

	DECEMBER 31,	
	-----	-----
	1998	1999
	-----	-----
	(IN THOUSANDS)	
Deferred tax assets:		
Accruals and reserves not yet deductible.....	\$1,635	\$2,935
State taxes.....	137	98
Other.....	772	724
Net operating loss.....	925	925
Credits.....	--	128
	-----	-----
	3,469	4,810
Deferred tax liabilities:		
Depreciation.....	(1,017)	(1,600)
	-----	-----
Net deferred tax asset.....	\$2,452	\$3,210
	=====	=====

NOTE 6. NET INCOME PER SHARE

Statement of Financial Accounting Standard No. 128 "Earnings per Share" requires a reconciliation of the numerators and denominators of the basic and diluted net income per share calculations as follows:

	YEARS ENDED DECEMBER 31,								
	-----			-----			-----		
	1997			1998			1999		
	-----			-----			-----		
	NET INCOME	SHARES	PER SHARE AMOUNT	NET INCOME	SHARES	PER SHARE AMOUNT	NET INCOME	SHARES	PER SHARE AMOUNT
	-----	-----	-----	-----	-----	-----	-----	-----	-----
	(IN THOUSANDS, EXCEPT SHARE AND PER SHARE DATA)								
Basic EPS calculation.....	\$820	3,697	\$0.22	\$4,284	16,076	\$0.27	\$172	18,655	\$0.01
Effect of dilutive securities									
Common stock options.....		72			249			1,116	
Convertible preferred stock.....		9,829			--			--	
Diluted EPS calculation.....		13,598	\$0.06		16,325	\$0.26		19,771	\$ --

NOTE 7. COMMON STOCK AND PREFERRED STOCK

In May 1998, the Company completed its initial public offering ("IPO") and issued 2,875,000 shares of its common stock at \$10.00 per share, including the shares from an over-allotment option. The Company

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

received cash of approximately \$25,792,000 net of underwriting discounts, commissions and IPO expenses. Upon the closing of the IPO, all outstanding shares of the Company's then convertible preferred stock were automatically converted into shares of common stock.

On May 28, 1999, the Company completed its acquisition of Lyte Optronics, Inc. Under the terms of the acquisition, the Company issued approximately 2,363,000 shares of common stock and 983,000 shares of nonvoting preferred stock with a 5 percent annual dividend rate and \$4 million liquidation preference over common stock, in exchange for all of the issued and outstanding shares of capital stock of Lyte Optronics. Ten percent of the shares issuable to the Lyte Optronics' shareholders will be held in escrow for up to one year to satisfy any claims that the Company may bring under the agreement during that period.

NOTE 8. EMPLOYEE BENEFIT PLANS

Stock Option Plans

In 1993, the Company adopted the 1993 Stock Option Plan ("1993 Plan") which provides for granting of incentive and non-qualified stock options to employees, consultants, and directors of the Company. Under the 1993 Plan, 880,000 shares of common stock have been reserved for issuance as of December 31, 1999. Options granted under the 1993 Plan are generally for periods not to exceed ten years and are granted at the fair market value of the stock at the date of grant as determined by the board of directors. Options granted under the 1993 Plan generally vest 25.0% upon grant and 25.0% each year thereafter, with full vesting occurring on the third anniversary of the grant date.

In May 1997, the Company adopted the 1997 Stock Option Plan ("1997 Plan") which provides for granting of incentive and non-qualified stock options to employees, consultants and directors of the Company. Under the 1997 Plan, 3,800,000 shares of common stock have been reserved for issuance as of December 31, 1999. Options granted under the 1997 Plan are generally for periods not to exceed ten years (five years if the option is granted to a 10.0% stockholder) and are granted at the fair market value of the stock at the date of grant as determined by the board of directors. Options granted under the 1997 Plan generally vest 25.0% at the end of one year and 2.1% each month thereafter, with full vesting after four years.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

The following summarizes the Company's stock option activity under the 1993 Plan and the 1997 Plan, and related weighted average exercise price within each category for each of the years ended December 31, 1997, 1998, and 1999:

	SHARES AVAILABLE	OPTIONS OUTSTANDING	WEIGHTED AVERAGE OPTION PRICE
	-----	-----	-----
Balance at December 31, 1996.....	322,594	209,202	\$ 1.59
Additional shares authorized.....	1,367,000	--	--
Granted.....	(1,246,951)	1,246,951	5.06
Exercised.....	--	(84,825)	1.59
Cancelled.....	27,701	(27,701)	3.30
	-----	-----	-----
Balance at December 31, 1997.....	470,344	1,343,627	\$ 4.78
Additional shares authorized.....	1,500,000	--	--
Granted.....	(320,599)	320,599	17.95
Exercised.....	--	(71,407)	1.94
Cancelled.....	64,268	(64,268)	5.39
	-----	-----	-----

Balance at December 31, 1998.....	1,714,013	1,528,551	\$ 5.45
Additional shares authorized.....	1,000,000	--	--
Granted.....	(1,547,360)	1,547,360	18.33
Exercised.....	--	(200,679)	4.64
Cancelled.....	289,793	(289,793)	10.25
	-----	-----	-----
Balance at December 31, 1999.....	1,456,446	2,585,439	\$12.68
	=====	=====	=====

At December 31, 1997, 1998, and 1999, options for 461,089, 869,710 and 1,021,725 shares, respectively, were vested.

During the years ended December 31, 1997, 1998, and 1999, the Company granted options for the purchase of 1,246,951 shares, 320,599 shares, and 1,547,360 shares, respectively, of common stock to employees at a weighted average exercise price of \$5.06 per share, \$17.95 per share, and \$18.33 per share, respectively.

Management calculated deferred compensation of \$322,000, \$203,000, and \$0 related to options granted during the years ended December 31, 1997, 1998, and 1999, respectively. Such deferred compensation is amortized over the vesting period relating to these options of which approximately \$102,000, \$96,000, and \$110,000 was amortized during the years ended December 31, 1997, 1998, and 1999, respectively.

AMERICAN XTAL TECHNOLOGY, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

Information relating to stock options outstanding under the 1993 Plan and the 1997 Plan at December 31, 1999 is as follows:

OPTIONS OUTSTANDING			
RANGE OF EXERCISE PRICES:	NUMBER OUTSTANDING	WEIGHTED AVERAGE REMAINING CONTRACTUAL LIFE	WEIGHTED AVERAGE EXERCISE PRICE
-----	-----	-----	-----
\$ 1.20 - \$ 1.90	5,850	0.83	\$ 1.90
\$ 5.00 - \$ 5.00	762,934	7.64	5.00
\$ 5.50 - \$ 7.50	265,190	7.90	6.50
\$ 7.63 - \$ 9.13	344,004	7.35	8.79
\$10.04 - \$17.44	182,161	9.07	12.89
\$17.75 - \$21.19	755,200	9.51	20.73
\$22.69 - \$24.96	270,100	9.63	22.98
	-----	----	-----
	2,585,439	8.47	\$12.68
	=====	=====	=====

OPTIONS VESTED		
RANGE OF EXERCISE PRICES:	NUMBER VESTED	WEIGHTED AVERAGE EXERCISE PRICE
-----	-----	-----



\$1.20 - \$17.44

601,202

\$5.56

Certain Pro Forma Disclosures

In October 1995, SFAS 123 established a fair value based method of accounting for employee stock options. The weighted average grant-date fair value of options granted during the years ended December 31, 1997, 1998 and 1999 (no options were granted during the year ended December 31, 1996) was \$0.49, \$4.57 and \$13.09, respectively. Had compensation cost for the Company's options been determined based on the fair value at the grant dates, as prescribed in SFAS 123, the Company's pro forma net income and net income per share would have been as follows:

	YEARS ENDED DECEMBER 31,		
	1997	1998	1999
	(IN THOUSANDS, EXCEPT PER SHARE DATA)		
Net income:			
As reported.....	\$ 820	\$4,284	\$ 172
Pro forma net income.....	\$ 760	\$3,936	\$(2,747)
Net income per share:			
As reported:			
Basic.....	\$0.22	\$ 0.27	\$ 0.01
Diluted.....	\$0.06	\$ 0.26	\$ --
Pro forma net income:			
Basic.....	\$0.21	\$ 0.24	\$ (0.15)
Diluted.....	\$0.06	\$ 0.24	\$ (0.14)

The fair value of each option grant is estimated on the date of grant using the Black-Scholes option pricing model with the following weighted-average assumptions used for grants during the years ended December 31, 1997, 1998, and 1999; dividend yield of 0.0% for all periods; risk-free interest rates of 6.1%,

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

5.2%, and 5.6% for options granted during the years ended December 31, 1997, 1998, and 1999 respectively; expected lives of 4.5, 5.0, and 5.0 years for options granted during the years ended December 31, 1997, 1998, and 1999 respectively; and volatility of 0%, 75%, and 96% for the years ended December 31, 1997, 1998, and 1999, respectively.

Because additional option grants are expected to be made each year, the above pro forma disclosures are not representative of pro forma effects on reported net income for future years.

Employee Stock Purchase Plan

In May 1997, the Company's board of directors approved an Employee Stock Purchase Plan (the "1997 Purchase Plan"). Under this plan, employees of the Company were allowed to purchase a certain number of shares of common stock by December 31, 1997. A total of 67,000 shares were purchased as of December 31, 1997.

In February 1998, the Company's board of directors approved a 1998 Employee Stock Purchase Plan (the "1998 Purchase Plan") and reserved a total of 250,000 shares of the Company's common stock for issuance thereunder. The Company's shareholders approved the 1998 Purchase Plan in March 1998. A total of 86,000

shares were purchased as of December 31, 1999. The 1998 Purchase Plan permits eligible employees to acquire shares of the Company's common stock through payroll deductions. The common stock purchase price is determined as 85% of the lower of the market price of the common stock at the purchase date or the date of offer to the employee.

#### Retirement Savings Plan

The Company has a 401(k) Savings Plan (the "Savings Plan") which qualifies as a thrift plan under Section 401(k) of the Internal Revenue Code. All full-time U.S. employees are eligible to participate in the Savings Plan after one year from the date of hire. Participants may contribute up to 6.0% of their earnings to the Savings Plan with a discretionary matching amount provided by the Company.

The Company's contributions to the Savings Plan for the years ended December 31, 1997, 1998, and 1999 were \$87,000, \$101,000, and \$146,000 respectively.

#### NOTE 9. SEGMENT AND FOREIGN OPERATIONS INFORMATION

The Company has three reportable segments: 1) Substrates 2) Visible Emitters and 3) Consumer Products.

54

56

#### AMERICAN XTAL TECHNOLOGY, INC.

#### NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

Selected financial information by business segment for the years ended December 31, 1997, 1998, and 1999, is as follows:

	YEAR ENDED DECEMBER 31,		
	1997 (3)	1998 (2)	1999 (1)
	(IN THOUSANDS)		
Substrates			
Net revenues from external customers.....	\$25,335	\$43,177	\$56,732
Operating income (loss).....	5,860	10,416	12,275
Identifiable assets.....	31,395	75,805	88,579
Depreciation expense.....	1,164	2,048	3,616
Capital expenditures.....	4,856	16,385	5,572
Visible emitters			
Net revenues from external customers.....	--	5,897	18,640
Operating income (loss).....	--	1,132	(2,775)
Identifiable assets.....	--	18,917	23,423
Depreciation expense.....	--	686	1,671
Capital expenditures.....	--	633	4,096
Consumer Products			
Net revenues from external customers.....	17,978	12,240	6,149
Operating income (loss).....	(3,407)	(3,405)	(5,260)
Identifiable assets.....	6,401	7,561	3,760
Depreciation expense.....	177	225	329
Capital expenditures.....	371	157	--
Total			
Net revenues from external customers.....	43,313	61,314	81,521
Operating income (loss).....	2,453	8,143	4,240
Identifiable assets.....	37,014	102,283	115,762
Depreciation expense.....	1,341	2,959	5,616
Capital expenditures.....	5,227	17,175	8,857

The Company sells its substrates in the United States and in other parts of the world. Also, the Company has operations in Japan and China. Revenues by geographic location based on the country of the customer were as follows:

	YEAR ENDED DECEMBER 31,		
	1997 (3)	1998 (2)	1999 (1)
	(IN THOUSANDS)		
Net revenues:			
United States.....	\$30,676	\$41,902	\$42,531
Europe.....	5,452	4,469	8,290
Canada.....	1,034	1,356	3,221
Japan Asia Pacific and other.....	6,151	13,587	28,479
Consolidated.....	\$43,313	\$61,314	\$81,521
	=====	=====	=====

55

57

AMERICAN XTAL TECHNOLOGY, INC.

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS -- (CONTINUED)

NOTE 10. RELATED PARTY TRANSACTIONS

During the years ended December 31, 1997, 1998, and 1999, the Company purchased \$1,540,000, \$3,681,000, and \$3,559,000, respectively, of raw materials and manufactured quartz from a supplier which is owned by a family member of an officer.

NOTE 11. COMMITMENTS AND CONTINGENT LIABILITIES

From time to time the Company is involved in litigation in the normal course of business. Management believes that the outcome of matters to date will not have a material adverse effect on the Company's financial position or results of operations.

The Company leases certain office space, manufacturing facilities, and property and equipment under long-term operating leases expiring at various dates through December, 2006. Total rent expense under these operating leases was approximately \$398,000 in 1999.

Included in property and equipment is approximately \$5,167,000 of equipment which is leased under non-cancellable leases accounted for as capital leases. These leases expire at various dates through 2004.

Total minimum lease payments under the above leases as of December 31, 1999, are as follows:

	CAPITAL LEASES	OPERATING LEASES	TOTAL
YEAR ENDING DECEMBER 31,	-----	-----	-----
2000.....	\$ 1,523	\$ 381	\$1,904
2001.....	1,493	328	1,821
2002.....	1,497	293	1,790
2003.....	1,315	186	1,501
2004.....	371	82	453
Thereafter.....	--	--	--
	6,199	\$1,270	\$7,469
		=====	=====
Less amounts representing interest at 8.25 to 22.8 per cent.....	(1,413)		
	4,786		
Less short-term portion.....	(1,180)		

Long-term portion..... \$ 3,606  
=====

NOTE 12. FOREIGN EXCHANGE CONTRACTS AND TRANSACTION LOSSES

The Company uses short-term forward exchange contracts for hedging purposes to reduce the effects of adverse foreign exchange rate movements. During the year ended December 31, 1999, the Company bought foreign exchange contracts to hedge against certain trade accounts receivable in Japanese yen. These contracts are accounted for using hedge accounting, under which the change in the fair value of the forward contracts is recognized as part of the related foreign currency transactions as they occur. As of December 31, 1999, the Company's outstanding commitments with respect to the foreign exchange contracts, which were commitments to sell Japanese yen, had a total value of approximately \$1,900,000.

During the years ended December 31, 1997, 1998, and 1999, the Company incurred a foreign transaction exchange loss of \$186,000, a loss of \$24,000, and a gain of \$652,000 respectively.

56

58

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.

AMERICAN XTAL TECHNOLOGY, INC.

By: /s/ MORRIS S. YOUNG

-----  
Morris S. Young  
President and Chief Executive  
Officer  
(Principal Executive Officer)

Date: April 14, 2000

57

59

POWER OF ATTORNEY

KNOW ALL PERSONS BY THESE PRESENTS, that each person whose signature appears below hereby constitutes and appoints Morris S. Young and Guy D. Atwood, and each of them, his true and lawful attorney-in-fact and agent, with full power of substitution, each with power to act alone, to sign and execute on behalf of the undersigned any and all amendments to this Report on Form 10-K, and to perform any acts necessary in order to file the same, with all exhibits thereto and other documents in connection therewith with the Securities and Exchange Commission, granting unto said attorney-in-fact and agent full power and authority to do and perform each and every act and thing requested and necessary to be done in connection therewith, as fully to all intents and purposes as he might or could do in person, hereby ratifying and confirming all that said attorney-in-fact and agent, or their or his or her substitutes, shall do or cause to be done by virtue hereof.

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 date indicated.

SIGNATURE -----	TITLE -----	DATE ----
/s/ MORRIS S. YOUNG ----- Morris S. Young	President, Chief Executive Officer, and Chairman of the Board (Principal Executive Officer)	April 14, 2000
/s/ GUY D. ATWOOD ----- Guy D. Atwood	Vice President, Chief Financial Officer (Principal Financial and Accounting Officer)	April 14, 2000
/s/ THEODORE S. YOUNG ----- Theodore S. Young	Senior Vice President, Marketing, Director	April 14, 2000
/s/ ----- Donald L. Tatzin	Director	April 14, 2000
/s/ ----- Jesse Chen	Director	April 14, 2000
/s/ ----- B.J. Moore	Director	April 14, 2000

58

60

AMERICAN XTAL TECHNOLOGY, INC.

EXHIBITS TO FORM 10-K ANNUAL REPORT  
FOR THE YEAR ENDED DECEMBER 31, 1999

EXHIBIT NUMBER -----	DESCRIPTION -----
2.1(1)	Agreement and Plan of Merger between American Xtal Technology, a California corporation, and American Xtal Technology Delaware Corporation, a Delaware corporation.
2.2(4)	Agreement and Plan of Reorganization by and among American Xtal Technology, Inc., Monterey Acquisition Corp., Lyte Optronics, Inc. and certain stockholders of Lyte Optronics, Inc. dated May 27, 1999.
2.3(4)	Certificate of Merger dated May 27, 1999, filed with the Secretary of State of the State of Delaware on May 28, 1999.
2.4(4)	Articles of Merger dated May 27, 1999, filed with the Secretary of State of Nevada on May 28, 1999.
3.1(3)	Restated Certificate of Incorporation of American Xtal Technology, Inc.
3.2(4)	Certificate of Designation, Preferences and Rights of Series A Preferred Stock, as filed with the Secretary of State of the state of Delaware on May 27, 1999 (which is incorporated herein by reference to Exhibit 2.1 to the registrant's form 8-K dated May 28, 1999).
3.3(1)	By Laws of American Xtal Technology, Inc.
4.0(4)	Rights Agreement
4.1	Registration rights agreement by and among American Xtal Technology, Inc., Lyte Optronics, Inc. and certain stockholders of Lyte Optronics Inc. dated May 27, 1999.
10.1(1)	Form of Indemnification Agreement for directors and officers.
10.2(1)	1993 Stock Option Plan and forms of agreements thereunder.
10.3(1)	1997 Stock Option Plan and forms of agreements thereunder.
10.4(1)	1997 Employee Stock Purchase Plan and forms of agreements thereunder.
10.5(1)	1998 Employee Stock Purchase Plan and forms of agreements thereunder.
10.6(1)	Loan Agreement between U.S. Bank National Association and us dated March 4, 1998.

- 10.7(2) Purchase and Sale Agreement by and between Limar Realty Corp. #23 and us dated April 1998.
- 10.8(3) Loan Agreement between U.S. Bank National Association and us dated September 18, 1998.
- 10.9(3) Letter of Credit and Reimbursement Agreement between U.S. Bank National Association and us dated December 1, 1998.
- 10.10(3) Bond Purchase Contract between Dain Rauscher Incorporated and us dated December 1, 1998.
- 10.11(3) Remarketing Agreement between Dain Rauscher Incorporated and us dated December 1, 1998.
- 21.1 List of Subsidiaries.
- 23.1 Consent of Independent Accountants -- PricewaterhouseCoopers LLP.
- 23.2 Consent of Independent Accountants -- Arthur Andersen LLP.
- 24.1 Power of Attorney (see signature page).
- 27.1 Financial Data Schedule.

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- (1) As filed with the SEC in our Registration Statement on Form S-1 on March 17, 1998.
  - (2) As filed with the SEC in our Registration Statement on Amendment No. 2 to Form S-1 on May 11, 1998.
  - (3) As filed with the SEC in our Annual Report on Form 10-K for the year ended December 31, 1998 on March 31, 1999.
  - (4) As filed with the SEC in our Form 8-K on June 14, 1999.

## REGISTRATION RIGHTS AGREEMENT

This Registration Rights Agreement ("AGREEMENT") is made as of May 27, 1999 by and among American Xtal Technology, Inc., a Delaware corporation ("AXT"), Lyte Optronics, Inc., a Nevada corporation ("LYTE OPTRONICS") and Keith Halsey and Robert Shih as representatives of the shareholders of Lyte Optronics (collectively, "SHAREHOLDERS' REPRESENTATIVE").

## 1. DEFINITIONS. As used in this Agreement:

(a) "AFFILIATE" means each person or party who may be deemed to be an "affiliate" for purposes of paragraphs (c) and (d) of Rule 145 of the SEC, although nothing contained herein shall be construed as an admission by such person or party that such person or party is in fact an affiliate of AXT for such purposes.

(b) "CLOSING DATE" shall mean the Closing Date as defined in the Merger Agreement.

(c) "EXCHANGE ACT" means the Securities Exchange Act of 1934, as amended.

(d) "FORM S-3" means such form under the Securities Act as in effect on the date hereof or any registration form under the Securities Act subsequently adopted by the SEC which similarly permits inclusion or incorporation of substantial information by reference to other documents filed by AXT with the SEC.

(e) "HOLDER" means: (i) a shareholder of Lyte Optronics to whom shares of Registrable Securities are issued pursuant to the Merger Agreement, for so long as such holder continues to hold such shares, or (ii) a transferee of Registrable Securities by a Holder, to whom registration rights under this Agreement are assigned pursuant to Section 6 of this Agreement and who becomes a Holder (within the meaning of this Agreement) of Registrable Securities.

(f) "MERGER AGREEMENT" means that certain Agreement and Plan of Reorganization dated as of May 27, 1999 by and among AXT, Lyte Optronics Acquisition Corporation, and Lyte Optronics.

(g) "NASD" means the National Association of Securities Dealers.

(h) "REGISTRABLE SECURITIES" means (i) for each Holder, the shares of AXT Common Stock issued to such Holder pursuant to the Merger Agreement, together with all other shares of AXT Common Stock issued in respect thereof (by way of stock split, dividend, recapitalization, share exchange or otherwise), and (ii) for all Holders, the sum of the Registrable Securities held by them. Registrable Securities shall not include any shares of AXT Common Stock transferred by a Holder pursuant to SECTION 8 hereof to any person who does not agree to be bound by the terms of this Agreement.

(i) "SEC" means the Securities and Exchange Commission.

## 2

(j) "SECURITIES ACT" means the Securities Act of 1933, as amended.

(k) "AXT COMMON STOCK" means common stock, per value \$0.01 per share of AXT.

The term "register", "registered" and "registration" refer to a registration effected by preparing and filing a registration statement or

similar document in compliance with the Securities Act, and the declaration or ordering of effectiveness of such registration statement or document. Capitalized terms used and not otherwise defined in this Agreement have the respective meanings assigned in the Merger Agreement.

## 2. REGISTRATION.

(a) Requests for Registration. A majority in interest of the Holders shall be entitled to make up to two (2) requests that AXT register the Registrable Securities pursuant to the Securities Act, subject in each case to the following limitations: (i) no request for registration of any Registrable Securities shall be made unless and until not less than six (6) months have elapsed after the Closing Date; (ii) no request for registration of any Registrable Securities shall be made if a request for registration of the same Registrable Securities has theretofore been made pursuant to this Agreement and AXT has caused the securities covered by such request to be registered; and (iii) AXT shall not be obligated to effect such registration if the Holders, together with the holders of any other securities of AXT entitled to inclusion in such registration, propose to sell Registrable Securities at an aggregate price to the public (before deduction of any underwriters' discounts or commissions) of less than \$1,000,000. All requests for registration shall be in writing, signed by the requesting Holders, and delivered to AXT at the address specified in the Merger Agreement for notices. If a request for registration is made, AXT shall give notice of such request to all other Holders at their respective address as reflected in the books and records of AXT, and each such other Holder shall have the right to request that such other Holder's Registrable Securities be included in the registration, and (subject to the limitations set forth elsewhere in this Agreement) such other Holder's Registrable Securities shall be included in such registration to the extent that notice of such other Holder's request is received by AXT within ten (10) days after notice of the original registration request is given by AXT to such other Holders. Upon receipt of a registration request in accordance with this SECTION 2(a), AXT shall use reasonable efforts to cause the applicable Registrable Securities to be registered under the Securities Act so as to permit the resale thereof, and in connection therewith AXT shall use reasonable efforts to prepare and file with the SEC and shall use reasonable efforts to cause to become effective promptly thereafter a registration statement on Form S-3 (or any successor form to Form S-3) (a "DEMAND REGISTRATION STATEMENT"). Subject to the provisions of SECTION 2(d), AXT shall use commercially reasonable efforts to keep such Demand Registration Statement continuously effective for up to one hundred eighty (180) days or until such earlier date as of which all of the Registrable Securities included in the registration statement shall have been disposed of in the manner described in the registration statement. Notwithstanding the foregoing, if for any reason the effectiveness of such Demand Registration Statement is postponed or suspended then the foregoing period shall be extended, if required to complete the disposition of such Registrable Securities, by up to the aggregate number of days of

2

3

such postponement or suspension. For purpose of the preceding sentence, the registration shall not be deemed to have been effective (i) unless the registration statement with respect thereto has become effective, or (ii) if after such registration has become effective such registration or the related offer, sale, or distribution of Registrable Securities thereunder is prohibited by any stop order, injunction or any other order or requirement of the Commission or other governmental agency for any reason not attributable to the Holders, or (iii) if the conditions to closing specified in the underwriting agreement, if any, entered into in connection with such registration are not satisfied or waived, in each case other than as a result of action or inaction of the Holders. AXT shall have complied with its obligations under this Agreement, and Holders' right to demand registration pursuant to this SECTION 2 (a) shall be deemed to have been satisfied upon the earlier of (x) the date as of which all of the Registrable Securities included in the Demand Registration Statement shall have been disposed of pursuant to the Demand Registration



Statement, or (y) the date as of which such Demand Registration shall have been effective for an aggregate period of one hundred eighty (180) days, provided that no stop order or similar order is thereafter entered. Notwithstanding anything to the contrary herein, AXT shall not be required to effect more than two (2) registrations of Registrable Securities pursuant to this SECTION 2(a).

(b) Piggyback Registration. If at any time AXT proposes to prepare and file a registration statement (other than a Demand Registration Statement) under the Securities Act with the SEC covering equity securities of AXT, it will give written notice of its intention to do so (the "PIGGYBACK NOTICE"), at least thirty (30) days prior to the filing of any such registration statement, to the Holders; provided, however, that AXT shall not be required to give such 30 day advance notice of its intention to file a registration statement if the Board of Directors determines in good faith that it is not in the Company's best interest to provide advance notice of a proposed registration statement, and provided, further, that in such circumstance AXT shall give written notice not later than the date of filing the registration statement and the date of such written notice shall be deemed the date of the Piggyback Notice. Upon the written request of a Holder (a "REQUESTING HOLDER"), made within ten (10) days after the date of the Piggyback Notice, that AXT include any of the Requesting Holder's Registrable Securities in such proposed registration statement, AXT shall use reasonable efforts to cause such registration statement (a "PIGGYBACK REGISTRATION STATEMENT") to be declared effective under the Securities Act by the SEC so as to permit the public sale of the Requesting Holder's Registrable Securities pursuant thereto. Notwithstanding the provisions of this SECTION 2(b), AXT shall have the right, at any time after it shall have given a Piggyback Notice pursuant to this SECTION 2(b) (irrespective of whether any written request for inclusion of Registrable Securities shall have already been made), to elect not to file any Piggyback Registration Statement or to withdraw the same after the filing but prior to the effective date thereof. If the registration pursuant to this SECTION 2(b) shall be underwritten in whole or in part, the right of any Holder to have its Registrable Shares included in such registration shall be conditioned upon such Holder's participation in such underwriting and the inclusion of such Holder's Registrable Securities in the underwriting upon the same terms and conditions as the other holders of AXT Common Stock otherwise being sold through the underwriters. As a condition precedent to the inclusion of such Registrable Securities in such underwriting, each Holder acknowledges and understands that it may be required to (i) provide information and make representations and warranties to the underwriters concerning such Holder's ownership and intended means of distribution of such Holder's Registrable Securities

3

4

and such other matters as may be required by law, (ii) indemnify the underwriters to the extent as any other similarly situated holders including shares in such underwriting, and (iii) enter into holdback and other agreements at the request of the underwriters. If the managing underwriter for such underwriting advises AXT that marketing factors require limitation of the number of shares to be underwritten, the underwriters and AXT may limit the number of Registrable Shares to be included in the registration and underwriting, or may exclude Registrable Securities entirely from such registration and underwriting, in accordance with the following priorities:

(i) First there shall be included in the registration and underwriting any securities sought to be newly issued by AXT;

(ii) Second, if after according priority to the securities described in clause (i) above, additional shares are to be included in the registration and underwriting in accordance with the advice of the underwriter, then the additional shares to be registered and sold shall be allocated pro rata among the selling Holders of Registrable Securities and all other selling shareholders that AXT has agreed may include shares in such registration.

If application of the priorities set forth above should result in some

but not all of the Registrable Securities sought to be included by Holders in the registration and underwriting being so included, AXT shall advise all Holders of any such limitation, and the number of shares of Registrable Securities that may be included in the registration and underwriting shall be allocated among all Holders exercising their registration rights and all other selling shareholders in proportion, as nearly as practicable, to the respective amounts of outstanding shares of common stock of AXT held by each such selling shareholder to the total number of outstanding shares of AXT common stock. If any Holder disapproves of the terms of any such underwriting, it may elect to withdraw therefrom by written notice to AXT and the underwriter. Any Registrable Securities excluded or withdrawn from such underwriting shall be withdrawn from such registration.

(c) Information. Each Holder shall provide all information and materials to AXT, and take all action, as may be required in order to permit AXT to comply with all applicable requirements of law and of the SEC and to obtain any desired acceleration of the effective date of any Demand Registration Statement or Piggyback Registration Statement. The provision of such information and materials by Holders is a condition precedent to the obligations of AXT pursuant to this Agreement.

(d) Certain Limitations.

(i) For each Holder who is an "insider" of AXT or who may be deemed to be an Affiliate of AXT, AXT shall keep effective each Demand Registration Statement filed pursuant to SECTION 2(a) and each Piggyback Registration Statement which includes Registrable Securities of a Requesting Holder pursuant to SECTION 2(b) during such periods as directors, officers and Affiliates of AXT are permitted to purchase and sell AXT Common Stock pursuant to the insider trading policies of AXT (subject to the right of AXT to suspend use of a prospectus pursuant to SECTION 3(b)) and, notwithstanding the provisions of

4

5

SECTION 3(a) (i) and any other provision of this Agreement to the contrary, shall not be required to keep any such registration statement effective at any other time. By making a registration request or selling any Registrable Securities pursuant to any such registration statement, each such Holder who is an insider or Affiliate of AXT agrees that the right of such Holder to resell Registrable Securities pursuant to any such registration statement hereunder shall be suspended, unless otherwise agreed by AXT, whenever AXT "insiders" (as defined in the AXT insider trading policy furnished to such Holders and any amendments thereto hereafter furnished to such Holders) are restricted from trading capital stock of AXT (a "RESTRICTED PERIOD"). Unless otherwise specified by AXT by written notice to such Holders who are insiders or Affiliates of AXT, the term "RESTRICTED PERIOD" shall include the period commencing at the opening of trading on the first day of the third month of each fiscal quarter of AXT and expiring at the close of trading on the second full trading day following release of AXT financial results for such fiscal quarter (or, in the case of the fourth quarter of each year, for the fiscal year). If a Restricted Period shall commence or shall expire or terminate on any other date, AXT shall provide advance written notice of such commencement and prompt written notice of such expiration or termination.

(ii) Notwithstanding any other provision of this Agreement, AXT shall be entitled to postpone the declaration of effectiveness of any Demand Registration Statement filed pursuant to SECTION 2(a) and any Piggyback Registration Statement filed pursuant to SECTION 2(b) for a reasonable period of time, but not in excess of ninety (90) calendar days after the date the SEC has informed AXT that the registration statement will not be reviewed or that the SEC has no further comments with regard to the registration statement, if the chief executive officer of AXT, acting in good faith, determines that there exists material nonpublic information about AXT which the Board of Directors of AXT does not wish to disclose in a registration statement which information

would otherwise be required by the Securities Act to be disclosed in any Demand Registration Statement filed pursuant to SECTION 2(a) or any Piggyback Registration Statement which includes Registrable Securities of a Holder pursuant to SECTION 2(b).

(iii) With respect to any Demand Registration Statement filed pursuant to SECTION 2(a) and any Piggyback Registration Statement which includes securities of a Requesting Holding pursuant to SECTION 2(b) or any post-effective amendment, when the same has become effective; AXT shall notify each Holder (i) of any request by the SEC or any other federal or state governmental authority during the period of effectiveness of the registration statement for amendments or supplements to the registration statement or related prospectus or for additional information relating to the registration statement, (ii) of the issuance by the SEC or any other federal or state governmental authority of any stop order suspending the effectiveness of the registration statement or the initiation of any proceedings for that purpose, (iii) of the receipt by AXT of any notification with respect to the suspension of the qualification or exemption from qualification of any of the Registrable Securities for sale in any jurisdiction or the initiation or threatening of any proceeding for such purpose, or (iv) of the happening of any event which makes any statement made in the registration statement or related prospectus or any document incorporated or deemed to be incorporated therein by reference untrue in any material respect or which requires the making of any changes in the registration statement or prospectus so that, in the case of the registration statement, it will not contain an untrue statement of a material fact or omit to state a material fact required to be stated therein or necessary to make the statements therein not misleading, and that in the case of the prospectus, it will not contain an untrue statement of a

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material fact or omit to state a material fact necessary in order to make the statements therein, in the light of the circumstances under which they were made, not misleading. In such event, AXT may suspend use of the prospectus on written notice to each Holder, in which case each Holder shall not dispose of Registrable Securities covered by the registration statement or prospectus until copies of a supplemented or amended prospectus are distributed to the Holders or until the Holders are advised in writing by AXT that the use of the applicable prospectus may be resumed. AXT shall use its commercially reasonable efforts to ensure that the use of the prospectus may be resumed as soon as practicable. AXT shall use its commercially reasonable efforts to obtain the withdrawal of any order suspending the effectiveness of the registration statement, or the lifting of any suspension of the qualification (or exemption from qualification) of any of the securities for sale in any jurisdiction, at the earliest practicable moment. AXT shall, upon the occurrence of any event contemplated by clause (iv), prepare a supplement or post-effective amendment to the registration statement or a supplement to the related prospectus or any document incorporated therein by reference or file any other required document so that, as thereafter delivered to the purchasers of the Registrable Securities being sold thereunder, such prospectus will not contain an untrue statement of a material fact or omit to state a material fact necessary to make the statements therein, in light of the circumstances under which they were made, not misleading.

3. SELLING PROCEDURES. Any sale of Registrable Securities pursuant to the registration statement filed and declared effective in accordance with SECTION 2(a) hereof shall be subject to the following conditions and procedures:

(a) Stockholder Notice. The selling Holder shall provide written notice ("STOCKHOLDER NOTICE") to AXT no less than five (5) business days prior to such Holder's intended sale. Within three (3) business days of receipt of the Stockholder Notice, AXT will inform such Holder in writing if the registration statement and final prospectus then on file with the SEC is current and otherwise complies with the Securities Act such that sales may be made thereunder. After receipt of notice from AXT that the registration statement is current and complies with the Securities Act, such Holder shall then have ten

(10) business days to sell the Registrable Securities proposed to be sold, unless the notice from AXT specifies that no sale may be made until the date of intended sale as specified in the Stockholder Notice, in which case such Holder must wait until the date of the intended sale to make such sale and such Holder shall have ten (10) business days thereafter to make such sale. After such ten (10) day period, the Holder shall once again comply with the procedures set forth in this SECTION 3(a) prior to any further sales.

(b) Updating the Prospectus. If AXT informs the selling Holder that the registration statement or final prospectus then on file with the SEC is not current or otherwise does not comply with the Securities Act, AXT shall use commercially reasonable efforts to promptly provide to the selling Holder a current prospectus that complies with the Securities Act on or before the date of the intended sale of the Registrable Securities as disclosed in the Stockholder Notice; provided, however, that AXT shall have the right to delay the preparation of

6

7

a current prospectus that complies with the Securities Act for up to sixty (60) days without explanation to the Holder, in which case the time of such suspension shall be added to the minimum of 180 days of effectiveness of the registration statement set forth in SECTIONS 2(a) and 4(a).

(c) Blackout Periods. In addition to the restrictions set forth in SECTION 2(d) above, Holders who become employees of AXT agree to be bound by AXT's Insider Trading Policy as such may be in effect from time to time for so long as such Holders remain employees of AXT and are subject to such policy.

#### 4. OBLIGATIONS OF AXT.

(a) Subject in each case to the limitations of SECTION 2 (including SECTION 2(d)) above, AXT shall (i) use all reasonable efforts to cause such registration statement to become effective promptly after filing and to keep each such registration statement effective until the Termination Date (as hereinafter defined); (ii) prepare and file with the SEC such amendments and supplements to such registration statements and the prospectuses used in connection therewith as may be necessary, and to comply with the provisions of the Securities Act with respect to the sale or other disposition of all securities proposed to be registered in each such registration statement until the Termination Date (as hereinafter defined); (iii) furnish to each Holder such number of copies of any prospectus (including any preliminary prospectus and any amended or supplemented prospectus) in conformity with the requirements of the Securities Act, and such other documents, as each Holder may reasonably request in order to effect the offering and sale of the shares of the Registrable Securities to be offered and sold, but only while AXT shall be required under the provisions hereof to cause such registration statement to remain current; and (iv) use reasonable efforts to register or qualify the shares of the Registrable Securities covered by such registration statement under the securities or blue sky laws of such jurisdictions as each Holder shall reasonably request (provided that AXT shall not be required in connection therewith or as a condition thereto to qualify to do business or to file a general consent to service of process in any such jurisdiction where it has not been qualified). For purposes of this SECTION 4(a), "TERMINATION DATE" with respect to a given registration statement filed pursuant to SECTION 2(a) or SECTION 2(b) means the earlier of (i) the first anniversary of the Closing Date, (ii) such time as all of the Registrable Securities then held by such Holder can be sold by such Holder in a three-month period in accordance with Rule 144 under the Securities Act, (iii) the date on which all of the Registrable Securities have been resold pursuant to Rule 144 or an effective registration statement, and (iv) the date on which the registration statement has been effective for an aggregate of one hundred eighty (180) days.

(b) In connection with any offering of shares of Registrable Securities registered pursuant to this Agreement, AXT shall (i) furnish each

Holder, at AXT's expense, with unlegended certificates representing ownership of the shares of Registrable Securities being sold in such denominations as each Holder shall request and (ii) instruct the transfer agent and registrar of the Registrable Securities to release any stop transfer orders with respect to the shares of Registrable Securities being sold.

7

8

5. EXPENSES. AXT shall pay all of the out-of-pocket costs expenses incurred in connection with a registration of Registrable Securities pursuant SECTION 2(a) or SECTION 2(b) to this Agreement , including all SEC, NASD and blue sky registration and filing fees, printing expenses, transfer agents' and registrars' fees, and the reasonable fees and disbursements of AXT's outside counsel and independent accountants, but not including underwriting discounts and commissions on the Registrable Securities and fees and costs of separate counsel for the Holders. Underwriting fees and commissions on the Registrable Securities and any fees and costs of separate counsel retained by the Holders shall be borne pro rata among the participating Holders on the basis of the number of shares registered.

6. INDEMNIFICATION. In the event of any offering registered pursuant to this Agreement:

(a) Indemnification by AXT. AXT will indemnify each Holder and its directors, officers, legal counsel and independent accountants, and each person controlling a Holder, against all claims, losses, damages and liabilities (or actions in respect thereof), including any of the foregoing incurred in settlement of any litigation, commenced or threatened, arising out of or based on any untrue statement (or alleged untrue statement) of a material fact contained in any registration statement, prospectus, or any amendment or supplement thereto, incident to any offering registered pursuant to this Agreement, or based on any omission (or alleged omission) to state therein a material fact required to be stated therein or necessary to make the statements therein, in light of the circumstances in which they are made, not misleading, or any violation by AXT of any rule or regulation promulgated under the Securities Act, or state securities laws applicable to AXT in connection with any such registration, and subject to SECTION 6(c) of this Agreement, will reimburse each such Holder, and each person controlling such Holder, for any legal and any other out-of-pocket expenses reasonably incurred in connection with investigating, preparing or defending any such claim, loss, damage, liability or action, provided that AXT will not be liable to the extent that any such claim, loss, damage, or liability arises out of or is based in any untrue statement or omission or alleged untrue statement or omission, made in reliance upon and in conformity with written information furnished to AXT by such Holder or controlling person for use therein.

(b) Indemnification by Holders. Each Holder will, if Registrable Securities held by such Holder are included in the securities as to which such registration, qualification or compliance is being effected, indemnify AXT, each of its directors and officers and its legal counsel and independent accountants, each underwriter, if any, of AXT's securities covered by such a registration statement, each person who controls AXT or such underwriter within the meaning of Section 15 of the Securities Act, and each other such Holder, and such Holder's legal counsel and independent accountants, against all claims, losses, damages and liabilities (or actions in respect thereof), including any of the foregoing incurred in settlement of any litigation, commenced or threatened, arising out of or based on any untrue statement (or alleged untrue statement) of a material fact contained in any such registration statement, prospectus, offering circular or other document, or any omission (or alleged omission) to state therein a material fact required to be stated therein or necessary to make the statements therein not misleading, and will reimburse AXT, such Holders, such directors, officers, legal counsel, independent accountants,

8

underwriters or control persons for any legal or any other expenses reasonably incurred in connection with investigating or defending any such claim loss, damage, liability or action, in each case to the extent, but only to the extent, that such untrue statement (or alleged untrue statement) or omission (or alleged omission) is made in such registration statement, prospectus, offering circular or other document in reliance upon and in conformity with written information furnished to AXT by such Holder for use therein; provided, however, that the obligations of such Holders hereunder shall be several and not joint and shall be limited to an amount equal to the respective net proceeds before expenses and commissions to each such Holder of Registrable Securities sold as contemplated herein.

(c) Defending Claims. Each party entitled to indemnification under this SECTION 6 (the "INDEMNIFIED PARTY") shall give notice to the party required to provide indemnification (the "INDEMNIFYING PARTY") promptly after such Indemnified Party receives written notice of any claim as to which indemnity may be sought, and shall permit the Indemnifying Party to assume the defense of any such claim or any litigation resulting therefrom, provided that counsel for the Indemnifying Party, who shall conduct the defense of such claim or litigation, shall be approved by the Indemnified Party (whose approval shall not be unreasonably withheld), and the Indemnified Party may participate in such defense at such party's expense, and provided further that the failure of any Indemnified Party to give notice as provided herein shall not relieve the Indemnifying Party of its obligations under this Agreement, except to the extent, but only to the extent, that the Indemnifying Party's ability to defend against such claim or litigation is impaired as a result of such failure to give notice. Notwithstanding the foregoing sentence, the Indemnified Party may retain its own counsel to conduct the defense of any such claim or litigation, and shall be entitled to be reimbursed by the Indemnifying Party for expenses incurred by the Indemnified Party in defense of such claim or litigation, in the event that the Indemnifying Party does not assume the defense of such claim or litigation within sixty days after the Indemnifying Party receives notice thereof from the Indemnified Party. Further, an Indemnifying Party shall be liable for amounts paid in settlement of any such claim or litigation only if the Indemnifying Party consents in writing to such settlement (which consent shall not be reasonably withheld). No Indemnifying Party, in the defense of any such claim or litigation, shall, except with the consent of each Indemnified Party, consent to entry of any judgment or enter any settlement which does not include as an unconditional term thereof the giving by the claimant or plaintiff to such Indemnified Party a release from all liability in respect to such claim or litigation.

(d) Contribution. If the indemnification provided for in this Section 3 from the Indemnifying Party is unavailable to an Indemnified Party hereunder in respect of any claim, loss, damage or liability referred to herein, then the Indemnifying Party, to the extent such indemnification is unavailable, in lieu of indemnifying such Indemnified Party, shall contribute to the amount paid or payable by such Indemnified Party as a result of such claims, losses, damages or liabilities in such proportion as is appropriate to reflect the relative benefit to or fault of the Indemnifying Party and Indemnified Parties in connection with the actions that resulted in such claims, losses, damages and liabilities. The relative benefit of such Indemnifying Party and Indemnified Parties shall be determined by reference to, among other things, the gross proceeds received by each such party from the sale of Registrable Securities in the manner contemplated

hereby. The relative fault of such Indemnifying Party and Indemnified Parties shall be determined by reference to, among other things, whether any action in question, including any untrue or alleged untrue statement of a material fact or omission or alleged omission to state a material fact, has been made by, or relates to information supplied by, such Indemnifying Party or Indemnified

Parties, and the parties' relative intent, knowledge, access to information and opportunity to correct or prevent such action. The amount paid or payable by a party as a result of the claims, losses, damages or liabilities referred to above shall be deemed to include any legal fees or expenses reasonably incurred by such party in connection with any investigation or proceeding. The parties hereto agree that it would not be just and equitable if contribution pursuant to this paragraph were determined by pro rata allocation or by any other method of allocation that does not take account of the equitable considerations referred to above in this paragraph. No party guilty of fraudulent misrepresentation (within the meaning of Section 11(f) of the Securities Act) shall be entitled to contribution from any party.

(e) Survival. The obligations of AXT and each Holder under this SECTION 6 shall survive the completion of any offering of Registrable Securities registered pursuant to this Agreement and otherwise.

7. ASSIGNMENT OF REGISTRATION RIGHTS. The rights to cause AXT to register Registrable Securities pursuant to this Agreement may be assigned by a Holder to a transferee of Registrable Securities only if: (a) AXT is furnished with written notice of the name and address of such transferee and the Registrable Securities with respect to which such registration rights are being assigned and a copy of a duly executed written instrument in form reasonably satisfactory to AXT pursuant to which such transferee assumes all of the obligations and liabilities of its transferor hereunder and agrees itself to be bound hereby; and (b) immediately following such transfer, the disposition of such Registrable Securities by the transferee is restricted under the Securities Act. AXT shall not be liable for failure to include such assignee's securities in any offering hereunder unless AXT receives such written notice and agreement sufficiently in advance of the effectiveness of the registration statement so as to permit such inclusion without significant prejudice to the rights of AXT or of the other Holders of Registrable Securities.

8. AMENDMENT OF REGISTRATION RIGHTS. This Agreement, and the registration rights granted hereunder, may be amended or modified only by an instrument in writing executed by or on behalf of AXT and Holders holding a majority of the Registrable Securities then outstanding.

9. TERMINATION. The registration rights set forth in this Agreement shall terminate with respect to a Holder (and the shares held by such Holder shall cease to constitute Registrable Securities) upon the earlier of (i) the second anniversary of the Closing Date, (ii) such time as all of the Registrable Securities then held by such Holder can be sold by such Holder in a three-month period in accordance with Rule 144 under the Securities Act, and (iii) the date on which all of the Registrable Securities have been resold pursuant to Rule 144 or an effective registration statement.

10. MARKET STAND-OFF. The Holders hereby agree that, except as to any Registrable Securities included in the registration pursuant hereto, they shall not, to the extent requested by

10

11

AXT and an underwriter of AXT Common Stock, sell or otherwise transfer or dispose of any Registrable Securities for one hundred eighty (180) days following the effective date of a registration statement of AXT filed under the Securities Act, provided that all officers and directors and holders of 5% or more of the outstanding shares of Common Stock of AXT enter into similar agreements. In order to enforce the foregoing, AXT may impose stop-transfer instructions with respect to the Registrable Securities of the Holders (and the shares or securities of every other person subject to the foregoing restrictions) until the end of such period.

11. OBLIGATIONS OF HOLDERS. By exercising any rights hereunder, each Holder shall be deemed to assume all obligations of a Holder hereunder as though such Holder were a signatory hereto. AXT may require Holders to execute an

instrument whereby such Holders expressly assume all obligations under this Agreement of Holders as a condition precedent to any obligations of AXT hereunder.

12. REPORTS UNDER THE 1934 ACT. For two years following the Closing Date, with a view to making available to the Holders the benefits of SEC Rule 144 promulgated under the Securities Act and any other rule or regulation of the SEC that may at any time permit a Holder to sell securities of AXT to the public without registration, AXT agrees to:

(a) make and keep public information available, as those terms are understood and defined in SEC Rule 144;

(b) file with the SEC in a timely manner all reports and other documents required of AXT under the Securities Act and the Exchange Act;

(c) furnish to any Holder, so long as the Holder owns any Registrable Securities, forthwith upon request (i) a written statement by AXT as to its compliance with the reporting requirements of SEC Rule 144, the Securities Act and the Exchange Act, (ii) a copy of the most recent annual or quarterly report of AXT and such other reports and documents so filed by AXT, and (iii) such other information as may be reasonably requested in availing any Holder of any rule or regulation of the SEC which permits the selling of any such securities without registration.

11

12

IN WITNESS WHEREOF, this Agreement has been executed by the parties or their representatives thereunto duly authorized as of the date first written above.

AMERICAN XTAL TECHNOLOGY, INC.

By: /s/ Morris S. Young

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Name: Morris S. Young  
Title: Chief Executive Officer and President

LYTE Optronics, INC.

/s/ Keith Halsey

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Name: Keith Halsey  
Title: Chief Executive Officer

SHAREHOLDERS' REPRESENTATIVE

By: /s/ Keith Halsey

-----  
Keith Halsey

/s/ Robert Shih

-----  
Robert Shih



[Signature Page to Registration Rights Agreement]

## EXHIBIT 21.1 -- LIST OF SUBSIDIARIES

American Xtal Technology Japan Co. LTD  
Beijing Tongmei Xtal Technology Co., LTD  
Alpha Photonics (Barbados), Inc.  
Advanced Semiconductors Corp. Ltd.  
Lyte Optronics, Ltd.  
Bestal International Corporation

CONSENT OF INDEPENDENT ACCOUNTANTS

We hereby consent to the incorporation by reference in the Registration Statement on Form S-8 (No. 333-67297) of American Xtal Technology, Inc. of our report dated March 20, 2000 relating to the financial statements, which appears in this Form 10-K.

PricewaterhouseCoopers LLP

San Jose, California  
April 13, 2000

CONSENT OF INDEPENDENT PUBLIC ACCOUNTANTS

As independent public accountants, we hereby consent to the incorporation of our reports included in this Form 10-K, into the Company's previously filed Registration Statement File No. 333-67297.

ARTHUR ANDERSEN LLP

Los Angeles, California  
April 13, 2000

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