

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 10-K

(Mark One)

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

For the fiscal year ended December 31, 2014

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 000-30941

AXCELIS TECHNOLOGIES, INC.

(Exact name of registrant as specified in its charter)

Delaware

(State or other jurisdiction
of incorporation or organization)

34-1818596

(IRS Employer Identification No.)

108 Cherry Hill Drive

Beverly, Massachusetts 01915

(Address of principal executive offices) (zip code)

(978) 787-4000

(Registrant's telephone number, including area code)

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

Title of each class	Name of each exchange on which registered
Common Stock, \$.001 par value	The Nasdaq Stock Market LLC

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

None

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

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

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

Indicate by checkmark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes No

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K 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.

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

Accelerated filer

Non-accelerated filer Smaller reporting company
(Do not check if a smaller reporting company)

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes No

Aggregate market value of the voting stock held by non-affiliates of the registrant as of June 30, 2014: \$219,360,386

Number of shares outstanding of the registrant's Common Stock, \$0.001 par value, as of March 6, 2015: 113,466,753.

Documents incorporated by reference:

Portions of the definitive Proxy Statement for Axcelis Technologies, Inc.'s Annual Meeting of Stockholders to be held on May 13, 2015 are incorporated by reference into Part III of this Form 10-K.

Item 1. Business.

Overview of Our Business

Axcelis Technologies, Inc. ("Axcelis," the "Company," "we," "us," or "our") designs, manufactures and services ion implantation and other processing equipment used in the fabrication of semiconductor chips. We believe that our Purion family of products are the most innovative implanters available on the market today. We sell to leading semiconductor chip manufacturers worldwide. The ion implantation business represents approximately 90.2% of our revenue in 2014 with the remaining 9.8% of revenue derived from other legacy processing systems. In addition to equipment, we provide extensive aftermarket lifecycle products and services, including used tools, spare parts, equipment upgrades, maintenance services and customer training.

Axcelis' business commenced in 1978 and its current corporate entity was incorporated in Delaware in 1995, headquartered in Beverly, Massachusetts. We maintain an internet site at www.axcelis.com. On or through our website, investors may access, free of charge, our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act as soon as reasonably practicable after we electronically file such material with, or furnish it to, the Securities and Exchange Commission. Our website and the information contained therein or connected thereto shall not be deemed to be incorporated into this Form 10-K.

Industry Overview

Semiconductor chips, also known as integrated circuits, are used in personal computers, telecommunication equipment, digital consumer electronics, wireless communication products and other applications. Types of semiconductor chips include memory chips (which store and retrieve information), microprocessors (logic devices which process information) and "system on chip" devices (which have both logic and memory features). Most semiconductor chips are built on a wafer of silicon of either 200mm (8 inches) or 300mm (12 inches) in diameter. Each semiconductor chip is made up of millions of tiny transistors or "switches" to control the functions of the device. Transistors are created in the silicon wafer by introducing various precisely placed impurities into the silicon in specific patterns. The process steps in the formation of transistors are traditionally referred to as "front-end-of-line." The "back-end-of-line" process steps connect the transistors and other components together through several overlapping layers of metal wires, known as interconnect, creating a complete circuit. Each layer of metal interconnect must be separated by a non-conductive or insulating material called inter-level dielectric. Each layer that is added is selectively patterned to all previous layers through a process called photolithography.

Semiconductor chip manufacturers utilize many different types of equipment in the making of integrated circuits. Over 300 process steps utilizing over 50 different types of process tools are required to make a single device like a microprocessor. Semiconductor chip manufacturers seek device performance benefits through new products and technology enhancements and productivity improvements through increased throughput, equipment utilization and higher manufacturing yields.

Capacity is added by increasing the amount of manufacturing equipment in existing fabrication facilities and by constructing new fabrication facilities. Periodically the semiconductor device industry adopts a larger silicon wafer size to achieve lower manufacturing costs. Semiconductor manufacturers can produce more chips on a larger wafer, thus reducing the overall manufacturing cost per chip. For example, the use of 200mm wafers in production began at the end of the 1980s. The migration from 200mm to 300mm began at the end of the 1990s. The majority of wafer fabrication facilities today are using wafers with a diameter of 300mm. In 2014, Axcelis derived 81.9% of total systems revenue (a

component of product revenue) from sales of 300mm equipment. In 2011, industry participants began planning for the next wafer size transition, to 450mm diameter wafers. The schedule for this future transition will vary by customer, but is not anticipated before 2020.

The customer base is also changing. Given the magnitude of the investment needed to build a new wafer fabrication facility (often referred to as a "fab"), which can be over \$4.0 billion for a new 300mm fab, many customers are entering into partnerships to offset the cost of technology development and manufacturing. In addition, many chip developers outsource all or part of their chip manufacturing requirements to contract manufacturers, known as foundries. Foundries are significant purchasers of semiconductor manufacturing equipment.

The semiconductor capital equipment industry is highly cyclical, as global chip production capacities successively exceed, then lag behind, global chip demand. When chip demand is high, and inventories low, chip manufacturers add capacity through capital equipment purchases. Given the difficulties of forecasting and calibrating chip demand and production capacity, the industry periodically experiences excess chip inventories and softening chip prices. Device manufacturers react with muted capital spending, lowering the demand for capital equipment. Changes in consumer and business demand for products in which chips are used also affect the industry. A successful semiconductor equipment manufacturer must not only provide some of the most technically complex products manufactured in the world but also must design its business to thrive during the inevitable low points in the cycle. Accordingly, in the third quarter of 2014, we took further aggressive actions to reduce and align manufacturing and operating expense levels to our current business conditions and maintain sufficient liquidity to support operations.

Our financial results in 2014 reflect our continued investment of a significant portion of our resources in research and development programs related to our new leading edge Purion ion implantation platform and the market introduction and initial sales of Purion H systems. These results also reflect our efforts to lower our breakeven revenue levels by maintaining tight control of discretionary spending. Our first Purion H high current ion implanter was shipped in the second quarter of 2014. We shipped a second Purion H high current ion implanter to another customer in the third quarter of 2014. In the fourth quarter of 2014, one of these customers purchased three additional Purion H high current systems for production.

We expect customer demands for our Purion products to continue to improve through 2015. Throughout 2015, we expect to continue to grow Purion system sales, maintain tight control of our cost structure and improve gross margins in order to achieve profitability throughout the full industry cycle.

Axcelis' Strategy

Axcelis' 2015 strategic focus is to:

- Secure Purion business at Korean and other memory customers;
- Penetrate foundry/logic customers with Purion products, both leading edge and non-leading edge;
- Capture Purion aftermarket business; and
- Improve financial performance throughout the year.

We have continued to invest in research and development through the industry cycles to assure our products meet the needs of our customers. We take pride in our scientists and engineers who continue to add to our portfolio of patents and unpatented proprietary technology to ensure that our investment in technology leadership is translated into unique product advantages. We strive for operational excellence by focusing on ways to lower our product, manufacturing and design costs and to improve our delivery times to our customers. Finally, we will continue to use our Global Customer Teams and a

focused account management structure to maintain and strengthen our customer relationships and increase customer satisfaction.

Ion Implantation Systems

Ion implantation is a principal step in the transistor formation cycle of the semiconductor manufacturing process. An ion implanter is a large, technically advanced system that injects dopants such as arsenic, boron or phosphorus into a silicon wafer. These dopants are ionized and therefore have electric charges. With an electric charge they can be manipulated, moved and accelerated with electric and magnetic fields. Ion implanters use these fields to create a beam of ions with a precisely defined amount of energy (ranging between several hundred and three million electron-volts) and with a precisely defined amount of beam current (ranging from microamps to milliamps). Certain areas of the silicon wafer are blocked off by a polymer material known as photoresist, which acts as a "stencil" to pattern devices so that the dopants will only enter the wafer where needed. The dopants change the electrical properties of the silicon wafer to create the active components of a chip, called the transistors. Typical process flows require twenty implant steps, with the most advanced processes requiring thirty or more. Each implant step is characterized by four key parameters: dopant type, dose (amount of dopant), energy (depth into the silicon) and tilt (angle of wafer relative to the ion beam).

In order to cover the wide range of implant steps, three different types of implanters have been developed, each designed to cover a specific range of applications, primarily defined by dose and energy. The three traditional implanter types are referred to as medium current, high current and high energy:

- Medium current implanters are the original model of ion implanter, with mid to low-range energy and dose capability.
- High current implanters were the second type of implanter to emerge, having low energy capability and high dose range.
- High energy implanters emerged to address the need for deeper implants with a high energy range and low dose.

The Purion Platform and Family of Ion Implanters

Axcelis offers a complete line of high energy, high current and medium current implanters for all application requirements. Our newest systems are all based on a common Purion platform which offers purity, precision and productivity by combining a high-speed, state-of-the-art single wafer end station, enabling unmatched throughput (500 wafers per hour), and an advanced spot beam that ensures that all points across the wafer see the same beam at the same beam angle, resulting in exceptional process control and maximum yield.

- **High Energy Implant.** Purion XE, our high energy system, combines Axcelis' production-proven RF Linac high energy, spot beam technology with the Purion platform. Axcelis is a market leader in high energy ion implanters, and we expect to maintain our leadership in the high energy segment through sales of both our multi-wafer legacy high energy systems and the Purion XE.
- **Medium Current Implant.** Our Purion M medium current system offers higher productivity and lower cost of ownership than competitive offerings, in addition to other advantages. Three customers, in both the memory and leading edge foundry segments, currently have the Purion M in production. We expect to receive follow-on orders from existing customers and obtain new customer Purion M design-wins.

- **High Current Implant.** In December 2013, we announced our new high current ion implanter, the Purion H. The Purion H fulfills all traditional high current requirements while extending beyond traditional high current energy and dose ranges. In order to maximize utilization and flexibility, the Purion H can process some traditional mid-current implants. In addition, the Purion H is extendable into ultra-low energy applications to satisfy future process requirements, including leakage current performance. We currently have two customers using the Purion H in production, and in 2015, expect to place additional evaluation systems, including at least one leading edge foundry/logic customer.

We believe our ion implant products will continue to meet customer demand for advantages in productivity, process performance and technical extendibility. Our goal is to recapture ion implant market share leadership by the end of 2017.

Dry Strip

In December 2012, Lam Research Corporation ("Lam") purchased the intellectual property rights relating to our dry strip systems business. As a result of this transaction, we ceased the sale of 300mm dry strip wafer processing equipment in September 2013. We will continue to sell dry strip systems for smaller wafers until December 2015 and support our installed base of dry strip systems indefinitely.

Aftermarket Support and Services

Through our Global Service Solutions business, we offer our customers extensive aftermarket service and support throughout the lifecycle of the equipment we manufacture as well as equipment we previously manufactured. We believe that approximately 3,000 of our products are in use in 33 countries worldwide. The service and support that we provide includes used tools, spare parts, equipment upgrades, and maintenance services. We provide varying levels of sales, service and applications support out of our field offices to customers located in 33 countries. Revenue generated through our service and support business represented 59.8%, 61.6% and 61.0% of revenue in 2014, 2013 and 2012, respectively.

To support our aftermarket business, we have approximately 200 staff members, including sales and marketing personnel, field service engineers, and spare parts and applications engineers, as well as employees located at our manufacturing facilities who work with our customers to provide customer training and documentation, product, process and applications support. In 2012, Ulvac Techno, an unrelated Japanese company, began providing aftermarket services and support services for our non-implant products in Japan.

Most of our customers maintain spare parts inventories for our machines. In addition to our web-based spare parts management and replenishment tracking program, we offer a number of Business-to-Business options to support our customers' parts management requirements. Our Axcelis Managed Inventory service offering, a parts consignment arrangement, provides the customer with full spares support, with Axcelis retaining responsibility for the complete supply chain. The expansion of these services provides ease of use alternatives that help us reduce order fulfillment costs and improve cycle time, resulting in an expanded customer base for this service offering.

Sales and Marketing

We primarily sell our equipment and services through our direct sales force. We conduct sales and marketing activities from our sales offices located in the United States, Taiwan, South Korea, China, Germany, Singapore and Italy.

SEN Corporation, or "SEN" (our former Japanese joint venture, which was divested in March 2009), holds a non-exclusive license to use certain patented and unpatented technology associated with

legacy products owned by the Company. Axcelis holds a reciprocal license of implant technology from SEN. These royalty-free, perpetual cross licenses do not restrict our ability to sell any of our products in Japan or elsewhere in the world.

Concurrently with the sale of assets to Lam in December 2012, the Company and Lam entered into a Transition Agreement pursuant to which Lam granted us a worldwide, non-exclusive, non-transferable, royalty-free license to use the dry strip intellectual property rights sold by the Company. The license allows us to make and sell dry strip wafer processing equipment for semiconductor applications for a limited transition period after the closing and to support our installed base of dry strip equipment on a perpetual basis.

International revenue, including export sales from our U.S. manufacturing facilities to foreign customers and sales by foreign subsidiaries and branches, accounted for 80.0%, 76.4% and 70.2% of total revenue in 2014, 2013 and 2012, respectively. Substantially all of our sales are denominated in U.S. dollars. See Note 17 to our Consolidated Financial Statements contained in Item 15 of this Form 10-K for a breakdown of our revenue and long-lived assets in the United States, Europe and Asia.

Customers

In 2014, the top 20 semiconductor manufacturers accounted for approximately 87.5% of total semiconductor industry capital spending, up from 85.3% in 2013. These manufacturers are from the largest semiconductor manufacturing regions in the world: the United States, Asia Pacific (Taiwan, South Korea, Singapore and China), Japan and Europe. The Company serves leading semiconductor manufacturers.

Revenue from our ten largest customers accounted for 68.1%, 69.1% and 70.6%, of revenue in 2014, 2013 and 2012, respectively. We expect that sales of our products to relatively few customers will continue to account for a high percentage of revenue for the foreseeable future. In 2014, two customers accounted for 17.4% and 12.3% of revenue, respectively. In 2013, one customer accounted for 15.5% of revenue. In 2012, one customer accounted for 18.2% of revenue.

Our Beverly, Massachusetts Advanced Technology Center houses a process development laboratory with 12,500 sq. ft. of class 10/100/1000 clean room for product demonstrations and process development and a 34,000 sq. ft. customer training center. The Advanced Technology Center provides infrastructure and process capabilities that allow customers to test their unique process steps on our systems under conditions that substantially replicate the customers' production environment. This facility also provides significant capability for our research and development efforts.

Research and Development

Our industry continues to experience rapid technological change, requiring us to frequently introduce new products and enhancements. Our ability to remain competitive in this market will depend in part upon our ability to develop new and enhanced systems and to introduce these systems at competitive prices on a timely and cost effective basis.

We devote a significant portion of our personnel and financial resources to research and development programs and seek to maintain close relationships with our customers to remain responsive to their product needs. We have also sought to reduce the development cycle for new products through a collaborative process whereby our engineering, manufacturing and marketing personnel work closely together with one another and with our customers at an earlier stage in the process. We also use 3D, computer-aided design, finite element analysis and other computer-based modeling methods to test new designs.

Our expenses for research and development were \$33.5 million, \$34.8 million and \$40.4 million in 2014, 2013 and 2012, respectively, or 16.5%, 17.8% and 19.9% of revenue, respectively. We expect that research and development expenditures will continue to represent a similar level of investment in future years.

Manufacturing

We manufacture products at our 417,000 sq. ft. ISO 9001:2008, ISO 14001:2004 certified plant in Beverly, Massachusetts. Our facility employs best in class manufacturing techniques, including lean manufacturing, six sigma controls and advanced inventory management, purchasing and quality systems.

Our clean manufacturing process uses class 1000/10,000 space to facilitate most of our manufacturing requirements.

The Company's core manufacturing competency is built around system assembly and testing which remains an in-house capability due to the high degree of expertise and intellectual property associated with the process and design. Non-core work is sourced to one of several global partners and includes items such as power distribution, vacuum systems, wafer handling and commodity-level components. We continuously pursue outsourcing opportunities where the economics are justified, with a goal of enabling quality and margin improvement. Our supply chain team is globally focused and is located in Beverly and Singapore. Customized and commercially available software solutions drive our planning, purchasing and inventory tracking process.

Our products are designed to be assembled and tested in a modular fashion, which facilitates our industry-recognized "ship-from-cell" process. Specially developed test stands, software and tooling provide the framework for this accelerated delivery process. Customers that choose ship-from-cell substantially improve their delivery times while receiving the same high level of quality provided by more traditional longer cycle integration techniques. Product margins and inventory turns also improve as a result of shorter factory cycle times and increased labor productivity.

Installation of our equipment is provided by factory and field teams. The process includes assembling the equipment at its installation site and after it has been connected, recalibrating it to specifications that had previously been met during factory testing.

Competition

The semiconductor wafer fabrication equipment industry is highly competitive and is characterized by a small number of participants ranging in size. Significant competitive factors in the semiconductor equipment market include price, cost of ownership, equipment performance, customer support, capabilities and breadth of product line.

We have competed in two principal product markets of the semiconductor wafer fabrication process: ion implantation and dry strip. In December 2012, we divested our dry strip intellectual property and ceased selling 300mm dry strip systems in September 2013.

In ion implantation, we mainly compete against Applied Materials, Inc. The Company and Applied Materials are the only ion implant manufacturers with a full range of implant products, and service and support infrastructures able to service our customers globally. Three other niche players we compete with from time to time include Nissin Ion Implantation Co., Ltd., Advanced Ion Beam Technology, Inc. and SEN.

Intellectual Property

We rely on patent, copyright, trademark and trade secret protection in the United States and in other countries, as well as contractual restrictions, to protect our proprietary rights in our products and our business. As of December 31, 2014, we had 265 active patents issued in the United States and 413 active patents granted in other countries, as well as 234 patent applications (43 in the United States and 191 in other countries) on file with various patent agencies worldwide. Patents are generally in effect for up to 20 years from the filing of the application.

We intend to file additional patent applications and grow our intellectual property portfolio as appropriate. Although patents are important to our business, we do not believe that we are substantially dependent on any single patent or any group of patents.

We have trademarks, both registered and unregistered, that are maintained to provide customer recognition for our products in the marketplace. Trademark registrations generally remain in effect as long as the trademarks are in use. From time to time, we enter into license agreements with third parties under which we obtain or grant rights to patented or proprietary technology. Except for our license agreement with SEN and our license from Lam (described above under "Sales and Marketing"), we do not believe that any of our licenses are currently material to us. We can give no assurance that we, our licensors, licensees, customers or suppliers will not be subject to claims of patent infringement or claims to invalidate our patents, or that any such claims will not be successful, requiring us to pay substantial damages or remove certain features from our products or both.

Backlog

Systems backlog, including deferred systems revenue, was \$37.9 million and \$9.3 million as of December 31, 2014 and 2013, respectively. We believe it is meaningful to investors to include deferred systems revenue as part of our backlog. Deferred systems revenue represents revenue that will be recognized in future periods based on prior shipments. Our policy is to include in backlog only those system orders for which we have accepted purchase orders and typically are due to ship within six months. All orders are subject to cancellations or rescheduling by customers with limited or no penalties.

Backlog does not include orders received and fulfilled within a quarter. Our backlog at the beginning of a quarter typically does not include all orders required to achieve our sales objectives for that quarter. Backlog is not necessarily an indicator of future business trends because orders for services or parts received during the quarter are generally performed or shipped within the same quarter.

Bookings in the quarter ended December 31, 2014 were \$56.1 million compared to \$16.8 million in the quarter ended December 31, 2013.

Employees

As of December 31, 2014, we had 740 employees and 25 temporary staff worldwide, of which 549 work in North America, 167 in Asia and 49 in Europe. We consider our relationship with our employees to be good. Our employees are not represented by a labor union and are not subject to a collective bargaining agreement. One of our European locations has formed a work council, which has certain information and discussion rights under applicable law.

Environmental

We are subject to environmental laws and regulations in the countries in which we operate that regulate, among other things: air emissions; water discharges; and the generation, use, storage, transportation, handling and disposal of solid and hazardous wastes produced by our manufacturing,

research and development and sales activities. As with other companies engaged in like businesses, the nature of our operations exposes us to the risk of environmental liabilities, claims, penalties and orders.

We are proud of our commitment to improving our environment. We believe that our operations are in substantial compliance with applicable environmental laws and regulations and that there are no pending environmental matters that would have a material impact on our business. We are ISO-14001 certified at our Beverly, MA facility.

Executive Officers of the Registrant

Mary G. Puma, 57, has been our President and Chief Executive Officer since January 2002 and Chairman since 2005. From May 2000 until January 2002, Ms. Puma was our President and Chief Operating Officer. In 1998, she became General Manager and Vice President of the Implant Systems Division of Eaton Corporation, a global diversified industrial manufacturer. In May 1996, she joined Eaton as General Manager of the Commercial Controls Division. Prior to joining Eaton, Ms. Puma spent 15 years in various marketing and general management positions for General Electric Company. Ms. Puma is a director of Nordson Corporation, North Shore Medical Center and Semiconductor Equipment and Materials International (SEMI).

Kevin J. Brewer, 56, became our interim Chief Financial Officer in June 2013 and our Executive Vice President and Chief Financial Officer in September 2013. Mr. Brewer also manages our Information Technology and Global Operations. Mr. Brewer had been our Executive Vice President, Global Operations since 2008 and our Senior Vice President, Manufacturing Operations since May 2005, prior to which he had been Vice President of Manufacturing Operations since October 2002 and Director of Operations from 1999 to 2002. Prior to joining Axcelis in 1999, Mr. Brewer was Director of Operations, Business Jets at Raytheon Aircraft Company, a leading manufacturer of business and special mission aircraft owned by Raytheon Company, a manufacturer of defense, government and commercial electronics, as well as aircraft. Prior to that, Mr. Brewer held various management positions in operations and strategic planning in Raytheon Company's Electronic Systems and Missile Systems groups.

Lynnette C. Fallon, 55, is our Executive Vice President, Human Resources/Legal and General Counsel, a position she has held since May 2005. Prior to that, Ms. Fallon was Senior Vice President HR/Legal and General Counsel since 2002, and Senior Vice President and General Counsel since 2001. Ms. Fallon has also been our corporate Secretary since 2001. Before joining Axcelis, Ms. Fallon was a partner in the Boston law firm of Palmer & Dodge LLP since 1992, where she was head of the Business Law Department from 1997 to 2001.

William Bintz, 58, has been our Executive Vice President, Product Development, Engineering and Marketing since 2011. Prior to that, he was our Senior Vice President, Marketing since September 2007, after joining Axcelis in early 2006 as Director of Marketing for curing and cleaning products and shortly thereafter becoming Vice President of Product Marketing. Prior to joining Axcelis, from 2002 Mr. Bintz was Product Director for Medium Current and High Energy Ion Implant System at Varian Semiconductor Equipment Associates, Inc. Before that, he was General Manager of the Materials Delivery Products Group at MKS Instruments, beginning in 1999, and General Manager of the Thermal Processing Systems Division at Eaton Corporation (now Axcelis) beginning in 1995.

John E. Aldeborgh, 58, has been our Executive Vice President, Customer Operations since February 2013, having joined Axcelis in January 2013 as our Senior Vice President, Customer Operations. Prior to joining Axcelis, Mr. Aldeborgh served as the Chief Executive Officer and President, and as a Director, of innoPad, Inc., a privately held manufacturer of Chemical Mechanical Planarization pads, since 2006. Mr. Aldeborgh served in various marketing and sales position at Varian Semiconductor Equipment Associates Inc. from 2002 to 2005, including Vice President of Sales and Marketing. Prior to Varian, Mr. Aldeborgh served as President and Chief Operating Officer of Ebara Technologies, Inc.,

from 1998 to 2002. Mr. Aldeborgh also held various positions, at Genus, Inc. from 1989 to 1998, including Executive Vice President and Chief Operating Officer.

Douglas A. Lawson, 54, has been our Executive Vice President, Corporate Marketing and Strategy since November 2013, having joined Axcelis as Vice President Business Development in 2010, and holding the position of Senior Vice President of Strategic Initiatives beginning in 2011. Prior to joining the company in 2010, he held the position of General Manager of Luminus Devices from 2009 to 2010. He has over 30 years of experience in the technology industry, and has held numerous executive and technical positions at BTU International, PRI Automation, Digital Equipment and Intel.

Item 1A. Risk Factors.

Risks Related to Our Business and Industry

Set forth below and elsewhere in this Form 10-K and in other documents we file with the SEC are risks and uncertainties that could cause actual results to differ materially from the results contemplated by the forward-looking statements contained in this Form 10-K. We note that factors set forth below, individually or in the aggregate, may cause our actual results to differ materially from expected and historical results. We note these factors for investors as permitted by the Private Securities Litigation Reform Act of 1995. You should understand that it is not possible to predict or identify all such factors. Consequently, you should not consider the following to be a complete discussion of all potential risks or uncertainties.

If semiconductor manufacturers do not make sufficient capital expenditures, our sales and profitability will be harmed.

New systems orders will depend upon demand from semiconductor manufacturers who build or expand fabrication facilities. When the rate of construction or expansion of fabrication facilities declines, demand for our systems will decline, reducing our revenue. Revenue decline also hurts our profitability because our established cost structure and our continued investments in engineering, research and development and marketing necessary to develop new products and to maintain extensive customer service and support capabilities limit our ability to reduce expenses in proportion to declining sales.

If we fail to develop and introduce reliable new or enhanced products and services that meet the needs of semiconductor manufacturers, our results will suffer.

Rapid technological changes in semiconductor manufacturing processes require us to respond quickly to changing customer requirements. Our future success will depend in part upon our ability to develop, manufacture and successfully introduce new systems and product lines with improved capabilities and to continue to enhance existing products. This will depend upon a variety of factors, including new product selection, timely and efficient completion of product design and development and of manufacturing and assembly processes, product performance in the field and effective sales and marketing. In particular:

- We must continue to develop competitive technical specifications of new systems, or enhancements to our existing systems, and manufacture and ship these systems or enhancements in volume in a timely manner.
- We will need to accurately predict the schedule on which our customers will be ready to transition to new products, in order to accurately forecast demand for new products while managing the transition from older products.

- We will need to effectively manage product reliability or quality problems that often exist with new systems, in order to avoid reduced orders, higher manufacturing costs, delays in acceptance and payment and additional service and warranty expenses.
- Our new products must be accepted in the marketplace.
- Our failure to meet any of these requirements will have a material adverse effect on our operating results and profitability.

Our financial results may fluctuate significantly.

We derive our new systems revenue from the sale of a relatively small number of expensive products to a small number of customers. We also sell used equipment in our aftermarket business. The list prices on these systems range from \$0.4 million to \$5.0 million. At our current sales level, each sale, or failure to make a sale, has a material effect on us in a particular quarter. In a given quarter, a number of factors can adversely affect our revenue and results, including changes in our product mix, increased fixed expenses per unit due to reductions in the number of products manufactured, and higher fixed costs due to increased levels of research and development and expansion of our worldwide sales and marketing organization. Our financial results also fluctuate based on gross profit realized on sales. A variety of factors may cause gross profit as a percentage of revenue to vary, including the mix and average selling prices of products sold, costs to manufacture and customize systems and warranty costs. New product introductions may also affect our gross margins. Fluctuations in our financial results may have an adverse effect on the price of our common stock.

Our financial results may fall short of anticipated levels because forecasting revenue and profitability is complex and may be inaccurate.

Management may from time to time provide financial forecasts. These forecasts are based on assumptions which are believed to be reasonable when made, of fab utilization, shipment timing and system acceptance timing. Any of these assumptions can prove erroneous and the level of revenue recognizable in a particular quarter may vary from the forecast. Our lengthy sales cycle, coupled with customers' competing capital budget considerations, make the timing of customer orders difficult to predict. In addition, our backlog at the beginning of a quarter typically does not include all orders required to achieve our sales objectives for that quarter and is not a reliable indicator of our future sales. As a result, our revenue and operating results for a quarter depend on our shipping orders as scheduled during that quarter, receiving customer acceptance of previously shipped products, and obtaining new orders for products to be shipped in that same quarter. Any delay in, or cancellation of, scheduled shipments and customer acceptances or in shipments from new orders could materially and affect our financial results.

New accounting rules addressing revenue recognition have added more complexity in forecasting quarterly revenue and profitability. Orders for our products usually contain multiple delivery elements that result in revenue deferral under generally accepted accounting principles. Due to the foregoing factors, investors should understand that our actual financial results for a quarter may vary significantly from our forecasts of financial performance for that quarter. Failure to meet forecasted financial performance may have an adverse effect on the price of our common stock.

We may be unable to obtain needed additional capital to finance our operations.

Our capital requirements may vary widely from quarter to quarter, depending on, among other things, capital expenditures, fluctuations in our operating results, financing activities, acquisitions and investments and inventory and receivables management. We believe that our existing cash and cash equivalents will be sufficient to satisfy our anticipated cash requirements, but this, of course, depends on the accuracy of our assumptions about levels of sales and expenses. A number of factors, including

those described in these "Risk Factors," could prove our assumptions wrong and cause us to require additional capital from external sources. Depending on market conditions, future debt or equity financings may not be possible on attractive terms or at all. In addition, future debt or equity financings could be dilutive to the existing holders of our common stock.

The semiconductor industry is highly cyclical and we expect that demand for our products will regularly increase and decrease, making it difficult to manage the business and potentially causing harm to our sales and profitability.

The semiconductor business is highly cyclical, experiencing upturns when the demand for our products is high and downturns when our customers are not investing in new or expanded fabrication facilities. From time to time, inventory buildups in the semiconductor industry, resulting in part from periodic downturns, produce an oversupply of semiconductors. This can cause semiconductor manufacturers to revise capital spending plans, resulting in reduced demand for capital equipment such as our products. If an oversupply is not reduced by increasing demand from the various industries that use semiconductors, which we cannot accurately predict, our sales and profitability will be harmed. Our revenue can vary significantly from one point in the cycle to another, making it difficult to manage the business, both when revenue is increasing and when it is decreasing. In addition, a substantial portion of our operating expenses do not fluctuate with changes in volume. Significant decreases in revenue can therefore have a disproportionate effect on profitability.

If we fail to compete successfully in the highly competitive semiconductor equipment industry, our sales and profitability will decline.

The market for semiconductor manufacturing equipment is highly competitive and includes some companies with substantially greater financial, engineering, manufacturing, marketing and customer service and support resources than we have that may be better positioned to compete successfully in the industry. In addition, there are smaller, emerging semiconductor equipment companies that could provide innovative systems with technology that may have performance advantages over our systems. We expect our competitors to continue to improve the design and performance of their existing products and processes and to introduce new products and processes with improved price and performance characteristics. If we are unable to improve or introduce competing products when demanded by the markets, our business will be harmed. Finally, if we must lower prices to remain competitive without commensurate cost of goods savings, our gross margins and profitability will be adversely affected.

We are dependent on sales to a limited number of large customers; the loss of a significant customer or any reduction in orders from them could materially affect our sales.

Historically, we have sold a significant portion of our products and services to a limited number of fabricators of semiconductor products. For example, in 2014, our top ten customers accounted for 68.1% of our net sales. None of our customers has entered into a long-term agreement requiring it to purchase our products. Although the composition of the group comprising our largest customers has varied from year to year, the loss of a significant customer or any reduction or delays in orders from any significant customer could adversely affect us. The ongoing consolidation of semiconductor manufacturers may also increase the harmful effect of losing one or more significant customers.

Axcelis is subject to the risks of operating internationally and we derive a substantial portion of our revenue from outside the United States, especially from Asia.

We are substantially dependent on sales of our products and services to customers outside the United States. International sales, including export sales from our U.S. manufacturing facilities to non-U.S. customers and sales by our non-U.S. subsidiaries and branches, accounted for 80.0% of total

revenue in 2014 in comparison to 76.4% of total revenue in 2013 and 70.2% in 2012. System shipments to Asian customers represented 78.3% of total shipment dollars in 2014 in comparison to 77.8% in 2013 and 71.3% in 2012. We anticipate that international sales will continue to account for a significant portion of our revenue. Because of our dependence upon international sales, our results and prospects may be adversely affected by a number of factors, including:

- unexpected changes in laws or regulations resulting in more burdensome governmental controls, tariffs, restrictions, embargoes or export license requirements;
- difficulties in obtaining required export licenses;
- volatility in currency exchange rates;
- political and economic instability;
- difficulties in accounts receivable collections;
- extended payment terms beyond those customarily offered in the United States;
- difficulties in managing suppliers, service providers or representatives outside the United States;
- difficulties in staffing and managing foreign subsidiary and branch operations; and
- potentially adverse tax consequences.

We may not be able to maintain and expand our business if we are not able to hire, retain and integrate qualified personnel.

Our business depends on our ability to attract and retain qualified, experienced employees. There is substantial competition for experienced engineering, technical, financial, sales and marketing personnel in our industry. In particular, we must attract and retain highly skilled design and process engineers. Competition for such personnel is intense, particularly in the Boston metropolitan area, as well as in other locations around the world. If we are unable to retain our existing key personnel, or attract and retain additional qualified personnel, we may from time to time experience levels of staffing to fully develop, manufacture and market our products and perform services for our customers. As a result, our growth could be limited or we could fail to meet our delivery commitments or experience deterioration in service levels or decreased customer satisfaction, all of which could adversely affect our financial results.

Our dependence upon a limited number of suppliers for many components and sub-assemblies could result in increased costs or delays in the manufacture and sale of our products.

We rely to a substantial extent on outside vendors to manufacture many of the components and sub-assemblies of our products. We obtain many of these components and sub-assemblies from a limited group of suppliers. Accordingly, we may be unable to obtain an adequate supply of required components on a timely basis, on price and other terms acceptable to us, or at all. In addition, we often quote prices to our customers and accept customer orders for our products before purchasing components and sub-assemblies from our suppliers. If our suppliers increase the cost of components or sub-assemblies, we may not have alternative sources of supply and may not be able to raise the price of our products to cover all or part of the increased cost of components, negatively impacting our gross margins.

The manufacture of some of these components and sub-assemblies is an extremely complex process and requires long lead times. As a result, we have in the past, and may in the future, experience delays or shortages. If we are unable to obtain adequate and timely deliveries of our required components or sub-assemblies, we may have to seek alternative sources of supply or manufacture these components internally. This could delay our ability to manufacture or to ship our

systems on a timely basis, causing us to lose sales, incur additional costs, delay new product introductions and suffer harm to our reputation.

Our international operations involve currency risk.

Substantially all of our sales are billed in U.S. dollars, thereby reducing the impact of fluctuations in foreign exchange rates on our results. Operating margins of our foreign operations can fluctuate with changes in foreign exchange rates to the extent revenue is billed in U.S. dollars and operating expenses are incurred in the local functional currency. During the year ended December 31, 2014, approximately 37.8% of our revenue was derived from foreign operations with this inherent risk. In addition, at December 31, 2014, our operations outside of the United States accounted for approximately 26.8% of our total assets, the majority of which was denominated in currencies other than the U.S. dollar.

We are subject to cyber security risks, which could adversely affect our business.

We and certain of our third-party vendors receive and store personal information in connection with our human resources operations and other aspects of our business. Despite our implementation of security measures, our IT systems are vulnerable to damages from computer viruses, natural disasters, unauthorized access, cyber-attack and other similar disruptions. Any system failure, accident or security breach could result in disruptions to our operations. A material network breach in the security of our IT systems could include the theft of our intellectual property or trade secrets. To the extent that any disruptions or security breach results in a loss or damage to our data, or in inappropriate disclosure of confidential information, it could cause significant damage to our reputation, affect our relationships with our customers, lead to claims against us and ultimately harm our business. In addition, we may be required to incur significant costs to protect against damage caused by these disruptions or security breaches in the future.

Our proprietary technology may be vulnerable to efforts by competitors to challenge or design around, potentially reducing our market share.

We rely on a combination of patents, copyrights, trademark and trade secret laws, non-disclosure agreements and other intellectual property protection methods to protect our proprietary technology. Despite our efforts to protect our intellectual property, our competitors may be able to legitimately ascertain the non-patented proprietary technology embedded in our systems. If this occurs, we may not be able to prevent their use of this technology. Our means of protecting our proprietary rights may not be adequate and our patents may not be sufficiently broad to prevent others from using technology that is similar to or the same as our technology. In addition, patents issued to us have been, or might be challenged, and might be invalidated or circumvented and any rights granted under our patents may not provide adequate protection to us. Our competitors may independently develop similar technology, duplicate features of our products or design around patents that may be issued to us. As a result of these threats to our proprietary technology, we may have to resort to costly litigation to enforce or defend our intellectual property rights. Finally, all patents expire after a period of time (in the U.S., patents expire 20 years from the date of filing of the patent application). Our market share could be negatively impacted by the expiration of a patent which had created a barrier for our competitors.

Axcelis also has agreements with third parties for licensing of patented or proprietary technology with Axcelis as the licensor or the licensee. Termination of license agreements could have an adverse impact on our financial performance or ability to ship products with existing configurations.

We (or customers that we indemnify) might face intellectual property infringement claims or patent disputes that may be costly to resolve and, if resolved against us, could be very costly to us and prevent us from making and selling our systems.

From time to time, claims and proceedings have been or may be asserted against us relative to patent validity or infringement matters. We typically agree to indemnify our customers from liability to third parties for intellectual property infringement arising from the use of our products in their intended manner. Therefore, we occasionally receive notification from customers who believe that we owe them indemnification or other obligations related to infringement claims made against the customers by third parties. Our involvement in any patent dispute or other intellectual property dispute or action to protect trade secrets, even if the claims are without merit, could be very expensive to defend and could divert the attention of our management. Adverse determinations in any litigation could subject us to significant liabilities to third parties, require us to seek costly licenses from third parties and prevent us from manufacturing and selling our systems. In addition, infringement indemnification clauses in system sale agreements may require us to take other actions or require us to provide certain remedies to customers who are exposed to indemnified liabilities. Any of these situations could have a material adverse effect on our business results.

If operations were disrupted at Axcelis' primary manufacturing facility it would have a negative impact on our business.

We have one primary manufacturing facility, located in Massachusetts. Its operations could be subject to disruption for a variety of reasons, including, but not limited to natural disasters, work stoppages, operational facility constraints and terrorism. Such disruption could cause delays in shipments of products to our customers and could result in cancellation of orders or loss of customers, which could seriously harm our business.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

As of December 31, 2014, the Company owned one property and leased 38 properties, of which 13 are located in the United States and the remainder are located in Asia and Europe, including offices in Taiwan, Singapore, South Korea, China, Malaysia, Italy and Germany.

We believe that our manufacturing facilities and equipment generally are well maintained, in good operating condition, suitable for our purposes, and adequate for our present operations. Our Beverly, Massachusetts facility is ISO 9001:2008 and ISO 14001:2004 and our European office is ISO 9001:2008 certified. See Note 20 regarding the sale and lease of our Beverly, Massachusetts facility.

Item 3. Legal Proceedings.

The Company is not presently a party to any litigation that it believes might have a material adverse effect on its business operations. The Company is, from time to time, a party to litigation that arises in the normal course of its business operations.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

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

Our common stock trades on the Nasdaq Global Select Market under the symbol ACLS. The following table sets forth the high and low closing sale prices as reported on the Nasdaq Global Select Market during each of the quarters for the two most recent years. As of March 6, 2015, we had approximately 4,300 stockholders of record. We have never paid any cash dividends to our shareholders and do not anticipate paying cash dividends in the future and in any event, we would be restricted from doing so by the terms of our bank credit agreement.

	Common Stock Price	
	High	Low
<u>2013</u>		
First Quarter	\$ 1.41	\$ 1.09
Second Quarter	\$ 1.82	\$ 1.13
Third Quarter	\$ 2.27	\$ 1.79
Fourth Quarter	\$ 2.49	\$ 2.06
<u>2014</u>		
First Quarter	\$ 2.51	\$ 2.11
Second Quarter	\$ 2.25	\$ 1.54
Third Quarter	\$ 2.12	\$ 1.71
Fourth Quarter	\$ 2.56	\$ 1.80

Item 6. Selected Financial Data.

The following selected consolidated statements of operations data for each of the three years ended December 31, 2014, 2013 and 2012 and the consolidated balance sheets data as of December 31, 2014 and 2013 have been derived from the audited consolidated financial statements contained in Item 15 of Part IV of this Form 10-K. The selected consolidated balance sheets data as of December 31, 2012 and 2011, and the statements of operations data for the years ended December 31, 2011 and 2010, have been derived from the audited financial statements contained in our Form 10-K filed on March 1, 2013. The consolidated balance sheets data as of December 31, 2010 has been derived from the audited financial statements contained in our Form 10-K filed on February 29, 2012.

The historical financial information set forth below may not be indicative of our future performance and should be read together with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our historical consolidated financial statements and notes to those statements included in Item 7 of Part II and Item 15 of Part IV, respectively, of this Form 10-K.

	Years ended December 31,				
	2014	2013	2012	2011	2010
(In thousands, except per share amounts)					
Consolidated statements of operations data:					
Revenue	\$ 203,051	\$ 195,632	\$ 203,385	\$ 319,416	\$ 275,212
Gross profit	70,164	67,935	58,171	114,737	85,838
(Loss) income from operations	(10,661)	(14,618)	(30,938)	7,132	(13,367)
(Loss) income before income taxes	(10,167)	(16,104)	(32,388)	7,471	(17,261)
Net (loss) income	(11,266)	(17,144)	(34,034)	5,077	(17,573)
Net (loss) income per share:					
Basic	\$ (0.10)	\$ (0.16)	\$ (0.32)	\$ 0.05	\$ (0.17)
Diluted	\$ (0.10)	\$ (0.16)	\$ (0.32)	\$ 0.05	\$ (0.17)
Shares used in computing basic and diluted per share amounts:					
Basic	111,450	108,869	107,619	106,234	104,522
Diluted	111,450	108,869	107,619	109,098	104,522
Consolidated balance sheets data:					
Cash and cash equivalents	\$ 30,753	\$ 46,290	\$ 44,986	\$ 46,877	\$ 45,743
Working capital	133,037	149,448	145,443	164,561	160,501
Total assets	227,654	233,549	222,158	269,245	280,872
Long-term liabilities	7,204	22,087	6,300	7,218	7,176
Stockholders' equity	168,352	176,002	186,076	214,555	205,567

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

Certain statements in "Management's Discussion and Analysis of Financial Condition and Results of Operations" are forward-looking statements that involve risks and uncertainties. Words such as may, will, should, would, anticipates, expects, intends, plans, believes, seeks, estimates and similar expressions identify such forward-looking statements. The forward-looking statements contained herein are based on current expectations and entail various risks and uncertainties that could cause actual results to differ materially from those expressed in such forward-looking statements. Factors that might cause such a difference include, among other things, those set forth under "Liquidity and Capital Resources" and "Risk Factors" and others discussed elsewhere in this Form 10-K. Readers are cautioned not to place undue reliance on these forward-looking statements, which reflect management's analysis only as of the date hereof. We assume no obligation to update these forward-looking statements to reflect actual results or changes in factors or assumptions affecting forward-looking statements, except as may be required by law.

Overview

The semiconductor capital equipment industry is subject to significant cyclical swings in capital spending by semiconductor manufacturers. Capital spending is influenced by demand for semiconductors and the products using them, the utilization rate and capacity of existing semiconductor manufacturing facilities and changes in semiconductor technology, all of which are outside of our control. As a result, our revenue and gross margins fluctuate from year to year and period to period. Our established cost structure does not vary significantly with changes in volume. We may experience fluctuations in operating results and cash flows depending on our revenue as driven by the level of capital expenditures by semiconductor manufacturers.

A successful semiconductor equipment manufacturer must not only provide some of the most technically complex products manufactured in the world but also must design its business to thrive during the inevitable low points in the cycle. Our financial results in 2014 reflect our investment of a significant portion of our resources in research and development programs related to our new Purion ion implantation platform and the market introduction and initial sales of Purion systems. These results also reflect our efforts to lower our breakeven revenue levels by maintaining tight control of discretionary spending. In the third quarter of 2014, we took further aggressive actions to reduce and align manufacturing and operating expense levels to our current business conditions and maintain sufficient liquidity to support operations.

In 2014, we introduced a new high current implanter, the Purion H. This system is critically important to the Company since it addresses the largest segment of the ion implant market, which represents 60% of the total \$800 million to \$1 billion ion implant market. We shipped two Purion H high current ion implanters on evaluation terms in 2014, the first at the end of the second quarter of 2014 and the second to another customer in the third quarter of 2014. The first customer purchased an additional three Purion H high current systems in the fourth quarter of 2014. We expect customer demands for our products to increase through 2015. Throughout 2015, we expect to continue to grow Purion system sales while maintaining tight control of our cost structure and improving gross margins, which we expect will yield improved financial results throughout 2015.

Consolidation and partnering within the semiconductor manufacturing industry has resulted in a smaller number of customers representing a substantial portion of our business. Our net revenue from our ten largest customers accounted for 68.1% of total revenue for the year ended December 31, 2014 compared to 69.1% and 70.6% of revenue for the years ended December 31, 2013 and 2012, respectively.

Operating results for the years presented are not necessarily indicative of the results that may be expected for future interim periods or years as a whole.

Critical Accounting Estimates

Management's discussion and analysis of our financial condition and results of operations are based upon Axcelis' consolidated financial statements, which have been prepared in accordance with accounting principles generally accepted in the United States. The preparation of these financial statements requires management to make estimates and judgments that affect the reported amounts of assets, liabilities, revenue and expenses, and related disclosure of contingent assets and liabilities. On an on-going basis, we evaluate our estimates and assumptions. Management's estimates are based on historical experience and on various other assumptions that are believed to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates under different assumptions or conditions.

We believe the following accounting policies are critical in the portrayal of our financial condition and results of operations and require management's most significant judgments and estimates in the preparation of our consolidated financial statements. For additional accounting policies see Notes to Consolidated Financial Statements Note 2. Summary of Significant Accounting Policies.

Revenue Recognition

Our revenue recognition policy involves significant judgment by management. As described below, we consider a broad array of facts and circumstances in determining when to recognize revenue, including contractual future service obligations to the customer, the complexity of the customer's post-delivery acceptance provisions, payment history, customer creditworthiness and the installation process. In the future, if the post-delivery acceptance provisions and installation process become more complex or result in a materially lower rate of acceptance, we may have to revise our revenue recognition policy, which could delay the timing of revenue recognition.

Our system sales transactions are made up of multiple elements, including the system itself and elements that are not delivered simultaneously with the system. These undelivered elements might include a combination of installation services, extended warranty and support and spare parts, all of which are generally covered by a single sales price.

Our system revenue arrangements with multiple elements are divided into separate units of accounting if specified criteria are met, including whether the delivered element has stand-alone value to the customer. If the criteria are met, then the consideration received is allocated among the separate units based on their relative selling price, and the revenue is recognized separately for each of the separate units.

We determine selling price for each unit of accounting (element) using vendor specific objective evidence ("VSOE") or third-party evidence ("TPE"), if they exist, otherwise, we use best estimated selling price ("BESP"). We generally expect that we will not be able to establish TPE due to the nature of our products, and, as such, we typically will determine selling price using VSOE or BESP.

Where required, we determine BESP for an individual element based on consideration of both market and Company-specific factors, including the selling price and profit margin for similar products, the cost to produce the deliverable and the anticipated margin on that deliverable and the characteristics of the varying markets in which the deliverable is sold.

Systems are not sold separately and VSOE or TPE is not available for the systems element. Therefore the selling price associated with systems is based on BESP. The allocated value for installation in the arrangement includes the greater of (i) the relative selling price of the installation or (ii) the portion of the sales price that will not be received until the installation is completed (the "retention"). The selling price of installation is based upon the fair value of the service performed, including labor, which is based upon the estimated time to complete the installation at hourly rates,

and material components, both of which are sold separately. The selling price of all other elements (extended warranty for support, spare parts and labor) is based upon the price charged when these elements are sold separately, or VSOE.

Product revenue for products which have demonstrated market acceptance, is generally recognized upon shipment provided title and risk of loss has passed to the customer, evidence of an arrangement exists, prices are contractually fixed or determinable, collection is reasonably assured through historical collection results and regular credit evaluations, and there are no uncertainties regarding customer acceptance. Revenue from installation services is recognized at the time acceptance has occurred, as defined in the sales documentation, or, for certain customers, when both the acceptance has occurred and retention payment has been received. Revenue for other elements is recognized at the time products are shipped or the related services are performed.

We generally recognize product revenue for systems which have demonstrated market acceptance at the time of shipment because the customer's post-delivery acceptance provisions and installation process have been established to be routine, commercially inconsequential and perfunctory. We believe the risk of failure to complete a system installation is remote.

For initial shipments of systems with new technologies or in the small number of instances where we are unsure of meeting the customer's specifications or obtaining customer acceptance upon shipment of the system, we will defer the recognition of systems revenue and related costs until written customer acceptance of the system is obtained. This deferral period is generally within twelve months of shipment.

Impairment of Long-Lived Assets

We record impairment losses on long-lived assets when events and circumstances indicate that these assets might not be recoverable. Recoverability is measured by a comparison of the assets' carrying amount to their expected future undiscounted net cash flows. If such assets are considered to be impaired, the impairment is measured based on the amount by which the carrying value exceeds its fair value.

Future actual performance could be materially different from our current forecasts, which could impact future estimates of undiscounted cash flows and may result in the impairment of the carrying amount of the long-lived assets in the future. This could be caused by strategic decisions made in response to economic and competitive conditions, the impact of the economic environment on our customer base or a material adverse change in our relationships with significant customers.

We did not record an impairment charge for the years ended December 31, 2014, 2013 or 2012.

Accounts Receivable—Allowance for Doubtful Accounts

We record an allowance for doubtful accounts for estimated losses resulting from the inability of our customers to make required payments. Our allowance for doubtful accounts is established based on a specific assessment of collectability of our customer accounts. If the financial condition of our customers were to deteriorate, resulting in an impairment of their ability to make payments, additional allowances may be necessary.

Inventory—Allowance for Excess and Obsolescence

We record an allowance for estimated excess and obsolete inventory and lower of cost or market. The allowance is determined using management's assumptions of materials usage, based on estimates of forecasted and historical demand and market conditions. If actual market conditions become less favorable than those projected by management, additional inventory write-downs may be required.

Although we make every effort to ensure the accuracy of our forecasts or product demand and pricing assumptions, any significant unanticipated changes in demand, pricing, or technical developments would significantly impact the value of our inventory and our reported operating results. In the future, if we find that estimates are too optimistic and determine that inventory needs to be written down, the Company will recognize such costs in our cost of revenue at the time of such determination. Conversely, if we find our estimates are too pessimistic and we subsequently sell product that has previously been written down, our gross margin in that period will be favorably impacted.

Product Warranty

We generally offer a one year warranty for all of our systems, the terms and conditions of which vary depending upon the product sold. For all systems sold, we accrue a liability for the estimated cost of standard warranty at the time of system shipment and defer the portion of systems revenue attributable to the relative fair value of non-standard warranty. Costs for non-standard warranty are expensed as incurred. Factors that affect our warranty liability include the number of installed units, historical and anticipated product failure rates, material usage and service labor costs. We periodically assess the adequacy of our recorded liability and adjust the amount as necessary.

Share-Based Compensation

Stock-based compensation expense with time-based conditions is estimated as of the grant date based on the fair value of the award and is recognized as expense over the requisite service period, which generally equals the vesting period, based on the number of awards that are expected to vest. Estimating the fair value for stock options requires judgment, including the expected term of our stock options, volatility of our stock, expected dividends, risk-free interest rates over the expected term of the options and the expected forfeiture rate.

We are responsible for estimating volatility and have considered a number of factors when estimating volatility. Our method of estimating expected volatility for all stock options granted relies on a combination of historical and implied volatility. We believe that this blended volatility results in a more accurate estimate of the grant-date fair value of employee stock options because it more appropriately reflects the market's current expectations of future volatility.

In limited circumstances, we also issue stock option grants with vesting based on market conditions, such as the price of our common stock, or, a combination of time or market conditions. The fair values and derived service periods for all grants that have vesting based on market conditions are estimated using the Monte Carlo valuation method. For each stock option grant with vesting based on a combination of time or market conditions, where vesting will occur if either condition is met, the related compensation costs are recognized over the shorter of the explicit service period or the derived service period.

We use the straight-line attribution method to recognize expense for stock-based awards such that the expense associated with awards is evenly recognized throughout the period.

The amount of stock-based compensation recognized is based on the value of the portion of the awards that are ultimately expected to vest. We estimate forfeitures at the time of grant and revise them, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The term "forfeitures" is distinct from "cancellations" or "expirations" and represents only the unvested portion of the surrendered stock-based award.

The benefits of tax deductions in excess of recognized compensation cost is reported as a financing cash flow, rather than as an operating cash flow. Because the Company does not recognize the benefit of tax deductions in excess of recognized compensation cost due to its cumulative net operating loss

position, this had no impact on the Company's consolidated statement of cash flows for the years ended December 31, 2014, 2013 and 2012.

Income Taxes

We record income taxes using the asset and liability method. Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective income tax bases, and net operating loss and tax credit carryforwards.

Our consolidated financial statements contain certain deferred tax assets which have arisen primarily as a result of operating losses, as well as other temporary differences between financial and income tax accounting.

We establish a valuation allowance when it is more likely than not that some portion or all of the deferred tax assets will not be realized. Significant management judgment is required in determining our provision for income taxes, the deferred tax assets and liabilities and any valuation allowance recorded against those net deferred tax assets.

We evaluate the weight of all available evidence such as historical losses, projected future taxable income and the expected timing of the reversals of existing temporary differences to determine whether it is more likely than not that some portion or all of the net deferred income tax assets will not be realized.

Based on our level of deferred tax assets as of December 31, 2014 and our level of historical U.S. losses, we have determined that the current uncertainty regarding the realization of these assets is sufficient to warrant the need for a full valuation allowance against our U.S. net deferred tax assets. We have also determined that a valuation allowance is required on a portion of our foreign deferred tax assets.

Our income tax expense includes the largest amount of tax benefit for an uncertain tax position that is more likely than not to be sustained upon audit based on the technical merits of the tax position. Settlements with tax authorities, the expiration of statutes of limitations for particular tax positions, or obtaining new information on particular tax positions may cause a change to the effective tax rate. The Company recognizes accrued interest related to unrecognized tax benefits as interest expense and penalties as operating expense.

Results of Operations

The following table sets forth our results of operations as a percentage of total revenue:

	Years Ended December 31,		
	2014	2013	2012
Revenue:			
Product	88.3%	86.7%	85.7%
Services	11.7	13.3	14.3
Total revenue	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>
Cost of revenue:			
Product	55.8	54.5	60.8
Services	9.7	10.8	10.6
Total cost of revenue	<u>65.5</u>	<u>65.3</u>	<u>71.4</u>
Gross profit	34.5	34.7	28.6
Operating expenses:			
Research and development	16.5	17.8	19.9
Sales and marketing	10.2	10.8	12.7
General and administrative	11.8	13.0	13.1
Gain on sale of dry strip systems assets and intellectual property	—	(0.6)	(3.9)
Restructuring charges	1.3	1.2	2.0
Total operating expenses	<u>39.8</u>	<u>42.2</u>	<u>43.8</u>
Loss from operations:	<u>(5.3)</u>	<u>(7.5)</u>	<u>(15.2)</u>
Other income (expense):			
Interest income	—	—	—
Interest expense	(0.5)	(0.3)	—
Other, net	0.8	(0.5)	(0.7)
Total other income (expense)	<u>0.3</u>	<u>(0.8)</u>	<u>(0.7)</u>
Loss before income taxes	<u>(5.0)</u>	<u>(8.3)</u>	<u>(15.9)</u>
Income tax provision	0.5	0.5	0.8
Net loss	<u>(5.5)%</u>	<u>(8.8)%</u>	<u>(16.7)%</u>

Revenue

The following table sets forth our revenue:

	Years ended December 31,		Period-to-Period Change		Years ended December 31,		Period-to-Period Change	
	2014	2013	\$	%	2013	2012	\$	%
(dollars in thousands)								
Revenue:								
Product	\$ 179,246	\$ 169,587	\$ 9,659	5.7%	\$ 169,587	\$ 174,309	\$ (4,722)	(2.7)%
Percentage of revenue	88.3%	86.7%			86.7%	85.7%		
Services	23,805	26,045	(2,240)	(8.6)%	26,045	29,076	(3,031)	(10.4)%
Percentage of revenue	11.7%	13.3%			13.3%	14.3%		
Total revenue	<u>\$ 203,051</u>	<u>\$ 195,632</u>	<u>\$ 7,419</u>	3.8%	<u>\$ 195,632</u>	<u>\$ 203,385</u>	<u>\$ (7,753)</u>	(3.8)%

2014 Compared with 2013

Product

Product revenue which includes new system sales, sales of spare parts, product upgrades and used system sales was \$179.2 million or 88.3% of revenue in 2014, compared with \$169.6 million, or 86.7% of revenue in 2013. The increase in product revenue in 2014 is attributable to increased spending by semiconductor manufacturers in 2014 compared to 2013.

Approximately 18.1% of systems revenue in 2014 was from sales of 200mm products and 81.9% was from sales of 300mm products, compared with 23.1% and 76.9% for sales of 200mm products and 300mm products in 2013, respectively.

A portion of our revenue from system sales is deferred until installation and other services related to future deliverables are performed. The total amount of deferred revenue at December 31, 2014 and 2013 was \$7.2 million and \$4.7 million, respectively. The increase was mainly due to the increase in systems sales in 2014 and the timing of acceptance of deferred system sales.

Services

Services revenue, which includes the labor component of maintenance and service contracts and fees for service hours provided by on-site service personnel, was \$23.8 million, or 11.7% of revenue for 2014, compared with \$26.0 million, or 13.3% of revenue for 2013. Although services revenue should increase with the expansion of the installed base of systems, it can fluctuate from period to period based on capacity utilization at customers' manufacturing facilities, which affects the need for equipment service. The decrease during 2014 was primarily due to a decrease in fabrication utilization in the semiconductor industry during a portion of 2014.

2013 Compared with 2012

Product

Product revenue which includes new system sales, sales of spare parts, product upgrades and used system sales was \$169.6 million or 86.7% of revenue in 2013, compared with \$174.3 million, or 85.7% of revenue in 2012. The decrease in product revenue in 2013 was attributable to the weak semiconductor market and a related decrease in capital spending by semiconductor manufacturers early in 2013. Weak sales of our ion implant systems combined with our customers' suspended spending for consumables, spare parts and upgrades resulted in this decline in product revenue in 2013 compared with 2012.

Approximately 23.1% of systems revenue in 2013 was from sales of 200mm products and 76.9% was from sales of 300mm products, compared with 23.4% and 76.6% for sales of 200mm products and 300mm products in 2012, respectively.

A portion of our revenue from system sales was deferred until installation and other services related to future deliverables were performed. The total amount of deferred revenue at December 31, 2013 and 2012 was \$4.7 million and \$6.9 million, respectively. The decrease was mainly due to the decrease in systems sales in 2013 and the timing of acceptance of deferred system sales.

Services

Services revenue, which includes the labor component of maintenance and service contracts and fees for service hours provided by on-site service personnel, was \$26.0 million, or 13.3% of revenue for 2013, compared with \$29.1 million, or 14.3% of revenue for 2012. Although services revenue should increase with the expansion of the installed base of systems, it can fluctuate from period to period based on capacity utilization at customers' manufacturing facilities, which affects the need for

equipment service. The decrease during 2013 was primarily due to a decrease in fabrication utilization in the semiconductor industry during 2013.

Revenue Categories used by Management

In addition to the line item revenue categories discussed above, management also uses revenue categorizations which look at revenue by product line (the most significant of which is ion implant) and by aftermarket, as described below.

2014 Compared with 2013

Ion Implant

Included in total revenue of \$203.1 million in 2014 is revenue from sales of ion implantation products and related service of \$183.1 million, or 90.2% of total revenue, compared with \$164.0 million, or 83.8%, of total revenue in 2013. The increase in ion implant's share of total revenue for 2014 reflects a reduction in dry strip revenue following the sale of assets relating to the dry strip product line in December 2012. Total revenue in ion implant increased as the market for our new Purion products improved in 2014.

Aftermarket

We refer to the business of selling spare parts, product upgrades, and used systems combined with the sale of maintenance labor and service contracts and service hours, as the "aftermarket" business. Included in total revenue of \$203.1 million in 2014 is revenue from our aftermarket business of \$121.4 million, which was relatively stable compared to \$120.6 million for 2013. Aftermarket revenue generally increases with the expansion of the installed base of systems but can fluctuate from period to period based on capacity utilization at customers' manufacturing facilities which affects the sale of spare parts and demand for equipment service.

2013 Compared with 2012

Ion Implant

Included in total revenue of \$195.6 million in 2013 is revenue from sales of ion implantation products and related service of \$164.0 million, or 83.8% of total revenue, compared with \$156.1 million, or 76.7%, of total revenue in 2012. The increase in ion implant's share of total revenue for 2013 reflects a reduction in dry strip revenue following the sale of assets relating to the dry strip product line in December 2012. Total revenue in ion implant increased slightly as the market improved in 2013.

Aftermarket

Included in total revenue of \$195.6 million in 2013 is revenue from our aftermarket business of \$120.6 million, compared to \$124.1 million for 2012. The decrease in aftermarket revenue in 2013 compared to 2012 was due to a decrease in fabrication utilization in the semiconductor industry during 2013.

Gross Profit / Gross Margin

The following table sets forth our gross profit:

	Years ended December 31,		Period-to-Period Change		Years ended December 31,		Period-to-Period Change	
	2014	2013	\$	%	2013	2012	\$	%
(dollars in thousands)								
Gross Profit:								
Product	\$ 65,961	\$ 62,909	\$ 3,052	4.9%	\$ 62,909	\$ 50,716	\$ 12,193	24.0%
<i>Product gross margin</i>	<i>36.8%</i>	<i>37.1%</i>			<i>37.1%</i>	<i>29.1%</i>		
Services	4,203	5,026	(823)	(16.4)%	5,026	\$ 7,455	(2,429)	(32.6)%
<i>Services gross margin</i>	<i>17.7%</i>	<i>19.3%</i>			<i>19.3%</i>	<i>25.6%</i>		
Total gross profit	\$ 70,164	\$ 67,935	\$ 2,229	3.3%	\$ 67,935	\$ 58,171	\$ 9,764	16.8%
Gross margin	34.5%	34.7%			34.7%	28.6%		

2014 Compared with 2013

Product

Gross margin from product revenue was 36.8% for the year ended December 31, 2014, compared to 37.1% for the year ended December 31, 2013. The slight decrease in the gross margin percentage is due to an increased mix of lower margin systems sales along with lower than normal margins associated with new product systems, partially offset by a decrease in the provision for excess inventory and higher gross margin associated with parts and upgrade revenue.

Services

Gross margin from service revenue was 17.7% for the year ended December 31, 2014, compared to 19.3% for the year ended December 31, 2013. The decrease in gross margin is due to lower volumes and changes in the mix and timing of service contracts.

2013 Compared with 2012

Product

Gross margin from product revenue was 37.1% for the year ended December 31, 2013, compared to 29.1% for the year ended December 31, 2012, an increase of 8.0 percentage points. Gross margin increased by 7.0 percentage points due to a lower excess inventory charge. A favorable mix of systems sales and lower warranty costs increased gross margin by 1.9 percentage points. These increases were partially offset by a 0.9 percentage point decrease in gross margin resulting from lower margins on parts and upgrade revenue.

Services

Gross margin from services revenue was 19.3% for the year ended December 31, 2013, compared to 25.6% for the year ended December 31, 2012. The decrease in gross margin is attributable to changes in the mix of service contracts and the unfavorable absorption of fixed service costs.

Operating Expenses

The following table sets forth our operating expenses:

	Years ended December 31,		Period-to-Period Change		Years ended December 31,		Period-to-Period Change	
	2014	2013	\$	%	2013	2012	\$	%
	(dollars in thousands)							
Research and development	\$ 33,533	\$ 34,756	\$ (1,223)	(3.5)%	\$ 34,756	\$ 40,401	\$ (5,645)	(14.0)%
Percentage of revenue	16.5%	17.8%			17.8%	19.9%		
Sales and marketing	20,713	21,159	(446)	(2.1)%	21,159	25,889	(4,730)	(18.3)%
Percentage of revenue	10.2%	10.8%			10.8%	12.7%		
General and administrative	23,958	25,471	(1,513)	(5.9)%	25,471	26,554	(1,083)	(4.1)%
Percentage of revenue	11.8%	13.0%			13.0%	13.1%		
Gain on sale of dry strip assets and intellectual property	—	(1,167)	1,167	(100)%	(1,167)	(7,904)	6,737	85.2%
Percentage of revenue	0.0%	(0.6)%			(0.6)%	(3.9)%		
Restructuring charges	2,621	2,334	287	12.3%	2,334	4,169	(1,835)	(44.0)%
Percentage of revenue	1.3%	1.2%			1.2%	2.0%		
Total operating expenses	\$ 80,825	\$ 82,553	\$ (1,728)	(2.1)%	\$ 82,553	\$ 89,109	\$ (6,556)	(7.4)%
Percentage of revenue	39.8%	42.2%			42.2%	43.8%		

Our operating expenses consist primarily of personnel costs, including salaries, commissions, bonuses, share-based compensation and related benefits and taxes; project material costs related to the design and development of new products and enhancement of existing products; and professional fees, travel and depreciation expenses. Personnel costs are our largest expense, representing \$45.3 million, or 57.9% of our total operating expenses, excluding the restructuring charges of \$2.6 million, for the year ended December 31, 2014; \$47.3 million, or 58.1%, of our total operating expenses, excluding the gain on sale of the dry strip assets and intellectual property of \$1.2 million and restructuring charges of \$2.3 million for the year ended December 31, 2013; and \$52.5 million, or 56.5%, of our total operating expenses, excluding the gain on sale of the dry strip assets and intellectual property of \$7.9 million and restructuring charges of \$4.2 million for the year ended December 31, 2012. In general, operating expenses declined in 2014 from 2013 as a result of our efforts to maintain tight control of discretionary spending.

Research and Development

	Years ended December 31,		Period-to-Period Change		Years ended December 31,		Period-to-Period Change	
	2014	2013	\$	%	2013	2012	\$	%
	(dollars in thousands)							
Research and development	\$ 33,533	\$ 34,756	\$ (1,223)	(3.5)%	\$ 34,756	\$ 40,401	\$ (5,645)	(14.0)%
Percentage of revenue	16.5%	17.8%			17.8%	19.9%		

Our ability to remain competitive depends largely on continuously developing innovative technology, with new and enhanced features and systems and introducing them at competitive prices on a timely basis. Accordingly, based on our strategic plan, we establish annual R&D budgets to fund programs that we expect will drive competitive advantages.

2014 Compared with 2013

Research and development expense was \$33.5 million in 2014, a decrease of approximately \$1.2 million, or 3.5%, compared with \$34.8 million in 2013. The decrease was primarily due to the reduction in payroll costs of \$0.7 million as a result of lowering our headcount through reductions in

force. As we focused our R&D spend on critical programs, consulting, project material and related costs decreased by \$0.3 million.

2013 Compared with 2012

Research and development expense was \$34.8 million in 2013, a decrease of approximately \$5.6 million, or 14.0%, compared with \$40.4 million in 2012. The decrease was primarily due to the reduction in payroll costs of \$3.2 million as a result of lowering our headcount through reductions in force. As we focused our R&D spend on critical programs, consulting, project material and related costs decreased by \$0.5 million and depreciation expense for internal use assets used as demonstration and/or test systems decreased by \$1.5 million.

Sales and Marketing

	Years ended December 31,		Period-to-Period Change		Years ended December 31,		Period-to-Period Change	
	2014	2013	\$	%	2013	2012	\$	%
	(dollars in thousands)							
Sales and marketing	\$ 20,713	\$ 21,159	\$ (446)	(2.1)%	\$ 21,159	\$ 25,889	\$ (4,730)	(18.3)%
Percentage of revenue	10.2%	10.8%			10.8%	12.7%		

Our sales and marketing expenses result primarily from the sale of our equipment and services through our direct sales force.

2014 Compared with 2013

Sales and marketing expense was \$20.7 million in 2014, a decrease of \$0.4 million, or 2.1%, compared with \$21.2 million in 2013. The decrease was primarily due to the reduction in consulting and new tool evaluation costs which decreased by \$0.5 million.

2013 Compared with 2012

Sales and marketing expense was \$21.2 million in 2013, a decrease of \$4.7 million, or 18.3%, compared with \$25.9 million in 2012. The decrease was primarily due to the reduction in payroll costs of \$1.6 million as a result of lowering our headcount through reductions in force. In addition, consulting and new tool evaluation costs decreased by \$0.3 million and travel costs decreased by \$0.3 million due to reduced travel. In addition, there was a one-time marketing expense of \$2.1 million associated with our evaluation programs in 2012.

General and Administrative

	Years ended December 31,		Period-to-Period Change		Years ended December 31,		Period-to-Period Change	
	2014	2013	\$	%	2013	2012	\$	%
	(dollars in thousands)							
General and administrative	\$ 23,958	\$ 25,471	\$ (1,513)	(5.9)%	\$ 25,471	\$ 26,554	\$ (1,083)	(4.1)%
Percentage of revenue	11.8%	13.0%			13.0%	13.1%		

2014 Compared with 2013

General and administrative expense was \$24.0 million in 2014, a decrease of \$1.5 million, or 5.9% compared with \$25.5 million in 2013. The decrease was due to the reduction in payroll costs of \$1.5 million as a result of lowering our headcount through reductions in force.

2013 Compared with 2012

General and administrative expense was \$25.5 million in 2013, a decrease of \$1.1 million, or 4.1% compared with \$26.6 million in 2012. The decrease was due to the reduction in payroll costs of \$0.4 million as a result of lower headcount, lower legal fees of \$0.5 million associated with patents related to our dry strip product line which was sold in 2012, and lower facility related costs.

Gain on Sale of Dry Strip Assets and Intellectual Property

On December 3, 2012, we sold our dry strip system assets and intellectual property to Lam.

2014 Compared with 2013

The Company did not record any amounts related to the achievement of any milestones related to the Lam transaction in 2014.

2013 Compared with 2012

The \$1.2 million gain on sale of dry strip assets and intellectual property in 2013 was related to the achievement of reaching certain milestones with Lam in 2013.

Restructuring

During 2014, 2013 and 2012 we implemented multiple reductions in force to improve the focus of our operations, control costs, achieve future profitability and conserve cash.

2014 Compared with 2013

During the year ended December 31, 2014 and 2013, we recorded \$2.6 million and \$2.3 million, respectively, in restructuring expense for severance and other related costs.

2013 Compared with 2012

During the year ended December 31, 2013 and 2012, we recorded \$2.3 million and \$4.2 million, respectively, in restructuring expense for severance and other related costs.

Other Income (Expense)

2014 Compared with 2013

Other income was \$0.5 million for the year ended December 31, 2014 compared to other expense of \$1.5 million for the year ended December 31, 2013. Other income (expense) consists primarily of foreign exchange gains and losses attributable to fluctuations of the U.S. dollar against the local currencies of certain of the countries in which we operate, as well as interest earned on our invested cash balances, net of bank fees associated with our financing arrangements and interest expense related to our business loan agreement with Northern Bank & Trust Company (the "Term Loan").

2013 Compared with 2012

Other expense was \$1.5 million for the year ended December 31, 2013 compared to other expense of \$1.5 million for the year ended December 31, 2012.

Income Taxes

Income tax expense was \$1.1 million, \$1.0 million and \$1.6 million for the year ended December 31, 2014, 2013 and 2012, respectively. Our income tax expense is due primarily to operating

results of foreign entities in jurisdictions in Europe and Asia, where we earn taxable income. We have significant net operating loss carryforwards in the United States and certain European jurisdictions, and, as a result, we do not currently pay significant income taxes in those jurisdictions. Additionally, we do not recognize the tax benefit for such losses in the United States and certain European taxing jurisdictions until there is sufficient income such that the tax benefits can be recognized.

Liquidity and Capital Resources

Our liquidity is affected by many factors. Some of these relate specifically to the operations of our business, for example, the rate of sale of our product lines, and others relate to the uncertainties of global economies, including the availability of credit and the condition of the overall semiconductor equipment industry. Our established cost structure does not vary significantly with changes in volume. We have reduced operating expense to achieve profitability towards the lower end of our quarterly revenue swings. We experience fluctuations in operating results and cash flows depending on our revenue as driven by the level of capital expenditures by semiconductor manufacturers.

In 2014, \$16.0 million of cash was used to support operating activities. This compares to cash used to support operations of \$15.0 million in 2013. The \$1.0 million increase in cash used by operations in 2014 was predominately driven by the increase in inventory due to the anticipated demand for our Purion platform as well as an increase in accounts receivable. Cash and cash equivalents at December 31, 2014 are \$30.8 million, compared to \$46.3 million at December 31, 2013. Working capital at December 31, 2014 was \$133.0 million. Approximately \$16.1 million of cash was located in foreign jurisdictions as of December 31, 2014.

Capital expenditures were \$0.9 million and \$0.8 million for the years ended December 31, 2014 and 2013, respectively. Total capital expenditures for 2015 are projected to be approximately \$2.0 million. Future capital expenditures beyond 2015 will depend on a number of factors, including the timing and rate of expansion of our business and our ability to generate cash to fund them.

Cash provided by financing activities was \$2.8 million and \$15.7 million for the years ended December 31, 2014 and 2013, respectively. In 2014, the Company received proceeds of \$3.3 million related to stock option exercises and the employee stock purchase plan. These amounts were offset by principal payments of \$0.5 million related to the Term Loan. In 2013, cash provided by financing activities of \$15.7 million included \$15.0 million related to the proceeds received from the Term Loan, as well as \$2.1 million related to stock option exercises and the employee stock purchase plan. These amounts were offset by an increase in restricted cash of \$0.8 million and financing fees and other expenses related to the Term Loan of \$0.6 million.

We have an interest reserve account, outstanding letter of credit, and surety bonds in the amount of \$3.6 million to support our Term Loan, insurance programs and certain value added tax claims in Europe.

The following represents our commercial commitments as of December 31, 2014 (in thousands):

Other Commercial Commitments	Total	Amount of Commitment	
		Expiration by Period	
		2015	2016-2017
Surety bonds	\$ 1,706	\$ 446	\$ 1,260
Standby letters of credit	1,075	1,075	—
Interest reserve escrow	825	825	—
	<u>\$ 3,606</u>	<u>\$ 2,346</u>	<u>\$ 1,260</u>

The following represents our contractual obligations as of December 31, 2014 (in thousands):

<u>Contractual Obligations</u>	<u>Total</u>	<u>Payments Due by Period</u>		
		<u>2015</u>	<u>2016-2019</u>	<u>2020-2022</u>
Debt obligations	\$ 14,530	\$ 14,530	\$ —	\$ —
Interest & prepayment penalty*	350	350	—	—
Purchase order commitments	34,321	34,321	—	—
Operating leases	5,137	2,544	2,371	222
	<u>\$ 54,338</u>	<u>\$ 51,745</u>	<u>\$ 2,371</u>	<u>\$ 222</u>

* Amount includes \$289 thousand of prepayment penalty on Term Loan relating to the sale of Beverly facility. See Note 20.

We have no off-balance sheet arrangements at December 31, 2014, exclusive of operating leases.

We have net operating loss and tax credit carryforwards, the tax effect of which aggregate \$130.9 million at December 31, 2014. These carryforwards, which expire principally between 2015 and 2034, are available to reduce future income tax liabilities in the United States and certain foreign jurisdictions.

It is Company policy to provide taxes for the total anticipated tax impact of the undistributed earnings of our wholly-owned foreign subsidiaries, as such earnings are not expected to be reinvested indefinitely. The Company anticipates that U.S. tax resulting from remitting such earnings will be off-set by net operating loss or credit carryforwards to the extent available. In addition, the Company does not anticipate incurring a foreign withholding tax on remitting such earnings since it does not intend to remit the earnings as dividends. In February 2015, in connection with a sale of our headquarters building in Beverly, Massachusetts, we repaid a mortgage on our headquarters facility in connection with the sale leaseback transaction (see Note 20 to the Financial Statements in this Form 10-K). This mortgage had secured a \$15 million July 2013 term loan from Northern Bank & Trust Company (see Note 11 to the Financial Statements in this Form 10-K). The Company netted \$33.5 million from the proceeds of the sale leaseback transaction, augmenting the 2014 year end cash balance of \$30.8 million.

The Company has a revolving credit facility with Silicon Valley Bank ("SVB") pursuant to a Loan and Security agreement dated October 31, 2013. Under this revolving credit facility, the Company has the ability to borrow up to \$10.0 million on a revolving basis during its two year term. The Company's ability to borrow under this line of credit is limited to 80% of the then current amount of qualified accounts receivable. On August 1, 2014, the Company and SVB entered into a Waiver and Amendment Agreement in which SVB waived the Company's non-compliance with the minimum adjusted net income covenant in the Loan Agreement at June 30, 2014 and amended the covenant for future periods. On February 2, 2015, the Company and SVB entered into a Second Amendment to the Loan and Security Agreement, whereby the minimum adjusted net income covenant for the period ending December 31, 2014 was removed. As of December 31, 2014, the Company was in compliance with all covenants related to the credit facility, as amended.

At December 31, 2014, the Company's available borrowing capacity under the credit facility was \$8.9 million. As of December 31, 2014, the Company had not drawn down on the line of credit, although a portion of the availability is being used to support an outstanding letter of credit in the amount of \$1.1 million in lieu of cash collateralization. In February 2015, our available borrowing capacity was reduced by \$5.9 million, the amount of a letter of credit issued to our landlord for our Beverly, Massachusetts headquarter building (see Note 20).

We believe that based on our current market, revenue, expense and cash flow forecasts, our existing cash, cash equivalents and borrowing capacity will be sufficient to satisfy our anticipated cash requirements for the short and long-term. In the event that demand for our products declines in future periods, we believe we can align manufacturing and operating spending levels to the changing business conditions and provide sufficient liquidity to support operations.

Related-Party Transactions

There are no significant related-party transactions that require disclosure in the consolidated financial statements for the year ended December 31, 2014, or in this Annual Report on Form 10-K.

Recent Accounting Pronouncements

A discussion of recent accounting pronouncements is included in Note 2 to the consolidated financial statements for the year ended December 31, 2014 included in this Annual Report on Form 10-K.

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

Interest Rate Sensitivity

Our exposure to market risk for changes in interest rates relates primarily to our investment portfolio, which consists entirely of cash-equivalents at December 31, 2014. The primary objective of our investment activities is to preserve principal while maximizing yields without significantly increasing risk. This is accomplished by investing in marketable high investment grade securities. We do not use derivative financial instruments in managing our investment portfolio. Due to the nature of our investments, we do not expect our operating results or cash flows to be affected to any significant degree by any change in market interest rates. We incur interest expense on borrowings outstanding under our term loan which bears interest at the fixed rate.

Foreign Currency Exchange Risk

Substantially all of our sales are billed in U.S. dollars, thereby reducing the impact of fluctuations in foreign exchange rates on our results. Operating margins of certain foreign operations can fluctuate with changes in foreign exchange rates to the extent revenue is billed in U.S. dollars and operating expenses are incurred in the local functional currency. During the years ended December 31, 2014 and 2013, approximately 37.8% and 32.9% of our revenue were derived from foreign operations with this inherent risk. In addition, at both December 31, 2014 and 2013, our operations outside of the United States accounted for approximately 26.8% and 39.6% of our total assets, respectively, the majority of which was denominated in currencies other than the U.S. dollar. We do not use derivative financial instruments in managing our foreign currency exchange risk.

Item 8. Financial Statements and Supplementary Data.

Response to this Item is submitted as a separate section of this report immediately following Item 15.

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

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures.

Our management, with the participation of our principal executive officer and principal financial officer, has evaluated the effectiveness of our disclosure controls and procedures (as defined in Rule 13a-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act") as of the end of the period covered by this annual report (the "Evaluation Date"). Based on this evaluation, our principal executive officer and principal financial officer concluded that, as of the Evaluation Date, these disclosure controls and procedures are effective.

Internal Control over Financial Reporting

Management's Annual Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rule 13a-15(f) under the Exchange Act. Because of its inherent limitations, internal control over financial reporting may not prevent or detect all misstatements. A control system, no matter how well designed and operated, can provide only reasonable assurance with respect to financial statement preparation and presentation. Projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management assessed the effectiveness of our internal control over financial reporting as of December 31, 2014. In making this assessment, management used the criteria set forth in the Committee of Sponsoring Organizations of the Treadway Commission (COSO) Internal Control—2013 Integrated Framework.

Based on this assessment, management has concluded that, as of December 31, 2014, our internal control over financial reporting is effective based on those criteria.

The independent registered public accounting firm of Ernst & Young LLP, as auditors of our consolidated financial statements, has issued an attestation report on its assessment of our internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

The Board of Directors and Shareholders of Axcelis Technologies, Inc.

We have audited Axcelis Technologies, Inc.'s internal control over financial reporting as of December 31, 2014, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) (the COSO criteria). Axcelis Technologies, Inc.'s management is responsible for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying Management's Annual Report on Internal Control over Financial Reporting. Our responsibility is to express an opinion on the company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, Axcelis Technologies, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2014, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of Axcelis Technologies, Inc. as of December 31, 2014 and 2013, and the related consolidated statements of operations, comprehensive loss, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2014 of Axcelis Technologies, Inc. and our report dated March 11, 2015 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Boston, Massachusetts
March 11, 2015

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) identified in connection with the evaluation of our internal control that occurred during our fourth quarter that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

On March 5, 2015, the Company entered into Executive Separation Pay Agreements with each of its executive officers other than Ms. Puma, which provide for twelve month's separation pay in the event of a termination without cause. A form of the Executive Separation Pay Agreement is filed as an Exhibit to this Form 10-K.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

A portion of the information required by Item 10 of Form 10-K is incorporated by reference from the information responsive thereto contained in the sections in Axcelis Proxy Statement for the Annual Meeting of Stockholders to be held May 13, 2015 (the "Proxy Statement") captioned:

- "Proposal 1: Election of Directors,"
- "The Board of Directors,"
- "Board Committees," and
- "Corporate Governance,"

The remainder of such information is set forth under the heading "Executive Officers of the Registrant" at the end of Item 1 in Part I of this report and is incorporated herein by reference.

Item 11. Executive Compensation.

The information required by Item 11 of Form 10-K is incorporated by reference from the information responsive thereto contained in the sections in the Proxy Statement captioned:

- "Executive Compensation," and
- "Board Committees—Compensation Committee Interlocks and Insider Participation."

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters.

The information required by Item 12 of Form 10-K is incorporated by reference from the information responsive thereto contained in the sections in the Proxy Statement captioned:

- "Share Ownership of 5% Stockholders," and
- "Share Ownership of Directors and Executive Officers,"

Item 13. Certain Relationships and Related Transactions and Director Independence.

The information required by Item 13 of Form 10-K is incorporated by reference from the information responsive thereto contained in the sections in the Proxy Statement captioned:

- "Executive Compensation,"
- "The Board of Directors," and
- "Corporate Governance—Certain Relationships and Related Transactions."

Item 14. Principal Accounting Fees and Services

The information required by Item 14 of Form 10-K is incorporated by reference from the information responsive thereto contained in the section captioned "Proposal 2: Ratification of the Appointment of our Independent Registered Public Accounting Firm" in the Proxy Statement.

Item 15. Exhibits, Financial Statement Schedules.

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

1) Financial Statements:

<u>Report of Independent Registered Public Accounting Firm</u>	<u>F-1</u>
<u>Consolidated Statements of Operations—For the years ended December 31, 2014, 2013 and 2012</u>	<u>F-2</u>
<u>Consolidated Statements of Comprehensive Loss—For the years ended December 31, 2014, 2013 and 2012</u>	<u>F-3</u>
<u>Consolidated Balance Sheets—December 31, 2014 and 2013</u>	<u>F-4</u>
<u>Consolidated Statements of Stockholders' Equity—For the years ended December 31, 2014, 2013 and 2012</u>	<u>F-5</u>
<u>Consolidated Statements of Cash Flows—For the years ended December 31, 2014, 2013 and 2012</u>	<u>F-6</u>
<u>Notes to Consolidated Financial Statements</u>	<u>F-7</u>

2) Financial Statement Schedules:

Schedule II—Valuation and Qualifying Accounts for the years ended December 31, 2014, 2013 and 2012.

All other schedules for which provision is made in the applicable regulation of the Securities and Exchange Commission are not required under the related instructions or are inapplicable, and therefore have been omitted.

3) Exhibits

The exhibits filed as part of this Form 10-K are listed on the Exhibit Index immediately preceding such Exhibits, which Exhibit Index is incorporated herein by reference.

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of Axcelis Technologies, Inc.

We have audited the accompanying consolidated balance sheets of Axcelis Technologies, Inc. as of December 31, 2014 and 2013, and the related consolidated statements of operations, comprehensive loss, changes in stockholders' equity and cash flows for each of the three years in the period ended December 31, 2014. Our audits also include the financial statement schedule listed in the Index at Item 15(a). These financial statements and schedule 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 the standards of the Public Company Accounting Oversight Board (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 consolidated financial position of Axcelis Technologies, Inc. at December 31, 2014 and 2013, and the consolidated results of their operations and their cash flows for each of the three years in the period ended December 31, 2014, in conformity with U.S. generally accepted accounting principles. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly in all material respects to the information set forth therein.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), Axcelis Technologies, Inc.'s internal control over financial reporting as of December 31, 2014, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 framework) and our report dated March 11, 2015 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

Boston, Massachusetts
March 11, 2015

Axcelis Technologies, Inc.
Consolidated Statements of Operations
(In thousands, except per share amounts)

	Twelve months ended		
	December 31,		
	2014	2013	2012
Revenue			
Product	\$ 179,246	\$ 169,587	\$ 174,309
Services	23,805	26,045	29,076
Total revenue	<u>203,051</u>	<u>195,632</u>	<u>203,385</u>
Cost of revenue			
Product	113,285	106,678	123,593
Services	19,602	21,019	21,621
Total cost of revenue	<u>132,887</u>	<u>127,697</u>	<u>145,214</u>
Gross profit	70,164	67,935	58,171
Operating expenses			
Research and development	33,533	34,756	40,401
Sales and marketing	20,713	21,159	25,889
General and administrative	23,958	25,471	26,554
Gain on sale of dry strip assets and intellectual property	—	(1,167)	(7,904)
Restructuring charges	2,621	2,334	4,169
Total operating expenses	<u>80,825</u>	<u>82,553</u>	<u>89,109</u>
Loss from operations	(10,661)	(14,618)	(30,938)
Other income (expense)			
Interest income	32	44	45
Interest expense	(1,069)	(457)	—
Other, net	1,531	(1,073)	(1,495)
Total other income (expense)	<u>494</u>	<u>(1,486)</u>	<u>(1,450)</u>
Loss before income taxes	(10,167)	(16,104)	(32,388)
Income tax provision	1,099	1,040	1,646
Net loss	<u>\$ (11,266)</u>	<u>\$ (17,144)</u>	<u>\$ (34,034)</u>
Net loss per share			
Basic	<u>\$ (0.10)</u>	<u>\$ (0.16)</u>	<u>\$ (0.32)</u>
Diluted	<u>\$ (0.10)</u>	<u>\$ (0.16)</u>	<u>\$ (0.32)</u>
Shares used in computing net loss per share			
Basic	<u>111,450</u>	<u>108,869</u>	<u>107,619</u>
Diluted	<u>111,450</u>	<u>108,869</u>	<u>107,619</u>

See accompanying Notes to these Consolidated Financial Statements

Axcelis Technologies, Inc.
Consolidated Statements of Comprehensive Loss
(In thousands)

	<u>Twelve months ended December 31,</u>		
	<u>2014</u>	<u>2013</u>	<u>2012</u>
Net loss	\$ (11,266)	\$ (17,144)	\$ (34,034)
Other comprehensive (loss) income:			
Foreign currency translation adjustments	(4,150)	695	642
Actuarial net (loss) gain from pension plan, net of benefit (taxes) of \$140, (\$15) and \$178	(313)	24	(399)
Total other comprehensive (loss) income:	(4,463)	719	243
Comprehensive loss	<u>\$ (15,729)</u>	<u>\$ (16,425)</u>	<u>\$ (33,791)</u>

See accompanying Notes to these Consolidated Financial Statements

Axcelis Technologies, Inc.
Consolidated Balance Sheets
(In thousands, except per share amounts)

	December 31, 2014	December 31, 2013
ASSETS		
Current assets		
Cash and cash equivalents	\$ 30,753	\$ 46,290
Restricted cash	825	—
Accounts receivable, net	42,794	36,587
Inventories, net	104,063	95,789
Prepaid expenses and other current assets	6,700	6,242
Total current assets	185,135	184,908
Property, plant and equipment, net	30,464	32,006
Long-term restricted cash	—	825
Other assets	12,055	15,810
Total assets	<u>\$ 227,654</u>	<u>\$ 233,549</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	\$ 21,605	\$ 19,451
Accrued compensation	4,232	4,845
Warranty	1,352	1,316
Income taxes	196	417
Deferred revenue	6,782	4,387
Current portion of long-term debt	14,530	471
Other current liabilities	3,401	4,573
Total current liabilities	52,098	35,460
Long-term debt	—	14,529
Long-term deferred revenue	449	322
Other long-term liabilities	6,755	7,236
Total liabilities	59,302	57,547
Commitments and contingencies (Note 16)		
Stockholders' equity		
Preferred stock, \$0.001 par value, 30,000 shares authorized; none issued or outstanding	—	—
Common stock, \$0.001 par value, 300,000 shares authorized; 112,849 shares issued and 112,729 shares outstanding at December 31, 2014; 110,225 shares issued and 110,105 shares outstanding at December 31, 2013	113	110
Additional paid-in capital	519,068	510,992
Treasury stock, at cost, 120 shares at December 31, 2014 and 2013	(1,218)	(1,218)
Accumulated deficit	(350,887)	(339,621)
Accumulated other comprehensive income	1,276	5,739
Total stockholders' equity	168,352	176,002
Total liabilities and stockholders' equity	<u>\$ 227,654</u>	<u>\$ 233,549</u>

See accompanying Notes to these Consolidated Financial Statements

Axcelis Technologies, Inc.
Consolidated Statements of Stockholders' Equity
(In thousands)

	<u>Common Stock</u>		<u>Additional Paid-in Capital</u>	<u>Treasury Stock</u>	<u>Accumulated Deficit</u>	<u>Accumulated Other Comprehensive Income (Loss)</u>	<u>Total Stockholders' Equity</u>
	<u>Shares</u>	<u>Amount</u>					
Balance at December 31, 2011	106,809	\$ 107	\$ 499,332	\$ (1,218)	\$ (288,443)	\$ 4,777	\$ 214,555
Net loss	—	—	—	—	(34,034)	—	(34,034)
Foreign currency translation adjustments	—	—	—	—	—	642	642
Change in pension obligation	—	—	—	—	—	(399)	(399)
Exercise of stock options	1,148	1	967	—	—	—	968
Issuance of shares under Employee Stock Purchase Plan	306	—	390	—	—	—	390
Issuance of restricted common shares	30	—	(22)	—	—	—	(22)
Stock-based compensation expense	—	—	3,976	—	—	—	3,976
Balance at December 31, 2012	108,293	108	504,643	(1,218)	(322,477)	5,020	186,076
Net loss	—	—	—	—	(17,144)	—	(17,144)
Foreign currency translation adjustments	—	—	—	—	—	695	695
Change in pension obligation	—	—	—	—	—	24	24
Exercise of stock options	1,511	2	1,667	—	—	—	1,669
Issuance of shares under Employee Stock Purchase Plan	206	—	436	—	—	—	436
Issuance of restricted common shares	215	—	(26)	—	—	—	(26)
Stock-based compensation expense	—	—	4,272	—	—	—	4,272
Balance at December 31, 2013	110,225	110	510,992	(1,218)	(339,621)	5,739	176,002
Net loss	—	—	—	—	(11,266)	—	(11,266)
Foreign currency translation adjustments	—	—	—	—	—	(4,150)	(4,150)
Change in pension obligation	—	—	—	—	—	(313)	(313)
Exercise of stock options	2,418	3	2,892	—	—	—	2,895
Issuance of shares under Employee Stock Purchase Plan	199	—	446	—	—	—	446
Issuance of restricted common shares	7	—	(7)	—	—	—	(7)
Stock-based compensation expense	—	—	4,745	—	—	—	4,745
Balance at December 31, 2014	112,849	\$ 113	\$ 519,068	\$ (1,218)	\$ (350,887)	\$ 1,276	\$ 168,352

See accompanying Notes to these Consolidated Financial Statements

Axcelis Technologies, Inc.
Consolidated Statements of Cash Flow
(In thousands)

	Twelve months ended		
	December 31,		
	2014	2013	2012
Cash flows from operating activities			
Net loss	\$ (11,266)	\$ (17,144)	\$ (34,034)
Adjustments to reconcile net loss to net cash used for operating activities:			
Depreciation and amortization	4,589	5,075	6,877
Gain on sale of dry strip assets and intellectual property	—	(1,167)	(7,904)
Deferred taxes	1,266	(1,465)	826
Other	—	—	186
Stock-based compensation expense	4,812	4,337	3,976
Provision for inventory reserves	1,817	2,562	14,492
Changes in operating assets & liabilities			
Accounts receivable	(7,069)	(11,528)	10,478
Inventories	(12,280)	2,209	5,903
Prepaid expenses and other current assets	(1,384)	125	4,386
Accounts payable and other current liabilities	772	7,308	(13,490)
Deferred revenue	2,577	(2,181)	(5,396)
Income taxes	(212)	133	(225)
Other assets and liabilities	333	(3,306)	3,328
Net cash used for operating activities	(16,045)	(15,042)	(10,597)
Cash flows from investing activities			
Proceeds from sale of dry strip assets and intellectual property	—	1,200	8,716
Expenditures for property, plant and equipment	(896)	(821)	(591)
Decrease (increase) in restricted cash	—	106	(2)
Net cash (used for) provided by investing activities	(896)	485	8,123
Cash flows from financing activities			
Increase in restricted cash	—	(825)	—
Financing fees and other expenses	(115)	(560)	—
Proceeds from exercise of stock options	2,895	1,669	968
Proceeds from Employee Stock Purchase Plan	446	436	331
Proceeds from issuance of Term Loan	—	15,000	—
Principal payments on Term Loan	(470)	—	—
Net cash provided by financing activities	2,756	15,720	1,299
Effect of exchange rate changes on cash	(1,352)	141	(716)
Net (decrease) increase in cash and cash equivalents	(15,537)	1,304	(1,891)
Cash and cash equivalents at beginning of period	46,290	44,986	46,877
Cash and cash equivalents at end of period	<u>\$ 30,753</u>	<u>\$ 46,290</u>	<u>\$ 44,986</u>
Cash paid for:			
Income taxes	\$ 931	\$ 737	\$ 848
Interest paid	\$ 832	\$ 409	\$ —

See accompanying Notes to these Consolidated Financial Statements

Note 1. Nature of Business

Axcelis Technologies, Inc. ("Axcelis" or the "Company") was incorporated in Delaware in 1995, and is a worldwide producer of ion implantation and other processing equipment used in the fabrication of semiconductor chips in the United States, Europe and Asia. In addition, the Company provides extensive aftermarket service and support, including spare parts, equipment upgrades, used equipment and maintenance services to the semiconductor industry.

Note 2. Summary of Significant Accounting Policies

The accompanying consolidated financial statements reflect the application of certain significant accounting policies as described in this note and elsewhere in the footnotes.

(a) Basis of Presentation

The accompanying consolidated financial statements include the accounts of the Company and its wholly-owned, controlled subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

Events occurring subsequent to December 31, 2014 have been evaluated for potential recognition or disclosure in the consolidated financial statements.

(b) Use of Estimates

The preparation of these consolidated financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the dates of the financial statements and the reported amounts of revenue and expenses during the reporting periods. On an ongoing basis, the Company evaluates its estimates and judgments, including those related to revenue recognition, the realizable value of inventories, valuing share-based compensation instruments and valuation allowances for deferred tax assets. Actual amounts could differ from these estimates. Changes in estimates are recorded in the period in which they become known.

(c) Foreign Currency

The Company has determined the functional currency for substantially all operations outside the United States is the local currency. Financial statements for these operations are translated into United States dollars at year-end rates as to assets and liabilities and average exchange rates during the year as to revenue and expenses. The resulting translation adjustments are recorded in stockholders' equity as an element of accumulated other comprehensive income (loss). Foreign currency transaction gains and losses are included in other income (expense) in the Consolidated Statements of Operations.

For the year ended December 31, 2014 the Company realized \$1.8 million of foreign exchange gains. For the year ended December 31, 2013 and 2012, the Company realized \$0.3 million and \$0.9 million of foreign exchange losses, respectively.

(d) Cash and Cash Equivalents

Cash and cash equivalents consist of cash on hand and highly liquid investments with original maturities of ninety days or less. Cash equivalents consist primarily of money market securities and certificates of deposit. Cash equivalents are carried on the balance sheet at fair market value.

(e) Inventories

Inventories are carried at lower of cost, determined using the first-in, first-out ("FIFO") method, or market. The Company periodically reviews its inventories and makes provisions as necessary for estimated obsolescence or damaged goods to ensure values approximate lower of cost or market. The amount of such markdowns is equal to the difference between cost of inventory and the estimated market value based upon assumptions about future demands, selling prices, and market conditions.

The Company records an allowance for estimated excess inventory. The allowance is determined using management's assumptions of materials usage, based on estimates of demand and market conditions. If actual market conditions become less favorable than those projected by management, additional inventory write-downs may be required.

(f) Property, Plant and Equipment

Property and equipment are stated at cost, less accumulated depreciation and amortization.

Depreciation and amortization are recorded using the straight-line method over the estimated useful lives of the related assets as follows:

<u>Asset Classification</u>	<u>Estimated Useful Life</u>
Buildings	40 years
Machinery and equipment	3 to 10 years

Repairs and maintenance costs are expensed as incurred. Expenditures for renewals and betterments are capitalized.

(g) Impairment of Long-Lived Assets

The Company records impairment losses on long-lived assets when events and circumstances indicate that these assets might not be recoverable. Recoverability is measured by a comparison of the assets' carrying amount to their expected future undiscounted net cash flows. If such assets are considered to be impaired, the impairment is measured based on the amount by which the carrying value exceeds its fair value.

The Company completed a test for recoverability due to indicators of impairment present during interim periods in 2014, 2013 and 2012 respectively. Results of tests for recoverability performed indicated that the carrying value of the asset group was recoverable for all periods presented.

The Company did not record an impairment charge for the years ended December 31, 2014, 2013, or 2012.

Future actual performance could be materially different from our current forecasts, which could impact future estimates of undiscounted cash flows and may result in the impairment of the carrying amount of the long-lived assets in the future. This could be caused by strategic decisions made in response to economic and competitive conditions, the impact of the economic environment on our customer base, or a material adverse change in the Company's relationships with significant customers. The Company performs an impairment analysis when circumstances or events warrant.

(h) Concentration of Risk and Off-Balance Sheet Risk

Financial instruments that potentially subject the Company to concentrations of credit risk are principally cash equivalents and accounts receivable. The Company's cash equivalents are principally maintained in an investment grade money-market fund.

The Company has no significant off-balance-sheet risk such as foreign exchange contracts, option contracts or other foreign hedging arrangements.

The Company's exposure to market risk for changes in interest rates relates primarily to cash equivalents. The primary objective of the Company's investment activities is to preserve principal while maximizing yields without significantly increasing risk. This is accomplished by investing in marketable high investment grade securities. The Company does not use derivative financial instruments to manage its investment portfolio and does not expect operating results or cash flows to be affected to any significant degree by any change in market interest rates.

The Company performs ongoing credit evaluations of its customers' financial condition and generally requires no collateral to secure accounts receivable. For selected overseas sales, the Company requires customers to obtain letters of credit before product is shipped. The Company maintains an allowance for doubtful accounts based on its assessment of the collectability of accounts receivable. The Company reviews the allowance for doubtful accounts monthly. The Company does not have any off-balance sheet credit exposure related to its customers.

The Company's customers consist of semiconductor manufacturers located throughout the world and net sales to its ten largest customers accounted for 68.1%, 69.1% and 70.6% of revenue in 2014, 2013 and 2012, respectively.

For the year ended December 31, 2014, the Company had two customers representing 17.4% and 12.3% of total revenue, respectively. For the years ended December 2013 and 2012, the Company had one customer representing 15.5% and 18.2% of total revenue, respectively, for each of the periods presented.

As of December 31, 2014, the Company had two customers account for 21.7% and 20.4% of consolidated accounts receivable, respectively. As of December 31, 2013, the Company had three customers account for 23.2%, 14.2% and 13.6% of consolidated accounts receivable, respectively.

Some of the components and sub-assemblies included in the Company's products are obtained either from a sole source or a limited group of suppliers. Disruption to the Company's supply source, resulting either from depressed economic conditions or other factors, could affect its ability to deliver products to its customers.

(i) Revenue Recognition

The Company's revenue recognition policy involves significant judgment by management. As described below, the Company considers a broad array of facts and circumstances in determining when to recognize revenue, including contractual obligations to the customer, the complexity of the customer's post-delivery acceptance provisions, payment history, customer creditworthiness and the installation process. In the future, if the post-delivery acceptance provisions and installation process become more complex or result in a materially lower rate of acceptance, the Company may have to revise its revenue recognition policy, which could delay the timing of revenue recognition.

The Company's system sales transactions are made up of multiple elements, including the system itself and elements that are not delivered simultaneously with the system. These undelivered elements might include a combination of installation services, extended warranty and support and spare parts, all of which are covered generally by a single sales price.

The Company's system revenue arrangements with multiple elements are divided into separate units of accounting if specified criteria are met, including whether the delivered element has stand-alone value to the customer. If the criteria are met, then the consideration received is allocated among the separate units based on their relative selling price, and the revenue is recognized separately for each of the separate units.

The Company determines selling price for each unit of accounting (element) using vendor specific objective evidence (VSOE) or third-party evidence (TPE), if they exist, otherwise, the Company uses best estimated selling price (BESP). The Company generally expects that it will not be able to establish TPE due to the nature of its products, and, as such, the Company typically will determine selling price using VSOE or BESP.

Where required, the Company determines BESP for an individual element based on consideration of both market and Company-specific factors, including the selling price and profit margin for similar products, the cost to produce the deliverable and the anticipated margin on that deliverable and the characteristics of the varying markets in which the deliverable is sold.

Systems are not sold separately and VSOE or TPE is not available for the systems element. Therefore the selling price associated with systems is based on BESP. The allocated value for installation in the arrangement includes the greater of (i) the relative selling price of the installation or (ii) the portion of the sales price that will not be received until the installation is completed (the "retention"). The selling price of installation is based upon the fair value of the service performed, including labor, which is based upon the estimated time to complete the installation at hourly rates, and material components, both of which are sold separately. The selling price of all other elements (extended warranty for support, spare parts and labor) is based upon the price charged when these elements are sold separately, or VSOE.

Product revenue for products which have demonstrated market acceptance, is generally recognized upon shipment provided title and risk of loss has passed to the customer, evidence of an arrangement exists, prices are contractually fixed or determinable, collectability is reasonably assured through historical collection results and regular credit evaluations, and there are no uncertainties regarding customer acceptance. Revenue from installation services is recognized at the time acceptance has occurred, as defined in the sales documentation or, for certain customers, when both acceptance has occurred and retention payment has been received. Revenue for other elements is recognized at the time products are shipped or the related services are performed.

The Company generally recognizes revenue for systems which have demonstrated market acceptance at the time of shipment because the customer's post-delivery acceptance provisions and installation process have been established to be routine, commercially inconsequential and perfunctory. The Company believes the risk of failure to complete a system installation is remote.

For initial shipments of systems with new technologies or in the small number of instances where the Company is unsure of meeting the customer's specifications or obtaining customer acceptance upon shipment of the system, it will defer the recognition of systems revenue and related costs until written customer acceptance of the system is obtained. This deferral period is generally within twelve months of shipment.

Revenue related to maintenance and service contracts is recognized ratably over the duration of the contracts, or based on parts usage, where appropriate. Revenue related to service hours is recognized when the services are performed.

Product revenue includes revenue from system sales, sales of spare parts, the spare parts component of maintenance and service contracts and product upgrades. Services revenue includes the labor component of maintenance and service contract amounts charged for on-site service personnel.

Axcelis reports revenue net of any taxes collected from customers and remitted to governmental authorities, with the collected taxes recorded as current liabilities until remitted to the relevant government authority.

(j) Shipping and Handling Costs

Shipping and handling costs are included in cost of revenue.

(k) Stock-Based Compensation

The Company generally recognizes compensation expense for all share-based payments to employees and directors, including grants of employee stock options, based on the grant-date fair value of those share-based payments using the Black-Scholes option pricing model, adjusted for expected forfeitures. Other valuation models may be utilized in the limited circumstances where awards with market-based vesting considerations, such as the price of the Company's common stock, are granted. Stock-based compensation expense is recognized ratably over the requisite service period.

See Note 13 for additional information relating to stock-based compensation.

(l) Income Taxes

The Company records income taxes using the asset and liability method. Deferred income tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective income tax bases, and operating loss and tax credit carryforwards.

The Company's consolidated financial statements contain certain deferred tax assets which have arisen primarily as a result of operating losses, as well as other temporary differences between financial and tax accounting. The Company establishes a valuation allowance if the likelihood of realization of the deferred tax assets is reduced based on an evaluation of objective verifiable evidence. Significant management judgment is required in determining the Company's provision for income taxes, the Company's deferred tax assets and liabilities and any valuation allowance recorded against those net deferred tax assets. The Company evaluates the weight of all available evidence to determine whether it is more likely than not that some portion or all of the net deferred income tax assets will not be realized.

Income taxes include the largest amount of tax benefit for an uncertain tax position that is more likely than not to be sustained upon audit based on the technical merits of the tax position. Settlements with tax authorities, the expiration of statutes of limitations for particular tax positions, or obtaining new information on particular tax positions may cause a change to the effective tax rate. The Company recognizes accrued interest related to unrecognized tax benefits as interest expense and penalties as operating expense in the consolidated statements of operations.

(m) Computation of Net Loss per Share

Basic earnings per share is computed by dividing income available to common stockholders (the numerator) by the weighted-average number of common shares outstanding (the denominator) for the period. The computation of diluted earnings per share is similar to basic earnings per share, except that the denominator is increased to include the number of additional common shares that would have been outstanding if the potentially dilutive common shares had been issued, calculated using the treasury stock method.

The Company incurred net losses for the years ended December 31, 2014, 2013 and 2012, and has excluded 4,663,421, 3,547,578 and 1,563,417 of incremental shares, respectively, attributable to outstanding stock options, restricted stock and restricted stock units from the calculation of net loss per share because the effect would have been anti-dilutive.

The components of net loss per share are as follows:

	Years Ended December 31,		
	2014	2013	2012
	(in thousands, except per share data)		
Net loss available to common stockholders	\$ (11,266)	\$ (17,144)	\$ (34,034)
Weighted average common shares outstanding used in computing basic net loss per share	111,450	108,869	107,619
Incremental shares	—	—	—
Weighted average common shares outstanding used in computing diluted net loss per share	111,450	108,869	107,619
Net loss per share			
Basic	\$ (0.10)	\$ (0.16)	\$ (0.32)
Diluted	\$ (0.10)	\$ (0.16)	\$ (0.32)

(n) Accumulated Other Comprehensive Income

The following table presents the changes in accumulated other comprehensive income, net of tax, by component for the year ended December 31, 2014:

	Foreign currency	Defined benefit pension plan	Total
	(in thousands)		
Balance at December 31, 2013	\$ 6,070	\$ (331)	\$ 5,739
Other comprehensive loss	(4,150)	(313)	(4,463)
Balance at December 31, 2014	\$ 1,920	\$ (644)	\$ 1,276

(o) Recent Accounting Guidance

Accounting Standards or Updates Recently Adopted

On January 1, 2014, the Company adopted Accounting Standards Update (ASU) No. 2013-11, Presentation of an Unrecognized Tax Benefit When a Net Operating Loss Carryforward, a Similar Tax Loss, or a Tax Credit Carryforward Exist. ASU 2013-11 amended the presentation requirements of ASC 740, Income Taxes, and requires that a liability related to an unrecognized tax benefit be presented in the financial statements as a reduction to a deferred tax asset for a net operating loss carryforward, similar tax loss, or a tax credit carryforward. To the extent the tax benefit is not available at the reporting date under the governing tax law or if the entity does not intend to use the deferred tax asset for such purpose, the unrecognized tax benefit should be presented as a liability and not combined with deferred tax assets. The ASU became effective for annual periods, and interim periods within those years, beginning after December 15, 2013, which is fiscal 2014 for the Company. The amendments are to be applied to all unrecognized tax benefits that exist as of the effective date and may be applied retrospectively to each prior reporting period presented. The adoption of this standard did not have a material impact on our consolidated financial statements.

Accounting Standards or Updates Not Yet Effective

In May 2014, the Financial Accounting Standards Board ("FASB") issued ASU No. 2014-09, "Revenue from Contracts with Customers," which provides guidance for revenue recognition. The standard's core principle is that a company will recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. The new guidance is effective for annual reporting

periods beginning after December 15, 2016, including interim periods within that reporting period. Early application is not permitted. The Company is currently assessing the potential impact of ASU No. 2014-09 on its consolidated financial statements.

In August 2014, the FASB issued ASU No. 2014-15, "Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern." ASU 2014-15 introduces an explicit requirement for management to assess if there is substantial doubt about an entity's ability to continue as a going concern, and to provide related footnote disclosures in certain circumstances. In connection with each annual and interim period, management must assess if there is substantial doubt about an entity's ability to continue as a going concern within one year after the issuance date. Disclosures are required if conditions give rise to substantial doubt. ASU 2014-15 is effective for all entities in the first annual period ending after December 15, 2016. The Company expects to comply with this standard once effective.

Note 3. Gain on Sale of Dry Strip Assets and Intellectual Property

On December 3, 2012, the Company sold its dry strip system assets and intellectual property to Lam. The purchase price was \$10.7 million, of which \$2.0 million was contingent upon reaching certain milestones.

Lam granted the Company a worldwide, non-exclusive, non-transferable, royalty free license to use the intellectual property rights sold by the Company under the Asset Purchase Agreement. The perpetual license allowed the Company to make and sell 300mm dry strip wafer processing equipment for semiconductor applications through September 2013, make and sell 200mm products through December 2015 and to support the Company's installed base of all dry strip equipment on a perpetual basis. As a result of this continuing involvement, the transaction has been recorded in continuing operations.

The \$1.2 million gain on sale of dry strip assets and intellectual property for the year ended December 31, 2013 relates to the achievement of certain milestones met during 2013. No further milestones were met.

During 2012, the \$7.9 million gain on sale of dry strip assets and intellectual property was comprised of the \$8.7 million proceeds received for the sale, offset by approximately \$0.8 million of product and material costs related to the lab system and other components purchased by Lam during 2012.

Note 4. Restricted Cash

The restricted cash of \$0.8 million at December 31, 2014 and 2013 was established in connection with the Company's outstanding Term Loan. At December 31, 2014, this interest reserve amount was reclassified as a current asset due to the reclassification of the related debt to a current liability in relation to the Company's non-compliance with certain covenant requirements (See Note 11). The interest reserve escrow amount was released upon the payment in full of the outstanding balance of the Term Loan (See Note 20).

Note 5. Accounts Receivable, net

The components of accounts receivable are as follows:

	<u>December 31,</u>	
	<u>2014</u>	<u>2013</u>
	(in thousands)	
Trade receivables	\$ 43,184	\$ 36,991
Allowance for doubtful accounts	(390)	(404)
	<u>\$ 42,794</u>	<u>\$ 36,587</u>

Note 6. Inventories, net

The components of inventories are as follows:

	<u>December 31,</u>	
	<u>2014</u>	<u>2013</u>
	(in thousands)	
Raw materials	\$ 65,723	\$ 56,942
Work in process	22,358	27,462
Finished goods	15,982	11,385
	<u>\$ 104,063</u>	<u>\$ 95,789</u>

When recorded, inventory reserves are intended to reduce the carrying value of inventories to their net realizable value. The Company establishes inventory reserves when conditions exist that indicate inventory may be in excess of anticipated demand or is obsolete based upon assumptions about future demand for the Company's products or market conditions. The Company regularly evaluates the ability to realize the value of inventories based on a combination of factors including the following: forecasted sales or usage, estimated product end of life dates, estimated current and future market value and new product introductions. Purchasing and usage alternatives are also explored to mitigate inventory exposure. In 2014, the Company recorded an overall decrease of \$1.4 million in the inventory reserves, which consisted of disposals due to obsolescence and excess inventory of \$1.3 million and a \$1.1 million reduction in reserve for sales of previously fully reserved inventory, partially offset by a provision charge to the reserve of \$1.0 million. As of December 31, 2014 and 2013, inventories are stated net of inventory reserves of \$23.6 million and \$25.1 million respectively.

During 2014, the Company recorded a charge to cost of sales of \$1.0 million due to production levels below normal capacity and \$0.8 million to reflect the lower of cost or market value associated with evaluation units in the field. During 2013, the Company recorded charges to cost of sales of \$0.6 million and \$0.7 million due to production levels below normal capacity and lower of cost or market, respectively. During 2012, the Company recorded charges to cost of sales of \$2.6 million and \$0.5 million due to production levels below normal capacity and lower of cost or market, respectively.

Note 7. Property, Plant and Equipment, net

The components of property, plant and equipment are as follows:

	December 31,	
	2014	2013
	(in thousands)	
Land and buildings	\$ 78,757	\$ 79,076
Machinery and equipment	8,370	7,774
Construction in process	370	356
Total cost	87,497	87,206
Accumulated depreciation	(57,033)	(55,200)
Property, plant and equipment, net	<u>\$ 30,464</u>	<u>\$ 32,006</u>

Depreciation expense was \$2.4 million, \$3.2 million and \$3.3 million, for the years ended December 31, 2014, 2013 and 2012, respectively.

Note 8. Assets Manufactured for Internal Use

The components of assets manufactured for internal use, included in amounts reported as other assets, are as follows:

	December 31,	
	2014	2013
	(in thousands)	
Internal use assets	\$ 24,309	\$ 23,409
Construction in process	3,465	5,263
Total cost	27,774	28,672
Accumulated depreciation	(17,927)	(15,774)
Assets manufactured for internal use, net	<u>\$ 9,847</u>	<u>\$ 12,898</u>

These products are used in-house for research and development, training, and customer demonstration purposes.

Effective October 1, 2013, the Company changed its estimate of the useful life of its assets manufactured for internal use (which are amortized on a straight-line basis) from five years to ten years. This change in estimate resulted from the evaluation of the life cycle of our assets manufactured for internal use and the conclusion, that based on recent experience these products consistently have a longer life than previously estimated. The change in useful life has been accounted for as a change in accounting estimate, and was effective on new assets manufactured for internal use, on a prospective basis beginning October 1, 2013.

As a result of the change in the estimated life of assets manufactured for internal use, profit before tax and net profit were approximately \$0.3 million and \$0.1 million higher for the full year ended December 31, 2014 and 2013, respectively. The change in estimated useful life of assets did not have an impact on the earnings per share disclosed in the Consolidated Statements of Operations.

Depreciation expense was \$2.2 million, \$1.8 million and \$3.4 million, for the years ended December 31, 2014, 2013 and 2012, respectively.

Note 9. Restructuring Charges

In 2014, the Company had severance and other costs related to a reduction in force of \$2.6 million, which included stock option modification costs of \$0.1 million recorded within additional paid-in capital in the consolidated balance sheets. The liability at December 31, 2014 of \$0.5 million is expected to be paid primarily in the first quarter of 2015.

The Company's restructuring liability for the years ended December 31, 2014, 2013 and 2012 are as follows:

	<u>Severance</u> <u>(In thousands)</u>
Balance at December 31, 2011	\$ 171
Severance and related costs	4,169
Cash payments	(3,551)
Non-cash items	(130)
Balance at December 31, 2012	\$ 659
Severance and related costs	2,334
Cash payments	(2,950)
Balance at December 31, 2013	\$ 43
Severance and related costs	2,565
Cash payments	(2,127)
Balance at December 31, 2014	<u>\$ 481</u>

Note 10. Product Warranty

The Company generally offers a one year warranty for all of its systems, the terms and conditions of which vary depending upon the product sold. For all systems sold, the Company accrues a liability for the estimated cost of standard warranty at the time of system shipment and defers the portion of systems revenue attributable to the fair value of non-standard warranty. Costs for non-standard warranty are expensed as incurred. Factors that affect the Company's warranty liability include the number of installed units, historical and anticipated product failure rates, material usage and service labor costs. The Company periodically assesses the adequacy of its recorded liability and adjusts the amount as necessary.

The changes in the Company's product warranty liability are as follows:

	<u>Years Ended December 31,</u>		
	<u>2014</u>	<u>2013</u>	<u>2012</u>
	<u>(in thousands)</u>		
Balance at January 1 (beginning of year)	\$ 1,428	\$ 1,801	\$ 3,697
Warranties issued during the period	1,743	2,240	3,042
Settlements made during the period	(2,096)	(1,515)	(3,010)
Changes in estimate of liability for pre-existing warranties during the period	451	(1,098)	(1,928)
Balance at December 31 (end of year)	<u>\$ 1,526</u>	<u>\$ 1,428</u>	<u>\$ 1,801</u>
Amount classified as current	\$ 1,352	\$ 1,316	\$ 1,700
Amount classified within other long-term liabilities	174	112	101
Total warranty liability	<u>\$ 1,526</u>	<u>\$ 1,428</u>	<u>\$ 1,801</u>

Note 11. Financing Arrangements

Term Loan

During the third quarter of 2013, the Company entered into a Business Loan Agreement with Northern Bank & Trust Company ("the Bank"), which provides for a three year term loan of \$15.0 million secured by the Company's real estate in Beverly, Massachusetts. \$0.8 million of the loan proceeds are held in a restricted interest reserve escrow account as shown under cash flows from financing activities in our Consolidated Statements of Cash Flows. See Note 4 above for further discussion. The Bank will also maintain a reserve on the Company's loan account with the Bank for quarterly real estate taxes on the mortgaged property. The loan bears interest at 5.5% per annum, with payments of principal beginning August 5, 2014. Interest is payable monthly. All outstanding principal and interest is due and payable on July 5, 2016. The Company is also subject to a 2% fee on amounts prepaid between July 5, 2014 and July 5, 2015 and a 1% fee on amounts prepaid between July 5, 2015 and July 5, 2016.

The Company's Term Loan contains certain customary covenants which limit the Company's ability, with certain exceptions, to dispose of assets, engage in a new line of business, make material changes to our executive management team, effect a change of control, acquire another business, incur additional indebtedness, incur liens, pay dividends and make other distributions, and make investments. Furthermore, under the Term Loan, the Company is required to comply with certain financial covenants, including a Debt Service Ratio, Net Worth, and Liquidity covenants. The Business Loan Agreement was amended in May 2014 to defer to September 30, 2014 the effectiveness of a covenant establishing a minimum ratio of net income to debt service expense, waiving the Company's non-compliance with that covenant at March 31, 2014. In August 2014, the Business Loan Agreement was further amended to defer to December 31, 2014 the covenant establishing a minimum ratio of net income to debt service expense. As of December 31, 2014, the Company was not in compliance with certain covenant requirements of the Term Loan. The Company was in the process of obtaining a waiver regarding its non-compliance with the covenant requirements, however, the waiver was no longer required as the Term Loan was satisfied in full prior to the filing of this Form 10-K with proceeds received by the Company relating to the sale leaseback transaction as described in Note 20. As such the outstanding balance of the Term Loan of \$14.5 million and interest reserve escrow (restricted cash) of \$0.8 million, were classified within current liabilities and assets, respectively, as of December 31, 2014.

Credit Facility

The Company has a revolving credit facility with Silicon Valley Bank ("SVB") dated October 31, 2013. Under this revolving credit facility, the Company has the ability to borrow up to \$10.0 million on a revolving basis during its two year term. The Company's ability to borrow under this line of credit is limited to 80% of the then current amount of qualified accounts receivable. On August 1, 2014, the Company and SVB entered into a Waiver and Amendment Agreement in which SVB waived the Company's non-compliance with the minimum adjusted net income covenant in the Loan Agreement at June 30, 2014 and amended the covenant for future periods. On February 2, 2015, the Company and SVB entered into a Second Amendment to the Loan and Security Agreement, whereby the minimum adjusted net income covenant for the period ending December 31, 2014 was removed. As of December 31, 2014, the Company was in compliance with all covenants related to the credit facility, as amended.

At December 31, 2014, the Company's available borrowing capacity under the credit facility was \$8.9 million. As of December 31, 2014, the Company had not drawn down on the line of credit, although a portion of the availability is being used to support an outstanding letter of credit in the amount of \$1.1 million in lieu of cash collateralization. In February 2015, our available borrowing

capacity was reduced by \$5.9 million, the amount of a letter of credit issued to our landlord for our Beverly, Massachusetts headquarter building (see Note 20).

Note 12. Employee Benefit Plans

(a) Defined Contribution Plan

The Company maintains the Axcelis Long-Term Investment Plan, a defined contribution plan. All regular employees are eligible to participate and may contribute up to 35% of their compensation on a before-tax basis subject to Internal Revenue Service ("IRS") limitations. Highly compensated employees may contribute up to 16% of their compensation on a before-tax basis subject to IRS limitations. The Company did not match contributions for any of the periods presented.

(b) Other Compensation Plans

The Company operates in foreign jurisdictions that require lump sum benefits, payable based on statutory regulations, for voluntary or involuntary termination. Where required, an annual actuarial valuation of the benefit plans is obtained.

The Company has recorded an unfunded liability of \$4.2 million and \$4.1 million at December 31, 2014 and 2013, respectively, for costs associated with these compensation plans in foreign jurisdictions. The following table presents the classification of these liabilities in the Consolidated Balance Sheets:

	Year Ended December 31,	
	2014	2013
	(in thousands)	
Current:		
Accrued compensation	\$ 837	\$ 638
Total current liabilities	\$ 837	\$ 638
Long-term:		
Other long-term liabilities	3,323	3,416
Total liabilities	<u>\$ 4,160</u>	<u>\$ 4,054</u>

The expense recorded in connection with these plans was \$0.7 million, \$0.6 million and \$0.6 million during the years ended December 31, 2014, 2013 and 2012, respectively.

Note 13. Stock Award Plans and Stock Based Compensation

(a) Equity Incentive Plans

The Company maintains the Axcelis Technologies, Inc. 2012 Equity Incentive Plan (the "2012 Equity Plan"), which became effective on May 2, 2012. Our 2000 Stock Plan (the "2000 Stock Plan") expired on May 1, 2012 and no new grants may be made under that plan after that date. However, awards granted under the 2000 Stock Plan prior to the expiration remain outstanding and subject to the terms of the 2000 Stock Plan.

The 2012 Equity Plan reserves 7.1 million shares of common stock, \$0.001 par value for grant and permits the issuance of options, stock appreciation rights, restricted stock, restricted stock units, stock equivalents and awards of shares of common stock that are not subject to restrictions or forfeiture to selected employees, directors and consultants of the Company. Shares that are not issued under an award (because such award expires, is terminated unexercised or is forfeited) that were outstanding under the 2000 Stock Plan as of the May 2, 2012 increase the reserve of shares available for grant under the 2012 Equity Plan.

The term of stock options granted under these plans is specified in the award agreements. Unless a lesser term is otherwise specified by the Company's Compensation Committee of the Board of Directors, awards under the 2012 Equity Plan will expire seven years from the date of grant. In general, all awards issued under the 2000 Stock Plan expire ten years from the date of grant. Under the terms of these stock plans, the exercise price of a stock option may not be less than the fair market value of a share of the Company's common stock on the date of grant. Under the 2012 Equity Plan, fair market value is defined as the last reported sale price of a share of the common stock on a national securities exchange as of any applicable date, as long as the Company's shares are traded on such exchange.

Stock options granted to employees generally vest over a period of four years, while stock options granted to non-employee members of the Company's Board of Directors generally vest over a period of 6 months and, once vested, are not affected by the director's termination of service to the Company. In limited circumstances, the Company may grant stock option awards with market-based vesting conditions, such as the Company's common stock price. Termination of service by an employee will cause options to cease vesting as of the date of termination, and in most cases, employees will have 90 days after termination to exercise options that were vested as of the termination of employment. In general, retiring employees will have one year after termination of employment to exercise vested options. The Company settles stock option exercises with newly issued common shares.

Restricted stock units granted to employees during 2014, 2013 and 2012 had both time-based vesting provisions and market-based vesting provisions. Generally, unvested restricted stock unit awards expire upon termination of service to the Company. The Company settles restricted stock units upon vesting with newly issued common shares. No restricted stock was granted under either stock plan during the three year period ended December 31, 2014.

As of December 31, 2014, there were 2.8 million shares available for grant under the 2012 Equity Plan. No shares are available for grant under the 2000 Stock Plan.

As of December 31, 2014, there were 21.7 million options outstanding under the 2012 Equity Plan and the 2000 Stock Plan, collectively, and less than 0.1 million unvested restricted stock units outstanding under the 2000 Stock Plan.

(b) Employee Stock Purchase Plan

The Employee Stock Purchase Plan (the "Purchase Plan") provides effectively all of the Company's employees the opportunity to purchase common stock of the Company at less than market prices. Purchases are made through payroll deductions of up to 10% of the employee's salary as elected by the participant, subject to certain caps set forth in the Purchase Plan. Employees may purchase its common stock at 85% of the market value of the Company's common stock on the day the stock is purchased.

The Purchase Plan is considered compensatory and as such, compensation expense has been recognized based on the benefit of the discounted stock price, amortized to compensation expense over each offering period of six months. Compensation expense relating to the Purchase Plan was \$0.1 million for each of the years ended December 31, 2014, 2013 and 2012.

As of December 31, 2014, there were a total of 1.6 million shares reserved for issuance and available for purchase under the Purchase Plan. There were 0.2 million, 0.2 million and 0.3 million shares purchased under the Purchase Plan for the years ended December 31, 2014, 2013 and 2012 respectively.

(c) Valuation of Stock Options

For the purpose of valuing stock options with service conditions, the Company uses the Black-Scholes option pricing model to calculate the grant-date fair value of an award.

The fair values of options granted were calculated using the following estimated weighted-average assumptions:

	Years ended December 31,		
	2014	2013	2012
Weighted-average expected volatility	60.59-98.40%	98.1%	97.8%-113.55%
Weighted-average expected term	3.75-4.71 years	4.7 years	3.8-6.1 years
Risk-free interest rate	1.19%-1.67%	0.7%-1.4%	0.45%-1.37%
Expected dividend yield	0%	0%	0%

Expected volatility—The Company is responsible for estimating volatility and has considered a number of factors when estimating volatility. The Company's method of estimating expected volatility for all stock options granted relies on a combination of historical and implied volatility. The Company believes that this blended volatility results in a more accurate estimate of the grant-date fair value of employee stock options because it more appropriately reflects the market's current expectations of future volatility.

Expected term—The Company calculated the weighted average expected term for stock options granted prior to July 1, 2012, using a forward looking lattice model of the Company's stock price incorporating a suboptimal exercise factor and a projected post-vest forfeiture rate. For stock options granted after July 1, 2012 to employees and to non-employee members of the Company's Board of Directors, the Company used the simplified method for estimating the expected life of "plain vanilla" options because it did not have sufficient exercise history. The Company expects that it will use a lattice model once sufficient exercise history has been established. The change in the contractual life from 10 years to 7 years reflects the fact that options granted after May 1, 2012 were granted under the 2012 Equity Incentive Plan, which limits option terms to seven years.

Risk-free interest rate—The yield on zero-coupon U.S. Treasury securities for a period that is commensurate with the expected term assumption is used as the risk-free interest rate.

Expected dividend yield—Expected dividend yield was not considered in the option pricing formula since the Company does not pay dividends and has no current plans to do so in the future.

In limited circumstances, the Company also issues stock option grants with vesting based on market conditions, such as the Company's common stock price, or a combination of time or market conditions. The fair values and derived service periods for all grants that have vesting based on market conditions are estimated using the Monte Carlo valuation method. For each stock option grant with vesting based on a combination of time or market conditions, where vesting will occur if either condition is met, the related compensation costs are recognized over the shorter of the explicit service period or the derived service period.

(d) Summary of Share-Based Compensation Expense

The Company estimates the fair value of stock options with time-based conditions using the Black-Scholes valuation model and estimates the fair value of stock options with market-based vesting conditions, such as the price of the Company's common stock, using the Monte Carlo valuation model. The fair value of the Company's restricted stock and restricted stock units is calculated based upon the fair market value of the Company's stock at the date of grant.

The Company uses the straight-line attribution method to recognize expense for stock-based awards such that the expense associated with awards is evenly recognized throughout the period.

The amount of stock-based compensation recognized is based on the value of the portion of the awards that are ultimately expected to vest. The Company estimates forfeitures at the time of grant and revises them, if necessary, in subsequent periods if actual forfeitures differ from those estimates. The

term "forfeitures" is distinct from "cancellations" or "expirations" and represents only the unvested portion of the surrendered stock-based award. Based on a historical analysis, a forfeiture rate of 5% per year, including executive officer awards, was applied to stock-based awards for the years ended December 31, 2014, 2013 and 2012.

The Company recognized stock-based compensation expense of \$4.8 million, \$4.3 million and \$3.9 million for the years ended December 31, 2014, 2013 and 2012, respectively. The Company presents the expenses related to stock-based compensation in the same expense line items as cash compensation paid to each of its employees. For the years ended 2014, 2013 and 2012, the Company primarily used stock options in its annual equity compensation program.

The benefits of tax deductions in excess of recognized compensation cost is reported as a financing cash flow, rather than as an operating cash flow. Because the Company does not recognize the benefit of tax deductions in excess of recognized compensation cost due to its cumulative net operating loss position, this had no impact on the Company's consolidated statement of cash flows as of and for the years ended December 31, 2014, 2013 or 2012.

(e) Stock Option Awards

The following table summarizes the stock option activity for the year ended December 31, 2014:

	<u>Options</u> <u>(in thousands)</u>	<u>Weighted</u> <u>Average</u> <u>Exercise</u> <u>Price</u>	<u>Weighted</u> <u>Average</u> <u>Remaining</u> <u>Contractual</u> <u>Term</u> <u>(years)</u>	<u>Aggregate</u> <u>Intrinsic</u> <u>Value</u> <u>(in thousands)</u>
Outstanding at December 31, 2013	22,299	\$ 1.89		
Granted	3,976	1.81		
Exercised	(2,418)	1.20		
Canceled	(991)	1.64		
Expired	(1,162)	8.28		
Outstanding at December 31, 2014	<u>21,704</u>	<u>\$ 1.62</u>	<u>5.41</u>	<u>\$ 22,238</u>
Exercisable at December 31, 2014	<u>12,461</u>	<u>\$ 1.55</u>	<u>5.09</u>	<u>\$ 14,347</u>
Options Vested or Expected to Vest at December 31, 2014(1)	<u>21,102</u>	<u>\$ 1.61</u>	<u>5.47</u>	<u>\$ 13,448</u>

- (1) In addition to the vested options, the Company expects a portion of the unvested options to vest at some point in the future. Options expected to vest is calculated by applying an estimated forfeiture rate to the unvested options.

The total intrinsic value, which is defined as the difference between the market price at exercise and the price paid by the employee to exercise the options, for options exercised during the years ended December 31, 2014, 2013 and 2012 was \$2.4 million, \$1.4 million and \$0.9 million, respectively.

The total fair value of stock options vested during the years ended December 31, 2014, 2013 and 2012 were \$4.7 million, \$3.8 million and \$4.1 million respectively. As of December 31, 2014, there was \$8.5 million of total forfeiture-adjusted unrecognized compensation cost related to non-vested stock options granted under the 2012 Equity Incentive Plan and the 2000 Stock Plan. That cost is expected to be recognized over a weighted-average period of 2.62 years.

(f) Restricted Stock and Restricted Stock Units

Restricted stock units ("RSUs") represent the Company's unfunded and unsecured promise to issue shares of the common stock at a future date, subject to the terms of the RSU Award Agreement and either the 2012 Equity Incentive Plan or the 2000 Stock Plan. The purpose of these awards is to assist in attracting and retaining highly competent employees and directors and to act as an incentive in motivating selected employees and directors to achieve long-term corporate objectives. RSU awards granted in 2014, 2013 and 2012 included both time vested awards and market vested awards for employees and executive officers. No restricted stock awards were granted, or vested, during the period. The fair value of a restricted stock unit and restricted stock award is charged to expense ratably over the applicable service period.

Changes in the Company's non-vested restricted stock units for the year ended December 31, 2014 is as follows:

	<u>Shares/units</u> <u>(in thousands)</u>	<u>Weighted-Average</u> <u>Grant Date Fair</u> <u>Value per Share</u>
Outstanding at December 31, 2013	23	\$ 1.39
Granted	90	2.17
Vested	(10)	1.45
Forfeited	—	—
Outstanding at December 31, 2014	<u>103</u>	<u>\$ 2.07</u>

Some restricted stock units provide for a net share settlement program to offset the personal income tax obligations of the employee's restricted stock unit vesting. Vesting activity above reflects shares vested before net share settlement. The total forfeiture adjusted unrecognized compensation cost related to market-based restricted stock units that had not vested as of December 31, 2014 was not significant.

Note 14. Stockholders' Equity

Preferred Stock

The Company may issue up to 30 million shares of preferred stock in one or more series. The Board of Directors is authorized to fix the rights and terms for any series of preferred stock without additional shareholder approval. As of December 31, 2014 and 2013, there were no outstanding shares of preferred stock.

Note 15. Fair Value Measurements

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability (an exit price) in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants on the measurement date.

(a) Fair Value Hierarchy

The accounting guidance for fair value measurement requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. The standard establishes a fair value hierarchy based on the level of independent, objective evidence surrounding the inputs used to measure fair value. A financial instrument's categorization within the

fair value hierarchy is based upon the lowest level of input that is significant to the fair value measurement. The fair value hierarchy is as follows:

Level 1—applies to assets or liabilities for which there are quoted prices in active markets for identical assets or liabilities.

Level 2—applies to assets or liabilities for which there are inputs other than quoted prices that are observable for the asset or liability, such as quoted prices for similar assets or liabilities in active markets; quoted prices for identical assets or liabilities in markets with insufficient volume or infrequent transactions (less active markets); or model-derived valuations in which significant inputs are observable or can be derived principally from, or corroborated by, observable market data.

Level 3—applies to assets or liabilities for which there are unobservable inputs to the valuation methodology that are significant to the measurement of the fair value of the assets or liabilities.

(b) Assets Measured at Fair Value

The Company's money market funds are included in cash and cash equivalents in the Consolidated Balance Sheets, and are considered a level 1 investment as they are valued at quoted market prices in active markets. The Company's Term Loan is carried at amortized cost which approximates fair value based on current market pricing of similar debt instruments and is categorized as level 2 within the fair value hierarchy. The following table sets forth Company's assets which are measured at fair value by level within the fair value hierarchy.

	December 31, 2014 Fair Value Measurements			
	Level 1	Level 2	Level 3	Total
(in thousands)				
Assets				
Cash equivalents:				
Money market funds	\$ 7,004	\$ —	\$ —	\$ 7,004
Liabilities				
Term Loan	\$ —	\$ 14,530	\$ —	\$ 14,530

	December 31, 2013 Fair Value Measurements			
	Level 1	Level 2	Level 3	Total
(in thousands)				
Assets				
Cash equivalents:				
Money market funds	\$ 10,504	\$ —	\$ —	\$ 10,504
Liabilities				
Term Loan	\$ —	\$ 15,000	\$ —	\$ 15,000

(c) Other Financial Instruments

The carrying amounts reflected in the consolidated balance sheets for cash and cash equivalents (which are comprised primarily of deposit accounts), accounts receivable, prepaid expenses and other current and non-current assets, restricted cash, accounts payable and accrued expenses approximate fair value due to their short-term maturities.

Note 16. Commitments and Contingencies

(a) Lease Commitments

The Company leases manufacturing and office facilities and certain equipment under operating leases that expire through 2020. Rental expense was \$3.7 million, \$4.0 million and \$4.3 million under operating leases for the years ended December 31, 2014, 2013 and 2012, respectively. Future minimum lease commitments on non-cancelable operating leases for the year ended December 31, 2014 are as follows:

	<u>Operating Leases</u> (in thousands)
2015	\$ 2,543
2016	1,280
2017	607
2018	259
2019	222
Thereafter	222
	<u>\$ 5,133</u>

(b) Purchase Commitments

The Company has non-cancelable contracts and purchase orders for inventory of \$34.3 million at December 31, 2014.

(c) Litigation

The Company is not presently a party to any litigation that it believes might have a material adverse effect on its business operations. The Company is, from time to time, a party to litigation that arises in the normal course of its business operations.

(d) Indemnifications

The Company's system sales agreements typically include provisions under which the Company agrees to take certain actions, provide certain remedies and defend its customers against third-party claims of intellectual property infringement under specified conditions and to indemnify customers against any damage and costs awarded in connection with such claims. The Company has not incurred any material costs as a result of such indemnifications and has not accrued any liabilities related to such obligations in the accompanying consolidated financial statements.

Note 17. Business Segment and Geographic Region Information

The Company operates in one business segment, which is the manufacture of capital equipment for the semiconductor manufacturing industry. The principal market for semiconductor manufacturing equipment is semiconductor manufacturers. Substantially all sales are made directly by the Company to its customers located in the United States, Europe and Asia Pacific.

The Company's ion implantation systems product line includes high current, medium current and high energy implanters. Other products include legacy dry strip equipment, curing systems, and thermal processing systems. In addition to new equipment, the Company provides post-sales equipment service and support, including spare parts, equipment upgrades, used equipment, maintenance services and customer training.

Revenue by product lines is as follows:

	Years ended December 31,		
	2014	2013	2012
		(in thousands)	
Ion implantation systems, services, and royalties	\$ 183,148	\$ 164,030	\$ 156,090
Other systems and services	19,903	31,602	47,295
	<u>\$ 203,051</u>	<u>\$ 195,632</u>	<u>\$ 203,385</u>

Revenue and long-lived assets by geographic region, based on the physical location of the operation recording the sale or the asset, are as follows:

	Revenue	Long-Lived Assets
	(in thousands)	
2014		
United States	\$ 126,255	\$ 40,001
Europe	29,140	—
Asia Pacific	47,656	299
	<u>\$ 203,051</u>	<u>\$ 40,300</u>
2013		
United States	\$ 116,969	\$ 44,424
Europe	27,933	—
Asia Pacific	50,730	480
	<u>\$ 195,632</u>	<u>\$ 44,904</u>
2012		
United States	\$ 132,159	\$ 43,440
Europe	27,636	—
Asia Pacific	43,590	752
	<u>\$ 203,385</u>	<u>\$ 44,192</u>

Long-lived assets consist of property, plant and equipment, net and assets manufactured for internal use. Operations in Europe and Asia Pacific consist of sales and service organizations.

International revenue, which includes export sales from U.S. manufacturing facilities to foreign customers and sales by foreign subsidiaries and branches, was \$162.4 million (80.0% of total revenue), \$149.4 million (76.4% of total revenue) and \$142.8 million (70.2% of total revenue) in 2014, 2013 and 2012, respectively.

Note 18. Income Taxes

Loss before income taxes is as follows:

	Years ended December 31,		
	2014	2013	2012
		(in thousands)	
United States	\$ (11,987)	\$ (18,998)	\$ (37,682)
Foreign	1,820	2,894	5,294
Loss before income taxes	<u>\$ (10,167)</u>	<u>\$ (16,104)</u>	<u>\$ (32,388)</u>

Provision for income taxes is as follows:

	Years ended December 31,		
	2014	2013	2012
	(in thousands)		
Current:			
United States			
Federal	\$ —	\$ —	\$ —
State	59	84	82
Foreign	780	641	738
Total current	<u>839</u>	<u>725</u>	<u>820</u>
Deferred:			
Foreign	260	315	826
Total deferred	<u>260</u>	<u>315</u>	<u>826</u>
Income tax provision	<u>\$ 1,099</u>	<u>\$ 1,040</u>	<u>\$ 1,646</u>

Reconciliations of income taxes at the United States Federal statutory rate to the effective income tax rate are as follows:

	Years ended December 31,		
	2014	2013	2012
	(in thousands)		
Income tax benefit at the United States statutory rate	\$ (3,558)	\$ (5,636)	\$ (11,336)
State income taxes	38	55	53
Unrecognized tax benefits	184	(293)	(832)
Effect of change in valuation allowance	(6,835)	5,975	12,662
Foreign income tax rate differentials	259	(1,244)	(788)
Unremitted earnings of foreign subsidiaries	(758)	961	—
Foreign dividend	—	—	383
Stock options	686	450	1,298
Deemed distribution from foreign subsidiaries	607	316	149
Discrete items, net	9,143	—	—
Other, net	1,333	456	57
Income tax provision	<u>\$ 1,099</u>	<u>\$ 1,040</u>	<u>\$ 1,646</u>

Significant components of current and long-term deferred income taxes are as follows:

	As of December 31,			
	2014		2013	
	Current	Long Term	Current	Long Term
	(in thousands)			
Federal net operating loss carryforwards	\$ —	\$ 105,119	\$ —	\$ 104,370
State net operating loss carryforwards	—	2,210	—	2,250
Foreign net operating loss carryforwards	—	1,280	—	1,421
Federal tax credit carryforwards	—	16,669	—	17,814
State tax credit carryforwards	—	5,293	—	5,543
Unremitted earnings of foreign subsidiaries	—	(8,800)	—	(9,661)
Intangible assets	—	383	—	532
Property, plant and equipment	—	4,548	—	4,796
Accrued compensation	65	—	43	—
Inventories	9,808	—	16,540	—
Stock compensation	—	5,198	—	4,896
Warranty	486	—	591	(56)
Other	1,620	(2,328)	2,671	(2,406)
Deferred taxes, gross	11,979	129,572	19,845	129,499
Valuation allowance	(10,975)	(128,982)	(18,059)	(129,409)
Deferred taxes, net	\$ 1,004	\$ 590	\$ 1,786	\$ 90

At December 31, 2014, the Company had \$141.6 million of deferred tax assets worldwide relating to net operating loss carryforwards, tax credit carryforwards and other temporary differences, which are available to reduce income taxes in future years. A valuation allowance must be established when it is "more likely than not" that all or a portion of deferred tax assets will not be realized. A review of all available positive and negative evidence needs to be considered, including a company's performance, the market environment in which the company operates, length of carryback and carryforward periods, existing sales backlog, and projections of future operating results. Where there are cumulative losses in recent years there is a strong presumption that a valuation allowance is needed. This presumption can be overcome in very limited circumstances.

The Company is in a three year cumulative loss position in the United States. As a result, the Company maintains a 100% valuation allowance to reduce the carrying value of these related deferred tax assets to zero. The Company will continue to maintain a full valuation allowance for those tax assets until sustainable future levels of profitability are evident. Changes in the valuation allowance in 2014 and 2013 were attributable to changes in the composition of temporary differences and changes in net operating loss carryforwards. The remaining net deferred tax asset on the consolidated balance sheet represents the balances related to the activities of the foreign subsidiaries.

At December 31, 2014, the Company has federal and state net operating loss carryforwards of \$346.9 million and foreign net operating loss carryforwards of \$4.3 million, expiring principally between 2015 and 2034.

The Company has research and development and other tax credit carryforwards of \$18.1 million at December 31, 2014 that can be used to reduce future federal and state income tax liabilities. These tax credit carryforwards expire principally between 2015 and 2028. In addition, the Company has foreign tax credit carryforwards of \$3.9 million at December 31, 2014 that are available to reduce future U.S. income tax liabilities subject to certain limitations. These foreign tax credit carryforwards expire between 2015 and 2016.

It is Company policy to provide taxes for the total anticipated tax impact of the undistributed earnings of our wholly-owned foreign subsidiaries, as such earnings are not expected to be reinvested indefinitely. The Company anticipates that U.S. tax resulting from remitting such earnings will be off-set by net operating loss or credit carryforwards to the extent available. In addition, the Company does not anticipate incurring a foreign withholding tax on remitting such earnings since it does not intend to remit the earnings as dividends.

The Company and its subsidiaries file income tax returns in the U.S. federal jurisdiction and various states and foreign jurisdictions. The Company and most foreign subsidiaries are subject to income tax examinations by tax authorities for all years dating back to 2004. The Company's policy is to recognize interest related to unrecognized tax benefits as interest expense and penalties as operating expenses. The Company believes that it has appropriate support for the income tax positions taken and to be taken on its tax returns and that its accruals for tax liabilities are adequate for all open years based on an assessment of many factors including past experience and interpretations of tax law applied to the facts of each matter.

At December 31, 2014, the Company had unrecognized tax benefits related to uncertain tax positions of approximately \$8.0 million, of which approximately \$5.6 million reduced the Company's deferred tax assets and the offsetting valuation allowance and \$2.3 million was recorded in other long-term liabilities. The Company does not expect any significant changes in unrecognized tax benefits in 2015. The Company recognized \$0.2 million in interest and penalty expense related to unrecognized tax benefits for each of the years-ended December 31, 2014, 2013 and 2012, respectively.

A reconciliation of the beginning and ending balance of unrecognized tax benefits are as follows:

	<u>2014</u>	<u>2013</u>
	(in thousands)	
Balance at beginning of year	\$ 7,645	\$ 7,719
Increases in unrecognized tax benefits as a result of tax positions taken during a prior period	92	324
Decreases in unrecognized tax benefits related to settlements with tax authorities	—	—
Increases in unrecognized tax benefits as a result of tax positions taken during the current period	223	—
Reductions to unrecognized tax benefits as a result of a lapse of the applicable statute of limitations	—	(398)
Balance at end of year	\$ 7,960	\$ 7,645
Recorded as other long-term liability	\$ 2,328	\$ 2,343
Recorded as a decrease in deferred tax assets and offsetting valuation allowance	5,632	5,302
	<u>\$ 7,960</u>	<u>\$ 7,645</u>

Note 19. Quarterly Results of Operations (unaudited)

	<u>Dec. 31,</u> <u>2014(1)</u>	<u>Sept. 30,</u> <u>2014(2)</u>	<u>June 30,</u> <u>2014(3)</u>	<u>March 31,</u> <u>2014(4)</u>	<u>Dec. 31,</u> <u>2013(5)</u>	<u>Sept. 30,</u> <u>2013(6)</u>	<u>June 30,</u> <u>2013(7)</u>	<u>March 31,</u> <u>2013(8)</u>
	(in thousands, except per share data)							
Revenue	\$ 62,530	\$ 38,531	\$ 41,150	\$ 60,840	\$ 58,574	\$ 48,831	\$ 47,501	\$ 40,726
Gross profit	18,796	15,144	14,484	21,740	21,280	16,976	16,737	12,943
Net income (loss)	164	(4,704)	(6,900)	174	614	(4,750)	(4,019)	(8,988)
Net income (loss) per share basic and diluted	\$ 0.00	\$ (0.04)	\$ (0.06)	\$ 0.00	\$ 0.01	\$ (0.04)	\$ (0.04)	\$ (0.08)

(1) Net income includes a \$0.8 million charge to inventory reserves.

- (2) Net loss includes a \$0.8 million charge to inventory reserves and a \$2.3 million restructuring charge.
- (3) Net loss includes a \$0.2 million charge to inventory reserves and a \$0.1 million restructuring charge.
- (4) Net income includes a \$0.2 million restructuring charge.
- (5) Net income includes \$0.4 million of income related to the expiration of an uncertain tax position in a foreign jurisdiction.
- (6) Net loss includes \$0.4 million related to the write off of certain deferred tax assets in foreign jurisdictions.
- (7) Net loss includes \$0.4 million in restructuring charges, and \$0.8 million from the gain on sale of dry strip assets and intellectual property.
- (8) Gross profit and net loss includes a \$2.1 million charge to excess and obsolete inventory. Net loss includes \$1.8 million in restructuring charges, and \$0.4 million from the gain on sale of dry strip assets and intellectual property.

Note 20. Subsequent Events

Sale of Corporate Headquarters

On January 30, 2015, the Company sold its corporate headquarters to Beverly Property Owner LLC, an affiliate of Middleton Partners, based in Northbrook, Illinois, for the purchase price of \$49 million. As part of the sale, the Company also entered into a 22-year lease agreement with Beverly Properties where the Company will pay annual rent of \$4.7 million for the first year, with increasing annual rent payments thereafter. In conjunction with the sale, the Company paid off the outstanding Term Loan of \$14.5 million and all accrued interest as well as a 2.0% prepayment penalty. The Company posted a security deposit of \$5.9 million in the form of an irrevocable letter of credit at the time of the closing.

The Company expects that the transaction will be accounted for as a financing arrangement. As such, at the inception of the arrangement, the Company expects to record a financing obligation in the amount of \$49.0 million and the property will be defined as an asset to remain on its books. The Company netted \$33.1 million from the proceeds of the sale leaseback transaction.

Executive Separation Pay Agreements

On March 5, 2015, the Company entered into Executive Separation Pay Agreements with each of its executive officers other than Ms. Puma, which provide for twelve month's separation pay in the event of a termination without cause. A form of the Executive Separation Pay Agreement is filed as an Exhibit to this Form 10-K.

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.

AXCELIS TECHNOLOGIES, INC.

By: /s/ MARY G. PUMA

Dated: March 11, 2015

Mary G. Puma, *Chief Executive Officer*

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.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ MARY G. PUMA</u>		
Mary G. Puma	Director and Principal Executive Officer	March 11, 2015
<u>/s/ KEVIN J. BREWER</u>		
Kevin J. Brewer	Principal Accounting and Financial Officer	March 11, 2015
<u>/s/ R. JOHN FLETCHER</u>		
R. John Fletcher	Director	March 11, 2015
<u>/s/ ARTHUR L. GEORGE, JR.</u>		
Arthur L. George Jr.	Director	March 11, 2015
<u>/s/ STEPHEN R. HARDIS</u>		
Stephen R. Hardis	Director	March 11, 2015
<u>/s/ WILLIAM C. JENNINGS</u>		
William C. Jennings	Director	March 11, 2015
<u>/s/ JOSEPH P. KEITHLEY</u>		
Joseph P. Keithley	Director	March 11, 2015
<u>/s/ BARBARA J. LUNDBERG</u>		
Barbara J. Lundberg	Director	March 11, 2015
<u>/s/ PATRICK H. NETTLES</u>		
Patrick H. Nettles	Director	March 11, 2015
<u>/s/ H. BRIAN THOMPSON</u>		
H. Brian Thompson	Director	March 11, 2015

Exhibit Index

Exhibit No.	Description
2.1	Real Estate Sale Agreement dated as of October 3, 2014 between the Company and Middleton Beverly Investors LLC. Incorporated by reference to Exhibit 2. 1 to the Company's Form 10-Q filed with the Commission on November 6, 2014.
2.2	Sixth Amendment to Real Estate Sale Agreement between the Company and Middleton Beverly Investors LLC dated as of January 30, 2015. Filed herewith.
3.1	Amended and Restated Certificate of Incorporation of the registrant, as adopted May 6, 2009. Incorporated by reference to Exhibit 3.1 of the Company's Form 8-K filed with the Commission on May 11, 2009.
3.2	Bylaws of the Company, as amended and restated as of May 13, 2014. Incorporated by reference to Exhibit 3.2 of the Company's Form 8-K filed with the Commission on May 19, 2014.
4.1	Specimen Stock Certificate. Incorporated by reference to Exhibit 4.1 of the Company's Registration Statement on Form S-1 (Registration No. 333-36330).
10.1*	Axcelis Technologies, Inc. 2000 Stock Plan, as amended through November 13, 2014. Filed herewith.
10.2*	Axcelis Technologies, Inc. 2012 Equity Incentive Plan, as amended through November 13, 2014. Filed herewith.
10.3*	Axcelis Management Incentive Plan, as amended and restated by the Compensation Committee of the Board of Directors on February 11, 2010. Incorporated by reference to Exhibit 10.2 of the Company's report on Form 10-K for the year ended December 31, 2009 filed with the Commission on March 15, 2010.
10.4*	Form of Indemnification Agreement approved by the Board of Directors of the Company on February 9, 2012 for use with each of its directors and officers. Incorporated by reference to Exhibit 10.4 of the Company's report on Form 10-K for the year ended December 31, 2011 filed with the Commission on February 29, 2012.
10.5*	Form of Change in Control Agreement, as amended, as approved by the Board of Directors on April 27, 2012 between the Company and each of its executive officers. Incorporated by reference to Exhibit 10.5 of the Company's report on Form 10-Q for the quarter ended June 30, 2012 filed with the Commission on August 7, 2012.
10.6*	Form of Employee non-qualified stock option grant under the 2000 Stock Plan, updated as of April 5, 2002. Incorporated by reference to Exhibit 10.1 of the Company's report on Form 10-Q filed with the Commission on November 9, 2004.
10.7*	Form of Non-Employee Director stock non-qualified stock option grant under the 2000 Stock Plan, updated as of July 12, 2004. Incorporated by reference to Exhibit 10.2 of the Company's report on Form 10-Q filed with the Commission on November 9, 2004.
10.8*	Form of Restricted Stock Unit Award Agreement for use under the 2000 Stock Plan. Incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K filed with the Commission on June 28, 2005.
10.9*	Form of Employee Non-Qualified Stock Option Certificate under the 2012 Equity Incentive Plan, adopted June 18, 2012. Incorporated by reference to Exhibit 10.2 of the Company's report on Form 10-Q for the quarter ended June 30, 2012 filed with the Commission on August 7, 2012.

<u>Exhibit No.</u>	<u>Description</u>
10.10*	Form of Non-Employee Director Non-Qualified Stock Option Certificate under the 2012 Equity Incentive Plan, adopted June 18, 2012. Incorporated by reference to Exhibit 10.3 of the Company's report on Form 10-Q for the quarter ended June 30, 2012 filed with the Commission on August 7, 2012.
10.11*	Form of Restricted Stock Unit Award Agreement under the 2012 Equity Incentive Plan, adopted June 18, 2012. Incorporated by reference to Exhibit 10.4 of the Company's report on Form 10-Q for the quarter ended June 30, 2012 filed with the Commission on August 7, 2012.
10.12*	Named Executive Officer Base Compensation at March 5, 2015. Filed herewith.
10.13*	Non-Employee Director Cash Compensation at March 5, 2015. Filed herewith.
10.14*	Amended and Restated Employment Agreement between the Company and Mary G. Puma dated November 6, 2007. Incorporated by reference to Exhibit 10.3 of the Company's report on Form 10-Q for the quarter ended September 30, 2007 filed with the Commission on November 8, 2007.
10.15*	Form of Executive Separation Pay Agreement between the Company and each of Kevin J. Brewer, William Bintz, John E. Aldeborgh, Lynnette C. Fallon and Douglas A. Lawson dated March 5, 2015. Filed herewith.
10.19	License Agreement dated as of March 30, 2009 between the Company and SEN Corporation. Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K filed with the Commission on April 3, 2009.
10.20	Loan and Security Agreement dated as of October 31, 2013 between the Company and Silicon Valley Bank. Incorporated by reference to Exhibit 10.4 to the Company's report on Form 10-Q filed with the Commission on November 8, 2013.
10.21	Waiver and First Amendment dated August 1, 2014 to the Loan and Security Agreement dated as of October 31, 2013 between the Company and Silicon Valley Bank. Incorporated by reference to Exhibit 10.3 to the Company's Form 10-Q filed with the Commission on November 6, 2014.
10.23	Second Amendment to the Loan and Security Agreement between the Company and Silicon Valley Bank., effective February 2, 2015. Filed herewith.
10.24	Lease Agreement between the Company and Beverly Property Owner LLC, effective January 30, 2015. Filed herewith.
14.1	Ethical Business Conduct at Axcelis, revised through January 2003. Incorporated by reference to Exhibit 14.1 of the Company's report on Form 10-K filed with the Commission on March 28, 2003.
21.1	Subsidiaries of the Company. Filed herewith.
23.1	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm. Filed herewith.
31.1	Certification of the Principal Executive Officer under Exchange Act Rule 13a-14(a)/15d-14(a) (Section 302 of the Sarbanes-Oxley Act), dated March 11, 2015. Filed herewith.
31.2	Certification of the Principal Financial Officer under Exchange Act Rule 13a-14(a)/15d-14(a) (Section 302 of the Sarbanes-Oxley Act), dated March 11, 2015. Filed herewith.

<u>Exhibit No.</u>	<u>Description</u>
32.1	Certification of the Principal Executive Officer pursuant to Section 1350 of Chapter 63 of title 18 of the United States Code (Section 906 of the Sarbanes-Oxley Act), dated March 11, 2015. Filed herewith.
32.2	Certification of the Principal Financial Officer pursuant to Section 1350 of Chapter 63 of title 18 of the United States Code (Section 906 of the Sarbanes-Oxley Act), dated March 11, 2015. Filed herewith.
101	The following materials from the Company's Form 10-K for the year ended December 31, 2014, formatted in eXtensible Business Reporting Language (XBRL): (i) Consolidated Statements of Operations, (ii) Consolidated Statement of Comprehensive Income (iii) Consolidated Balance Sheets, (iv) Consolidated Statements of Equity, (v) Consolidated Statements of Cash Flows, and (vi) Notes to Consolidated Financial Statements.

* Indicates a management contract or compensatory plan.

You may obtain a copy of any of these exhibits free of charge either on our website at <http://www.axcelis.com> or by contacting Investor Relations at Axcelis Technologies, Inc., 108 Cherry Hill Drive, Beverly, MA 01915-1053.

Schedule II—Valuation and Qualifying Accounts
Axcelis Technologies, Inc.
(In thousands)

	Balance at Beginning of Period	Charged to Costs and Expenses	Deductions(**)	Other(*)	Balance at End of Period
Year Ended December 31, 2014					
Allowance for doubtful accounts and returns	\$ 404	\$ —	\$ —	\$ (14)	\$ 390
Reserve for excess and obsolete inventory(**)	25,091	1,003	(2,452)	—	23,642
Year Ended December 31, 2013					
Allowance for doubtful accounts and returns	\$ 305	\$ 96	\$ —	\$ 3	\$ 404
Reserve for excess and obsolete inventory(**)	33,601	2,562	(10,913)	(159)	25,091
Year Ended December 31, 2012					
Allowance for doubtful accounts and returns	\$ 411	\$ —	\$ (112)	\$ 6	\$ 305
Reserve for excess and obsolete inventory	22,778	14,492	(4,819)	1,150	33,601

(*) Represents foreign currency translation adjustments.

(**) Deductions include the disposal and sale of fully reserved inventory.

SIXTH AMENDMENT TO REAL ESTATE SALE AGREEMENT

THIS SIXTH AMENDMENT TO REAL ESTATE SALE AGREEMENT (“**Amendment**”) is made effective as of January 30, 2015 by and between Middleton Beverly Investors LLC, a Delaware limited liability company, together with its successors and assigns (“**Purchaser**”) and Axcelis Technologies, Inc. (“**Seller**”).

RECITALS

WHEREAS, Purchaser and Seller are parties to that certain Real Estate Sale Agreement dated October 3, 2014, which was amended by that certain (i) First Amendment to Real Estate Sale Agreement dated December 9, 2014, (ii) Second Amendment to Real Estate Sale Agreement dated December 17, 2014, (iii) Third Amendment to Real Estate Sale Agreement dated December 31, 2014, (iv) Fourth Amendment to Real Estate Sale Agreement dated January 7, 2015, and (v) Fifth Amendment to Real Estate Sale Agreement dated January 20, 2015 (collectively, the “**Contract**”), whereby Seller agreed to sell and convey to Purchaser and Purchaser agreed to purchase from Seller that certain real property known as 108 Cherry Hill Drive, Beverly, Massachusetts, 01915-1066, as more particularly described in the Contract (the “**Property**”); and

WHEREAS, Seller and Purchaser have revised the Form of Lease attached to the Contract as Exhibit H and desire to amend the Contract to reflect to appropriate Form of Lease.

AGREEMENT

NOW, THEREFORE, in consideration of Ten Dollars (\$10.00), the above recitals, the mutual promises contained herein, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, the parties agree as follows:

1. **Defined Terms.** Any capitalized terms not defined herein shall have the meanings ascribed to them in the Contract. From and after the date hereof, all references contained in the Contract to “this Contract” or “this Agreement” shall mean and refer to the Contract, as amended by this Amendment.
2. **Section 5 — Purchase Price; Earnest Money.** The introductory phrase of Section 5 is hereby deleted and replaced with the following: “The purchase price for the Property shall be Forty-Nine Million and No/100 Dollars (\$49,000,000.00) (the “**Purchase Price**”) payable to the Seller as follows:”
3. **Form of Lease, Exhibit H.** The Form of Lease in Exhibit H attached to the Contract is hereby deleted in its entirety and replaced with Exhibit H attached hereto and made a part hereof.
4. **Closing.** Notwithstanding anything to the contrary in the Contract, the parties agree that the closing escrow may release on or before February 2, 2015.
5. **Counterparts; Fax or Email Signatures.** This Amendment may be executed in any number of counterparts, each of which shall, when executed, be deemed to be an original

and all of which shall be deemed to be one and the same instrument. Signature pages may be detached from separate counterparts and combined into a single counterpart. Further, each party hereto may rely upon a telecopied (faxed) or electronically-mailed signature of a counterpart of this Amendment or detached signature page therefrom that has been executed by any other party hereto as if the same were the executed original thereof, and the other party shall be bound thereby.

6. **Ratification and Incorporation.** Except as expressly modified by this Amendment, the Contract remains unmodified and in full force and effect. This Amendment shall form a part of the Contract and all references to the Contract shall mean that document as hereby modified.
7. **Recitals.** The recitals set forth above are true, correct and complete and are hereby incorporated herein and made a part of this Amendment.
8. **Successors and Assigns.** The terms and provisions hereof shall be binding upon and inure to the benefit of the parties hereto, their permitted successors and permitted assigns.
9. **No Prejudice; No Impairment.** This Amendment shall not prejudice any rights or remedies of Seller or Purchaser under the Contract, as hereby amended.

[The rest of this page intentionally left blank. Signature page follows.]

SIXTH AMENDMENT TO REAL ESTATE SALE AGREEMENT (BEVERLY/AXCELIS)

IN WITNESS WHEREOF, Purchaser and Seller have executed this Sixth Amendment as of the day and year above first written.

PURCHASER:

Middleton Beverly Investors LLC

By: Peter L. Holstein
Name: Peter L. Holstein
Title: Authorized Signatory

SELLER:

Axcelis Technologies, Inc.

By: Lynnette C. Fallon
Name: Lynnette C. Fallon
Title: EVP HR/Legal and General Counsel

Exhibit H

Form of Lease

Note: The Form of Lease attached as Exhibit H to the Sixth Amendment to Real Estate Sale Agreement dated as of January 30, 2015 between Middleton Partners LLC and Axcelis Technologies, Inc., as filed with the Securities Exchange Commission (the "Commission") on Form 10-K, is omitted in accordance with Paragraph (b)(2) of the Instructions to Item 601 of Regulation S-K issued by the Commission, on the basis that the executed version of the Lease is also filed as an exhibit to the same Form 10K, and therefore such Form of Lease does not contain information which is material to an investment decision and which is otherwise not disclosed in the Form 10-K to which this Sixth Amendment to Real Estate Sale Agreement is an exhibit.

On request of the Commission, Axcelis will furnish to the Commission supplementally a copy of this omitted exhibit.

AXCELIS TECHNOLOGIES, INC.
2000 STOCK PLAN

Adopted by the Board of Directors and Stockholders on June 9, 2000
Amended by the Board of Directors on October 25, 2000 and
July 31, 2001 and
Approved by the Stockholders on May 1, 2002 and
Further amended by the Board of Directors on December 18, 2003, May 12, 2005,
June 23, 2005 and November 13, 2014

ARTICLE I

PURPOSE AND ADOPTION OF THE PLAN

1.01 Purpose. The purpose of the Axcelis Technologies, Inc. 2000 Stock Plan (hereinafter referred to as the “Plan”) is to assist in attracting and retaining highly competent employees, directors and consultants and to act as an incentive in motivating selected employees, directors and consultants of Axcelis Technologies, Inc. and its Subsidiaries (as defined below) to achieve long-term corporate objectives.

1.02 Adoption and Term. The Plan has been approved by the Board of Directors of Axcelis Technologies, Inc. and its stockholders to be effective as of July 14, 2000 (the “Effective Date”). The Plan terminated on May 1, 2012 (the 10th anniversary of the last shareholder approval of the Plan), but remains in effect for the purposes of governing the Awards granted under the Plan prior to such date.

ARTICLE II

DEFINITIONS

For the purposes of this Plan, capitalized terms shall have the following meanings:

2.01 Award means any grant to a Participant of one or a combination of Non-Qualified Stock Options or Incentive Stock Options described in Article VI, Stock Appreciation Rights described in Article VI, Restricted Shares or Restricted Stock Units described in Article VII and Performance Awards described in Article VIII.

2.02 Award Agreement means a written agreement between the Company and a Participant or a written notice from the Company to a Participant specifically setting forth the terms and conditions of an Award granted under the Plan.

2.03 Award Period means, with respect to an Award, the period of time set forth in the Award Agreement during which specified target performance goals must be achieved or other

conditions set forth in the Award Agreement must be satisfied.

2.04 Beneficiary means an individual, trust or estate who or which, by a written designation of the Participant filed with the Company or by operation of law, succeeds to the rights and obligations of the Participant under the Plan and an Award Agreement upon the Participant’s death.

2.05 Board means the Board of Directors of the Company.

2.06 Change in Control means, and shall be deemed to have occurred upon the occurrence of any one of the following events:

(a) The acquisition by any individual, entity or group (within the meaning of Section 13(d)(3) or 14(d)(2) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”)) (a “Person”) of beneficial ownership (within the meaning of Rule 13d-3 promulgated under the Exchange Act) of 25% or more of either (i) the then outstanding shares of common stock of the Company (the “Outstanding Company Common Stock”) or (ii) the combined voting power of the then outstanding voting securities of the Company entitled to vote generally in the election of directors (the “Outstanding Company Voting Securities”); provided, however, that for purposes of this subsection (a), the following acquisitions shall not constitute a Change of Control: (i) any acquisition directly from the Company, (ii) any acquisition by the Company, or (iii) any acquisition by any employee benefit plan (or related trust) sponsored or maintained by the Company or any corporation controlled by the Company; or

(b) Individuals who, as of the date hereof, constitute the Board (the “Incumbent Board”) cease for any reason to constitute at least a majority of the Board; provided, however, that any individual becoming a director subsequent to the date hereof whose election, or nomination for election by the Company’s shareholders, was approved by a vote of at least two-thirds of the directors then comprising the Incumbent Board shall be considered as though such individual were a member of the Incumbent Board, but excluding, for this purpose, any such individual whose initial assumption of office occurs as a result of an actual or threatened election contest with respect to the election or removal of directors or other actual or threatened solicitation of proxies or consents by or on behalf of a Person other than the Board; or

(c) Consummation by the Company of a reorganization, merger or consolidation or sale or other disposition of all or substantially all of the assets of the Company or the acquisition of assets of another corporation (a “Business Combination”), in each case, unless, following such Business Combination, (i) all or substantially all of the individuals and entities who were the beneficial owners, respectively, of the Outstanding Company Common Stock and Outstanding Company Voting Securities immediately prior to such Business Combination beneficially own, directly or indirectly, more than 75% of, respectively, the then outstanding shares of common stock and the combined voting power of the then

outstanding voting securities entitled to vote generally in the election of directors, as the case may be, of the corporation resulting from such Business Combination (including, without limitation, a corporation which as a result of such transaction owns the Company or all or substantially all of the Company's assets either directly or through one or more subsidiaries) in substantially the same proportions as their ownership, immediately prior to such Business Combination of the Outstanding Company Common Stock and Outstanding Company Voting Securities, as the case may be, (ii) no Person (excluding any employee benefit plan (or related trust) of the Company or such corporation resulting from such Business Combination) beneficially owns, directly or indirectly, 25% or more of, respectively, the then outstanding shares of common stock of the corporation resulting from such Business Combination or the combined voting power of the then outstanding voting securities of such corporation except to the extent that such ownership existed prior to the Business Combination and (iii) at least a majority of the members of the board of directors of the corporation resulting from such Business Combination were members of the Incumbent Board at the time of the execution of the initial agreement, or of the action of the Board, providing for such Business Combination; or

(d) Approval by the shareholders of the Company of a complete liquidation or dissolution of the Company.

2.07 Code means the Internal Revenue Code of 1986, as amended. References to a section of the Code include that section and any comparable section or sections of any future legislation that amends, supplements or supersedes said section.

2.08 Company means Axcelis Technologies, Inc., a Delaware corporation, and its successors.

2.09 Common Stock means Common Stock of the Company, par value \$0.001 per share.

2.10 Company Voting Securities means the combined voting power of all outstanding securities of the Company entitled to vote generally in the election of directors of the Company.

2.11 Date of Grant means the date designated by the Board as the date as of which it grants an Award, which shall not be earlier than the date on which the Board approves the granting of such Award.

2.12 Disability means a total and permanent disability such that, due to physical or mental illness, injury or disease, a Participant is unable to perform any services for the Company and its Subsidiaries and, in the opinion of a qualified physician designated by the Board, such disability will be permanent and continuous during the remainder of the Participant's life.

2.13 Effective Date shall have the meaning given to such term in Section 1.02.

2.14 Exchange Act means the Securities Exchange Act of 1934, as amended.

2.15 Exercise Price means, with respect to a Stock Appreciation Right, the amount established by the Board in the related Award Agreement as the amount to be subtracted from the Fair Market Value on the date of exercise in order to determine the amount of the payment to be made to the Participant, as further described in Section 6.02(b).

2.16 Fair Market Value means, as of any applicable date, the closing price of a share of the Common Stock on the Nasdaq National Market System ("NMS") or, if not then authorized for trading on the NMS but traded on a nationally recognized exchange, the closing price of a share of the Common on such exchange or, if not then authorized or traded on any nationally recognized exchange, the fair market value of the Common Stock as determined in good faith under procedures established by the Board.

2.17 Incentive Stock Option means a stock option within the meaning of Section 422 of the Code.

2.18 Merger means any merger, reorganization, consolidation, share exchange, transfer of assets or other transaction having similar effect involving the Company.

2.19 Non-Employee Director means a member of the Board who is not also a common law employee of Company. A member of the Board who is a common law employee of the Company shall become a Non-Employee Director as of the date he or she ceases to be an active employee of the Company. For purposes of this Plan, a member of the Board who receives deferred compensation or benefits, whether through a qualified plan or other arrangement, will not be deemed to be an active employee of the Company solely on account of the receipt of such deferred compensation or benefits.

2.20 Non-Qualified Stock Option means a stock option which is not an Incentive Stock Option.

2.21 Options means all Non-Qualified Stock Options and Incentive Stock Options granted at any time under the Plan.

2.22 Participant means a person designated to receive an Award under the Plan in accordance with Section 5.01.

2.23 Performance Awards means Awards granted in accordance with Article VIII.

2.24 Plan means the Axcelis Technologies, Inc. 2000 Stock Plan as described herein, as the same may be amended from time to time.

2.25 Purchase Price, with respect to Options, shall have the meaning set forth in Section 6.01(c).

2.26 Restricted Shares means Common Stock subject to restrictions imposed in connection with Awards granted under Sections 7.01-7.03.

2.27 Restricted Stock Unit means the right granted to a Participant pursuant to Section 7.04 to receive shares of Common Stock (or the equivalent value in cash or other property if the Board so provides) in the future that may be subject to certain terms, conditions and restrictions.

2.28 Retirement means a Participant's voluntary Termination of Employment with the consent of the Board.

2.29 Stock Appreciation Rights means Awards granted in accordance with Article VI.

2.30 Subsidiary means a subsidiary of the Company within the meaning of Section 424(f) of the Code.

2.31 Termination of Employment means the voluntary or involuntary termination of a Participant's employment with the Company or a Subsidiary for any reason, including death, Disability, Retirement or as the result of the divestiture of the Participant's employer or any similar transaction in which the Participant's employer ceases to be the Company or one of its Subsidiaries. Whether entering military or other government service shall constitute Termination of Employment, or whether a Termination of Employment shall occur as a result of Disability, shall be determined in each case by the Board in its sole discretion. In the case of a Member of the Board or consultant who is not an employee of the Company or a Subsidiary, Termination of Employment shall mean voluntary or involuntary termination of Board service or the consulting relationship, as the case may be, for any reason.

ARTICLE III

ADMINISTRATION

3.01 Administration. The Plan shall be administered by the Board, except (i) awards to Non-Employee Directors under Section 6.01(b) shall be automatic and granted under the terms set forth for Non-Employee Directors under the Plan without power or authority of the Board (or if applicable a committee) to alter or amend the number, terms or conditions of such awards and (ii) awards intended to qualify as exempt from the limitations on deductible compensation imposed by Section 162(m) of the Code shall be granted and administered by a committee appointed by the Board consisting of no fewer than two members of the Board who meet each and all requirements to serve as outside directors within the meaning of Section 162(m) of the Code and the regulations promulgated thereunder (the "162(m) Committee"). Except to the extent of matters reserved for the 162(m) Committee, the Board (or its designee, as described below) shall have exclusive and final authority in each determination, interpretation or other action affecting the Plan and its Participants. The Board (or its designee, as described below) shall have the sole discretionary authority to interpret the Plan, to establish and modify administrative rules for the Plan, to impose such conditions and restrictions on Awards as it determines appropriate, and to take such steps in connection with the Plan and Awards granted hereunder as it may deem necessary or advisable. The Board may, subject to compliance with applicable legal requirements, delegate to a person or a committee, none of whom need be

members of the Board of the Company, such of its powers and authority under the Plan as it deems appropriate. The Board may appoint such person or committee to exercise any of the authority conferred upon the Board hereunder and, if a person or committee is designated to so serve, the term "Board" as used in this Plan shall include such committee. In the event of any such delegation of authority or exercise of authority by a person or committee so designated, references in the Plan to the Board shall be deemed to refer to the delegate of the Board or such committee, as the case may be.

ARTICLE IV

SHARES

4.01 Number of Shares Issuable. The total number of shares authorized to be issued under the Plan shall be the initial reserve of 18,500,000 shares of Common Stock, plus such amounts as may have been added to such reserve under this Section 4.01, as in effect prior to May 12, 2005, for a total of 33,173,367 shares as of such date. The number of shares available for issuance under the Plan shall be subject to adjustment in accordance with Section 9.07. The shares to be offered under the Plan shall be authorized and unissued shares of Common Stock, or issued shares of Common Stock that will have been reacquired by the Company.

4.02 Shares Subject to Terminated Awards. Shares of Common Stock covered by any unexercised portions of terminated Options (including canceled Options) granted under Article VI, shares of Common Stock forfeited as provided in Section 7.02(a) and shares of Common Stock subject to any Award that are otherwise surrendered or forfeited by a Participant may be subject to new Awards under the Plan. Shares of Common Stock subject to Options, or portions thereof, that have been surrendered in connection with the exercise of Stock Appreciation Rights shall not be available for subsequent Awards under the Plan, but shares of Common Stock issued in payment of such Stock Appreciation Rights shall not be charged against the number of shares of Common Stock available for the grant of Awards hereunder.

ARTICLE V

PARTICIPATION

Participants in the Plan shall be such employees, directors and consultants of the Company and its Subsidiaries as the Board, in its sole discretion, may designate from time to time. The Board's designation of a Participant in any year shall not require the Board to designate such person to receive Awards in any other year. The designation of a Participant to receive an Award under one portion of the Plan does not require the Board to include such Participant under other portions of the Plan. The Board shall consider such factors as it deems pertinent in selecting Participants and in determining the types and amounts of their respective Awards.

ARTICLE VI

STOCK OPTIONS AND STOCK APPRECIATION RIGHTS

6.01 Option Awards.

(a) Grant of Options. The Board may grant, to such Participants as the Board may select, Options entitling the Participants to purchase shares of Common Stock from the Company in such numbers, at such prices, and on such terms and subject to such conditions, not inconsistent with the terms of the Plan, as may be established by the Board. The terms of any Option granted under the Plan shall be set forth in an Award Agreement. No Participant may be granted an Option to purchase more than 1,250,000 shares of Common Stock in any fiscal year of the Company, except that in his or her initial year of service, a Participant may be granted an Option to purchase up to 1,250,000 shares of Common Stock.

(b) Non-Employee Director Options.

(i) Initial Grants. When a member of the Board of Directors first becomes a Non-Employee Director, he or she shall automatically be granted a Non-Qualified Option to purchase up to 40,000 shares of Common Stock as of the date he or she first becomes a Non-Employee Director. Each such option shall be evidenced by a written Award Agreement that shall set forth the following terms:

- (1) The per share Purchase Price shall be equal to the Fair Market Value of a share of Common Stock on the date of grant, unless then Board determines otherwise in accordance with Section 6.01(c);
- (2) The Option shall expire on the 10th anniversary of the date of grant;
- (3) The Option shall be fully vested on the 181st day after the date of grant; and
- (4) The Option shall be exercisable in accordance with Section 6.04 of this Plan.

(ii) Non-Exclusive. Nothing set forth in this section shall prevent the Board from considering Non-Employee Directors for other awards under this Plan and from making any Awards to Non-Employee Directors.

(c) Purchase Price of Options. Subject to Section 6.01(e) with respect to certain Incentive Stock Options, the Purchase Price of each share of Common Stock which may be purchased upon exercise of any Option granted under the Plan shall be determined by the Board; *provided, however*, that the Purchase Price shall in all cases be equal to or greater than the Fair Market Value on the Date of Grant.

7

(d) Designation of Options. Except as otherwise expressly provided in the Plan, the Board may designate, at the time of the grant of an Option, such Option as an Incentive Stock Option or a Non-Qualified Stock Option; *provided, however*, that an Option may be designated as an Incentive Stock Option only if the applicable Participant is an employee of the Company or a Subsidiary on the Date of Grant.

(e) Special Incentive Stock Option Rules. No Participant may be granted Incentive Stock Options under the Plan (or any other plans of the Company and its Subsidiaries) that would result in Incentive Stock Options to purchase shares of Common Stock with an aggregate Fair Market Value (measured on the Date of Grant) of more than \$100,000 first becoming exercisable by such Participant in any one calendar year. Notwithstanding any other provision of the Plan to the contrary, no Incentive Stock Option shall be granted to any person who, at the time the Option is granted, owns stock (including stock owned by application of the constructive ownership rules in Section 424(d) of the Code) possessing more than 10% of the total combined voting power of all classes of stock of the Company or any Subsidiary, unless at the time the Incentive Stock Option is granted the Option price is at least 110% of the Fair Market Value of the Common Stock subject to the Incentive Stock Option and the Incentive Stock Option by its terms is not exercisable for more than five (5) years from the Date of Grant.

(f) Rights as a Shareholder. A Participant or a transferee of an Option pursuant to Section 9.04 shall have no rights as a shareholder with respect to the shares of Common Stock covered by an Option until that Participant or transferee shall have become the holder of record of any such shares, and no adjustment shall be made with respect to any such shares of Common Stock for dividends in cash or other property or distributions of other rights on the Common Stock for which the record date is prior to the date on which that Participant or transferee shall have become the holder of record of any shares covered by such Option; *provided, however*, that Participants are entitled to share adjustments to reflect capital changes under Section 9.07.

6.02 Stock Appreciation Rights.

(a) Stock Appreciation Right Awards. The Board is authorized to grant to any Participant one or more Stock Appreciation Rights. Such Stock Appreciation Rights may be granted either independent of or in tandem with Options granted to the same Participant. Stock Appreciation Rights granted in tandem with Options may be granted simultaneously with, or, in the case of Non-Qualified Stock Options, subsequent to, the grant to such Participant of the related Options; *provided, however*, that: (i) any Option covering any share of Common Stock shall expire and not be exercisable upon the exercise of any Stock Appreciation Right with respect to the same share, (ii) any Stock Appreciation Right covering any share of Common Stock shall expire and not be exercisable upon the exercise of any Option with respect to the same share, and (iii) an Option and a Stock Appreciation Right covering the same share of Common Stock may not be exercised simultaneously. Upon exercise of a Stock Appreciation Right with respect to a share of Common Stock, the Participant shall be entitled to receive an amount equal to the excess, if any, of (A) the Fair Market Value of a share of Common Stock on the date of exercise over (B) the Exercise Price of such Stock Appreciation Right established in the Award Agreement, which amount shall be payable as provided in Section 6.02(c).

8

(b) Exercise Price. The Exercise Price established for any Stock Appreciation Right granted under this Plan shall be determined by the Board, but in the case of Stock Appreciation Rights granted in tandem with Options shall not be less than the Purchase Price of the related Options. Upon exercise of Stock Appreciation Rights, the number of shares issuable upon exercise under any related Options shall automatically be reduced by the number of shares of Common Stock represented by such Options which are surrendered as a result of the exercise of such Stock Appreciation Rights.

(c) Payment of Incremental Value. Any payment that may become due from the Company by reason of a Participant's exercise of a Stock Appreciation Right may be paid to the Participant as determined by the Board (i) all in cash, (ii) all in Common Stock, or (iii) in any combination of cash and Common Stock. In the event that all or a portion of the payment is to be made in Common Stock, the number of shares of Common Stock to be delivered in satisfaction of such payment shall be determined by dividing the amount of such payment or portion thereof by the Fair Market Value on the date of exercise. No fractional share of Common Stock shall be issued to make any payment in respect of Stock Appreciation Rights; if any fractional share would otherwise be issuable, the combination of cash and Common Stock payable to a Participant shall be adjusted as directed by the Board to avoid the issuance of any fractional share.

6.03 Terms of Stock Options and Stock Appreciation Rights.

(a) Conditions on Exercise. An Award Agreement with respect to Options and/or Stock Appreciation Rights may contain such waiting periods, exercise dates and restrictions on exercise (including, but not limited to, periodic installments) as may be determined by the Board at the time of grant.

(b) Duration of Options and Stock Appreciation Rights. Options and Stock Appreciation Rights shall terminate after the first to occur of the following events:

(i) Expiration of the Option or Stock Appreciation Right as provided in the related Award Agreement; or

(ii) Termination of the Award as provided in Section 6.03(e), following the applicable Participant's Termination of Employment; or

(iii) In the case of an Incentive Stock Option, ten years from the Date of Grant (five years in certain cases, as described in Section 6.01(e)) Non-Qualified Stock Options may, if so approved by the Board, have a stated term in excess of ten years, but such Options shall in all events be subject to termination in accordance with clauses (i) and (ii) above; or

(iv) Solely in the case of a Stock Appreciation Right granted in tandem with an Option, upon the expiration of the related Option.

(c) Acceleration of Exercise Time. The Board, in its sole discretion, shall have the right

9

(but shall not in any case be obligated), exercisable at any time after the Date of Grant, to permit the exercise of any Option or Stock Appreciation Right prior to the time such Option or Stock Appreciation Right would otherwise become exercisable under the terms of the related Award Agreement.

(d) Extension of Exercise Time. In addition to the extensions permitted under Section 6.03(e) in the event of Termination of Employment, the Board, in its sole discretion, shall have the right (but shall not in any case be obligated), exercisable on or at any time after the Date of Grant, to permit the exercise of any Option or Stock Appreciation Right after its expiration date described in Section 6.03(e), subject, however, to the limitations described in Sections 6.03(b)(i), (iii) and (iv).

(e) Exercise of Options or Stock Appreciation Rights Upon Termination of Employment. Unless an Optionee's Award Agreement provides otherwise, the following rules shall govern the treatment of Options and Stock Appreciation Rights upon Termination of Employment:

(i) Termination of Vested Options and Stock Appreciation Rights Upon Termination of Employment.

(A) Reasons Other Than Death, Disability or Retirement. In the event of a Participant's voluntary or involuntary Termination of Employment for any reason other than death, Disability or Retirement, the right of the Participant to exercise any Option or Stock Appreciation Right shall terminate on the date of such Termination of Employment, unless the exercise period is extended by the Board in accordance with Section 6.03(d).

(B) Death, Disability or Retirement. In the event of a Participant's Termination of Employment by reason of death, Disability or Retirement, the right of the Participant to exercise any Option or Stock Appreciation Right which he or she was entitled to exercise upon Termination of Employment (or which became exercisable pursuant to Section 6.03(e)(ii)) shall, unless the exercise period is extended by the Board in accordance with Section 6.03(d), terminate upon the earlier of (i) the later to occur of (A) first anniversary of the date of such Termination of Employment and (B) the first anniversary of the date of consummation of a public offering of the Common Stock and (ii) the date of expiration of the Option determined pursuant to Section 6.03(b)(i), (iii) or (iv).

(ii) Termination of Unvested Options or Stock Appreciation Rights Upon Termination of Employment. Subject to Section 6.03(c), to the extent the right to exercise an Option or a Stock Appreciation Right, or any portion thereof, has not accrued as of the date of Termination of Employment, such right shall expire at the date of such Termination of Employment regardless of the reason for such Termination of Employment. Notwithstanding the foregoing, the Board, in its sole discretion and under such terms as it deems appropriate, may permit, for a Participant who terminates employment by reason of Retirement and who will continue to render significant services to the Company or one of its Subsidiaries after his or her

10

Termination of Employment, the continued vesting of his or her Options and Stock Appreciation Rights during the period in which that individual continues to render such services.

6.04 Exercise Procedures. Each Option and Stock Appreciation Right granted under the Plan shall be exercised by written notice to the Company which must be received by the officer or employee of the Company designated in the Award Agreement at or before the close of business on the expiration

date of the Award. The Purchase Price of shares purchased upon exercise of an Option granted under the Plan shall be paid in full in cash by the Participant pursuant to the Award Agreement; *provided, however*, that the Board may (but shall not be required to) permit payment to be made by delivery to the Company of either (a) shares of Common Stock held by the Participant for at least six months (which may include Restricted Shares, subject to such rules as the Board deems appropriate) or (b) any combination of cash and Common Stock or (c) such other consideration as the Board deems appropriate and in compliance with applicable law (including payment in accordance with a cashless exercise program under which, if so instructed by a Participant, shares of Common Stock may be issued directly to the Participant's broker or dealer upon receipt of an irrevocable written notice of exercise from the Participant). In the event that any shares of Common Stock shall be transferred to the Company to satisfy all or any part of the Purchase Price, the part of the Purchase Price deemed to have been satisfied by such transfer of shares of Common Stock shall be equal to the product derived by multiplying the Fair Market Value as of the date of exercise times the number of shares of Common Stock transferred to the Company. The Participant may not transfer to the Company in satisfaction of the Purchase Price any fractional share of Common Stock. Any part of the Purchase Price paid in cash upon the exercise of any Option shall be added to the general funds of the Company and may be used for any proper corporate purpose. Unless the Board shall otherwise determine, any shares of Common Stock transferred to the Company as payment of all or part of the Purchase Price upon the exercise of any Option shall be held as treasury shares.

6.05 Change in Control. Unless otherwise provided by the Board in the applicable Award Agreement, in the event of a Change in Control, all Options and Stock Appreciation Rights outstanding on the date of such Change in Control shall become immediately and fully exercisable. The provisions of this Section 6.05 shall not be applicable to any Options or Stock Appreciation Rights granted to a Participant if any Change in Control results from such Participant's beneficial ownership (within the meaning of Rule 13d-3 under the Exchange Act) of Company Voting Securities.

ARTICLE VII

RESTRICTED SHARES AND RESTRICTED STOCK UNITS

7.01 Restricted Share Awards. The Board may grant to any Participant an Award of such number of shares of Common Stock on such terms, conditions and restrictions, whether based on performance standards, periods of service, retention by the Participant of ownership of purchased or designated shares of Common Stock or other criteria, as the Board shall establish. The terms of any Restricted Share Award granted under this Plan shall be set forth in an Award

11

Agreement which shall contain provisions determined by the Board and not inconsistent with this Plan.

(a) Issuance of Restricted Shares. As soon as practicable after the Date of Grant of a Restricted Share Award by the Board, the Company shall cause to be transferred on the books of the Company or its agent, shares of Common Stock, registered on behalf of the Participant, evidencing the Restricted Shares covered by the Award, subject to forfeiture to the Company as of the Date of Grant if an Award Agreement with respect to the Restricted Shares covered by the Award is not duly executed by the Participant and timely returned to the Company. All shares of Common Stock covered by Restricted Share Awards under this Article VII shall be subject to the restrictions, terms and conditions contained in the Plan and the applicable Award Agreements entered into by the appropriate Participants. Until the lapse or release of all restrictions applicable to an Award of Restricted Shares the share certificates representing such Restricted Shares may be held in custody by the Company, its designee, or, if the certificates bear a restrictive legend, by the Participant. Upon the lapse or release of all restrictions with respect to an Award as described in Section 7.01(d), one or more share certificates, registered in the name of the Participant, for an appropriate number of shares as provided in Section 7.01(d), free of any restrictions set forth in the Plan and the related Award Agreement shall be delivered to the Participant.

(b) Shareholder Rights. Beginning on the Date of Grant of a Restricted Share Award and subject to execution of the related Award Agreement as provided in Section 7.01(a), and except as otherwise provided in such Award Agreement, the Participant shall become a shareholder of the Company with respect to all shares subject to the Award Agreement and shall have all of the rights of a shareholder, including, but not limited to, the right to vote such shares and the right to receive dividends; *provided, however*, that any shares of Common Stock distributed as a dividend or otherwise with respect to any Restricted Shares as to which the restrictions have not yet lapsed, shall be subject to the same restrictions as such Restricted Shares and held or restricted as provided in Section 7.01(a).

(c) Restriction on Transferability. None of the Restricted Shares may be assigned or transferred (other than by will or the laws of descent and distribution or to an *inter vivos* trust with respect to which the Participant is treated as the owner under Sections 671 through 677 of the Code), pledged or sold prior to the lapse of the restrictions applicable thereto.

(d) Delivery of Shares Upon Vesting. Upon expiration or earlier termination of the forfeiture period without a forfeiture and the satisfaction of or release from any other conditions prescribed by the Board, or at such earlier time as provided under the provisions of Section 7.03, the restrictions applicable to the Restricted Shares shall lapse. As promptly as administratively feasible thereafter, subject to the requirements of Section 9.05, the Company shall deliver to the Participant or, in case of the Participant's death, to the Participant's Beneficiary, one or more share certificates for the appropriate number of shares of Common Stock, free of all such restrictions, except for any restrictions that may be imposed by law.

12

7.02 Terms of Restricted Shares.

(a) Forfeiture of Restricted Shares. Subject to Sections 7.02(b) and 7.03, Restricted Shares shall be forfeited and returned to the Company and all rights of the Participant with respect to such Restricted Shares shall terminate unless the Participant continues in the service of the Company or a Subsidiary as an employee until the expiration of the forfeiture period for such Restricted Shares and satisfies any and all other conditions set forth in the Award Agreement. The Board shall determine the forfeiture period (which may, but need not, lapse in installments) and any other terms and conditions applicable with respect to any Restricted Share Award.

(b) Waiver of Forfeiture Period. Notwithstanding anything contained in this Article VII to the contrary, the Board may, in its sole discretion, waive the forfeiture period and any other conditions set forth in any Restricted Share Award Agreement under appropriate circumstances

(including the death, Disability or Retirement of the Participant or a material change in circumstances arising after the date of an Award) and subject to such terms and conditions (including forfeiture of a proportionate number of the Restricted Shares) as the Board shall deem appropriate.

(c) Repurchase Rights. The Board may, but shall not be required to, grant to Participants who promptly inform the Board of their intention to elect federal income taxation under Section 83(b) of the Code, the right to require the Company to repurchase upon their termination of employment for any reason other than cause the shares for which federal income tax treatment under Section 83(b) of the Code was elected. Such repurchase right, if granted, may be exercised by the Participant at any time after his or her termination of employment at a price to be determined by the Board at the date of grant but in no event greater than the fair market value of such shares at the time federal income tax treatment under Section 83(b) of the Code was elected.

7.03 Change in Control. Unless otherwise provided by the Board in the applicable Award Agreement, in the event of a Change in Control, all restrictions applicable to the Restricted Share Award shall terminate fully and the Participant shall immediately have the right to the delivery of share certificates for such shares in accordance with Section 7.01(d).

7.04 Restricted Stock Unit Awards.

(a) Restricted Stock Units. Subject to the provisions of this Plan, the Board may grant Restricted Stock Units to a Participant.

(b) Terms and Conditions. The Board shall determine the number of shares of Common Stock subject to each Restricted Stock Unit Award and the purchase price (if any) for each unit. Restricted Stock Units may be issued for no cash consideration, or such minimum consideration as may be required by applicable law. The Board may grant Restricted Stock Units on such other terms and with such conditions and restrictions the Board shall establish (including, without limitation, vesting and forfeiture provisions and conditions relating to applicable laws). The terms of any Restricted Stock

Unit Award granted under this Plan shall be set forth in an Award Agreement which shall contain provisions determined by the Board and not inconsistent with this Plan.

(c) Acceleration of Vesting. Notwithstanding anything contained in this Article VII to the contrary, the Board may, in its sole discretion, accelerate the vesting of Restricted Stock Units for conversion into shares of Common Stock under appropriate circumstances and subject to such terms and conditions, if any, as the Board shall deem appropriate.

(d) Unfunded Obligation. A Restricted Stock Unit Award shall constitute an unfunded and unsecured obligation of the Company, and shall be settled in shares of Common Stock or cash, as determined by the Board at the time of grant or thereafter. Each unit shall represent the equivalent of one share of Common Stock.

ARTICLE VIII

PERFORMANCE AWARDS

8.01 Performance Awards.

(a) Award Periods and Calculations of Potential Incentive Amounts. The Board may grant Performance Awards to Participants. A Performance Award shall consist of the right to receive a payment (measured by the Fair Market Value of a specified number of shares of Common Stock, increases in such Fair Market Value during the Award Period and/or a fixed cash amount) contingent upon the extent to which certain predetermined performance targets have been met during an Award Period. Performance Awards may be made in conjunction with, or in addition to, any other Awards made under this Plan. The Award Period shall be two or more fiscal or calendar years as determined by the Board. The Board, in its discretion and under such terms as it deems appropriate, may permit newly eligible employees, such as those who are promoted or newly hired, to receive Performance Awards after an Award Period has commenced.

(b) Performance Targets. The performance targets may include such goals related to the performance of the Company and/or the performance of a Participant as may be established by the Board in its discretion. The performance targets established by the Board may vary for different Award Periods and need not be the same for each Participant receiving a Performance Award in an Award Period. The Board, in its discretion, but only under extraordinary circumstances as determined by the Board, may change any prior determination of performance targets for any Award Period at any time prior to the final determination of the value of a related Performance Award when events or transactions occur to cause such performance targets to be an inappropriate measure of achievement.

(c) Earning Performance Awards. The Board, on or as soon as practicable after the Date of Grant, shall prescribe a formula to determine the percentage of the applicable Performance Award to be earned based upon the degree of attainment of performance

targets.

(d) Payment of Earned Performance Awards. Payments of earned Performance Awards shall be made in cash or shares of Common Stock or a combination of cash and shares of Common Stock, in the discretion of the Board. The Board, in its sole discretion, may provide such terms and conditions with respect to the payment of earned Performance Awards as it may deem desirable.

8.02 Terms of Performance Awards.

(a) Termination of Employment. Unless otherwise provided below or in Section 8.03, in the case of a Participant's Termination of Employment prior to the end of an Award Period, the Participant will not have earned any Performance Awards for that Award Period.

(b) Retirement. If a Participant's Termination of Employment is because of Retirement prior to the end of an Award Period, the Participant will not be paid any Performance Award, unless the Board, in its sole and exclusive discretion, determines that an Award should be paid. In such a case, the Participant shall be entitled to receive a pro-rata portion of his or her Award as determined under subsection (d).

(c) Death or Disability. If a Participant's Termination of Employment is due to death or to Disability (as determined in the sole and exclusive discretion of the Board) prior to the end of an Award Period, the Participant or the Participant's personal representative shall be entitled to receive a pro-rata share of his or her Award as determined under subsection (d).

(d) Pro-Rata Payment. The amount of any payment to be made to a Participant whose employment is terminated by Retirement, death or Disability (under the circumstances described in subsections (b) and (c)) will be the amount determined by multiplying (i) the amount of the Performance Award that would have been earned through the end of the Award Period had such employment not been terminated by (ii) a fraction, the numerator of which is the number of whole months such Participant was employed during the Award Period, and the denominator of which is the total number of months of the Award Period. Any such payment made to a Participant whose employment is terminated prior to the end of an Award Period shall be made at the end of such Award Period, unless otherwise determined by the Board in its sole discretion. Any partial payment previously made or credited to a deferred account for the benefit of a Participant in accordance with Section 8.01(d) of the Plan shall be subtracted from the amount otherwise determined as payable as provided in this Section 8.02(d).

(e) Other Events. Notwithstanding anything to the contrary in this Article VIII, the Board may, in its sole and exclusive discretion, determine to pay all or any portion of a Performance Award to a Participant who has terminated employment prior to the end of an Award Period under certain circumstances (including the death, Disability or Retirement of the Participant or a material change in circumstances arising after the Date

of Grant), subject to such terms and conditions as the Board shall deem appropriate.

8.03 Change in Control. Unless otherwise provided by the Board in the applicable Award Agreement, in the event of a Change in Control, all Performance Awards for all Award Periods shall immediately become fully vested and payable to all Participants and shall be paid to Participants within 30 days after such Change in Control.

ARTICLE IX

TERMS APPLICABLE TO ALL AWARDS GRANTED UNDER THE PLAN

9.01 Plan Provisions Control Award Terms. The terms of the Plan shall govern all Awards granted under the Plan, and in no event shall the Board have the power to grant any Award under the Plan the terms of which are contrary to any of the provisions of the Plan. In the event any provision of any Award granted under the Plan shall conflict with any term in the Plan as constituted on the Date of Grant of such Award, the term in the Plan as constituted on the Date of Grant of such Award shall control. Except as provided in Section 9.03 and Section 9.07, the terms of any Award granted under the Plan may not be changed after the Date of Grant of such Award so as to materially decrease the value of the Award without the express written approval of the holder.

9.02 Award Agreement. No person shall have any rights under any Award granted under the Plan unless and until the Company and the Participant to whom such Award shall have been granted shall have executed and delivered an Award Agreement or the Participant shall have received and acknowledged notice of the Award authorized by the Board expressly granting the Award to such person and containing provisions setting forth the terms of the Award.

9.03 Modification of Award After Grant. No Award granted under the Plan to a Participant may be modified (unless such modification does not materially decrease the value of that Award) after its Date of Grant except by express written agreement between the Company and such Participant, provided that any such change (a) may not be inconsistent with the terms of the Plan, and (b) shall be approved by the Board. The right of the Board to amend an Award after its grant shall be subject to the following limitations: (A) the Board shall not authorize the amendment of any outstanding Option or Stock Appreciation Right to reduce the exercise price, (B) no Option or Stock Appreciation Right shall be canceled and replaced with an Award exercisable for Common Stock at a lower exercise price and (C) no Award shall be canceled in exchange for a cash payment from the Company to the Award owner, except in the event of a recapitalization, stock acquisition, merger, consolidation or other form of corporate transaction in which a company other than the Company is the surviving, continuing, successor or purchasing entity and in which the stockholders of the Company receive consideration that is all or predominantly cash in exchange for their shares of common stock in the transaction.

9.04 Limitation on Transfer. Except as provided in Section 7.01(c) in the case of Restricted Shares, a Participant's rights and interest under the Plan may not be assigned or

transferred other than by will or the laws of descent and distribution and, during the lifetime of a Participant, only the Participant personally (or the Participant's personal representative) may exercise rights under the Plan. The Participant's Beneficiary may exercise the Participant's rights to the extent they are exercisable under the Plan following the death of the Participant. Notwithstanding the foregoing, the Board may grant Non-Qualified Stock Options that are transferable, without payment of consideration, to such persons, including, but not limited to, immediate family members of the Participant or to trusts or partnerships for such family members, and the Board may also amend outstanding Non-Qualified Stock Options to provide for such transferability.

9.05 Taxes. The Company shall be entitled, if the Board deems it necessary or desirable, to withhold (or secure payment from the Participant in lieu of withholding) the amount of any withholding or other tax required by law to be withheld or paid by the Company with respect to any amount payable and/or shares issuable under such Participant's Award or with respect to any income recognized upon a disqualifying disposition (i.e. a disposition prior to the

expiration of the requisite holding periods) of shares received pursuant to the exercise of an Incentive Stock Option, and the Company may defer payment of cash or issuance of shares upon exercise or vesting of an Award unless indemnified to its satisfaction against any liability for any such tax. The amount of such withholding or tax payment shall be determined by the Board and shall be payable by the Participant in cash at such time as the Board determines; *provided, however*, that with the approval of the Board, the Participant may elect to meet his or her withholding requirement, in whole or in part, by having withheld from such Award at the appropriate time that number of shares of Common Stock, rounded up to the next whole share, the Fair Market Value of which is equal to the amount of withholding taxes due.

9.06 Intentionally Omitted

9.07 Adjustments to Reflect Capital Changes.

(a) Recapitalization. The number and kind of shares subject to outstanding Awards, the Purchase Price or Exercise Price for such shares, the number and kind of shares available for Awards subsequently granted under the Plan and the maximum number of shares in respect of which Awards can be made to any Participant in any calendar year shall be appropriately adjusted to reflect any stock dividend, stock split, combination or exchange of shares, merger, consolidation or other change in capitalization with a similar substantive effect upon the Plan or the Awards granted under the Plan. The Board shall have the power and sole discretion to determine the amount of the adjustment to be made in each case.

(b) Merger. After any Merger in which the Company is the surviving corporation, each Participant shall, at no additional cost, be entitled upon any exercise of an Option or receipt of any other Award to receive (subject to any required action by shareholders), in lieu of the number of shares of Common Stock receivable or exercisable pursuant to such Award prior to such Merger, the number and class of shares or other securities to which such Participant would have been entitled pursuant to the terms of the Merger if, at the time of the Merger, such Participant had been the holder of record of a

17

number of shares of Common Stock equal to the number of shares of Common Stock receivable or exercisable pursuant to such Award. Comparable rights shall accrue to each Participant in the event of successive Mergers of the character described above. In the event of a Merger in which the Company is not the surviving corporation, the surviving, continuing, successor or purchasing corporation, as the case may be (the "Acquiring Corporation"), will either assume the Company's rights and obligations under outstanding Award Agreements or substitute awards in respect of the Acquiring Corporation's stock for outstanding Awards, *provided, however*, that if the Acquiring Corporation does not assume or substitute for such outstanding Awards, the Board shall provide prior to the Merger that any unexercisable and/or unvested portion of the outstanding Awards shall be immediately exercisable and vested as of a date prior to such Merger, as the Board so determines. The exercise and/or vesting of any Award that was permissible solely by reason of this Section 9.07(b) shall be conditioned upon the consummation of the Merger. Any Options which are neither assumed by the Acquiring Corporation nor exercised as of the date of the Merger shall terminate effective as of the effective date of the Merger.

(c) Options to Purchase Shares or Stock of Acquired Companies. After any merger in which the Company or a Subsidiary shall be a surviving corporation, the Board may grant substituted options under the provisions of the Plan, pursuant to Section 424 of the Code, replacing old options granted under a plan of another party to the merger whose shares of stock subject to the old options may no longer be issued following the merger. The manner of application of the foregoing provisions to such options and any appropriate adjustments shall be determined by the Board in its sole discretion. Any such adjustments may provide for the elimination of any fractional shares which might otherwise become subject to any Options.

9.08 Certain Conditions on Awards. The Board may cancel any unexpired Awards at any time the Participant is not in compliance with any agreement between the Company and the Participant or any other legal obligation of the Participant relating to non-competition, confidentiality or proprietary interests and failure to comply with such agreements or obligations prior to, or during the twelve (12) months after, any exercise of an Option or Stock Appreciation Right shall result in the rescission of the exercise and the difference between the Fair Market Value on the date of exercise of the subject shares of Common Stock and the Purchase Price or Exercise Price, as the case may be, shall be returned to the Company by the Participant in cash within ten (10) days after notice of the rescission has been given to the Participant by the Company. Such notice may be given at any time within two years of the date of exercise.

9.10 No Right to Employment. No employee or other person shall have any claim of right to be granted an Award under the Plan. Neither the Plan nor any action taken hereunder shall be construed as giving any employee any right to be retained in the employ of the Company or any of its Subsidiaries.

9.11 Awards Not Includable for Benefit Purposes. Payments received by a Participant pursuant to the provisions of the Plan shall not be included in the determination of benefits under

18

any pension, group insurance or other benefit plan applicable to the Participant which is maintained by the Company or any of its Subsidiaries, except as may be provided under the terms of such plans or determined by the Board.

9.12 Governing Law. All determinations made and actions taken pursuant to the Plan shall be governed by the internal laws of the State of Delaware, except for its principles of conflict of laws, and construed in accordance therewith.

9.13 No Strict Construction. No rule of strict construction shall be implied against the Company, the Board or any other person in the interpretation of any of the terms of the Plan, any Award granted under the Plan or any rule or procedure established by the Board.

9.14 Captions. The captions (i.e., all Section headings) used in the Plan are for convenience only, do not constitute a part of the Plan, and shall not be deemed to limit, characterize or affect in any way any provisions of the Plan, and all provisions of the Plan shall be construed as if no captions had been used in the Plan.

9.15 Severability. Whenever possible, each provision in the Plan and every Award at any time granted under the Plan shall be interpreted in such manner as to be effective and valid under applicable law, but if any provision of the Plan or any Award at any time granted under the Plan shall be held to be prohibited by or invalid under applicable law, then (a) such provision shall be deemed amended to accomplish the objectives of the provision as originally written to the fullest extent permitted by law and (b) all other provisions of the Plan, such Award and every other Award at any time granted under the Plan shall remain in full force and effect.

9.16 Amendment and Termination.

(a) Amendment. The Board shall have complete power and authority to amend the Plan at any time. No termination or amendment of the Plan may, without the consent of the Participant to whom any Award shall theretofore have been granted under the Plan, materially adversely affect the right of such individual under such Award.

(b) Termination. The Plan was terminated effective May 1, 2012 and no Award shall be granted under the Plan after the termination of the Plan, but the termination of the Plan shall not have any other effect and any Award outstanding at the time of the termination of the Plan may be exercised after termination of the Plan at any time prior to the expiration date of such Award to the same extent such Award would have been exercisable had the Plan not been terminated.

**AXCELIS TECHNOLOGIES, INC.
2012 EQUITY INCENTIVE PLAN**

As approved by the Shareholders on May 2, 2012, May 14, 2013, and May 13, 2014, and as further amended by the Board of Directors on November 13, 2014

1. *Purpose.*

The purpose of the Axcelis Technologies, Inc. 2012 Equity Incentive Plan (the "Plan") is to attract and retain persons who are expected to make important contributions to the Company and its Affiliates, to provide an incentive for them to achieve the Company's goals, and to enable them to participate in the growth of the Company by granting Awards with respect to the Company's Common Stock. Certain capitalized terms used herein are defined in Section 7 below.

2. *Administration.*

The Plan shall be administered by the Committee; provided, that the Board may in any instance perform any of the functions of the Committee hereunder. The Committee shall have authority to adopt, alter and repeal such administrative rules, guidelines and practices governing the operation of the Plan as it shall from time to time consider advisable, and to interpret the provisions hereof in its discretion. The Committee's determinations hereunder shall be final and binding. The Committee may, subject to applicable law, delegate to one or more Executive Officers of the Company the power to make Awards to Participants who are not Reporting Persons or Covered Employees and all determinations hereunder with respect thereto, provided that the Committee shall fix the maximum number of shares that may be subject to such Awards.

3. *Eligibility.*

All directors and all employees and consultants of the Company or any Affiliate capable of contributing to the successful performance of the Company, other than any person who has irrevocably elected not to be eligible, are eligible to be Participants in the Plan.

4. *Stock Available for Awards.*

(a) *Amount.* Subject to adjustment under subsection 4(b), up to an aggregate of 8,550,000 shares of Common Stock may be issued pursuant to Awards, including Incentive Stock Options, under the Plan. For the purposes of counting shares hereunder:

- i. The number of shares issued as, or upon settlement of, any Award other than an Option or Stock Appreciation Right shall be multiplied by 1.5;
- ii. Outstanding shares tendered by the Participant to pay for the exercise of an Option or Stock Appreciation Right, shares repurchased in the open market by the Company, and

shares that are withheld by the Company to satisfy the exercise or tax withholding obligation upon exercise or vesting of an Award may not be netted out against shares of Common Stock issued pursuant to Awards hereunder;

- iii. Shares subject to any Award granted under this Plan that are not issued because the Award expires, is terminated unexercised or is forfeited, in whole or in part, may be subject to new Awards without being deemed to exceed such maximum amount;
- iv. Shares that are not issued under an award that is outstanding under the 2000 Stock Plan as of May 2, 2012 because such award expires, is terminated unexercised or is forfeited may be subject to new Awards under this Plan (other than Incentive Stock Options), without being deemed to exceed such maximum amount; and
- v. Shares issued under this Plan as a result of the assumption or substitution of outstanding grants from an acquired company shall not be deemed to exceed such maximum amount.

Shares issued under the Plan may consist of authorized but unissued shares or treasury shares

(b) *Adjustments.* Upon any equity restructuring, whether a stock dividend, recapitalization, split-up or combination of shares, or otherwise, the number of shares in respect of which Awards may be made under the Plan, the number of shares subject to outstanding Awards, the exercise, purchase or conversion price with respect to any Award, and the limit on individual grants in subsection 5(c) shall be proportionately adjusted, provided that the number of shares subject to any Award shall always be a whole number. In the event the Committee determines that any other reorganization, recapitalization, merger, spin-off or other corporate transaction affects the Common Stock such that an adjustment is required in order to preserve the benefits intended to be provided by the Plan, the Committee shall equitably adjust any or all of the number and kind of shares in respect of which Awards may be made under the Plan, the number and kind of shares subject to outstanding Awards, the exercise, purchase or conversion price with respect to any Award, and the limit on individual grants in subsection 5(c), provided that the number of shares subject to any Award shall always be a whole number. If considered appropriate, the Committee may make provision for a cash payment with respect to all or part of an outstanding Award instead of or in addition to any such adjustment. Any adjustment made pursuant to this subsection shall be subject, in the case of Incentive Stock Options, to any limitation required under the Code.

5. *Awards under the Plan.*

(a) *Types of Awards.* The Committee may grant Options, Stock Appreciation Rights, Restricted Stock, Restricted Stock Units, Stock Equivalents, and Awards of shares of Common Stock that are not subject to restrictions or forfeiture. The effectiveness of any such grant may be conditioned on the passage of time, the achievement of any Performance Goals, or the happening of any other event.

(b) *Terms and Conditions of Awards.*

(i) *Participants; Terms.* The Committee shall select the Participants to receive Awards and determine the terms and conditions of each Award. Without limiting the foregoing but subject to the other provisions of the Plan and applicable law, the Committee shall determine (A) the number of shares of Common Stock subject to each Award or the manner in which such number shall be determined, (B) the price, if any, a Participant shall pay to receive or exercise an Award or the manner in which such price shall be determined, (C) the time or times when an Award may vest or be exercised, settled, or transferred, (D) any Performance Goals, restrictions or other conditions to vesting, exercise, settlement, or transferability of an Award, (E) whether an Award may be settled in the form of cash, Common Stock or other securities of the Company, Awards or other property, and the manner of calculating the amount or value thereof, (F) the duration of any Restricted Period or any other circumstances in which an Award may be forfeited to the Company, (G) the effect on an Award of the disability, death, retirement or other termination of employment or other service of a Participant, and (H) the extent to which, and the period during which, the Participant or the Participant's legal representative, guardian or Designated Beneficiary may receive payment of an Award or exercise rights thereunder. Except as otherwise provided hereby or in a particular Award, any determination or action with respect to an Award may be made or taken by the Committee at the time of grant or at any time thereafter.

(ii) *Options and Stock Appreciation Rights.* Incentive Stock Options may only be granted to persons eligible to receive such Options under the Code. The exercise price for any Option or Stock Appreciation Right shall not be less than 100% of the Fair Market Value of the Common Stock on the Date of Grant; provided that Options granted in substitution for options granted by a former employer to persons who become eligible to receive Awards hereunder as a result of a transaction described in Section 424(a) of the Code may, consistent with such Section, have a lower exercise price. No Option or Stock Appreciation Right shall have a term longer than seven (7) years. No Incentive Stock Option may be granted more than ten years after the Effective Date. The Committee shall determine the manner of calculating the excess in value of the shares of Common Stock over the exercise price of a Stock Appreciation Right.

(iii) *Restricted Stock and Restricted Stock Units.* Shares of Restricted Stock and shares subject to Restricted Stock Units may not be sold, assigned, transferred, pledged or otherwise encumbered, except as permitted by the Committee, during the applicable Restricted Period. Restricted Stock Units may be settled in shares of Common Stock or cash as determined by the Committee.

(iv) *Minimum Vesting Requirements.* Notwithstanding Sections 5(b)(i) or Section 6(e), with respect to Awards to Executive Officers:

(A) vesting, settlement, or lapse of forfeiture restrictions that is solely based on continued employment, service or the passage of time shall occur (A) with respect to no more than one-third of the shares subject to such Award per year and (B) over not less than

3

four years from the date of grant with respect to the full number of shares subject to such Award; and

(B) vesting, settlement, or lapse of forfeiture restrictions that is based on the achievement of Performance Goals shall occur based on a Performance Period of at least one year;

provided that the foregoing limitations shall not (1) apply to vesting, settlement, or lapse of forfeiture restrictions in connection with the termination of employment or other service of a Participant by the Company or due to the Participant's disability, death or retirement nor (2) preclude the Committee from (x) exercising its discretion to accelerate the vesting of any Award upon a Transaction as contemplated by Section 5(b)(viii), (y) establishing a shorter vesting schedule for consultants or newly-hired employees, or (z) establishing a shorter schedule for vesting, settlement, or lapse of forfeiture restrictions on Awards that are granted in exchange for or in lieu of the right to receive the payment of an equivalent amount of salary, bonus or other compensation.

(v) *Payment of Exercise Price.* The Committee shall determine the form of consideration and manner of payment of the exercise price, if any, of any Award. Without limiting the foregoing, the Committee may, subject to applicable law, permit such payment to be made in whole or in part in cash or by surrender of shares of Common Stock (which may be shares retained from the respective Award or any other Award) valued at their Fair Market Value on the date of surrender, or such other lawful consideration, including a payment commitment of a financial or brokerage institution, as the Committee may determine. The Company may accept, in lieu of actual delivery of stock certificates, an attestation by the Participant in form acceptable to the Committee that he or she owns of record the shares to be tendered free and clear of claims and other encumbrances.

(vi) *Dividends.* In the discretion of the Committee, any Award may provide the Participant with dividends or dividend equivalents payable (in cash, in shares of Common Stock, or in the form of Awards under the Plan) currently or deferred and with or without interest; provided that any dividend paid or issued with respect to any portion of an Award of Restricted Stock and any dividend equivalent paid or issued with respect to any portion of any other Award shall be subject to the same restrictions (including risk of forfeiture) as such Restricted Stock or other Award, respectively, until the end of the respective Restricted Period or such portion has otherwise vested.

(vii) *Termination and Forfeiture.* The terms of any Award may include such continuing provisions for termination of the Award and/or forfeiture or recapture of any shares, cash or other property previously issued pursuant thereto relating to competition or other activity or circumstances detrimental to the Company as the Committee may determine to be in the Company's best interests. Without limiting the foregoing, the terms of any Award shall be subject to, and shall be deemed automatically amended to incorporate, any "clawback," "recapture," or similar policy adopted by the Company and in effect before or after the grant of such Award.

4

(viii) *Certain Extraordinary Transactions.* The Committee may in its discretion provide, at the time of grant or at any time thereafter, that in the case of any recapitalization, stock acquisition, merger, consolidation or other form of corporate transaction in which a company other than the Company is the surviving, continuing, successor or purchasing entity (a "Transaction"), the surviving, continuing, successor or purchasing entity or a parent or subsidiary of such entity may, without the consent of the Participant, assume the Company's rights and obligations under any Award or portion thereof

outstanding immediately before the Transaction or substitute for any such outstanding Award or portion thereof a substantially equivalent award with respect to such entity's own stock or other property or cash, in either case with equitable adjustments in the number and type of shares or other assets subject to the Awards and the exercise, purchase or conversion price with respect to any Award, in light of the consideration received by the Company's stockholders in the Transaction. Any such Award that is not so assumed or substituted for shall terminate upon the consummation of such Transaction on such terms, if any, as the Committee shall provide. Notwithstanding the foregoing, if the stockholders of the Company receive consideration that is all or predominantly cash in exchange for their shares of common Stock in a Transaction, then, in order to preserve the Participants' rights under outstanding Awards, the Committee shall, without the need for consent of any Participant, either (A) cause any unexercisable or unvested portion of an Award outstanding immediately before the Transaction to become fully exercisable and vested prior to such Transaction (but effective only on consummation of the Transaction), and any Options and Stock Appreciation Rights that have not been exercised as of the consummation of the Transaction shall thereupon terminate or (B) provide for payment to the Participant of cash, stock of another entity party to the Transaction, or other property with a Fair Market Value equal to the amount, if any, that would have been received upon the vesting, exercise, settlement, or transferability of the Award had any unexercisable or unvested portion of the Award become fully exercisable and vested and the Award been exercised or paid in connection with the Transaction, reduced (but not below zero) by the exercise or purchase price per share, if any, under such Award, whereupon the Award shall terminate. If any portion of such consideration may be received by Company's stockholders in the Transaction on a contingent or delayed basis, the Committee may, in its sole discretion, determine such Fair Market Value per share as of the time of the Transaction on the basis of the Committee's good faith estimate of the present value of the probable amount of future payment of such consideration.

In the event of a recapitalization, stock acquisition, merger, consolidation or other form of corporate transaction in which the Company is the surviving, continuing, successor or purchasing entity, the Committee may make equitable adjustments to outstanding Awards pursuant to Section 4(b).

(ix) *Documentation.* Each Award under the Plan shall be evidenced by documentation in the form prescribed from time to time by the Committee and delivered to or executed and delivered by the Participant specifying the terms and conditions of the Award and containing such other terms and conditions not inconsistent with the provisions hereof as the Committee considers necessary or advisable to achieve the purposes of the Plan or to comply

5

with applicable law and accounting principles. Any such documentation may be maintained solely in electronic format.

(x) *In General.* Any Award may be made alone, in addition to, or in relation to any other Award. The terms of Awards of each type need not be identical, and the Committee need not treat Participants uniformly. No Award shall be transferable except upon such terms and conditions and to such extent as the Committee determines, provided that no Award shall be transferable for value and Incentive Stock Options may be transferable only to the extent permitted by the Code. No Award to any Participant subject to United States income taxation shall provide for the deferral of compensation that does not comply with Section 409A of the Code. The achievement or satisfaction of any Performance Goals, restrictions or other conditions to vesting, exercise, settlement, or transferability of an Award shall be determined by the Committee.

(c) *Limit on Individual Grants.* The maximum number of shares of Common Stock subject to Options, Stock Appreciation Rights and other Awards intended to satisfy the requirements for "performance-based compensation" within the meaning of Section 162(m) of the Code that may be granted to a Participant in any fiscal year may not exceed 1,250,000 shares, subject to adjustment under subsection 4(b). In the case of any performance-based Awards settled in cash, no more than \$1,000,000 may be paid to any Participant with respect to any one year of a Performance Period.

6. *General Provisions.*

(a) *Tax Withholding.* A Participant shall pay to the Company, or make provision satisfactory to the Committee for payment of, any taxes required by law to be withheld in respect of Awards under the Plan no later than the date of the event creating the tax liability. The Company and its Affiliates may, to the extent permitted by law, deduct any such tax obligations from any payment of any kind due to the Participant under the Plan or otherwise. In the Committee's discretion, the minimum tax obligations required by law to be withheld in respect of Awards may be paid in whole or in part in shares of Common Stock, including shares retained from the Award creating the tax obligation, valued at their Fair Market Value on the date of retention or delivery.

(b) *Legal Compliance.* The Company shall not be required to issue any shares of Common Stock or take any other action pursuant to the Plan unless the Company is satisfied that all requirements of law, or of any stock exchange on which the Common Stock is then listed, in connection therewith have been or will be complied with, and the Committee may impose any restrictions on the rights of Participants hereunder as it shall deem necessary or advisable to comply with any such requirements.

(c) *Foreign Nationals.* Awards may be made to Participants who are foreign nationals or employed outside the United States on such terms and conditions different from those specified herein as the Committee considers necessary or advisable to achieve the purposes of the Plan or to comply with applicable laws.

6

(d) *Awards Not Includable for Benefit Purposes.* Awards and other payments received by a Participant pursuant to the provisions of the Plan shall not be included in the determination of benefits under any pension, group insurance or other benefit plan applicable to the Participant which is maintained by the Company or any of its Affiliates, except as may be provided under the terms of such plans or determined by the Board.

(e) *Amendment, Exchange and Repurchase of Awards.*

(i) Subject to clauses (ii) and (iii) below, the Committee may amend, modify or terminate any outstanding Award, including without limitation changing the dates of vesting, exercise or settlement, causing the Award to be assumed by another entity, and substituting therefor another Award of the same or a different type, provided that the Participant's consent to such action shall be required unless the terms of this Plan or the Award permit such action, the Committee determines that such action is required by law or stock exchange rule, or the Committee determines that the action, taking into account any related action, would not materially and adversely affect the Participant.

(ii) Notwithstanding the attainment of Performance Goals in the case of any Award intended to satisfy the requirements for “performance-based compensation” within the meaning of Section 162(m) of the Code, the Committee may reduce (but not increase) the amount payable at a given level of performance to take into account additional factors that the Committee may deem relevant.

(iii) The foregoing notwithstanding, without further approval of the stockholders of the Company, (A) the Committee shall not authorize the amendment of any outstanding Option or Stock Appreciation Right to reduce the exercise price, (B) no Option or Stock Appreciation Right shall be canceled and replaced with an Award exercisable for Common Stock at a lower exercise price and (C) no Award shall be canceled in exchange for a cash payment from the Company to the Award owner, except under the limited circumstances described above in Section 5(b)(viii) relating to Transactions.

7. *Certain Definitions.* As used in this Plan:

“Affiliate” means any business entity in which the Company owns directly or indirectly 50% or more of the total voting power or has a significant financial interest as determined by the Committee.

“Award” means any award of shares of Common Stock or right with respect to shares described in Section 5(a).

“Board” means the Board of Directors of the Company.

“Code” means the Internal Revenue Code of 1986, as amended from time to time, or any successor law.

7

“Committee” means one or more committees appointed by the Board to administer the Plan or a specified portion thereof. Each such committee shall be comprised of not less than two members of the Board who shall meet such criteria as the Board may specify from time to time.

“Common Stock” means the Common Stock, \$0.001 par value, of the Company.

“Company” means Axcelis Technologies, Inc., a Delaware corporation.

“Covered Employee” means a “covered employee” within the meaning of Section 162(m) of the Code.

“Date of Grant” means the date on which all requirements under applicable law and the Company’s certificate of incorporation and bylaws for the effective grant of an Award have been satisfied.

“Designated Beneficiary” means the beneficiary designated by a Participant, in a manner determined by the Committee, to receive amounts due or exercise rights of the Participant in the event of the Participant’s death. In the absence of an effective designation by a Participant, “Designated Beneficiary” means the Participant’s legal representative.

“Effective Date,” from time to time, means the most recent date that the Plan was adopted or, if earlier, that it was approved by the stockholders (including approval of the Plan as amended), as such terms are used in the regulations under Section 422 of the Code.

“Exchange Act” means the Securities Exchange Act of 1934, as amended from time to time, or any successor law.

“Executive Officer” has the meaning given in Rule 3b-7 under the Exchange Act, or any successor provision.

“Fair Market Value” with respect to the Common Stock or other property means the fair market value thereof determined by such methods as shall be established by the Committee from time to time. Unless otherwise determined by the Committee in good faith, the per share Fair Market Value of the Common Stock as of any date shall mean (a) if the Common Stock is then listed or admitted to trading on a national securities exchange, (i) the last reported sale price on such date on the principal national securities exchange on which the Common Stock is then listed or admitted to trading, (ii) if no such reported sale took place on such date, the average of the closing bid and asked prices on such exchange on such date, or (iii) if neither (i) nor (ii) applies, the last reported sale price on the next preceding date on which trading took place, or (b) if the Common Stock is then traded in the over-the-counter market, the average of the closing bid and asked prices on such date, as reported by The Wall Street Journal or other appropriate publication selected by the Committee, for the over-the-counter market.

“Incentive Stock Option” means an Option complying with the requirements of Section 422 of the Code or any successor provision and any regulations thereunder.

8

“Option” means a right to purchase shares of Common Stock and may be an Incentive Stock Option if specified by the Committee.

“Participant” means a person selected by the Committee to receive an Award under the Plan.

“Performance Goals” means, in the case of Awards intended to satisfy the requirements for “performance-based compensation” within the meaning of Section 162(m) of the Code, one or more objective performance goals established by the Committee, based on one or more of the following criteria: revenue; revenue growth; sales; expenses; margins; net income; earnings or earnings per share; cash flow; stock price; shareholder return; return on investment; return on invested capital, assets, or equity; profit before or after tax; operating profit; operating margin; return on research and development investment; market capitalization; quality improvements; market share; cycle time reductions; customer satisfaction measures; strategic positioning or marketing programs; market penetration or expansion; business / information systems improvements; expense management; infrastructure support programs; human resource programs; customer programs; technology development programs; goals relating to acquisitions or divestitures, or any combination of the foregoing, including without limitation goals based on any of such measures relative to peer groups or market indices, and may be particular to a Participant

or may be based, in whole or in part, on the performance of the division, department, line of business, subsidiary, or other business unit, whether or not legally constituted, in which the Participant works or on the performance of the Company generally.

“Performance Period” means any period of service of at least one year designated by the Committee as applicable to an Award intended to satisfy the requirements for “performance-based compensation.”

“Reporting Person” means a person subject to Section 16 of the Exchange Act.

“Restricted Period” means any period during which an Award or any part thereof may be forfeited to the Company.

“Restricted Stock” means shares of Common Stock that are subject to forfeiture to the Company.

“Restricted Stock Unit” means the right, subject to forfeiture, to receive the value of a share of Common Stock in the future, payable in the form of cash, Common Stock or other securities of the Company, Awards or other property, and is an unfunded and unsecured obligation of the Company.

“Stock Appreciation Right” means the right to receive any excess in value of shares of Common Stock over the exercise price of such right.

“Stock Equivalent” means the right to receive payment from the Company based in whole or in part on the value of the Common Stock, payable in the form of cash, Common Stock

or other securities of the Company, Awards or other property, and may include without limitation phantom stock, performance units, and Stock Appreciation Rights.

“Termination of employment or other service of a Participant” means the voluntary or involuntary termination of a Participant’s employment with the Company or an Affiliate for any reason, including death, disability, retirement or as the result of the divestiture of the Participant’s employer or any similar transaction in which the Participant’s employer ceases to be the Company or one of its Affiliates. Whether entering military or other government service shall constitute “termination of employment or other service,” or whether a “termination of employment or other service” shall occur as a result of disability, shall be determined in each case by the Committee in its sole discretion before or after the grant of the respective Award. In the case of a member of the Board or consultant who is not an employee of the Company or an Affiliate, “termination of employment or other service” shall mean the voluntary or involuntary termination of Board service or the consulting relationship, as the case may be, for any reason.

“Transferable for value” means a transfer on terms that would prevent the Company from relying on Securities and Exchange Commission Form S-8 (or any successor form) with respect to the issuance of the Common Stock underlying the respective Award.

8. *Miscellaneous.*

(a) *No Rights with Respect to Service.* No person shall have any claim or right hereunder to be granted an Award. Neither the adoption, maintenance, or operation of the Plan nor any Award hereunder shall confer upon any person any right with respect to the continuance of his or her employment by or other service with the Company or any Affiliate nor shall they interfere with the rights of the Company or any Affiliate to terminate or otherwise change the terms of such service at any time, including, without limitation, the right to promote, demote or otherwise re-assign any person from one position to another within the Company or any Affiliate. Unless the Committee otherwise provides in any case, the service of a Participant with an Affiliate shall be deemed to terminate for purposes of the Plan when such Affiliate ceases to be an Affiliate of the Company.

(b) *No Rights as Stockholder.* Subject to the provisions of the applicable Award, no Participant or Designated Beneficiary shall have any rights as a stockholder with respect to any shares of Common Stock to be issued under the Plan until he or she becomes the holder thereof. A Participant to whom Common Stock is awarded will be considered the holder of such Common Stock at the time of the Award, except as otherwise provided in the applicable Award.

(c) *Amendment of Plan.* The Board may amend, suspend or terminate the Plan or any portion thereof at any time, subject to such stockholder approval as the Board determines to be necessary or advisable to comply with any tax or regulatory requirement.

Axcelis Technologies, Inc.
Named Executive Officer Base Compensation at March 11, 2015

This Exhibit discloses the current understandings with respect to base compensation between Axcelis Technologies, Inc. (the “Company”) and each of:

- the Company’s principal executive officer (Mary G. Puma),
- the Company’s principal financial officer (Kevin J. Brewer), and
- the three most highly compensated other executive officers serving as executive officers at December 31, 2014.

These executive officers are referred to herein as “named executive officers” or “NEOs.”

Mary G. Puma and the Company have entered into a written agreement addressing a minimum level of base salary due to the executive. The Company’s Amended and Restated Employment Agreement with Ms. Puma (“Puma Employment Agreement”) is listed as an Exhibit to this Form 10-K. Each of the other NEOs and the Company have entered into an Executive Separation Pay Agreement dated as of March 5, 2015 in which a termination without cause will entitle the executive to year of separation pay. The form of Executive Separation Pay Agreement is listed as an Exhibit to this Form 10-K.

The Company maintains that all executive officers, other than Ms. Puma, are employees at will and that the Company has no obligation to continue their employment, other in cases where such obligation arises under the Change of Control Agreements described in our Proxy Statement and filed as an Exhibit to this Form 10-K.

Rate of Base Pay

In the course of the employment relationship with each NEO, the Company communicates to the named executive officer the amount of base salary approved by the Compensation Committee of the Board of Directors, which compensation is subject to change in the discretion of the Compensation Committee of the Board of Directors (provided Ms. Puma’s employment agreement sets a minimum base pay amount). The following table sets forth the annual base salary as communicated to the named executive officers of the Company as in effect on March 11, 2015:

Named Executive Officer	Title	Rate of Annual Base Pay
Mary G. Puma	President and Chief Executive Officer	\$ 550,000
Kevin J. Brewer	Executive VP and Chief Financial Officer	\$ 350,000
William Bintz	Executive VP, Engineering and Marketing	\$ 330,000
John E. Aldeborgh	Executive VP, Global Customer Operations	\$ 330,000
Lynnette C. Fallon	Executive VP HR/Legal and General Counsel	\$ 320,000

Axcelis Technologies, Inc.
Non-Employee Director Cash Compensation at March 11, 2015

This Exhibit discloses the current understandings with respect to cash compensation between Axcelis Technologies, Inc. (the “Company”) and each of its non-employee directors. Axcelis provides both cash retainers and meeting fees to its non-employee directors, as follows:

Annual Retainers (paid quarterly in advance)

Board Member Position	Amount
Lead Director	\$ 50,000
Non-Employee Board Member (not Lead Director)	\$ 30,000
Audit Committee Chair*	\$ 15,000
Compensation Committee Chair*	\$ 10,000
Nominating Committee Chair*	\$ 7,500

* Retainers for Committee Chairs are in addition to the retainer payable to all non-employee Board members.

To the extent that other committees are formed by the Board, similar retainers may be approved for the committee chairmen.

Meeting Fees (payable quarterly in arrears)

Meeting Type	Amount
In Person Board Meetings	\$ 2,000
Telephone Board Meetings	\$ 1,000
In Person or Telephone Committee Meetings**	\$ 1,000

** Committee meeting fees are paid only to committee members, and not to other Board members, attending committee meetings.

Non-employee directors also receive reimbursement of out-of-pocket expenses incurred in attending Board and committee meetings. Non-employee directors do not receive any Company-paid perquisites

AXCELIS TECHNOLOGIES, INC.

EXECUTIVE SEPARATION PAY AGREEMENT

THIS EXECUTIVE SEPARATION PAY AGREEMENT, dated as of _____, 2015, is made by and between Axcelis Technologies, Inc. (the "Company") and _____ (the "Executive").

WHEREAS, the Company wishes to continue to retain the services of the Executive; and

WHEREAS, the Executive and the Company seek to confirm the arrangements in the event that the Executive's employment by the Company should terminate; and

NOW THEREFORE, in consideration of the mutual covenants contained herein, the parties agree as follows:

1. **Defined Terms.** Certain capitalized terms used herein are defined on Schedule 1 hereto.

2. **At Will Employment.** The Executive's employment with the Company shall be on an at-will basis, which means that either the Executive or the Company may terminate the employment relationship at any time and for any or no reason. The Executive shall not be eligible to receive the severance payments and benefits described in this Agreement in the event that (i) the Executive's employment is terminated by the Company for Cause or due to Executive's death or Disability, or (ii) the Executive resigns from employment, regardless of the reason(s) for such resignation.

3. **Qualified Termination.** Subject to the Executive's delivery of a Release as described below, if the Executive is discharged by the Company other than for Cause or Disability, then, the Company will provide the Executive with the payments and benefits described in this Agreement. Such types of termination of employment are referred to herein as a "Qualified Termination."

4. **Separation Payment.** In the event of a Qualified Termination, in addition to payment of Amounts Due, the Company shall make 26 bi-weekly payments to the Executive in an amount equal to Executive's bi-weekly base pay at termination in effect on the date of Employee's separation from service with the Company (the "Date of Termination"). Such payments shall commence on the first regular bi-weekly payroll after Date of Termination (assuming Employee has delivered the Release described in Section 7) and shall end on the 26th bi-weekly payment, for a total of 12 months of base pay. Such payment shall be subject to all applicable deductions (legally required payroll tax deductions and any additional elective deductions by the Employee).

5. **COBRA Payments.** In the event of a Qualified Termination, if Executive elects to continue health coverage under the Company's health plan in accordance with the continuation requirements of COBRA, the Company will pay for the cost of such coverage until the earlier of (i) the date Executive begins full-time employment or full-time self-employment; or (ii) the first month beginning after the date twelve (12) months after the Date of Termination.

6. **Transition Assistance.** In the event of a Qualified Termination, the Company will provide transition assistance to the Executive receiving a wage of \$15,000 until the date six (6) months after the Date of Termination (the "Transition Period"), the following provisions will apply. The Company will work with the Executive to provide assistance that meets the needs of the Executive, and will offer support in accordance with the Company's practices for executive terminations generally.

7. **Agreement to Provide Release.** The Company's obligations to provide the separation payment and benefits set forth in this Agreement are subject to the Executive's execution, and delivery to the Company of a Release of Claims in the Company's standard form (the "Release"), a copy of which is available to the Executive on request and such Release, once executed and delivered to the Company, becoming irrevocable and final under applicable law.

8. **Section 409A.** Notwithstanding anything to the contrary in this Agreement, if the Executive is a "specified employee" within the meaning of Section 409A of the Internal Revenue Code of 1986, as amended (the "Code") and the final regulations and any guidance promulgated thereunder ("Section 409A") at the time of Executive's separation from service, and the severance payments and separation benefits payable to Executive, if any, pursuant to this Agreement is considered "nonqualified deferred compensation" as defined pursuant to Section 409A, such payments and benefits shall be made to Executive with the first payroll that is six months and one day following the Executive's Date of Termination.

9. **Change of Control Agreements.** In the event of a termination of Executive's employment following a Change of Control (as defined in the Change of Control Agreement between the Executive and the Company), the Executive shall be entitled to receive the greater of the amounts and benefits under this Agreement or the Change of Control Agreement but the Executive shall not receive the aggregate of the amounts and benefits under both such agreements. If the Executive is entitled to receive amounts and benefits under both the Change of Control Agreement and this Agreement, the amount and benefits payable, if any, under the Change of Control Agreement shall be deemed to have been paid first (once

actually paid) and, if the amounts and benefits due under this Agreement are greater than those actually paid under the Change of Control Agreement, such excess shall be paid under this Agreement.

10. **Miscellaneous.**

10.1 **Expiration.** This Agreement shall expire and be of no force and effect on the date five (5) years after the date first set forth above, unless extended by a writing executed by the Company and the Executive.

10.2 Non-Disclosure of Agreement. Executive understands that the Company wishes to maintain the confidentiality of the contents of this Agreement. Executive agrees to limit discussion of this Agreement and its terms to Executive's immediate family and professional advisors. Failure to comply with this commitment is grounds for the Company to deny payment hereunder.

10.3 Binding Effect. This Agreement shall be binding upon and inure to the benefit of the heirs and representatives of the Executive and the successors and assigns of the Company. This Agreement shall be binding upon any successor of the Company in accordance with the operation of law and such successor shall be deemed the "Company" for purposes of this Agreement.

10.4 Notices. All notices, requests, demands and other communications hereunder shall be in writing and shall be (1) delivered in hand, (2) mailed by United States registered or certified first class mail, postage prepaid, (3) sent by overnight courier, or (4) sent by email, telecopy, facsimile and confirmed by delivery via courier or postal service, addressed as follows:

to the Company, to:

Axcelis Technologies, Inc.
108 Cherry Hill Drive
Beverly, Massachusetts 01915
Attention: Chief Executive Officer

to the Executive, care of the Company at the address set forth above or at Executive's usual address of employment at the Company.

Addresses may be changed by written notice sent to the other party at the last recorded address of that party. Any such notice shall be deemed to have been duly given or made and to have become effective (i) if delivered by hand, overnight courier, email or facsimile to the party to which it is directed, at the time of the receipt thereof by such party and (ii) if sent by registered or certified first-class mail, postage prepaid, on the third business day following the mailing thereof.

10.5 No Assignment. This Agreement is not assignable by the Executive and no payment to be made hereunder shall be subject to anticipation, alienation, sale, transfer, assignment, pledge, encumbrance or other charge. The Company may assign its rights, subject to its obligations hereunder, to a successor to the business of the Company, subject to Section 10.3.

10.6 Execution in Counterparts. This Agreement may be executed by the parties hereto in two or more counterparts, each of which shall be deemed to be an original, but all such counterparts

shall constitute one and the same instrument, and all signatures need not appear on any one counterpart.

10.7 Jurisdiction and Governing Law. Jurisdiction over disputes with regard to this Agreement shall be exclusively in the courts of the Commonwealth of Massachusetts, and this Agreement shall be construed and interpreted in accordance with and governed by the local laws of the Commonwealth of Massachusetts, other than the conflict of laws provisions of such laws.

10.8 Severability. If any provision of this Agreement shall be adjudged by any court of competent jurisdiction to be invalid or unenforceable for any reason, such judgment shall not affect, impair or invalidate the remainder of this Agreement.

10.9 Prior Understandings. This Agreement embodies the entire understanding of the parties hereto, and supersedes all other oral or written agreements or understandings between them regarding the subject matter hereof (provided this Agreement is not intended to supersede the provisions of the Company's 401(k) plan, Employee Stock Purchase Plan, 2000 Stock Plan, 2012 Equity Incentive Plan and other qualified and nonqualified plans of the Company, or the Change of Control Agreement and the Indemnification Agreement, each between the Executive and the Company). Nothing in this Agreement is intended as and shall not be read as a modification of the Indemnification Agreement or the Change of Control Agreement and each of the Indemnification Agreement and Change of Control Agreement shall be and remain in full force and effect in accordance with its terms.

10.10 Headings The headings in this Agreement are for convenience of reference only and shall not be construed as part of this Agreement or to limit or otherwise affect the meaning hereof.

10.11 Amendments. This Agreement may not be altered, amended or modified, except by a further written document signed by the Executive and the Company.

10.12 Limitations on Recovery. In the event that the Executive institutes legal proceedings to enforce this Agreement, the Executive agrees that the sole remedy available shall be enforcement of the terms of this Agreement and/or a claim for damages resulting from the breach of this Agreement, but that under no circumstances shall the Executive be entitled to receive or collect any damages for claims that Executive has released under the Release.

IN WITNESS WHEREOF, the undersigned have executed this Agreement as of the date first set forth above.

AXCELIS TECHNOLOGIES, INC.

By: _____
Title: EVP HR/Legal and General Counsel

**Definitions for Axcelis Technologies, Inc.
Executive Separation Agreement**

For purposes of this Agreement, the following capitalized terms shall have the meanings set forth below:

“**Amounts Due**” shall mean, as of the Date of Termination, the sum of (A) the Executive’s base salary through the Date of Termination to the extent not theretofore paid, (B) the amount of any bonus, incentive compensation, deferred compensation and other cash compensation earned by the Executive as of the Date of Termination to the extent not theretofore paid and (C) any vacation pay, expense reimbursements and other cash entitlements accrued by the Executive as of the Date of Termination to the extent not theretofore paid.

“**Cause**” shall mean (A) the willful and continued failure of the Executive to substantially perform the Executive’s duties with the Company or one of its affiliates (other than any such failure resulting from Disability), after a written demand for substantial performance is delivered to the Executive by the Chief Executive Officer of the Company which specifically identifies the manner in which the Chief Executive Officer believes that the Executive has not substantially performed the Executive’s duties, or (B) the willful engaging by the Executive in illegal conduct or gross misconduct which is injurious to the Company. For purposes of this provision, no act or failure to act on the part of the Executive shall be considered “willful” unless it is done, or omitted to be done, by the Executive in bad faith or without reasonable belief that the Executive’s action or omission was in the best interests of the Company. Any act or failure to act based upon authority given pursuant to a resolution duly adopted by the Board of Directors of the Company or upon the instructions of the Chief Executive Officer or based on the advice of a senior officer of the Company or counsel for the Company shall be conclusively presumed to be done, or omitted to be done, by the Executive in good faith and in the best interests of the Company.

“**Disability**” shall mean (1) the absence of the Executive from the Executive’s duties with the Company on a full-time basis for 180 consecutive business days as a result of incapacity due to mental or physical illness or injury, as determined in good faith by the Company or (2) the acknowledgment by the Executive or Executive’s legal representative, that Executive is unable to continue to provide services to the Company as a result of an incapacity.

**SECOND AMENDMENT
TO
LOAN AND SECURITY AGREEMENT**

This Second Amendment to Loan and Security Agreement (this "Amendment") is entered into as of February 2, 2015, by and between **SILICON VALLEY BANK**, a California corporation, with its principal place of business at 3003 Tasman Drive, Santa Clara, California 95054 and with a loan production office located at 275 Grove Street, Suite 2-200, Newton, Massachusetts 02466 ("**Bank**"), and **AXCELIS TECHNOLOGIES, INC.**, a Delaware corporation with offices located at 108 Cherry Hill Drive, Beverly, Massachusetts 01915 ("**Borrower**").

RECITALS

- A.** Bank and Borrower have entered into that certain Loan and Security Agreement dated as of October 31, 2013, as amended by that certain Waiver and First Loan Modification Agreement dated as of August 1, 2014, between Borrower and Bank (as the same may from time to time be further amended, modified, supplemented or restated, the "**Loan Agreement**").
- B.** Bank has extended credit to Borrower for the purposes permitted in the Loan Agreement.
- C.** Borrower has requested that Bank amend the Loan Agreement to revise the Minimum Adjusted Net Income covenant in Section 6.9(b).
- D.** Bank has agreed to so amend certain provisions of the Loan Agreement, but only to the extent, in accordance with the terms, subject to the conditions and in reliance upon the representations and warranties set forth below.

AGREEMENT

NOW, THEREFORE, in consideration of the foregoing recitals and other good and valuable consideration, the receipt and adequacy of which is hereby acknowledged, and intending to be legally bound, the parties hereto agree as follows:

1. Definitions. Capitalized terms used but not defined in this Amendment shall have the meanings given to them in the Loan Agreement.

2. Amendment to Loan Agreement.

2.1 Section 6.9(b) (Minimum Adjusted Net Income). Section 6.9(b) is amended in its entirety and replaced with the following:

"(b) Minimum Adjusted Net Income. Borrower and its Subsidiaries, on a consolidated basis, shall achieve Adjusted Net Income of at least (i) (\$1,500,000) for the trailing three (3) month period ending on the last day of the fiscal quarter ending September 30, 2013; (ii) \$1.00 for the trailing three (3) month period ending on the last day of the fiscal quarter ending December 31, 2013; (iii) \$2,500,000 for the trailing six

1

month period ending on the last day of the fiscal quarters ending March 31, 2014 and June 30, 2014, (iv) (\$3,000,000) for the trailing three month period ending on the last day of the fiscal quarter ending September 30, 2014, (v) \$1,000,000 for the trailing six month period ending on the last day of the fiscal quarter ending March 31, 2015, and (vi) \$1,000,000 for the trailing six month period ending on (A) the last day of the fiscal quarter ending June 30, 2015, and (B) the last day of each fiscal quarter thereafter."

3. Limitation of Amendments.

3.1 The amendments set forth in **Section 2**, above, are effective for the purposes set forth herein and shall be limited precisely as written and shall not be deemed to (a) be a consent to any amendment, waiver or modification of any other term or condition of any Loan Document, or (b) otherwise prejudice any right or remedy which Bank may now have or may have in the future under or in connection with any Loan Document.

3.2 This Amendment shall be construed in connection with and as part of the Loan Documents and all terms, conditions, representations, warranties, covenants and agreements set forth in the Loan Documents, except as herein amended, are hereby ratified and confirmed and shall remain in full force and effect.

4. Representations and Warranties. To induce Bank to enter into this Amendment, Borrower hereby represents and warrants to Bank as follows:

4.1 Immediately after giving effect to this Amendment (a) the representations and warranties contained in the Loan Documents are true, accurate and complete in all material respects as of the date hereof (except to the extent such representations and warranties relate to an earlier date, in which case they are true and correct as of such date), and (b) no Event of Default has occurred and is continuing;

4.2 Borrower has the power and authority to execute and deliver this Amendment and to perform its obligations under the Loan Agreement, as amended by this Amendment;

4.3 Other than amendments to the Borrower's Bylaws effective May 13, 2014, the organizational documents of Borrower delivered to Bank on the Effective Date remain true, accurate and complete and have not been amended, supplemented or restated and are and continue to be in full force and effect;

4.4 The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, have been duly authorized;

4.5 The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, do not and will not contravene (a) any law or regulation binding on or affecting Borrower, (b) any contractual restriction with a Person binding on Borrower, (c) any order, judgment or decree of any court or other governmental or public body or authority, or subdivision thereof, binding on Borrower, or (d) the organizational documents of Borrower;

2

4.6 The execution and delivery by Borrower of this Amendment and the performance by Borrower of its obligations under the Loan Agreement, as amended by this Amendment, do not require any order, consent, approval, license, authorization or validation of, or filing, recording or registration with, or exemption by any governmental or public body or authority, or subdivision thereof, binding on either Borrower, except as already has been obtained or made; and

4.7 This Amendment has been duly executed and delivered by Borrower and is the binding obligation of Borrower, enforceable against Borrower in accordance with its terms, except as such enforceability may be limited by bankruptcy, insolvency, reorganization, liquidation, moratorium or other similar laws of general application and equitable principles relating to or affecting creditors' rights.

5. Ratification of Intellectual Property Security Agreement. Borrower hereby ratifies, confirms and reaffirms, all and singular, the terms and conditions of a certain Intellectual Property Security Agreement dated as of October 31, 2013 between Borrower and Bank, and acknowledges, confirms and agrees that said Intellectual Property Security Agreement (a) contains an accurate and complete listing of all Intellectual Property Collateral, as defined in said Intellectual Property Security Agreement, subject to such changes as have been previously reported to the Bank through December 31, 2014 and (b) shall remain in full force and effect.

6. Ratification of Perfection Certificate. Borrower hereby ratifies, confirms and reaffirms, all and singular, the terms and disclosures contained in a certain Perfection Certificate dated as of October 31, 2013 delivered by Borrower to Bank, subject to such changes as have been previously reported to the Bank through the date hereof and acknowledges, confirms and agrees the disclosures and information above Borrower provided to Bank in said Perfection Certificate and otherwise have not changed, as of the date hereof.

7. No Defenses of Borrower. Borrower hereby acknowledges and agrees that Borrower has no offsets, defenses, claims, or counterclaims against Bank with respect to the Obligations, or otherwise, and that if Borrower now has, or ever did have, any offsets, defenses, claims, or counterclaims against Bank, whether known or unknown, at law or in equity, all of them are hereby expressly WAIVED and Borrower hereby RELEASES Bank from any liability thereunder.

8. Integration. This Amendment and the Loan Documents represent the entire agreement about this subject matter and supersede prior negotiations or agreements. All prior agreements, understandings, representations, warranties, and negotiations between the parties about the subject matter of this Amendment and the Loan Documents merge into this Amendment and the Loan Documents.

9. Counterparts. This Amendment may be executed in any number of counterparts and all of such counterparts taken together shall be deemed to constitute one and the same instrument.

10. Effectiveness. This Amendment shall be deemed effective as of February 2, 2015 upon (a) the due execution and delivery to Bank of this Amendment by each party hereto,

3

(b) Borrower's payment of (i) an amendment fee in an amount equal to \$5,000, and (ii) Bank's legal fees and expenses incurred in connection with this Amendment.

[Signature page follows.]

4

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be duly executed and delivered as of the date first written above.

BANK

BORROWER

SILICON VALLEY BANK

AXCELIS TECHNOLOGIES, INC.

By: /s/ Michael Shuhy
Name: Michael Shuhy
Title: Director

By: Kevin J. Brewer
Name: Kevin J. Brewer
Title: EVP and CFO

5

IN WITNESS WHEREOF, the following Guarantor hereby consents to the foregoing Amendment and agrees that the Guaranty relating to the Obligations of Borrower under the Loan Agreement dated as of October 31, 2013 shall continue in full force and effect, shall be valid and enforceable and shall not be

Guarantor

AXCELIS TECHNOLOGIES (ISRAEL), INC.

By: /s/ Kevin J. Brewer
Name: Kevin J. Brewer
Title: EVP and CFO



A Member of SVB Financial Group

PRO FORMA INVOICE FOR LOAN CHARGES

BORROWER: AXCELIS TECHNOLOGIES, INC.

LOAN OFFICER: Michael Quinn

DATE: February 3, 2015

Amendment Fee	\$	5,000
<u>TOTAL FEES DUE</u>	<u>\$</u>	<u>5,000</u>

{ } A check for the total amount is attached.

{ } Debit DDA # for the total amount.

BORROWER:

Authorized Signer (Date)

SILICON VALLEY BANK

Loan Officer Signature (Date)

LEASE AGREEMENTmade as of the 30th day of January, 2015

by and between

BEVERLY PROPERTY OWNER LLC
as Landlord,

and

AXCELIS TECHNOLOGIES, INC.
as Tenant**TABLE OF CONTENTS**

	<u>Page</u>
1. Certain Definitions	1
2. Demise of Premises	1
3. Title and Condition	1
4. Use of Leased Premises; Quiet Enjoyment	3
5. Term	3
6. Rent and Security Deposit	4
7. Net Lease; Non-Terminability	6
8. Payment of Impositions; Compliance with Legal Requirements and Insurance Requirements	7
9. Liens; Recording and Title	8
10. Indemnification	9
11. Maintenance and Repair	11
12. Alterations	12
13. Condemnation	13
14. Insurance	14
15. Restoration	18
16. Subordination to Financing	19
17. Assignment, Subleasing	20
18. Permitted Contests	22
19. Conditional Limitations; Default Provisions	23
20. Additional Rights of Landlord and Tenant	25
21. Notices	26
22. Estoppel Certificates	27
23. Surrender and Holding Over	27
24. No Merger of Title	28
25. Definition of Landlord and Tenant	28
26. Hazardous Substances	28
27. Entry by Landlord	30
28. No Usury	30
29. Financial Statements and Additional Financial Covenants	30
30. Special Tax Indemnity	31
31. Withholdings	33
32. [Intentionally Omitted]	33
33. Right of First Offer	33
34. Separability	35
35. Miscellaneous	35
36. Specially Designated Nationals; Blocked Persons; Embargoed Persons	36

Exhibits A - Legal Description of the Land

Exhibits B - Rent Schedule

Exhibit C - Form of Subordination, Non-Disturbance and Attornment Agreement

Exhibit D – Form of Notice of Lease

Exhibit E – Form of Letter of Credit

Exhibit F –Trade Fixtures not Required to be Removed.

Exhibit G – Capital Expenditures Reserve

Appendix A - Definitions

LEASE AGREEMENT

THIS LEASE AGREEMENT (this "Lease") made as of the 30th day of January, 2015, by and between **BEVERLY PROPERTY OWNER LLC**, a Delaware limited liability company, as landlord, having an office at c/o Middleton Partners, 400 Skokie Boulevard, Northbrook, Illinois 60062, and **AXCELIS TECHNOLOGIES, INC.**, a Delaware corporation, having an office at 108 Cherry Hill Drive, Beverly, Massachusetts 01915.

In consideration of the rents and provisions herein stipulated to be paid and performed, Landlord and Tenant, intending to be legally bound, hereby covenant and agree as follows:

1. Certain Definitions. All capitalized terms, unless otherwise defined herein, shall have the respective meanings ascribed to such terms in Appendix A attached hereto and by this reference incorporated herein.
2. Demise of Premises. Landlord hereby demises and lets to Tenant and Tenant hereby takes and leases from Landlord, for the term and upon the provisions hereinafter specified, the Leased Premises.
3. Title and Condition.
 - (a) The Leased Premises are demised and let subject to (i) the Permitted Encumbrances, (ii) all Legal Requirements and Insurance Requirements, including any existing violation of any thereof, and (iii) the condition of the Leased Premises as of the commencement of the Term; without representation or warranty by Landlord; it being understood and agreed, however, that the recital of the Permitted Encumbrances herein shall not be construed as a revival of any thereof which for any reason may have expired.
 - (b) EXCEPT AS SPECIFICALLY SET FORTH IN THIS LEASE, LANDLORD LEASES AND WILL LEASE AND TENANT TAKES AND WILL TAKE THE LEASED PREMISES "AS IS", AND TENANT ACKNOWLEDGES THAT LANDLORD (WHETHER ACTING AS LANDLORD HEREUNDER OR IN ANY OTHER CAPACITY) HAS NOT MADE AND WILL NOT MAKE, NOR SHALL LANDLORD BE DEEMED TO HAVE MADE, ANY WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, WITH RESPECT TO ANY OF THE LEASED PREMISES, INCLUDING ANY WARRANTY OR REPRESENTATION AS TO ITS FITNESS FOR USE OR PURPOSE, DESIGN OR CONDITION FOR ANY PARTICULAR USE OR PURPOSE, AS TO THE QUALITY OF THE MATERIAL OR WORKMANSHIP THEREIN, LATENT OR PATENT, AS TO LANDLORD'S TITLE THERETO, OR AS TO VALUE, COMPLIANCE WITH SPECIFICATIONS, LOCATION, USE, CONDITION, MERCHANTABILITY, QUALITY, DESCRIPTION, DURABILITY OR OPERATION, IT BEING AGREED THAT ALL RISKS INCIDENT THERETO ARE TO BE BORNE BY TENANT. Tenant acknowledges that the Leased Premises are of its selection and to its specifications, and that the Leased Premises have been inspected by Tenant and are satisfactory to Tenant. In the event of any defect or deficiency in any of the Leased Premises of any nature, whether patent or latent, Landlord shall not have any responsibility or liability with respect thereto or for any incidental or consequential damages (including strict liability in tort). The provisions of this Paragraph 3(b) have been negotiated,

A-1

and the foregoing provisions are intended to be a complete exclusion and negation of any warranties by Landlord, express or implied, with respect to any of the Leased Premises, arising pursuant to the UCC or any other Legal Requirements now or hereafter in effect or otherwise.

- (c) Tenant acknowledges and agrees that Tenant has examined the title to the Leased Premises prior to the execution and delivery of this Lease and has found such title to be satisfactory for the purposes contemplated by this Lease.
- (d) Landlord hereby assigns, without recourse or warranty whatsoever, to Tenant, all Guaranties. Such assignment shall remain in effect until the termination of this Lease. Landlord shall also retain the right to enforce any Guaranties assigned in the name of Tenant upon the occurrence and during the continuance of an Event of Default. Landlord hereby agrees to execute and deliver at Tenant's expense such further documents, including powers of attorney, as Tenant may reasonably request in order that Tenant may have the full benefit of the assignment effected or intended to be effected by this Paragraph 3(d). Upon the termination of this Lease, the Guaranties shall automatically revert to Landlord. The foregoing provision of reversion shall be self-operative and no further instrument of reassignment shall be required. In confirmation of such reassignment Tenant shall execute and deliver promptly any certificate or other instrument of assignment which Landlord may reasonably request. Any monies collected by Tenant under any of the Guaranties after the occurrence of and during the continuation of an Event of Default shall be held in trust by Tenant and promptly paid over to Landlord.
- (e) Landlord agrees to enter into, execute, acknowledge and deliver, at Tenant's expense, such Easements as reasonably requested by Tenant (and use commercially reasonable efforts, at Tenant's expense, to obtain non-disturbance agreements respecting such Easements from Lender or other holder of any Mortgage, superior lease or the like respecting the Leased Premises), subject to Lender's and Landlord's approval of the form and substance thereof, not to be unreasonably withheld or delayed; provided, however, that Tenant shall agree to perform Landlord's obligations (if any) at its expense under such Easement, no such Easement shall result in any diminution in the value or utility of the Leased Premises for use in accordance with the uses permitted by local zoning ordinances for comparable properties in the vicinity of the Leased Premises, and further provided that no such Easement shall render the use of the Leased Premises dependent upon any other property or condition the use of the Leased Premises upon the use of any other property, each of which Tenant shall certify to Landlord in writing delivered with Tenant's request with respect to such Easement. Tenant's request shall also include Tenant's written undertaking acknowledging that Tenant shall remain liable hereunder as principal and not merely as a surety or guarantor notwithstanding the establishment of any Easement. Tenant's obligation to pay Basic Rent or Additional Rent hereunder shall not abate or otherwise be affected by Landlord or Lender's failure to approve any Easement hereunder.
- (f) Tenant agrees that Tenant is obligated to and shall perform all obligations of the owner of the Leased Premises under and pay all expenses which the owner of the Leased Premises may be required to pay in accordance with any REA or Easements, and that Tenant shall comply with all of the terms and conditions of such REA or Easements during the term of this Lease. Tenant further covenants and agrees to indemnify, defend and hold harmless Landlord against any claim, loss or damage suffered by Landlord by reason of Tenant's failure to perform any obligations or pay any expenses as required under any REA or Easements or

comply with the terms and conditions of any REA or Easements as hereinabove provided during the term of this Lease.

4. Use of Leased Premises; Quiet Enjoyment.

(a) Tenant may use the Leased Premises in accordance with its Permitted Use and for no other purpose. In no event shall the Leased Premises be used for any purpose which shall violate any of the provisions of any Permitted Encumbrance or any covenants, restrictions or agreements hereafter created by or consented to by Tenant applicable to the Leased Premises. Tenant agrees that with respect to the Permitted Encumbrances and any covenants, restrictions or agreements hereafter created by or consented to by Tenant, Tenant shall observe, perform and comply with and carry out the provisions thereof required therein to be observed and performed by Landlord.

(b) Subject to Tenant's rights under and compliance with Paragraph 18 hereof, Tenant shall not permit any unlawful occupation, business or trade to be conducted on the Leased Premises or any use to be made thereof contrary to Legal Requirements or Insurance Requirements. Subject to Tenant's rights under and compliance with Paragraph 18, Tenant shall not use, occupy or permit any of the Leased Premises to be used or occupied, nor do or permit anything to be done in or on any of the Leased Premises, in a manner which would (i) make void or voidable any insurance which Tenant is required hereunder to maintain then in force with respect to any of the Leased Premises, or (ii) affect the ability of Tenant to obtain any insurance which Tenant is required to furnish hereunder.

(c) Subject to all of the provisions of this Lease, so long as no Event of Default exists hereunder and is continuing, Landlord covenants to do no act to disturb the peaceful and quiet occupation and enjoyment of the Leased Premises by Tenant.

5. Term.

(a) Subject to the provisions hereof, Tenant shall have and hold the Leased Premises for an Initial Term commencing on the Commencement Date and ending on the Expiration Date.

(b) Tenant shall have the right to extend the Term of this Lease for five (5) successive periods of five (5) years each (each, an "Extension Term", and collectively the Extension Terms") by delivering an irrevocable written notice thereof (an "Extension Exercise Notice") to Landlord not later than twelve (12) months prior to the expiration of the initial Term described in Paragraph 5(a) hereof (or, in the case of subsequent Extension Terms, the last day of the prior Extension Term). During each Extension Term, Tenant's lease of the Leased Premises shall be upon all the same terms, conditions, covenants and agreements contained in this Lease, including (without limitation) the increases in Basic Rent set forth in Exhibit B hereto; and in the event Tenant validly and effectively exercises its rights to one or more of the Extension Terms hereunder, then all references contained in this Lease to the "Term" shall be construed as referring to the Term, as extended for the applicable Extension Term(s), unless the context clearly requires otherwise.

(c) Except to the extent Tenant is not reasonably able to do so on account of Force Majeure, damage by fire or other casualty, or as a result of Condemnation or application of Legal Requirements and/or Insurance Requirements, Tenant covenants and agrees to remain in actual physical possession of the Leased Premises and to continuously conduct business in the Leased Premises from the first (1st) day of the first full month following the Commencement Date through the one-hundredth and twentieth (120th) calendar month following the Commencement Date; provided, however, Tenant may cease to remain in possession and may cease to operate its business in up to thirty-five percent (35%) of the Leased Premises on a temporary basis, for the purpose of remodeling or renovating the Leased Premises and/or performing Alterations, repairs or replacements thereto (or for construction of additional improvements at the Leased Premises), provided, such cessation of business and/or possession does not occur more than once every thirty-six (36) months for more than three hundred sixty-five (365) days. In the event that any such remodeling or Alteration work will take more than three hundred and sixty-five (365) days, so long as Tenant is diligently prosecuting such Alterations, Landlord will provide Tenant with such additional time to complete such work as may be reasonably necessary, not to exceed two hundred seventy (270) additional days (unless necessitated on account of Force Majeure, fire or other casualty, Condemnation or application of Legal Requirements and/or Insurance Requirements), provided that tenant requests such extension of time from Landlord, in writing, prior to the three hundred thirty-fifth (335th) day after the commencement of any such remodeling Alteration, repair or replacement work.

6. Rent and Security Deposit.

(a) Tenant shall pay to Landlord (or to Lender, if directed by Landlord in writing with at least fifteen (15) days' notice), as minimum annual rent for the Leased Premises during the Term, the Basic Rent in monthly installments in advance, on or before the Basic Rent Payment Dates, and shall pay the same by wire transfer in immediately available federal funds to such account in such bank as Landlord or Lender, as applicable, shall designate in writing with at least fifteen (15) days' prior notice, from time to time. The Basic Rent for the Leased Premises during the Initial Term is set forth on Exhibit B attached hereto for each day from and including the Commencement Date through and including January 30, 2037. Notwithstanding the foregoing or anything contained in Exhibit B to the contrary, no Basic Rent shall be due and payable for the month of January, 2015.

(b) Tenant shall pay and discharge before the imposition of any fine, Lien, interest or penalty may be added thereto for late payment thereof, as Additional Rent, all other amounts and obligations which Tenant assumes or agrees to pay or discharge pursuant to this Lease, together with every fine, penalty, interest and cost which may be added by the party to whom such payment is due for nonpayment or late payment thereof. In the event of any failure by Tenant to pay or discharge any of the foregoing, Landlord shall have all rights, powers and remedies provided herein, by Legal Requirements or otherwise, in the event of nonpayment of Basic Rent. All payments of Additional Rent that are payable to Landlord shall be paid by Tenant by wire transfer in immediately available federal funds to such account in such bank as Lender shall designate in writing with fifteen (15) days' prior notice, from time to time.

(c) If any installment of Basic Rent or any Additional Rent is not paid when the same is due, Tenant shall pay to Landlord or Lender, as the case may be, in addition to any

Late Charge, if any, as Additional Rent, interest on the unpaid amount of Basic Rent or Additional Rent, at the Default Rate, such interest to accrue from the date such item of unpaid Basic Rent or Additional Rent was due until the date paid.

(d) If any installment of Basic Rent is not paid within five (5) days after the same is due, Tenant shall pay to Landlord, as the case may be, on demand, as Additional Rent, a Late Charge, except such Late Charge shall not be due and payable on the first instance of a late payment of Basic Rent in any twelve (12) month period.

(e) Landlord and Tenant agree that, to the maximum extent permitted by the Legal Requirements, this Lease is a true lease for .

(f) state and federal income tax purposes and does not represent a financing arrangement. Each party shall, to the maximum extent permitted by the Legal Requirements, reflect the transactions represented by this Lease in all applicable books, records and reports for their respective income tax filings in a manner consistent with "true lease" treatment rather than "financing" treatment.

(g) On the Commencement Date Tenant shall deposit with Landlord the Security Deposit, the Replacement Reserve Initial Deposit, and the Deferred Maintenance Initial Reserve Deposit. The Security Deposit shall be held by Landlord as security for the faithful performance by Tenant of all of Tenant's obligations under this Lease. If any Basic Rent or Additional Payments shall be overdue and unpaid, or if Tenant shall fail to observe or perform any of its obligations under this Lease and an Event of Default arises therefrom, then Landlord may, at its option and without prejudice to any other remedy which Landlord may have on account thereof appropriate and apply said entire Security Deposit or so much thereof as may be necessary to compensate Landlord in respect of the payment of Basic Rent or Additional Payments overdue and unpaid or the cost of the damage actually incurred by Landlord due to such breach on the part of Tenant; and Tenant shall forthwith upon demand restore said Security Deposit to the original sum deposited. Should Tenant fully comply with all of its obligations under this Lease and pay all of the Basic Rent and Additional Payments due hereunder, the balance of the Security Deposit shall be returned in full to Tenant at the end of the Term, in no event later than thirty (30) days after delivery of possession of the Leased Premises to Landlord in accordance with the terms of this Lease. Landlord shall deliver the Security Deposit to the transferee of Landlord's interest in any Demised Premises in the event that such interest is transferred, and any charges for such transfer (for the first transfer in any three-year period) shall be on account of Tenant and Tenant shall (if applicable) pay all charges therefor, and upon notice of such transfer by the transferor and the transferee to Tenant, the transferor shall be discharged from any further liability with respect to such funds, and this provision shall also apply to any subsequent transfers. Landlord shall return the Security Deposit to Tenant upon Tenant achieving the Security Deposit Return Conditions. Notwithstanding the foregoing, within ten (10) days following the date that Tenant no longer maintains an Investment Grade Rating by at least two (2) of the Rating Agencies, Tenant shall again deposit the Security Deposit with Landlord. Thereafter, the Security Deposit shall be returned to Tenant upon satisfaction of the Security Deposit Return Conditions. Notwithstanding the foregoing, Landlord acknowledges that Tenant has deposited the Security Deposit with Landlord in the form of a letter of credit in the amount of \$7,500,000.00. Landlord acknowledges and agrees that Tenant is entitled to

reduce the amount of such letter of credit to the amount of the Security Deposit (i.e., \$5,900,000.00). Landlord agrees to promptly execute and deliver any commercially reasonable documentation requested by Tenant or the issuer of such letter of credit in order to effectuate such reduction.

(h) On each Basic Rent Payment Date Tenant shall deposit the Replacement Reserve Monthly Deposit and the Deferred Maintenance Reserve Monthly Deposit in the Replacement Reserve Account and the Deferred Maintenance Reserve Account, respectively, to be released for Replacements, and Deferred Maintenance, respectively in accordance with Exhibit G hereof, provided, however, that Tenant's obligations under this Paragraph 6(h) shall not be required for so long as Tenant is achieving the Security Deposit Return Conditions.

7. Net Lease; Non-Terminability.

(a) This is a net lease and Basic Rent, Additional Rent and all other sums payable hereunder by Tenant shall be paid, without notice, demand, setoff, counterclaim, recoupment, abatement, suspension, deferment, diminution, deduction, reduction or defense.

(b) Except as set forth in Paragraph 13 hereof, this Lease shall not terminate and Tenant shall not have any right to terminate this Lease during the Term. Except as set forth in Paragraph 13, Tenant shall not be entitled to any setoff, counterclaim, recoupment, abatement, suspension, deferment, diminution, deduction, reduction or defense of or to Basic Rent, Additional Rent or any other sums payable under this Lease; and except as otherwise expressly provided in this Lease, the obligations of Tenant under this Lease shall not be affected by any interference with Tenant's use of any of the Leased Premises for any reason, including but not limited to the following: (i) any damage to or destruction of any of the Leased Premises by any cause whatsoever, (ii) any Condemnation, (iii) the prohibition, limitation or restriction of Tenant's use of any of the Leased Premises, (iv) any eviction by paramount title or otherwise, (v) to the maximum extent permitted under the Legal Requirements, Tenant's acquisition of ownership of any of the Leased Premises other than pursuant to an express provision of this Lease, (vi) any default on the part of Landlord under this Lease or under any other agreement, (vii) any latent or other defect in, or any theft or loss of any of the Leased Premises, or (viii) the breach of any warranty of any seller or manufacturer of any of the Equipment. It is the intention of the parties hereto that the obligations of Tenant under this Lease shall be separate and independent covenants and agreements, and that Basic Rent, Additional Rent and all other sums payable by Tenant hereunder shall continue to be payable in all events (or, in lieu thereof, Tenant shall pay amounts equal thereto), and that the obligations of Tenant under this Lease shall continue unaffected, unless this Lease shall have been terminated pursuant to an express provision of this Lease.

(c) Tenant agrees that it shall remain obligated under this Lease subject to and in accordance with its provisions and Legal Requirements, and that, except as set forth in Paragraph 13(b), or as otherwise permitted hereunder, it shall not take any action to terminate, rescind or avoid this Lease, notwithstanding (i) the bankruptcy, insolvency, reorganization, composition, readjustment, liquidation, dissolution, winding-up or other proceeding affecting Landlord, (ii) the exercise of any remedy, including foreclosure, under the Mortgage, or (iii) any action with respect to this Lease (including the disaffirmance hereof) which may be taken by

Landlord under the Federal Bankruptcy Code or by any trustee, receiver or liquidator of Landlord or by any court under the Federal Bankruptcy Code or otherwise.

(d) This Lease is the absolute and unconditional obligation of Tenant. To the extent permitted by Legal Requirements, Tenant waives all rights which are not expressly stated in this Lease but which may now or hereafter otherwise be conferred by the Legal Requirements (i) to quit, terminate or surrender this Lease, (ii) to any setoff, counterclaim, recoupment, abatement, suspension, deferment, diminution, deduction, reduction or defense of or to Basic Rent, Additional Rent or any other sums payable under this Lease, except as otherwise expressly provided in this Lease, and (iii) for any statutory Lien or offset right against Landlord or its property.

8. Payment of Impositions; Compliance with Legal Requirements and Insurance Requirements.

(a) (i) Subject to the provisions of Paragraph 18 relating to contests, Tenant shall, before interest or penalties are due thereon, pay and discharge all Impositions to the extent accruing or otherwise applying to the period during the Term. Tenant shall promptly request that any bill or invoice with respect to any Imposition be forwarded directly to Tenant for payment. Landlord agrees to execute documents reasonably necessary to accomplish the foregoing. If received by Landlord, Landlord shall promptly deliver to Tenant any bill or invoice with respect to any Imposition; provided, however, Landlord shall not be liable for any additional expenses incurred by Tenant due to Landlord's failure to deliver such bill or invoice.

(i) Nothing herein shall obligate Tenant to pay, and the term "Impositions" shall exclude, federal, state or local (A) transfer taxes as the result of a conveyance by (or suffered by) Landlord (unless attributable to an Event of Default), (B) franchise, capital stock or similar taxes if any, of Landlord, (C) income, excess profits or other taxes, if any, of Landlord, determined on the basis of or measured by its net income, or (D) any estate, inheritance, succession, gift, capital levy or similar taxes, unless the taxes referred to in clauses (B) and (C) above are in lieu of or a substitute for any other tax or assessment upon or with respect to any of the Leased Premises which, if such other tax or assessment were in effect at the commencement of the Term, would be payable by Tenant. In the event that any assessment against any of the Leased Premises may be paid in installments, Tenant shall have the option to pay such assessment in installments; and in such event, Tenant shall be liable for all installments which are assessed, or otherwise become due and payable, during the Term. Tenant shall prepare and file all tax reports required by governmental authorities which relate to the Impositions. Tenant shall deliver to Landlord, within twenty (20) days after Landlord's written request therefor, copies of all statements, bills and invoices pertaining to the Impositions for the then-current and prior fiscal tax year which may be issued by any governmental authority and receipts for payments of all Impositions made during each calendar year of the Term, within thirty (30) days after payment.

(b) Subject to the provisions of Paragraph 18, Tenant shall promptly comply with and conform to, and shall cause the Leased Premises to comply with and conform to, all of the Legal Requirements, Insurance Requirements and Permitted Encumbrances.

A-7

(c) All payments of Impositions shall be made by Tenant on an After-Tax Basis as to Landlord.

(d) Any amount payable to Landlord pursuant to this Paragraph 8 shall be paid within ten (10) days after receipt of a written demand therefor from Landlord accompanied by a written statement describing in reasonable detail the amount so payable (and including reasonable back-up therefor from the Governmental Authority to which the applicable Impositions are payable). Any payments required to be made by Tenant pursuant to this Paragraph 8 that are not allowed to be paid directly to the appropriate Governmental Authority shall be made directly to Landlord at the location and in the manner specified by Landlord pursuant to Paragraph 6 hereof for the payment of Basic Rent. Any amount payable by Tenant under this Paragraph 8 that is not paid when due shall bear interest at the Default Rate.

(e) If any report, return or statement (a "Filing") is required to be filed with respect to any Imposition that is subject to this Paragraph 8, Tenant shall, if permitted by Legal Requirements to do so, timely file or cause to be filed such Filing with respect to such Tax and shall promptly provide notice of such filing to Landlord (except for any such Filing that Landlord has notified Tenant in writing that Landlord intends to file) and will (if ownership of the Leased Premises or any part thereof or interest therein is required to be shown on such Filing) show the ownership of the Leased Premises in the name of Landlord and send a copy of such Filing to Landlord. If Tenant is not permitted by Legal Requirements to file any such Filing, Tenant will promptly notify Landlord of such requirement in writing and prepare and deliver to Landlord a proposed form of such Filing and such information as is within Tenant's reasonable control or access with respect to such Filing within a reasonable time, and in all events at least twenty (20) days, prior to the time such Filing is required to be filed. Tenant shall hold each Indemnitee harmless from and against any liabilities, including, but not limited to penalties, additions to tax, fines and interest, arising out of any insufficiency or inaccuracy in any such Filing, if such insufficiency or inaccuracy is attributable to Tenant.

(f) Notwithstanding anything herein to the contrary, the provisions of this Paragraph 8 shall survive the Expiration Date or any earlier termination of this Lease.

9. Liens; Recording and Title.

(a) Subject to the provisions of Paragraph 18, Tenant shall not, directly or indirectly, create or permit to be created or to remain, and shall promptly discharge, any Lien on the Leased Premises, on the Basic Rent, Additional Rent or on any other sums payable by Tenant under this Lease, other than the Mortgage, the Permitted Encumbrances and any mortgage, Lien, encumbrance or other charge created by or resulting from any act or omission by Landlord or those claiming by, through or under Landlord (except Tenant). Notice is hereby given that Landlord shall not be liable for any labor, services or materials furnished or to be furnished to Tenant, or to anyone holding any of the Leased Premises through or under Tenant, and that no mechanic's or other Liens for any such labor, services or materials shall attach to or affect the interest of Landlord in and to any of the Leased Premises.

(b) Each of Landlord and Tenant shall, contemporaneously with their execution and delivery of this Lease execute, acknowledge and deliver to the other a written

A-8

memorandum of this Lease in the form attached hereto as Exhibit D to be recorded in the appropriate land records of the jurisdiction in which the Leased Premises are located, in order to give public notice and to protect the validity of this Lease. In the event of any discrepancy between the provisions of said recorded memorandum of this Lease and the provisions of this Lease, the provisions of this Lease shall prevail.

(c) Nothing in this Lease and no action or inaction by Landlord shall be deemed or construed to mean that Landlord has granted to Tenant any right, power or permission to do any act or to make any agreement which may create, give rise to, or be the foundation for, any right, title, interest or Lien in or upon the estate of Landlord in any of the Leased Premises.

10. Indemnification.

(a) To the maximum extent permitted by Legal Requirements, and except as expressly provided in Paragraph 8(a)(ii) or elsewhere in this Lease, Tenant agrees to assume liability for, and to indemnify, protect, defend, save and keep harmless each Indemnitee, on an After Tax Basis, from and against any and all Claims that may be suffered, imposed on or asserted against any Indemnitee, arising out of: (i) ownership of the Leased Premises by Landlord, including, but not limited to, environmental liabilities and obligations, subleasing of the Leased Premises by Tenant, assignment by Tenant of its interest in this Lease, transfer of title to Tenant's interest in this Lease, renewal of this Lease, or operation, possession, ownership, use, non-use, maintenance, modification; (ii) Alteration, construction, restoration, or replacement of the Leased Premises (or any portion thereof), or from the granting by Landlord at Tenant's request of easements, licenses or any rights with respect to all or any part of the Leased Premises, or from the construction, purchase, design or condition of the Leased Premises during the Term (including any Claims arising, directly or indirectly, out of the actual or alleged presence, use, storage, generation or Release of any Hazardous Materials, and any Claims for patent, trademark or copyright infringement and latent or other defects, whether or not discoverable), including any liability under Legal Requirements (including, without limitation, any Claims arising directly or indirectly out of any actual or alleged violation by or obligation, now or hereafter existing, of any Environmental Laws); (iii) the Lease or any modification, amendment or supplement thereto; (iv) the non-compliance of the Leased Premises during the Term, with Legal Requirements (including because of the existence of the Permitted Encumbrances); (v) any matter relating to all or any part of the Leased Premises or any operations thereon, including, without limitation, matters relating to Environmental Laws or Hazardous Materials; (vi) the breach by Tenant of its representations, warranties, covenants and obligations in this Lease whether or not such Claim arises or accrues prior to the date of this Lease; (vii) the business and activities of Tenant; (viii) the business and activities of any other Person on or about the Leased Premises (whether as an invitee, subtenant, licensee or otherwise); (ix) (A) the cost of assessment, containment and/or removal of any and all Hazardous Materials from all or any portion of the Leased Premises or any surrounding areas for which Tenant or Landlord (by virtue of Landlord's ownership of the Leased Premises) has any legal obligation, (B) the cost of any actions taken in response to a Release on, in, under or affecting any portion of the Leased Premises or any surrounding areas for which Tenant or Landlord (by virtue of Landlord's ownership of the Leased Premises) has any legal obligation to prevent or minimize such Release so that it does not migrate or otherwise cause or threaten danger to present or future public health, safety, welfare or the environment, and (C) costs incurred to comply with

A-9

Environmental Laws in connection with all or any portion of the Leased Premises or any surrounding areas for which Tenant or Landlord (by virtue of Landlord's ownership of the Leased Premises) has any legal obligation; (x) any personal injury, death or property damage which occurs on or about the Leased Premises; and (xi) an Event of Default. Notwithstanding the foregoing, nothing herein shall be construed to obligate Tenant to indemnify, defend and hold harmless any Indemnitee from and against any Claims to the extent imposed on or incurred by such Indemnitee (i) by reason of such Indemnitee's willful misconduct or gross negligence; (ii) with respect to any matter described in this Paragraph 10(a) which relates to events, acts or omissions first occurring or first existing (x) subsequent to the expiration or earlier termination of the Term and the vacating of the Leased Premises by Tenant and any assignee or sublessee of Tenant, and (y) not caused by the acts or omissions of Tenant, any assignee or sublessee of Tenant or any Person claiming by or through Tenant, or the result of any events, conditions, acts, or omissions occurring prior to the expiration or earlier termination of the Term and vacating of the Leased Premises by Tenant, any assignee or sublessee of Tenant and any Person claiming by or through Tenant; (iii) any Taxes or Impositions, indemnification for which is covered by Paragraphs 8 and 30 of this Lease; (iv) by reason of any transfer by Indemnitee of any interest in the Leased Premises not attributable to an Event of Default; (v) any liens created by or resulting from any act or omission of an Indemnitee not attributable to an Event of Default; or (vi) any default under the Mortgage or the Note not resulting from an Event of Default.

(b) In case any Claim shall be made or brought against any Indemnitee, such Indemnitee shall give prompt notice thereof to Tenant; provided that failure to so notify Tenant shall not reduce Tenant's obligations to indemnify any Indemnitee hereunder unless and only to the extent such failure results in additional liability on Tenant's part. Tenant shall be entitled, at its expense, acting through counsel selected by Tenant (and reasonably satisfactory to such Indemnitee or Tenant's insurer), to participate in, or, except as otherwise provided, to assume and control (if it promptly so elects upon notice of the Claim), and, to the extent that Tenant desires to assume and control, in consultation with Indemnitee, the negotiation, litigation and/or settlement of any such Claim (subject to the provisions of the last sentence of this subparagraph (b)). Such Indemnitee may (but shall not be obligated to) participate at its own expense (unless Tenant is not properly performing its obligations hereunder and then at the expense of Tenant) and with its own counsel in any proceeding conducted by Tenant in accordance with the foregoing, in which case Tenant shall keep such Indemnitee and its counsel fully informed of all proceedings and filings and afford such Indemnitee and counsel reasonable opportunity for comment. Notwithstanding the foregoing, Tenant shall not be entitled to assume and control the defense of any Claim if: (i) an Event of Default has occurred and is continuing; (ii) the proceeding involves possible imposition of any criminal penalty or liability or unindemnified civil penalty on such Indemnitee; (iii) the proceeding involves the granting of injunctive relief against the Indemnitee not related to this Lease; (iv) a significant counterclaim is available to the Indemnitee that would not be available to and cannot be asserted by Tenant; (v) a conflict of interest exists between the Indemnitee and Tenant with respect to the Claim; or (vi) the defense of such Claim would require the delivery of material confidential and proprietary information of such Indemnitee that would otherwise not be available to Tenant or its counsel.

(c) Upon payment in full of any Claim by Tenant pursuant to this Paragraph 10 to or on behalf of an Indemnitee, Tenant, without any further action, shall be subrogated to any and all Claims that such Indemnitee may have relating thereto (other than claims in respect

A-10

of insurance policies maintained by such Indemnitee at its own expense or claims against another Indemnitee for which Tenant would have indemnity obligations hereunder), and such Indemnitee shall execute such instruments of assignment and conveyance, evidence of Claims and payment and such other documents, instruments and agreements as may be necessary to preserve any such Claims and otherwise reasonably cooperate with Tenant to enable Tenant to pursue such Claims.

(d) Notwithstanding anything to the contrary contained herein, Tenant shall not be required to indemnify any Indemnitee under this Paragraph 10 for any Claim to the extent resulting from the material misrepresentation, gross negligence or willful misconduct of such Indemnitee.

(e) The obligations of Tenant under this Paragraph 10 shall survive any termination of this Lease.

11. Maintenance and Repair.

(a) Except for any Alterations that Tenant is permitted to make pursuant to this Lease, Tenant shall at all times, including any Requisition period, put, keep and maintain the Leased Premises (including, without limitation, the roof, landscaping, walls, footings, foundations and structural components of the Leased Premises) and the Equipment in the same condition and repair, as of the inception of the Lease, except for ordinary wear and tear, and shall promptly make all repairs and replacements of every kind and nature, whether foreseen or unforeseen, which may be required to be made upon or in connection with the Leased Premises in order to keep and maintain the Leased Premises in the order and condition required by this Paragraph 11(a). Tenant shall do or cause others to do all shoring of the Leased Premises or of the foundations and walls of the Improvements and every other act necessary or appropriate for preservation and safety thereof, by reason of or in connection with any excavation or other building operation upon any of the Leased Premises, whether or not Landlord shall, by reason of any Legal Requirements or Insurance Requirements, be required to take such action or be liable for failure to do so. LANDLORD SHALL NOT BE REQUIRED TO MAKE ANY REPAIR, WHETHER FORESEEN OR UNFORESEEN, OR TO MAINTAIN ANY OF THE LEASED PREMISES OR ADJOINING PROPERTY IN ANY WAY, AND TENANT HEREBY EXPRESSLY WAIVES THE RIGHT TO MAKE REPAIRS OR MAINTENANCE AT THE EXPENSE OF THE LANDLORD, WHICH RIGHT MAY BE PROVIDED FOR IN ANY LEGAL REQUIREMENTS NOW OR HEREAFTER IN EFFECT. Nothing in the preceding sentence shall be deemed to preclude Tenant from being entitled to insurance proceeds or Condemnation awards for Restoration pursuant to Paragraphs 13(c) and 14(g) of this Lease. Tenant shall, in all events, make all repairs for which it is responsible hereunder promptly, and all repairs shall be in a good, proper and workmanlike manner. Tenant shall keep the Building free of Mold.

(b) In the event that any Improvement shall violate or Landlord shall have received notice that any Improvement shall violate any Legal Requirements, Insurance Requirements or encroach upon an adjacent property and as a result of such violation or encroachment, enforcement or legal action is threatened or commenced against Tenant or Landlord or with respect to the Leased Premises, then Tenant, at the request of Landlord, shall either (i) obtain valid and effective waivers or settlements of all claims, liabilities and damages

A-11

resulting from each such violation or encroachment, whether the same shall affect Landlord, Tenant or both, or (ii) subject to Tenant's rights under Paragraph 18, take such action as shall be necessary to remove such violation or encroachment, including, if necessary, any Alteration. Any such repair or Alteration shall be made in conformity with the provisions of Paragraph 12.

(c) If Tenant shall be in default under any of the provisions of this Paragraph 11 and an Event of Default or Emergency arises on account thereof, Landlord may do whatever is necessary to cure such default as may be reasonable and appropriate under the circumstances for the account of and at the expense of Tenant. In the event of an emergency Landlord shall notify Tenant of the situation by phone or other available communication. All sums so paid by Landlord and all reasonable costs and expenses (including, without limitation, attorneys' fees and expenses) so incurred, together with interest thereon at the Default Rate from the date of payment or incurring the expense, shall constitute Additional Rent payable by Tenant under this Lease and shall be paid by Tenant to Landlord on demand within five (5) Business Days following Landlord's written demand (accompanied by reasonable back-up documentation).

(d) Tenant shall from time to time replace with Replacement Equipment any of the Equipment which shall have become unusable for the purpose for which it is intended, been taken by a Condemnation as provided in Paragraph 13, or been lost, stolen, damaged or destroyed as provided in Paragraph 14. Tenant shall repair at its sole cost and expense all damage to the Leased Premises caused by the removal of the Equipment or the Replaced Equipment or other personal property of Tenant or the installation of Replacement Equipment. All Replacement Equipment shall become the property of Landlord, shall be free and clear of all Liens (except as permitted under Paragraph 17) and rights of others and shall become a part of the Equipment as if originally demised herein.

12. Alterations.

(a) So long as no Event of Default has occurred and is then continuing, upon prior written notice to Landlord, Tenant shall have the right to make any Alteration(s) to the Leased Premises, the cost of which does not exceed \$350,000.00, in any single instance or series of related instances; provided, that, Tenant complies with clause (c) and (d) of this Paragraph 12.

(b) Upon prior written notice to Landlord, Tenant shall have the right to make any Alteration(s) to the Leased Premises, the cost of which exceeds \$350,000.00, in any single instance or series of related instances; provided, that, (i) no Event of Default under this Lease has occurred and is then continuing prior to and during the period of making any such Alteration(s), (ii) Tenant complies with clause (c) and (d) of this Paragraph 12, and (iii) prior to making any such Alteration(s), Tenant shall provide Landlord with the final plans and specifications, estimated budgets and proposed schedule of construction with respect thereto, and any material changes thereto once construction commences.

(c) In the event that Landlord gives its prior written consent to any Alterations, or if such consent is not required, Tenant agrees that in connection with any Alteration: (i) the fair market value of the Leased Premises (as reasonably determined by Landlord) shall not be lessened after the completion of any such Alteration, or its structural

A-12

integrity impaired; (ii) the Alteration and any Alteration theretofore made or thereafter to be made shall not in the aggregate reduce the gross floor area of the Improvements except with Landlord's prior written consent (not to be unreasonably withheld, conditioned or delayed where the Alteration in question is being undertaken in connection with a modification in the Permitted Use or other bona fide business purpose); (iii) all such Alterations shall be performed in a good and workmanlike manner, and shall be expeditiously completed in compliance with all Legal Requirements; (iv) no such Alteration shall change the Permitted Use of the Leased Premises; (v) all work done in connection with any such Alteration shall comply with all Insurance Requirements; (vi) Tenant

shall promptly pay all costs and expenses of any such Alteration, and shall (subject to and in compliance with the provisions of Paragraph 18 hereof) discharge all Liens filed against any of the Leased Premises arising out of the same; (vii) Tenant shall procure and pay for all permits and licenses required in connection with any such Alteration; (viii) all such Alterations shall be the property of Landlord and shall be subject to this Lease; (ix) no such Alteration shall create any debt or other encumbrance(s) on the Leased Premises, and (x) all Alterations shall be made in the case of any Alteration the estimated cost of which in any one instance exceeds \$350,000.00 or to the extent required by the Legal Requirements under the supervision of an architect or engineer and, in accordance with plans and specifications which shall be submitted to Landlord (for informational purposes only) prior to the commencement of the Alterations.

(d) Notwithstanding anything to the contrary contained herein, Tenant shall not make any Alterations, at any time, which would (after the completion thereof) materially impair the structural integrity of the Leased Premises, without Landlord's written consent, which consent may be withheld or denied in Landlord's sole discretion.

13. Condemnation.

(a) Tenant, promptly upon obtaining knowledge of the institution of any proceeding for Condemnation, shall notify Landlord thereof and Landlord shall be entitled to participate in any Condemnation proceeding. Landlord, promptly after obtaining knowledge of the institution of any proceeding for Condemnation, shall notify Tenant thereof and Tenant shall have the right to participate in such proceedings. Subject to the provisions of this Paragraph 13 and Paragraph 15, Tenant hereby irrevocably assigns to Landlord any award or payment in respect of any Condemnation of Landlord's interest in the Leased Premises, except that (except as hereinafter provided) nothing in this Lease shall be deemed to assign to Landlord any award relating to the value of the leasehold interest created by this Lease or any award or payment on account of the Trade Fixtures, moving expenses and out-of-pocket expenses incidental to the move, if available, to the extent Tenant shall have a right to make a separate claim therefor against the condemnor, it being agreed, however, that Tenant shall in no event be entitled to any payment that reduces the award to which Landlord is or would be entitled for the Condemnation of Landlord's interest in the Leased Premises.

(b) If the entire Leased Premises shall be the subject of a Taking by a duly constituted authority or agency having jurisdiction, then Tenant may, not later than thirty (30) days after such Taking has occurred, serve a Tenant's Termination Notice upon Landlord.

A-13

(i) In the event that during the Term, Tenant shall serve a Tenant's Termination Notice upon Landlord, this Lease and the Term hereof shall terminate on the date specified in the Termination Notice (the "Termination Date"); and in such event the entire award to be made in the Condemnation proceeding (except as provided in Paragraph 13(a) above) shall be paid to Landlord.

(c) (i) In the event of a Condemnation of any part of the Leased Premises which does not result in a termination of this Lease, subject to the requirements of Paragraph 15, the Net Award of such Condemnation shall be retained by Landlord; and promptly after such Condemnation, Tenant shall commence and diligently continue to completion the Restoration of the Leased Premises.

(i) Upon the payment Landlord of the Net Award of a Taking which falls within the provisions of this Paragraph 13(c), Landlord shall, to the extent received, make the Restoration Award available to Tenant for Restoration, in accordance with the provisions of Paragraph 15, and promptly after completion of the Restoration, the balance of the Net Award shall be paid to Landlord. All Basic Rent, Additional Rent and other sums payable hereunder shall continue unabated and unreduced.

(ii) In the event of a Requisition of the Leased Premises, Landlord shall apply the Net Award of such Requisition, to the extent available, to the installments of Basic Rent, Additional Rent or other sums payable by Tenant hereunder thereafter payable and Tenant shall pay any balance remaining thereafter. Upon the expiration of the Term, any portion of such Net Award which shall not have been previously credited to Tenant on account of the Basic Rent and Additional Rent shall be retained by Landlord.

(d) Except with respect to an award or payment to which Tenant is entitled pursuant to the provisions of Paragraph 13(a), 13(b) and 13(c), no agreement with any condemnor in settlement of or under threat of any Condemnation shall be made by either Landlord or Tenant (provided no Event of Default then exists and is continuing) without the written consent of the other.

14. Insurance.

(a) Tenant shall maintain at its sole cost and expense the following insurance on the Leased Premises:

(i) Insurance against loss or damage to the Improvements (including footings, foundation and underground pipes) and Equipment under a fire and broad form of all risk extended coverage insurance policy (which shall include windstorm insurance). The Leased Premises shall also be covered by flood insurance in an amount of not less than Ten Million and 00/100 Dollars (\$10,000,000.00) and earthquake insurance, in an amount of not less than Ten Million and 00/100 Dollars (\$10,000,000.00), including footings, foundation and underground pipes. Coverages shall also include Demolition Costs and Increased Cost of Construction and the Cost of Undamaged Building. Subject to the renewal of the Terrorism Risk Insurance Act (unless otherwise available at commercially reasonable rates), such insurance shall have no exclusion for terrorism or terrorist acts. Such insurance (other than flood and earthquake) shall

A-14

be in amounts sufficient to prevent Landlord or Tenant from becoming a co-insurer under the applicable policies, and in any event in amounts not less than the actual replacement cost of the Improvements and Equipment (including footings, foundations and underground pipes) as determined from time to time at Landlord's request but not more frequently than once in any three (3) year period, by agreement of Landlord, and Tenant, or if not so agreed, at Tenant's expense, by the insurer or insurers approved by Landlord based upon appropriate replacement cost of construction index. Such insurance policies may contain exclusions and deductible amounts reasonably acceptable to Landlord based upon industry standards and the current credit rating of the Tenant.

(ii) Contractual and comprehensive general liability umbrella insurance against claims for bodily injury, death or property damage occurring on, in or about the Leased Premises, which insurance shall be written on a so-called "Occurrence Basis", and shall provide minimum protection with a combined single limit in an amount not less than Ten Million and 00/100 Dollars (\$10,000,000.00) (or in such increased limits from time to time to reflect declines in the purchasing power of the dollar as Landlord may reasonably request, but not more frequently than bi-annually).

(iii) Worker's compensation insurance covering all persons employed by Tenant on the Leased Premises in connection with any work done on or about any of the Leased Premises for which claims for death or bodily injury could be asserted against Landlord, Tenant or the Leased Premises.

(iv) [Intentionally Omitted].

(v) Boiler and machinery insurance against loss or damage from explosion of any steam or pressure boilers or mechanical breakdown or similar apparatus located in or about the Improvements in an amount not less than the actual replacement cost of the Improvements and Equipment (including Equipment breakdown and electric panels, but excluding footings and foundations and other parts of the Improvements which are not insurable, in an amount of not less than Fifty Million and 00/100 Dollars (\$50,000,000.00)).

(vi) Business income (including Extra Expense coverage with respect to rental loss for Rent payments to Landlord) (x) with the portion of such insurance attributable to the payment of Rent payable to Landlord or at Landlord's option, Lender; (y) covering all risks required to be covered by the insurance provided for in Paragraph 14(a)(i) above; and (z) in an amount of not less than one hundred percent (100%) of the projected Rent from the Leased Premises for a period of up to twenty-four (24) months from the date of casualty or loss.

(vii) Such additional and/or other insurance with respect to the Improvements located on the Leased Premises as reasonably requested by Landlord or Lender and in such amounts as at the time is customarily carried by prudent owners or tenants with respect to improvements similar in character, location and use and occupancy to the Improvements located on the Leased Premises.

A-15

(b) [Intentionally Omitted].

(c) The insurance required by Paragraph 14(a) shall be written by companies having a claims paying ability rating by Standard & Poor's of not less than A- or comparable equivalent from Fitch or Moody's or an AM Best rating of not less than A:IX, and all such companies shall be authorized to do an insurance business in the State, or otherwise agreed to by Landlord. The insurance policies (i) shall be in amounts sufficient at all times to satisfy any coinsurance requirements thereof, and (ii) shall name Landlord as additional named insured with respect to property insurance and as an additional insured with respect to liability insurance referred to in Paragraph 14(a)(ii), as their respective interests may appear. Such insurance shall also name any Lender (so long as the Mortgage is outstanding) as a Mortgagee and/or Lenders loss payee with standard endorsements with respect to property insurance and as an additional insured with respect to liability insurance). If said insurance or any part thereof shall expire, be withdrawn, become void by breach of any condition thereof by Tenant or become void or unsafe by reason of the failure or impairment of the capital of any insurer, Tenant shall immediately obtain new or additional insurance reasonably satisfactory to Landlord.

(d) Each insurance policy referred to in clauses (i), (v) and (vi) if requested by Lender of Paragraph 14(a), shall contain standard non-contributory mortgagee clauses in favor of any Lender. The insurance policy referred to in clause (ii) of Paragraph 14(a) shall be issued on a primary and non-contributory basis and shall contain a waiver of subrogation in favor of Lender. Each policy shall provide that it may not be canceled or amended without liability to the insureds, except after thirty (30) days' (except 10 days' written notice for non-payment of insurance premiums) prior notice to Landlord and any Lender by such insurer or Tenant. Each policy of insurance shall contain a waiver of subrogation or consent to a waiver of right of recovery against the Landlord. Each policy shall also provide that any losses otherwise payable thereunder shall be payable notwithstanding (i) any act or omission of any Lender which might, absent such provision, result in a forfeiture of all or a part of such insurance payment, or (ii) any direct or indirect change in ownership with respect to any of the Leased Premises. Each policy shall also provide evidence or a certificate of such insurance to Landlord and any Lender on an ACORD 28 form for property and ACORD 25 form for liability or equivalent reasonably satisfactory to Landlord and Lender if Tenant's insurer does not utilize such forms; provided, that in the event that any such forms are no longer available, such evidence of insurance is in a form reasonably satisfactory to Landlord and Lender.

(e) Tenant shall pay as they become due all premiums for the insurance required by this Paragraph 14, shall renew or replace each policy, and shall deliver to Landlord and Lender a certificate of insurance with respect to any existing policy referred to in clause (ii) of Paragraph 14(a) and evidence of insurance with respect to any existing policy referred to in clauses (i), (v) and (vi) of Paragraph 14(a), or a copy of such renewal or replacement policy, in the case of a renewal or replacement of any of the foregoing, at least ten (10) Business Days prior to the Insurance Expiration Date of each policy. In the event of Tenant's failure to comply with any of the foregoing requirements of this Paragraph 14 within five (5) Business Days of the giving of written notice by Landlord to Tenant, Landlord shall be entitled to procure such insurance. Any sums expended by Landlord in procuring such insurance shall be Additional Rent and shall be repaid by Tenant, together with interest thereon at the Default Rate, from the time of payment by Landlord until fully paid by Tenant immediately upon written demand therefor by Landlord.

A-16

(f) Anything in this Paragraph 14 to the contrary notwithstanding, any insurance which Tenant is required to obtain pursuant to Paragraph 14(a) may be carried under a "blanket" policy or policies covering other properties or liabilities of Tenant, provided that such "blanket" policy or policies otherwise comply with the provisions of this Paragraph 14. In the event any such insurance is carried under a blanket policy, Tenant shall deliver to Landlord and Lender evidence of the issuance and effectiveness of the policy, the allocated amount and character of the coverage with respect to the Leased Premises and the presence in the policy of provisions of the character required in the above subparagraphs of this Paragraph 14.

(g) In the event of any property damage loss to the Leased Premises (which for the avoidance of doubt shall not include workers compensation claims) exceeding Three Hundred Fifty Thousand and 00/100 Dollars (\$350,000.00) or in which any person is injured or killed (other than workers compensation claims), Tenant shall give Landlord prompt written notice thereof. Tenant shall adjust, collect and compromise any and all claims, with the consent of Lender and Landlord, not to be unreasonably withheld or delayed, and Landlord and Lender shall have the right to join with Tenant therein. If the estimated cost of Restoration or repair shall be Three Hundred Fifty Thousand and 00/100 Dollars (\$350,000.00) or less, all proceeds of any

insurance required under clauses (i), (iv), (v) of Paragraph 14(a) shall be payable to Tenant, and in all other events to a Trustee. If the Leased Premises shall be covered by a Mortgage to an institutional Lender, such, Lender, if it so desires, shall be the Trustee. Each insurer is hereby authorized and directed to make payment under said policies directly to such Trustee instead of to Landlord and Tenant jointly; and Tenant and Landlord each hereby appoints such Trustee as its attorney-in-fact to endorse any draft therefor for the purposes set forth in this Lease after approval by Tenant of such Trustee, if Trustee is other than an institutional Lender. In the event of any casualty (whether or not insured against) resulting in damage to the Leased Premises or any part thereof, the Term shall nevertheless continue and there shall be no abatement or reduction of Basic Rent, Additional Rent or any other sums payable by Tenant hereunder. The Net Proceeds of such insurance payment shall be retained by the Trustee and, promptly after such casualty, Tenant, as required in Paragraphs 11(a) and 12, shall commence and diligently continue to perform the Restoration to the Leased Premises, except, subject to availability of business income or rental loss insurance payable to Landlord or at Landlord's option Lender, no Restoration shall be required in the event of fire or other casualty causing damage to the Leased Premises which cannot reasonably be repaired on or prior to the date which is twenty-four (24) months prior to the expiration of the Term. So long as no Event of Default has occurred and is continuing, upon payment to the Trustee of such Net Proceeds, the Trustee shall, to the extent available, make the Net Proceeds available to Tenant for restoration, in accordance with the provisions of Paragraph 15. Tenant shall, whether or not the Net Proceeds are sufficient for the purpose, promptly repair or replace the Improvements and Equipment in accordance with the provisions of Paragraph 11(a) and the Net Proceeds of such loss shall thereupon be payable to Tenant, subject to the provisions of Paragraph 15. In the event that any damage or destruction shall occur at such time as Tenant shall not have maintained third-party insurance in accordance with Paragraph 14(a)(i), (iv), (v) or (vi), Tenant shall pay to the Trustee Tenant's Insurance Payment.

(h) At all times during which Alterations, or other structural construction or repairs are being made with respect to the Leased Premises but only if the existing applicable property or liability coverage forms in Paragraph 14(a) above do not otherwise apply, Tenant

A-17

shall or cause its contractors, mechanics and suppliers maintain at its sole cost and expense the following insurance on the Leased Premises: (A) commercial general liability and umbrella liability insurance covering claims related to the construction, repairs or alterations being made which are not covered by or under the terms or provisions of the above mentioned commercial general liability insurance policy; and (B) the insurance provided for in Paragraph 14(a)(i) written in a so-called builder's risk completed value form or its equivalent (1) on a non-reporting basis, (2) against all risks insured against pursuant to Paragraph 14(a)(i), and, as applicable, Paragraph 14(a)(i), (iii) and (vii) including permission to occupy the Leased Premises, and (4) with an agreed amount endorsement waiving co-insurance provisions, if applicable.

15. Restoration. The Restoration Fund shall be disbursed by the Trustee in accordance with the following conditions:

(a) If the cost of Restoration will exceed Three Hundred Fifty Thousand and 00/100 Dollars (\$350,000.00), prior to commencement of the Restoration the architects, general contractor(s), and plans and specifications for the Restoration shall be approved by Landlord, which approval shall not be unreasonably withheld, conditioned or delayed; and which approval shall be granted to the extent that the plans and specifications depict a Restoration which is substantially similar to the Improvements and Equipment which existed prior to the occurrence of the casualty or Taking, whichever is applicable.

(b) At the time of any disbursement, no Event of Default shall exist and no mechanics' or materialmen's Liens (other than notices of contract and statements of account which are in good standing and show no past due amounts) shall have been filed and remain undischarged or unbonded.

(c) Disbursements shall be made from time to time in an amount not exceeding the hard and soft cost of the work and costs incurred since the last disbursement upon receipt of (1) satisfactory evidence, including architects' certificates of the stage of completion, of the estimated cost of completion and of performance of the work to date in a good and workmanlike manner in accordance with the contracts, plans and specifications, (2) partial releases of Liens, and (3) other reasonable evidence of cost and payment so that Landlord can verify that the amounts disbursed from time to time are represented by work that is completed in place or delivered to the site or up to \$350,000.00 worth of materials for the Restoration of the Improvements stored off-site in a commercially reasonable manner and free and clear of mechanics' Lien claims.

(d) Each request for disbursement shall be accompanied by a certificate of Tenant describing the work, materials or other costs or expenses, for which payment is requested, stating the cost incurred in connection therewith and stating that Tenant has not previously received payment for such work or expense and the certificate to be delivered by Tenant upon completion of the work shall, in addition, state that the work has been substantially completed and complies with the applicable requirements of this Lease.

(e) The Trustee shall retain ten percent (10%) of the Restoration Fund until the Restoration is substantially complete, and thereafter five percent (5%) until the Restoration is

A-18

complete, including punchlist items in each case less the amount of any retainage held by Tenant pursuant to its applicable construction contract(s).

(f) The Restoration Fund shall be kept in a separate interest-bearing federally insured account by the Trustee.

(g) At all times the undisbursed balance of the Restoration Fund held by Trustee plus any funds contributed thereto by Tenant, at its option, shall be not less than the cost of completing the Restoration, free and clear of all Liens.

(h) In addition, prior to commencement of Restoration and at any time during Restoration, if the estimated cost of Restoration, as reasonably determined by Landlord or Lender, exceeds the amount of the Net Proceeds, the Restoration Award and Tenant Insurance Payment available for such Restoration, the amount of such excess shall be paid by Tenant to the Trustee to be added to the Restoration Fund or Tenant shall fund at its own expense the costs of such Restoration until the remaining Restoration Fund is sufficient for the completion of the Restoration. Any sum in the Restoration Fund which remains in the Restoration Fund upon the completion of Restoration (or in the event Restoration is not required hereunder) shall be paid to Tenant. For purposes of determining the source of funds with respect to the disposition of funds remaining after the completion of Restoration, the Net Proceeds or the Restoration Award shall be deemed to be disbursed prior to any amount added by Tenant

16. Subordination to Financing.

(a) (i) Tenant agrees that this Lease shall at all times be subject and subordinate to the Lien and the terms of any Mortgage.

(i) Except as expressly provided in this Lease by reason of the occurrence of an Event of Default, Tenant's tenancy and all of Tenant's rights under this Lease shall not be disturbed, terminated or otherwise adversely affected, nor shall this Lease be affected, by any default under any Mortgage, unless also an Event of Default, and in the event of a foreclosure or other enforcement of any Mortgage, or sale in lieu thereof, the purchaser at such foreclosure sale shall be bound to Tenant for the Term of this Lease under the express terms of this Lease, the rights of Tenant under this Lease shall expressly survive, and this Lease shall in all respects continue in full force and effect so long as no Event of Default has occurred and is continuing. So long as no Event of Default has occurred and is continuing, Tenant shall not be named as a party defendant in any such foreclosure suit, except as may be required by Legal Requirements. Any Mortgage to which this Lease is now or hereafter subordinate shall provide, in effect, that during the time this Lease is in force insurance proceeds and any Restoration Award shall be permitted to be used for Restoration in accordance with the provisions of this Lease.

(b) Notwithstanding the provisions of Paragraph 16(a), the holder of any Mortgage to which this Lease is subject and subordinate shall have the right, at its sole option, at any time, to subordinate and subject the Mortgage, in whole or in part, to this Lease by recording a unilateral declaration to such effect, provided that such holder shall have agreed that during the

A-19

time this Lease is in force any insurance proceeds and any Restoration Award shall be permitted to be used for Restoration in accordance with the provisions of this Lease.

(c) At any time prior to the expiration of the Term, Tenant agrees, at the election and upon demand of any owner of the Leased Premises, or of a Lender who has granted non-disturbance to Tenant pursuant to Paragraph 16(a) above, to attorn, from time to time, to any such owner or Lender, upon the terms and conditions of this Lease, for the remainder of the Term. The provisions of this Paragraph 16(c) shall inure to the benefit of any such owner or Lender, shall apply notwithstanding that, as a matter of Legal Requirements, this Lease may terminate upon the foreclosure of the Mortgage, shall be self-operative upon any such demand, and no further instrument shall be required to give effect to said provisions.

(d) Each of Tenant, any owner and Lender, however, upon demand of the other, hereby agrees to execute, from time to time, instruments in confirmation of the foregoing provisions of Paragraphs 16(a) and 16(c), reasonably satisfactory to the requesting party acknowledging such subordination, non-disturbance and attornment as are provided in such subsections and setting forth the terms and conditions of its tenancy.

(e) Each of Tenant, Landlord and Lender agrees that, if requested by any of the others, each shall, without charge, enter into a Subordination, Non-Disturbance and Attornment Agreement. Tenant hereby agrees for the benefit of Lender that Tenant will not, (i) without in each case securing the prior written consent of Lender, which shall not be unreasonably withheld, conditioned or delayed, amend or modify this Lease (provided, however, Lender, in Lender's sole discretion may withhold or condition its consent to any amendment or modification which would or could (A) alter in any way the amount or time for payment of any Basic Rent, Additional Rent or other sum payable hereunder, (B) alter in any way the absolute and unconditional nature of Tenant's obligations hereunder or materially diminish any such obligations, (C) result in any termination hereof prior to the end of the Initial Term, or (D) otherwise, in Lender's reasonable judgment, affect the rights or obligations of Landlord or Tenant hereunder), or enter into any agreement with Landlord so to do, (ii) without the prior written consent of Lender which may be withheld in Lender's sole discretion, cancel or surrender or seek to cancel or surrender the Term hereof, or enter into any agreement with Landlord to do so (the parties agreeing that the foregoing shall not be construed to affect the rights or obligations of Tenant, Landlord or Lender with respect to any termination permitted under the express terms hereof following a Condemnation as provided in Paragraph 13, or (c) pay any installment of Basic Rent more than one (1) month in advance of the due date thereof or otherwise than in the manner provided for in this Lease.

17. Assignment, Subleasing.

(a) Except in compliance with this Paragraph 17, Tenant may neither assign its interest in this Lease and nor, with the exception of an Affiliate, sublet all or substantially all of the Leased Premises for the Permitted Use, whether voluntarily or involuntarily or by operation of Legal Requirements, without the consent of Landlord, which consent shall not be unreasonably withheld, conditioned or delayed. The merger of Tenant with any other entity or the assignment of substantially all the assets of Tenant whether or not located at the Leased Premises, shall constitute an assignment hereunder. Tenant shall have the right to mortgage its

A-20

leasehold interest under this Lease in connection with a financing of substantially all its assets so long as (i) its lender and its affiliates (including all successors and assigns, whether directly or indirectly have a Tangible Net Worth at the time of the mortgage or any foreclosure, assignment in lieu of foreclosure of at least Two Hundred Million and 00/100 Dollars (\$200,000,000.00), and (ii) the loan documentation shall be in a substance and form reasonably acceptable to Landlord. With respect to any assignment or sublease to an entity that is not an Affiliate consented to by Landlord or as permitted under this Lease without Landlord's consent, Tenant shall provide Landlord with a written summary of the material terms of such assignment or sublease prior to the commencement date thereof. Notwithstanding the foregoing, or any other term or provision contained in this Lease to the contrary, upon not less than ten (10) days' prior written notice by Tenant to Landlord (or, promptly following the assignment in the event Tenant is bound by confidentiality agreement(s) which prevent disclosure prior to the assignment) together with such financial information as Landlord may reasonably require, Tenant shall have the right to assign this Lease to a successor, or as a result of a merger, consolidation or restructuring of Tenant, or to the acquirer of all or substantially all of Tenant's assets or stocks, so long as (i) no Event of Default has occurred and is continuing at the time of said notice to Landlord or exercise, (ii) such assignee, successor by merger or surviving entity is acquiring substantially all the assets or direct or indirect ownership of Tenant and (iii) such assignee, successor or surviving entity has a Tangible Net Worth of at least the greater of (x) Two Hundred Million and 00/100 Dollars (\$200,000,000), (y) the Tangible Net Worth of Tenant immediately prior to such assignment and (z) Tenant shall comply with Paragraph 17(b) hereof to the extent applicable.

(b) Any sublease of the Leased Premises or any part thereof shall be subject and subordinate to the provisions of this Lease. No assignment or sublease shall affect or reduce any of the obligations of Tenant hereunder, and all such obligations shall continue in full force and effect as obligations of a principal and not as obligations of a guarantor, as if no assignment or sublease had been made. Notwithstanding any assignment or subletting, Tenant shall continue to remain primarily liable and responsible for the payment of the Basic Rent and Additional Rent and the performance of all its other

obligations under this Lease. No assignment or sublease shall impose any obligations on Landlord under this Lease except as otherwise provided in this Lease. In case of any assignment consented to by Landlord or permitted hereunder without Landlord's consent, Tenant agrees that in the case of an assignment of this Lease, Tenant shall, within fifteen (15) days after the execution and delivery of any such assignment, deliver to Landlord (i) a true and correct copy of such assignment (for the avoidance of doubt the financial terms of such assignments may be limited to what is contained in the terms of the assignment as opposed to a separate asset purchase agreement or agreement of merger). In the case of a sublease consented to by Landlord, Tenant shall, within fifteen (15) days after the execution and delivery of such sublease, deliver to Landlord a duplicate original of such sublease.

(c) Upon the occurrence and during the continuance of an Event of Default under this Lease, Landlord shall have the right to collect and enjoy all rents and other sums of money payable under any sublease of any of the Leased Premises, and Tenant hereby irrevocably and unconditionally assigns such rents and money to Landlord, which assignment may be exercised upon and after (but not before) the occurrence of an Event of Default and while such Event of Default is continuing

A-21

(d) Intentionally Omitted.

18. Permitted Contests.

(a) So long as no Event of Default has occurred and is continuing, after prior written notice to Landlord, Tenant shall not be required to (i) pay any Imposition, (ii) comply with any Legal Requirement, (iii) discharge or remove any Lien referred to in Paragraphs 9 or 12, or (iv) take any action with respect to any violation referred to in Paragraph 11(b), so long as (A) in the event the matter at hand is in respect of a liability exceeding Two Hundred Fifty Thousand and 00/100 Dollars (\$250,000) Tenant shall first deposit (pursuant to a commercially reasonable written agreement) with Lender (or Landlord if there is no Lender) cash, a bond, or other security acceptable to Lender in the amount of 125% of the amount (or reasonably estimated amount, if no exact amount is ascertainable) to be contested by Tenant, and (B) Tenant shall contest, in good faith and at its expense, the existence, the amount or the validity thereof, the amount of the damages caused thereby, or the extent of its or Landlord's liability therefor, by appropriate proceedings which shall operate during the pendency thereof to prevent (1) the collection of, or other realization upon, the Imposition or Lien so contested, (2) the sale, forfeiture or loss of any of the Leased Premises, any Basic Rent or any Additional Rent to satisfy the same or to pay any damages caused by the violation of any such Legal Requirement or by any such violation, (3) any interference with the use or occupancy of any of the Leased Premises, (4) any interference with the payment of any Basic Rent or any Additional Rent, (5) any such contest and/or settlement shall not result in the increase in the Impositions due or result in greater liability (other than any interest, penalty or the like to be paid by Tenant if the contest is unsuccessful) with respect to any Legal Requirement and (6) the cancellation of any fire or other insurance policy.

(b) In no event shall Tenant pursue any contest with respect to any Imposition, Legal Requirement, Lien, or violation, referred to above in such manner that exposes Landlord to (i) criminal liability, penalty or sanction, (ii) any civil liability, penalty or sanction for which Tenant has not made provisions reasonably acceptable to Landlord to pay at Tenant's expense or (iii) defeasance of its interest (including the subordination of the Lien of any Mortgage to a Lien to which such Mortgage is not otherwise subordinate prior to such contest) in the Leased Premises.

(c) Tenant agrees that each such contest shall be promptly and diligently prosecuted to a final conclusion, except that Tenant shall have the right to attempt to settle or compromise such contest through negotiations. Tenant shall pay, protect, defend, indemnify, save and keep harmless each Indemnitee from and against any and all Claims in connection with any such contest and shall, promptly after the final determination of such contest, fully pay and discharge the amounts which shall be levied, assessed, charged or imposed or be determined to be payable therein or in connection therewith, together with all penalties, fines, interest, costs and expenses thereof or in connection therewith, and perform all acts the performance of which shall be ordered or decreed as a result thereof.

A-22

19. Conditional Limitations; Default Provisions.

(a) If any Event of Default shall have occurred and be continuing (except as expressly provided in clause (x) of the definition of "Event of Default" in Appendix A hereto, Landlord shall have the right at its option, then or at any time thereafter, to do any one or more of the following without demand upon or notice to Tenant:

(i) Landlord may give Tenant notice of Landlord's intention to terminate this Lease on a date specified in such notice (which date shall be no sooner than ten (10) days after the date of the notice). Upon the date therein specified the Term and the estate hereby granted and all rights of Tenant hereunder shall expire and terminate as if such date were the date hereinabove fixed for the expiration of the Term, but Tenant shall remain liable for all of its obligations hereunder through the date hereinabove fixed for the expiration of the Term, including its liability for Basic Rent and Additional Rent as hereinafter provided.

(ii) Landlord may, whether or not the Term of this Lease shall have been terminated pursuant to clause (i) above give Tenant notice to surrender the Leased Premises to Landlord on a date specified in such notice (which date shall be no sooner than ten (10) days after the date of the notice), at which time Tenant shall surrender and deliver possession of the Leased Premises to Landlord. Upon or at any time after taking possession of the Leased Premises, Landlord may, upon due process under any Legal Requirements and not otherwise, remove any persons or property therefrom. Landlord shall be under no liability for or by reason of any such entry, repossession or removal. No such entry or repossession shall be construed as an election by Landlord to terminate this Lease unless Landlord gives a written notice of such intention to Tenant pursuant to clause (i) above.

(iii) After repossession of any of the Leased Premises pursuant to clause (ii) above, whether or not this Lease shall have been terminated pursuant to clause (i) above, Landlord shall use reasonable efforts to relet the Leased Premises or any part thereof to such tenant or tenants for such term or terms (which may be greater or less than the period which would otherwise have constituted the balance of the Term) for such rent, on such conditions (which may include concessions or free rent) and for such uses as Landlord, in its reasonable discretion, may determine; and Landlord shall collect and receive any rents payable by reason of such reletting. The rents received on such reletting shall be applied (A) first to the reasonable and actual expenses of such reletting and collection (appropriately prorated if the reletting extends for beyond the expiration date of the Term), including without limitation necessary renovation and alterations of the Leased Premises, reasonable and actual attorneys' fees and any reasonable and actual real estate commissions

paid, and (B) thereafter toward payment of all sums due or to become due Landlord hereunder. If a sufficient amount to pay such expenses and sums shall not be realized or secured, then Tenant shall pay Landlord any such deficiency monthly, and Landlord may bring an action therefor as such monthly deficiency shall arise. Landlord shall not, in any event, be required to pay Tenant any sums received by Landlord on a reletting of the Leased Premises in excess of the rent provided in this Lease, but such excess shall reduce any accrued present or future obligations of Tenant hereunder. Landlord's re-entry and reletting of the Leased Premises without termination of this Lease shall not preclude Landlord from subsequently terminating this Lease as set forth above. Landlord may make such Alterations as Landlord in its reasonable discretion may deem advisable. Tenant agrees to pay

A-23

Landlord, as Additional Rent, immediately upon demand, all reasonable expenses incurred by Landlord in obtaining possession, in performing Alterations and in reletting any of the Leased Premises, including fees and commissions of attorneys, architects, agents and brokers (all appropriately prorated if the reletting extends for beyond the expiration date of the Term).

(iv) Landlord may exercise any other right or remedy now or hereafter existing by Legal Requirements or in equity.

(b) In the event of any expiration or termination of this Lease or repossession of any of the Leased Premises by reason of the occurrence of an Event of Default, Tenant shall pay to Landlord Basic Rent, Additional Rent and all other sums required to be paid by Tenant to and including the date of such expiration, termination or repossession and, thereafter, Tenant shall, until the end of what would have been the Term in the absence of such expiration, termination or repossession, and whether or not any of the Leased Premises shall have been relet, be liable to Landlord for and shall pay to Landlord as liquidated and agreed current damages: (i) Basic Rent, Additional Rent and all other sums which would be payable under this Lease by Tenant in the absence of such expiration, termination or repossession, less (ii) the net proceeds, if any, of any reletting pursuant to Paragraph 19(a)(iii), after deducting from such proceeds all of Landlord's reasonable expenses in connection with such reletting (including all reasonable repossession costs, brokerage commissions, legal expenses, attorneys' fees, employees' expenses, costs of Alteration and expenses of preparation for reletting), all appropriately prorated if the reletting extends for beyond the expiration date of the Term). Tenant hereby agrees to be and remain liable for all sums aforesaid and Landlord may recover such damages from Tenant and institute and maintain successive actions or legal proceedings against Tenant for the recovery of such damages. Nothing herein contained shall be deemed to require Landlord to wait to begin such action or other legal proceedings until the date when the Term would have expired by limitation had there been no such Event of Default.

(c) At any time after such expiration or sooner termination of this Lease pursuant to Paragraph 19 or pursuant to Legal Requirements or if Landlord shall have reentered the Leased Premises, as the case may be, whether or not Landlord shall have recovered any amounts under Paragraph 19(a)(iii) or 19(b), Landlord shall be entitled to recover from Tenant and Tenant shall pay to Landlord, on demand, as and for liquidated and agreed final damages for Tenant's default, the amount by which the sum of (i) Basic Rent, and all Additional Rent reserved hereunder for the unexpired portion of the Term demised herein as if this Lease had not expired or been terminated, and (ii) all of Landlord's reasonable and documented expenses incurred in connection with Tenant's default hereunder (including all reasonable repossession costs, brokerage commissions, legal expenses, attorney's fees, costs of alteration and expenses for preparation of re-letting), exceeds the then fair and reasonable rental value of the Leased Premises for the same period, each such amount discounted to present worth of the 10-Year Treasury Rate then in effect (or imputed rate, if such bonds trade at a premium or a discount, measured to the nearest 1/100th of 1%) as published in Bloomberg (or equivalent news service) or such other equivalent index that may replace the 10-Year Treasury Rate, minus any such monthly deficiencies previously recovered from Tenant under Paragraph 19(a)(iii). If any statute or rule of Legal Requirements governing a proceeding in which such liquidated final damages provided for in this Paragraph 19(c) are to be proved shall validly limit the amount thereof to an amount less than the amount above agreed upon, Landlord shall be entitled to the maximum

A-24

amount allowable under such statute or rule of Legal Requirements. Landlord shall have no duty to mitigate its damages under this Paragraph 19, and Tenant waives any right of Landlord to mitigate its damages after reentry into the Leased Premises. The limitations set forth in this Paragraph 19(c) shall not restrict Landlord's right to recover, to the extent not previously recovered, all accrued and unpaid Basic Rent, Additional Rent and any damages to Landlord arising or accruing through the date of such demand.

20. Additional Rights of Landlord and Tenant.

(a) No right or remedy conferred upon or reserved to Landlord in this Lease is intended to be exclusive of any other right or remedy; and each and every right and remedy shall be cumulative and in addition to any other right or remedy contained in this Lease, but this provision shall not be construed to permit Landlord to recover duplicative damages. No delay or failure by Landlord or Tenant to enforce its rights under this Lease shall be construed as a waiver, modification or relinquishment thereof. In addition to the other remedies provided in this Lease, Landlord and Tenant shall be entitled, to the extent permitted by Legal Requirements, to injunctive relief in case of the violation or attempted or threatened violation of any of the provisions of this Lease, or to specific performance of any of the provisions of this Lease.

(b) Tenant hereby waives and surrenders for itself and all those claiming under it, including creditors of all kinds, any right and privilege which it or any of them may have under any present or future law to redeem any of the Leased Premises or to have a continuance of this Lease after valid termination of this Lease or of Tenant's right of occupancy or possession pursuant to any court order or any provision hereof.

(c) Landlord hereby waives any right to distrain or levy upon Trade Fixtures or any property of Tenant and any landlord's Lien or similar Lien upon Trade Fixtures and any other property of Tenant regardless of whether such Lien is created or otherwise. Landlord agrees at the request of Tenant, to execute a waiver of any landlord's or similar Lien for the benefit of any present or future holder of a security interest in or landlord of any Trade Fixtures or any other property of Tenant.

(d) Landlord acknowledges and agrees in the future to acknowledge (in a written form reasonably satisfactory to Tenant) to such persons and entities at such times and for such purposes as Tenant may reasonably request that the Trade Fixtures and any other personal property (but not Equipment) of Tenant not physically affixed to the Leased Premises are Tenant's property and not part of the Improvements (regardless of whether or to what extent such Trade Fixtures are affixed to the Improvements) or otherwise subject to the terms of this Lease.

(e) Tenant agrees to pay to Landlord any and all reasonable costs and expenses incurred by Landlord in connection with any litigation or other action instituted by Landlord to enforce the obligations of Tenant under this Lease, to the extent that Landlord has prevailed in any such litigation or other action. Any amount payable by Tenant to Landlord pursuant to this Paragraph 20(e) shall be due and payable by Tenant to Landlord as Additional Rent.

A-25

21. Notices. All Notices shall be in writing and shall be deemed to have been given for all purposes (i) three (3) days after having been sent by United States mail, by registered or certified mail, return receipt requested, postage prepaid, addressed to the other party at its address as stated below, or (ii) one (1) day after having been sent for overnight delivery by Federal Express, United Parcel Service or other nationally recognized air courier service.

To the Addresses stated below:

If to Landlord:

c/o Middleton Partners
400 Skokie Boulevard
Northbrook, Illinois 60062
Attention: Mitchel Greenberg and Peter Holstein

With a copy to:

Polsinelli PC
161 N. Clark Street, Suite 4200
Chicago, IL 60601
Attention: Ronald R. Dietrich, Esq.

If to Tenant:

Axcelis Technologies, Inc.
108 Cherry Hill Drive
Beverly, Massachusetts 01915
Attention: Chief Financial Officer

With copies to:

Axcelis Technologies, Inc.
108 Cherry Hill Drive
Beverly, Massachusetts 01915
Attention: General Counsel; and

Choate, Hall & Stewart LLP
Two International Place
Boston, Massachusetts 02110
Attention: Michael S. Sophocles, Esq.

If any Lender shall have advised Tenant by Notice in the manner aforesaid that it is the holder of a Mortgage and states in said Notice its address for the receipt of Notices, then simultaneously with the giving of any Notice by Tenant to Landlord, Tenant shall send a copy of such Notice to Lender in the manner aforesaid, provided, however, that no failure by Tenant to send such notice to Lender shall invalidate or otherwise have any effect on a valid notice delivered to Landlord hereunder. For the purposes of this Paragraph 21, (i) any party may substitute its address by

A-26

giving fifteen days' notice to the other party in the manner provided above and (ii) the entry into of a Subordinate, Non-Disturbance and Attornment Agreement shall constitute notice to the parties listed therein. Any Notice may be given on behalf of any party by its counsel.

22. Estoppel Certificates. Tenant and Landlord shall execute on the Commencement Date, and Landlord and Tenant shall at any time and from time to time, upon not less than ten (10) Business Days' prior written request by the other, execute, acknowledge and deliver to the other a statement in writing certifying (i) that this Lease is unmodified and in full effect (or, if there have been modifications, that this Lease is in full effect as modified, setting forth such modifications), (ii) the dates to which Basic Rent, payable hereunder has been paid, (iii) that to the knowledge of the signer of such certificate no default by either Landlord or Tenant exists hereunder or specifying each such default of which the signer may have knowledge, (iv) the remaining Term hereof, and (v) such other factual matters respecting the terms of this Lease as may reasonably be requested by the party requesting the certificate. It is intended that any such statements may be relied upon by Lender, the recipient of such statements or their assignees or by any prospective purchaser, assignee or subtenant of the Leased Premises. If requested by Lender, Tenant further agrees to provide an opinion from its internal general counsel addressed to Lender, any Rating Agencies and any other parties purchasing or owning an interest in a loan secured by the Leased Premises, to the effect that (i) this Lease is duly authorized by all necessary corporate action of Tenant, (ii) the Tenant is duly formed and in good standing under the laws of its state of formation and (iii) this Lease does not cause Tenant to be in breach under any agreements to which Tenant is a party.

23. Surrender and Holding Over.

(a) Upon the expiration or earlier termination of this Lease, Tenant shall peaceably leave and surrender the Leased Premises (except as to the any portion thereof with respect to which this Lease has previously terminated) and all the Equipment and Building Systems thereof to Landlord in the condition the same is required to be maintained by Tenant pursuant to this Lease (ordinary wear and tear excepted). Tenant shall remove from the Leased Premises on or prior to such expiration or earlier termination the Trade Fixtures (other than the Trade Fixtures described in Exhibit F attached hereto and any

replacement(s) of such items with comparable fixtures or equipment, which Tenant may, but shall not be required, to remove in accordance with the terms hereof) and all unaffixed personal property (but not Equipment) which is owned by Tenant or third parties other than Landlord, and Tenant at its expense shall, on or prior to such expiration or earlier termination, repair any damage caused by such removal. Trade Fixtures and personal property not so removed at the end of the Term or within thirty (30) days after the earlier termination of the Term for any reason whatsoever shall become the property of Landlord upon an additional ten (10) days' written notice to Tenant, and Landlord may thereafter cause such property to be removed from the Leased Premises. The cost of removing and disposing of such unaffixed personal property and repairing any damage to any of the Leased Premises caused by such removal shall be borne by Tenant. Landlord shall not in any manner or to any extent be obligated to reimburse Tenant for any property which becomes the property of Landlord as a result of such expiration or earlier termination.

(b) Any holding over by Tenant of the Leased Premises after the expiration or earlier termination of the Term of this Lease or any extensions thereof, with the consent of

A-27

Landlord, shall operate and be construed as tenancy from month to month only, at one hundred fifty percent (150%) of the Basic Rent reserved herein and upon the same terms and conditions as contained in this Lease. Notwithstanding the foregoing, any holding over without Landlord's consent shall entitle Landlord, in addition to collecting Basic Rent at a rate of one hundred fifty percent (150%) thereof, to exercise all rights and remedies provided by Legal Requirements or in equity, including the remedies of Paragraph 19(b).

24. No Merger of Title. To the maximum extent permitted by Legal Requirements, there shall be no merger of this Lease nor of the leasehold estate created by this Lease with the fee estate in or ownership of any of the Leased Premises by reason of the fact that the same person, corporation, firm or other entity may acquire or hold or own, directly or indirectly, (a) this Lease or the leasehold estate created by this Lease or any interest in this Lease or in such leasehold estate and (b) the fee estate or ownership of any of the Leased Premises or any interest in such fee estate or ownership. To the maximum extent permitted by Legal Requirements, no such merger shall occur unless and until all Persons, corporations, firms and other entities including Lender having any interest in (i) this Lease or the leasehold estate created by this Lease and (ii) the fee estate in or ownership of the Leased Premises or any part thereof sought to be merged shall join in a written instrument effecting such merger and shall duly record the same.

25. Definition of Landlord and Tenant.

(a) Anything contained herein to the contrary notwithstanding, any claim based on or in respect of any liability of Landlord under this Lease shall be enforced only against the Landlord's interest in the Leased Premises and the rents and profits therefrom and shall not be enforced against the Landlord individually or personally. Likewise, neither the shareholders, officers, directors, trustees or partners comprising Tenant, nor Tenant's Affiliates nor the shareholders, directors, trustees, officers or partners of each of the foregoing or any of their respective Affiliates shall be personally liable for the performance of Tenant's obligations under this Lease. Landlord shall look solely to Tenant and the assets of Tenant, including the proceeds thereof, to enforce Tenant's obligations under this Lease and shall not seek any damages or remedies against the above-mentioned parties for any breach of Tenant's obligations under this Lease.

(b) The term "Landlord" as used in this Lease so far as covenants or obligations on the part of Landlord are concerned, shall be limited to mean and include only the owner or owners of the Leased Premises or holder of the Mortgage in possession at the time in question of the Leased Premises and in the event of any transfer or transfers of the title of the Leased Premises, the Landlord herein named (and in case of any subsequent transfers or conveyances, the then grantor) shall be automatically freed and relieved from and after the date of such transfer and conveyance of all personal liability as respects the performance of any covenants or obligations on the part of Landlord contained in this Lease thereafter to be performed.

26. Hazardous Substances.

(a) Tenant agrees that it will not on, about, or under the Leased Premises, make, Release, store, transport, treat or dispose of any Hazardous Materials, except in

A-28

accordance with applicable Environmental Laws. Tenant represents and warrants that during the Term it will at all times comply with applicable Environmental Laws. Tenant represents and warrants that, as of the date hereof: (i) to the best of Tenant's knowledge, none of the Leased Premises, Tenant nor the operations conducted thereon is or has at any time been in violation of, or otherwise exposed to any liability under, any Environmental Laws (other than past violations which have been fully resolved in accordance with Environmental Laws); (ii) no underground storage tanks are located on, in or under the Leased Premises; (iii) to the best of Tenant's knowledge, no Hazardous Materials have been handled, generated, stored, processed or disposed of on or Released or discharged from the Leased Premises (including underground contamination), except in accordance with applicable Environmental Laws (other than past violations which have been fully resolved in accordance with Environmental Laws); (iv) there is no pending, nor, to Tenant's knowledge, threatened litigation arising under Environmental Laws affecting Tenant or the Leased Premises; and (v) to the best of Tenant's knowledge, there has been no notice of any investigation or proceeding relating to Tenant or the Leased Premises which could result in any liability to Tenant, Landlord of the Leased Premises (including, but not limited to, any restrictions on the future use of the Leased Premises) arising under any Environmental Laws. The representations and warranties hereunder shall survive the Expiration Date or any earlier termination of this Lease.

(b) To the extent required by applicable Environmental Laws, Tenant shall remove, respond to or clean up any Hazardous Materials whether now or hereafter existing on the Leased Premises and whether or not arising out of or in any manner connected with Tenant's occupancy of the Leased Premises during the Term. In addition to, and without limiting Paragraph 10 of this Lease, Tenant shall and hereby does agree to save, protect, defend, indemnify and hold Indemnitees harmless from and against any and all Claims arising out of or in any manner connected with: (i) the violation of any Environmental Law with respect to the Leased Premises or Tenant's ownership of the Leased Premises; (ii) the Release or the threatened Release of or failure to remove, respond to or clean up as required by this Paragraph 26, and any Hazardous Materials (as defined herein) from the Leased Premises, any portion or portions thereof or any adjacent or surrounding areas upon which such Hazardous Material have migrated, including any past or current Release or threatened Release during the Initial Term, whether or not arising out of or in any manner connected with Tenant's occupancy of the Leased Premises during the Initial Term or any extension thereof. Notwithstanding the foregoing, nothing herein shall be construed to obligate Tenant to indemnify, defend and hold harmless any Indemnitee from and against any Claims to the extent that such Claims are imposed on or incurred (i) by such Indemnitee by reason of such Indemnitee's

willful misconduct or gross negligence, or (ii) with respect to any matter described in this Paragraph 26 which relates to events, acts or omissions first occurring or first existing (x) subsequent to the expiration or earlier termination of the Term and the vacating of the Leased Premises by the Tenant and any assignee or sublessee of Tenant, and (y) not caused by the acts or omissions of Tenant, any assignee or sublessee of Tenant or any Person claiming by or through Tenant, or the result of any events, conditions, acts or omissions occurring prior to the expiration or earlier termination of the Term and vacating of the Leased Premises by Tenant, any assignee or sublessee of Tenant and any Person claiming by or through Tenant.

(c) The Tenant agrees that it will not install any underground storage tank at the Leased Premises without specific, prior written approval from the Landlord. The Tenant

A-29

agrees that it will not store combustible or flammable materials on the Leased Premises except in accordance with applicable Environmental Laws.

(d) Without the prior written consent of Landlord, which may be given or withheld in Landlord's sole discretion, Tenant shall not perform any **voluntary** environmental testing, including, but not limited to, boring or subsurface penetration, for Hazardous Materials in, on or about the Leased Premises unless required under the Environmental Laws. In the event that Tenant violates the foregoing covenant, Tenant shall within ten (10) days after written demand by Landlord to Tenant provide a replacement environmental insurance policy in a form and substance substantially similar to the Environmental Insurance Policy issued by an insurer which satisfies the requirements set forth in Paragraph 14 hereof and is otherwise reasonably satisfactory to Landlord and Lender.

(e) The obligations of Tenant under this Paragraph 26 shall survive any termination of the Lease.

27. Entry by Landlord. Landlord and its authorized representatives shall have the right upon reasonable notice (which shall be not less than two (2) Business Days except in the case of Emergency to enter the Leased Premises at all reasonable business hours (and at all other times in the event of an Emergency): (a) for the purpose of inspecting the same or for the purpose of doing any work under Paragraph 11(c), and may take all such action thereon as may be reasonably necessary for any such purpose (but nothing contained in this Lease or otherwise shall create or imply any duty upon the part of Landlord to make any such inspection or do any such work), and (b) for the purpose of showing the Leased Premises to prospective purchasers and mortgagees and, at any time within twelve (12) months prior to the expiration of the Term of this Lease for the purpose of showing the same to prospective tenants. No such entry shall constitute an eviction of Tenant but any such entry shall be done by Landlord in such reasonable manner as to minimize any disruption of Tenant's business operation.

28. No Usury. The intention of the parties being to conform strictly to the applicable usury Laws, whenever any provision herein provides for payment by Tenant to Landlord of interest at a rate in excess of the legal rate permitted to be charged, such rate herein provided to be paid shall be deemed reduced to such legal rate.

29. Financial Statements and Additional Financial Covenants.

(a) So long as Tenant is a publicly listed company and is required to file quarterly and annual statements with the SEC, then Tenant shall have no financial reporting requirements hereunder. If Tenant becomes a privately held company then Tenant shall submit to Landlord, either in print or in electronic form, the following financial statements, all of which must be prepared in accordance with GAAP, consistently applied: (i) quarterly financial statements for Tenant, within forty-five (45) days after the end of each March, June, September and December during the Term, and (ii) annual financial statements for Tenant, audited by an independent certified public accountant, within one hundred twenty (120) days after the end of each fiscal year during the Term.. Tenant permits Landlord to share any financial information described herein, with Lender and any institutional lenders and future investors in the Leased Premises (other than any of Tenant's competitors or Persons engaged in the same or substantially

A-30

the same business as Tenant), or as otherwise required by Legal Requirements, provided, however, that all such Persons shall first agree in writing to (i) utilize such information solely for the purpose of evaluating whether to make a loan to or investment in Landlord or to purchase the Leased Premises, and (ii) maintain the confidentiality of any material non-public information in accordance with the SEC's Regulation FD (as the same may be amended, supplemented or superseded from time to time) as long as such regulation is applicable to Tenant, and if such regulation is no longer applicable such Persons shall agree to maintain the confidentiality of any material non-public information using substantially the same procedures and diligence as such Person utilizes to maintain the confidentiality of its own material non-public information.

(b) Tenant (i) covenants that the net proceeds from its sale of the Leased Premises to Landlord on the Commencement Date, after discharge of the mortgage on the Leased Premises and payment of other costs and expenses attributable to closing such sale, will or used as working capital in connection with the Tenant's business of design, manufacture, sale and service of semiconductor manufacturing equipment, and (ii) represents, warrants, that upon the Commencement Date that Tenant shall have a Tangible Net Worth equal to or exceeding \$50,000,000.00. Tenant covenants to maintain the Tangible Net Worth of at least \$50,000,000.00 from the Commencement Date through the eighth (8th) anniversary of the Commencement Date.

30. Special Tax Indemnity.

(a) Tenant hereby represents, warrants and covenants to Landlord as follows: (i) Tenant believes that at the end of the Lease Term there will probably be potential lessees or buyers for the Leased Premises, (other than the Tenant or its Affiliates) as contemplated by current U.S. income tax law, as embodied in Revenue Procedure 76-30, 1976 C.B. 647, as modified and superseded by Revenue Procedure 2001-28, 2001 C.B. 1156 and accordingly, the Tenant believes that neither the Leased Premises as a whole nor the Equipment constitutes "limited use property" within the meaning of those provisions; (ii) the Tenant is not a "tax exempt entity" under current law as defined in Section 168(h) of the Code; (iii) except to the extent required by Legal Requirements, neither Tenant nor any Affiliate will claim any depreciation or cost recovery deductions with respect to the Leased Premises or any portion thereof, and has taken or will take any other action in connection with filing its or their federal income tax returns that would be a primary factor resulting in a Loss or Inclusion (in each case, as defined in Paragraph 30(b) below); and (iv) as of the date hereof none of the Improvements, the Equipment and the Leased Premises require any improvement, modification or addition in order to be rendered substantially complete for their intended use by Tenant, except for repairs and maintenance required in the ordinary course of Tenant's business, if any.

(b) If, by reason of the inaccuracy or breach by Tenant of any of the representations, warranties and covenants contained in this Paragraph 30, any anticipated depreciation deductions are lost, disallowed, eliminated, reduced, recaptured, compromised, delayed or otherwise made unavailable to Landlord (a “Loss”) or Landlord incurs a tax detriment because Landlord is required to include amounts in income other than Anticipated Lease Income (an “Inclusion”), Tenant shall, upon notice from Landlord promptly pay such Person designated by Landlord on demand in immediately available funds, as an indemnity an amount which, on an After-Tax Basis, shall be equal to the sum of (x) the increase in federal, state, local and foreign

A-31

income tax liability for the respective taxable year attributable to such Loss or Inclusion plus (y) the amounts of interest, penalties and additions to tax (including, without limitation, any additions to tax because of underpayment of estimated tax), which are assessed against Landlord for such taxable year by the Internal Revenue Service or any relevant state, local or foreign taxing authority and which are attributable to such Loss or Inclusion.

(c) Landlord shall notify Tenant in writing of any actual or proposed claim, adjustment or other action of any tax authority received by Landlord in writing with respect to which Tenant may be required to provide indemnification under this Paragraph 30 (“Proposed Adjustment”) (but failure of Landlord to so notify Tenant shall not relieve Tenant of its obligations hereunder except to the extent that Tenant is precluded from any contest and actually and materially harmed thereby). If Tenant shall request in writing within thirty (30) days after Landlord’s notice described above that the Proposed Adjustment be contested (or such shorter period in which the Landlord may be required to take action), Landlord shall contest the Proposed Adjustment; provided, however, that: (i) prior to taking such action, Tenant shall have furnished Landlord with an opinion of independent tax advisor chosen by Tenant and reasonably acceptable to Landlord, to the effect that Landlord has a reasonable possibility of success in contesting the claim; (ii) prior to taking such action, Tenant shall have (A) acknowledged its obligation to indemnify Landlord hereunder in the event Landlord does not prevail in such contest and (B) agreed to reimburse Landlord promptly on demand for (or, if so requested by Landlord, advance), all costs and expenses that Landlord may incur in connection with contesting such claim, including without limitation reasonable attorneys’ and accountants’ fees and expenses; (iii) no Event of Default shall exist and be continuing; (iv) Landlord shall not be obligated to contest any proposed amount that is less than Twenty-Five Thousand and 00/100 Dollars (\$25,000.00); and (v) Landlord shall in all events control the contest, and Tenant shall not have any right to inspect the books and records of Landlord, but shall have reasonable opportunity to review and comment on portions of documentation, protests, memoranda or briefs relating exclusively to a Proposed Adjustment. In the event Landlord pays the tax claimed and then seeks a refund, Landlord may require Tenant to advance funds sufficient to pay the tax that would be indemnified by Tenant hereunder if the refund claim were resolved adversely to Landlord. To the extent the refund claim is successful, the refund received from the taxing authority and attributable to funds advanced by Tenant shall be refunded to Tenant, unless the refund is needed to pay an indemnity. Notwithstanding anything to the contrary in this Paragraph 30(c), Landlord may at any time decline to take any further action with respect to a Proposed Adjustment or may settle any contest without the consent of Tenant; provided, however, that if Tenant has complied with all the terms of this Paragraph 30(c), and Tenant has reasonably withheld in writing its consent to all or part of such assessment or settlement based upon its evaluation of the merits, Tenant will not be obligated to indemnify Landlord for the portion of such assessment or settlement to which Tenant has reasonably withheld its consent. For the purposes of Paragraphs 30 and 31, “Landlord” shall include Landlord’s successor and assigns and, in the case of any flow-through entity, the member or other equity owners of Landlord required to report the gross or net income of Landlord and/or other items of income, expense, deduction and credit with respect thereto, and “Landlord” and the owners thereof shall include the consolidated group of which any such Person is a part for income tax purposes.

(d) Notwithstanding anything herein to the contrary, the provisions of this Paragraph 30 shall survive the earlier termination of this Lease.

A-32

31. Withholdings.

(a) Notwithstanding anything herein to the contrary, Tenant agrees that each payment of Basic Rent and Additional Rent shall be free and clear of, and without deduction for any withholdings of any nature whatsoever unless required by Legal Requirements. If any deduction or withholding is required with respect to a payment of Basic Rent and/or Additional Rent by Tenant, Tenant shall pay an additional amount such that the net amount actually received by the Tax Indemnitee, after deduction or withholding, will be equal, on an After-Tax Basis, to all such amounts that would be received by the Tax Indemnitee if no such deduction or withholding had been required; provided, that the Tenant shall not be obligated to pay any additional amount pursuant to this Paragraph 31 if the requirement to make such payment is solely due to the failure of a Tax Indemnitee to comply with Paragraph 30(c) to obtain relief or exemption from such withholding. If as a result of Landlord’s assignment of its interest in this Lease to a person that is not a “United States Person” (within the meaning of Section 7701(a)(30) of the Code), Tenant shall be obligated to withhold any United States federal income tax (and/or any foreign tax) required by Legal Requirements and the preceding two sentences shall not apply in respect of any such withholding properly made and remitted to the applicable taxing authority. In the event Landlord sells or assigns its interest in this Lease, in whole or in part, to a person that is not a United States Person, such person shall, on or before the intended effective date of such sale or assignment, furnish each of Landlord and Tenant with such certificates, documents or other evidence as shall be required by the Code or Treasury Regulations issued pursuant thereto to establish its exemption from United States federal withholding requirements, including a valid, duly completed original copy of Internal Revenue Service Form W-8BEN or W-8ECI or successor applicable form, properly and duly executed, certifying in each case that such person is entitled, at the time such form is supplied, to receive payments pursuant to the Lease without deduction or withholding of United States federal income taxes.

(b) Notwithstanding anything herein to the contrary, the provisions of this Paragraph 31 shall survive the earlier termination of this Lease.

(c) [Intentionally Omitted].

32. [Intentionally Omitted].

33. Right of First Offer

(a) Except in transactions consummated prior to the first (1st) anniversary of the Commencement Date, if at any time during the Term of this Lease, except during the continuance of an Event of Default or as set forth in subsections (b) and (c) below, Landlord desires to sell the Leased Premises, Landlord agrees to notify Tenant in writing of such desire (“ROFO Notice”) and the price (the “ROFO Price”) and other terms at which Landlord

so desires to sell the Leased Premises (the "ROFO Terms"). Tenant shall advise Landlord within thirty (30) days after receiving such ROFO Notice if Tenant is interested in purchasing the Leased Premises for the ROFO Price and the ROFO Terms. If Tenant fails to respond within such time period and/or if Tenant responds that Tenant is not interested in purchasing the Leased Premises, then Tenant shall have no further right hereunder, subject to clause (b)(ii) below, to

A-33

purchase the Leased Premises under the terms set forth in the ROFO Notice. However, if Tenant notifies Landlord within such time period that Tenant wants to purchase the Leased Premises at the ROFO Price and upon such the ROFO Terms, then Landlord and Tenant shall have forty-five (45) days following Landlord's receipt of such notice from Tenant within which to negotiate and execute a mutually satisfactory agreement for the sale of the Leased Premises to Tenant. Tenant acknowledges and agrees that: (i) any such sale or conveyance during any period in which the Loan may not be prepaid or defeased, as the case may be, shall be subject to the outstanding balance of the Loan, and, if Tenant shall be entitled to, and shall, exercise its rights under this Paragraph 33, the Loan, Note, Mortgage and other loan documents will be assumed by Tenant on a full recourse basis, and the Lien of the Mortgage may not be released during such period (which shall be duly accounted for in the ROFO Terms); (ii) such sale shall be in accordance with and subject to the terms and provisions of the Note, the Mortgage and the other loan documents, whether such purchase contemplates the purchase of the Leased Premises subject to the Lien of the Mortgage or for a release of the Lien of the Mortgage; and (iii) if the Lien of the Mortgage is not released in connection with such sale of the Leased Premises, and if Tenant acquires the Leased Premises, no merger of title shall occur and this Lease will remain in full force and effect in accordance with their terms. From the time of Tenant's exercise of its right to purchase the Leased Premises as aforesaid until the closing of the conveyance of the Leased Premises to Tenant, Tenant and Landlord shall continue to enjoy and be bound by all of their respective rights and obligations under this Lease, including the obligation of Tenant to pay Rent as required herein through the date of such conveyance.

(b) (i) In the event that Landlord and Tenant enter into an agreement of sale and purchase but transfer of the Leased Premises to Tenant is not consummated due to Tenant's default under such agreement of sale and purchase, then Tenant shall have no further right hereunder to purchase the Leased Premises and without waiving or modifying any claim due to Tenant's default under such agreement, this Paragraph 33 shall be void in its entirety and Tenant shall have no further rights and Landlord shall have no further obligations under this Paragraph 33.

(i) In the event that Landlord and Tenant fail to enter into an agreement of sale and purchase within such forty-five (45) days or the sale and purchase pursuant thereto is not consummated for reasons other than Tenant's default thereunder, then Tenant shall have no further right hereunder to purchase the Leased Premises with respect to such ROFO Notice, subject to the balance of this clause (b)(ii). Thereafter, Landlord may negotiate with any third party for the sale and purchase of the Leased Premises; provided, however, that Landlord will not finally enter into an agreement of sale with any third party for a purchase price that is less than 95.0% of the ROFO Price, or on terms materially less favorable to Landlord than the ROFO Terms.

(c) Notwithstanding anything to the contrary herein, the provisions of this Paragraph 33 shall not apply to (i) any sale or conveyance of the Leased Premises in foreclosure sale (or similar proceeding) of the Mortgage or a bona-fide mortgage or deed of trust or to any conveyance in lieu of foreclosure of the Mortgage or such bona-fide mortgage or deed of trust, or to any transfer subsequent to a foreclosure sale or deed in lieu thereof if the Loan is securitized, (ii) any sale or conveyance of the Leased Premises which occurs during the existence of an Event of Default hereunder or under the Loan Documents, (iii) a Taking or transfer by deed in lieu of

A-34

Taking, (iv) any transfer of the Leased Premises to an Affiliate of Landlord, (v) any transfer of the Leased Premises to a joint venture in which Landlord or its Affiliate holds a material interest and for which Landlord or its Affiliate serves as general partner, managing member or developer (pursuant to the terms of the joint venture agreement or a separate management or development agreement), (vi) a transfer in connection with a sale of all or substantially all of Landlord's assets, or (vii) any sale, conveyance, alienation, mortgage, encumbrance, pledge or transfer of the beneficial ownership interest, membership interest or other equity interest in Landlord, or the change of the trustee, manager or other controlling person of the Landlord.

34. Separability. To the maximum extent permitted by Legal Requirements, each and every covenant and agreement contained in this Lease is, and shall be construed to be, a separate and independent covenant and agreement, and the breach of any such covenant or agreement by Landlord shall not discharge or relieve Tenant from its obligation to perform the same. If any term or provision of this Lease or the application thereof to any provision of this Lease or the application thereof to any person or circumstances shall to any extent be invalid and unenforceable, the remainder of this Lease, or the application of such term or provision to person or circumstances other than those as to which it is invalid or unenforceable, shall, to the maximum extent permitted by Legal Requirements, including equitable principles, not be affected thereby, and each term and provision of this Lease shall be valid and shall be enforced to the extent permitted by law.

35. Miscellaneous.

(a) The paragraph headings in this Lease are used only for convenience in finding the subject matters and are not part of this Lease or to be used in determining the intent of the parties or otherwise interpreting this Lease.

(b) As used in this Lease the singular shall include the plural as the context requires and the following words and phrases shall have the following meanings: (i) "including" shall mean "including but not limited to"; (ii) "provisions" shall mean "provisions, terms, agreements, covenants and/or conditions"; and (iii) "obligation" shall mean "obligation, duty, agreement, liability, covenant or condition".

(c) Except as expressly provided herein, any act which Landlord is permitted to perform under this Lease may be performed at any time and from time to time by Landlord or any person or entity designated by Landlord. Except as expressly provided herein, any act which Tenant is required to perform under this Lease shall be performed at Tenant's sole cost and expense.

(d) This Lease may be modified, amended, discharged or waived only with the written consent of Lender by an agreement in writing signed by the party against whom enforcement of any such modification, amendment, discharge or waiver is sought.

(e) The covenants of this Lease shall run with the Land and bind Tenant, the successors and assigns of Tenant and all present and subsequent encumbrances and subtenants of any of the Leased Premises, and shall inure to the benefit of and bind Landlord, its successors and assigns.

(f) [Intentionally Omitted.]

(g) This Lease will be simultaneously executed in several counterparts, each of which when so executed and delivered shall constitute an original, fully enforceable counterpart for all purposes.

(h) This Lease shall be governed by and construed according to the Laws of the State.

(i) Notwithstanding anything contained herein to the contrary, each party to this Lease (and each of its employees, representatives and other agents) may disclose to any and all persons, without limitation of any kind, the tax treatment and tax structure of the Lease and all materials of any kind (including opinions and other tax analyses) that are provided to such party or parties relating to the tax treatment or tax structure of the Lease, except that such disclosure is not permitted to the extent necessary for each party to comply with the federal or state securities laws. This authorization is not intended to permit disclosure of any other information and materials relating to the Lease including, without limitation: (i) any portion of any materials to the extent not related to the tax treatment or tax structure of the Lease, (ii) the identities of participants or potential participants in the Lease, (iii) the existence or status of any negotiations, (iv) any pricing or financial information (except to the extent such pricing or financial information is related to the tax treatment or tax structure of the Lease), and (v) any other term or detail not relevant to the tax treatment or the tax structure of the Lease.

36. Specially Designated Nationals; Blocked Persons; Embargoed Persons.

(a) Tenant represents and warrants to Landlord that (A) Tenant is (i) not currently identified on the Specially Designated Nationals and Blocked Persons List maintained by the Office of Foreign Assets Control of the Department of the Treasury ("OFAC") and/or on any other similar list maintained by OFAC pursuant to any authorizing statute, executive order or regulation (collectively, the "List"), and (ii) not an entity with whom a citizen of the United States is prohibited to engage in transactions by any trade embargo, economic sanction, or other prohibition of United States law, regulation, or Executive Order of the President of the United States, (B) none of the funds or other assets of Tenant (for the avoidance of doubt, other than publicly traded stock) constitute property of, or are beneficially owned, directly or indirectly, by, any Embargoed Person (C) other than proceeds of any publicly traded stock, none of the funds of Tenant have been derived from any unlawful activity with the result that the investment in Tenant is prohibited by law or that the Lease is in violation of law, and (D) Tenant has implemented procedures, and will apply those procedures, to ensure its compliance with OFAC. The term "Embargoed Person" means any person, entity or government subject to trade restrictions under U.S. law, including but not limited to, the International Emergency Economic Powers Act, 50 U.S.C. §1701 et seq., The Trading with the Enemy Act, 50 U.S.C. App. 1 et seq., and any Executive Orders or regulations promulgated thereunder with the result that the investment in Tenant is prohibited by law or Tenant is in violation of law.

(b) Tenant covenants and agrees (A) to comply with all requirements of law relating to money laundering, anti-terrorism, trade embargos and economic sanctions, now or hereafter in effect, (B) to promptly notify Landlord in writing if Tenant obtains any actual

knowledge that any of the representations, warranties or covenants set forth in this paragraph or the preceding paragraph are no longer true or have been breached (C) except for proceeds of publicly traded stock, not to use funds from any "Prohibited Person" (as such term is defined in the September 24, 2001 Executive Order Blocking Property and Prohibiting Transactions With Persons Who Commit, Threaten to Commit, or Support Terrorism) to make any payment due to Landlord under the Lease and (D) at the request of Landlord, to provide such non-confidential information as may be reasonably requested by Landlord to determine Tenant's compliance with the terms hereof.

(c) Tenant hereby acknowledges and agrees that Tenant's inclusion on the List, or finding by a court of competent jurisdiction that Tenant or any executive officer or Director of Tenant is an Embargoed Person or Prohibited Person at any time during the Term shall be an Event of Default (except no Event of Default shall arise in the event Tenant is removed from the List within ninety (90) days). Notwithstanding anything herein to the contrary, Tenant shall not knowingly permit the Premises or any portion thereof to be used or occupied by any person or entity on the List or by any Embargoed Person or Prohibited Person (on a permanent, temporary or transient basis).

37. Force Majeure. Other than for Landlord's or Tenant's obligations under this Lease that can be performed by the payment of money (including, without limitation, Tenant's obligation to pay Basic Rent and Additional Rent, this Lease and the obligations of Landlord and Tenant to perform their respective obligations hereunder shall be subject to Force Majeure.

IN WITNESS WHEREOF, Landlord and Tenant have caused this instrument to be executed under seal as of the day and year first above written.

LANDLORD:

BEVERLY PROPERTY OWNER LLC

By: Middleton Management Company, an Illinois corporation, its manager

By: /s/ Peter L. Holstein
Name: Peter L. Holstein
Title: Treasurer

TENANT:

AXCELIS TECHNOLOGIES, INC.

By: /s/ Lynnette C. Fallon
Name: Lynnette C. Fallon
Title: EVP HR/Legal and General Counsel

A-38

Note on Omitted Exhibits and Schedules to the Lease Agreement dated as of January 30, 2015 between Axcelis Technologies, Inc. and Beverly Property Owner, LLC as filed with the Securities Exchange Commission (the "Commission") on Form 10-K

In accordance with Paragraph (b)(2) of the Instructions to Item 601 of Regulation S-K issued by the Commission, all of the exhibits to this Lease Agreement (other than Exhibit B—Rent Schedule, Exhibit G—Replacements and Appendix A—Definitions) have not been filed on the basis that they do not contain information which is material to an investment decision and which is otherwise not disclosed in the agreement or the Form 10-K to which the Lease Agreement is an exhibit. Axcelis will furnish supplementally a copy of any omitted exhibit or schedule to the Commission upon request. Below is a list of the omitted exhibits and schedules with a brief description of the document:

List of Omitted Exhibits and Schedules

Table with 3 columns: Exhibit, Name, Description. Lists omitted exhibits A through Appendix A with their respective descriptions.

A-39

EXHIBIT B

RENT SCHEDULE

Basic Rent for the Term shall be payable as follows:(1)

Basic Rent is due on each Basic Rent Payment Date.

Table with 4 columns: Rent Period, Lease Years, Annual Basic Rent, Monthly Basic Rent Due. Shows rent schedule from Year 1 to Year 20.

21	\$	7,192,067	\$	599,338.92
22	\$	7,335,908	\$	611,325.70

(1) Notwithstanding anything in this Lease to the contrary, for the purposes of Paragraph 5(b), the Basic Rent during each Extension Term shall increase by 2.00% (Two and 00/100ths Percent) for each year of each Extension Term.

B-1

EXHIBIT G

REPLACEMENTS

A. Replacements and Replacements Reserve.

1.1. Replacement Reserve Fund. Tenant shall pay to Landlord or Lender (a) on the Commencement Date an initial deposit \$3,477.61 (the "Replacement Reserve Initial Deposit") and (b) on each Basic Rent Payment Date thereafter \$3,477.61 (the "Replacement Reserve Monthly Deposit") which amounts are reasonably estimated by Landlord in its discretion to be due for replacements and repairs required to be made to the Leased Premises during the calendar year (collectively, the "Replacements"). Amounts so deposited shall hereinafter be referred to as Tenant's "Replacement Reserve Fund" and the account in which such amounts are held shall hereinafter be referred to as Tenant's "Replacement Reserve Account". Notwithstanding the preceding sentence, the amount of Replacement Reserve Funds on deposit in the Replacement Reserve Account at any given time shall not exceed \$125,193.90 in the aggregate (the "Replacement Reserve Cap") and, accordingly, to the extent a Replacement Reserve Monthly Deposit would result in the aggregate amount of Replacement Reserve Funds in the Replacement Reserve Account to exceed the Replacement Reserve Cap, such Replacement Reserve Monthly Deposit shall be decreased by an amount equal to such excess.

1.2 Disbursements from Replacement Reserve Account. (a) Landlord shall make disbursements from the Replacement Reserve Account to pay Tenant only for the costs of Replacements. Landlord shall not be obligated to make disbursements from the Replacement Reserve Account to reimburse Tenant for the costs of routine maintenance to the Leased Premises or replacements of Tenant's business inventory.

(b) Landlord shall, upon written request from Tenant and satisfaction of the requirements set forth in this Paragraph 1.2, disburse to Tenant amounts from the Replacement Reserve Account necessary to pay for the actual approved costs of Replacements or to reimburse Tenant therefor, upon completion of such Replacements (or, upon partial completion in the case of Replacements made pursuant to Paragraph 1.2(e) hereof) as reasonably determined by Landlord. In no event shall Landlord be obligated to disburse funds from the Replacement Reserve Account if an Event of Default exists and is continuing.

(c) Each request for disbursement from the Replacement Reserve Account shall specify (i) the Replacements for which the disbursement is requested, describing the same in reasonable detail, (ii) the quantity and price of each item purchased having a value in excess of Ten Thousand Dollars (\$10,000.00), if the Replacement includes the purchase or replacement of specific items costing in excess of such amount, (iii) the price of all materials (grouped by type or category, as Tenant shall reasonably determine) used in any Replacement other than the purchase or replacement of specific items specified by Tenant pursuant to clause (ii) hereof, and (iv) the cost of all contracted construction and other labor or other services (such as, but not limited to, architectural, engineering, survey, geotechnical and other soft costs) applicable to each Replacement for which such request for disbursement is made. With each request Tenant shall certify or cause its project architect to certify that all Replacements have been made in accordance with all applicable Legal Requirements. Each request for disbursement shall include

Exhibit G-1

copies of invoices for all items or materials purchased costing in excess or \$10,000 and for all contracted labor or services provided and, unless Landlord has agreed to issue joint checks as described below in connection with a particular Replacement, each request shall include evidence reasonably satisfactory to Landlord of payment of all such amounts. Except as provided in Paragraph 1.2(e) hereof, each request for disbursement from the Replacement Reserve Account shall be made only after completion of the Replacement for which disbursement is requested. Tenant shall provide Landlord evidence of completion of the subject Replacement satisfactory to Landlord in its reasonable judgment.

(d) Tenant shall pay all invoices in connection with the Replacements with respect to which a disbursement is requested prior to submitting such request for disbursement from the Replacement Reserve Account or, at the request of Tenant, Landlord shall issue joint checks, payable to Tenant and the contractor, supplier, materialman, mechanic, subcontractor or other party to whom payment is due in connection with a Replacement. In the case of payments made by joint check, Landlord may require a waiver of lien from each Person receiving payment prior to Landlord's disbursement from the Replacement Reserve Account (which waiver of lien may be conditioned on such Person's receipt of the applicable payment). In addition, as a condition to any disbursement, Landlord may require Tenant to obtain lien waivers from each contractor, supplier, materialman, mechanic or subcontractor who receives payment in an amount equal to or greater than \$25,000.00 for completion of its work or delivery of its materials. Any lien waiver delivered hereunder shall conform to the requirements of applicable law and shall cover all work performed and materials supplied (including equipment and fixtures) for the Leased Premises by that contractor, supplier, subcontractor, mechanic or materialman through the date covered by the current reimbursement request (or, if payment to such contractor, supplier, subcontractor, mechanic or materialmen is to be made by a joint check, the release of lien shall be effective through the date covered by the previous release of funds request).

(e) If (i) the cost of a Replacement exceeds \$25,000.00, (ii) a contractor performing such Replacement or a portion thereof requires periodic payments pursuant to terms of a written contract, and (iii) Landlord has approved in writing in advance such periodic payments (such approval not to be unreasonably withheld, conditioned or delayed), a request for reimbursement from the Replacement Reserve Account may be made after completion of a portion of the work under such contract or other designated interval under such contract, provided (A) such contract requires payment upon completion of such portion of the work or upon such other designated interval, (B) the materials for which the request is made are on site at the Leased Premises and are properly secured or have been installed in the Leased Premises (or are stored off-site in a commercially reasonable manner and free and clear of mechanics' Lien claims), (C) all other conditions in this Lease for the requested disbursement have been satisfied, (D) funds remaining in the Replacement Reserve Account are, in Landlord's reasonable judgment, sufficient to complete such Replacement, and (E) if required by Landlord's Lender, each contractor or

subcontractor who is to receive payment in an amount equal to or greater than \$25,000.00 for completion of its work or delivery of its materials and receiving payments under such contract shall provide a waiver of lien with respect to amounts which have been paid to that contractor or subcontractor.

Exhibit G-2

(f) Tenant shall not make a request for disbursement from the Replacement Reserve Account more frequently than once in any calendar month and (except in connection with the final disbursement for a particular Replacement or for a Replacement costing less than \$25,000.00) the total cost of all Replacements in any request shall not be less than \$25,000.00.

1.3 Performance of Replacements. (a) Nothing in this Paragraph 1.3 shall: (i) make Landlord responsible for making or completing any Replacements; (ii) require Landlord to itself expend funds in addition to the Replacement Reserve Fund to make or complete any Replacement; (iii) obligate Landlord to proceed with any Replacements; or (iv) obligate Landlord to demand from Tenant additional sums to make or complete any Replacement.

(b) Tenant shall permit Landlord (including Landlord's engineer, architect, or inspector), upon reasonable prior notice and subject to reasonable safety precautions, to enter onto the Leased Premises during normal business hours to inspect the progress of any Replacements and all observable materials being used in connection therewith, to examine all plans and shop drawings relating to such Replacements which are kept at the Leased Premises.

(c) The Replacements and all materials, equipment, fixtures, or any other item comprising a part of any Replacement shall be constructed, installed or completed, as applicable, free and clear of all Liens.

(d) All Replacements shall comply with all applicable Legal Requirements and applicable Insurance Requirements including applicable building codes, special use permits, environmental regulations, and requirements of insurance underwriters.

1.4 Balance in the Replacement Reserve Account. The insufficiency of any balance in the Replacement Reserve Account shall not relieve Tenant from its obligation to fulfill all preservation and maintenance covenants in this Lease.

B. Deferred Maintenance and Replacements Reserve.

2.1 Deferred Maintenance Reserve Fund. Tenant shall pay to Landlord or Lender (a) on the Commencement Date an initial deposit \$59,610.00 (the "Deferred Maintenance Reserve Initial Deposit") and (b) on each Basic Rent Payment Date thereafter \$-0- (the "Deferred Maintenance Reserve Monthly Deposit") which amounts are reasonably estimated by Landlord in its discretion to be due for deferred maintenance disclosed in that certain Property Condition Report dated November 20, 2014 by Nova Consulting Group, Inc. to be made to the Leased Premises (collectively, the "Deferred Maintenance"). Amounts so deposited shall hereinafter be referred to as Tenant's "Deferred Maintenance Reserve Fund" and the account in which such amounts are held shall hereinafter be referred to as Tenant's "Deferred Maintenance Reserve Account".

2.2 Disbursements from Deferred Maintenance Reserve Account. (a) Landlord shall make disbursements from the Deferred Maintenance Reserve Account to pay Tenant only for the costs of Deferred Maintenance. Landlord shall not be obligated to make disbursements from the Deferred Maintenance Reserve Account to reimburse Tenant for the cost of replacements of Tenant's business inventory.

Exhibit G-3

(b) Landlord shall, upon written request from Tenant and satisfaction of the requirements set forth in this Paragraph 2.2, disburse to Tenant amounts from the Deferred Maintenance Reserve Account necessary to pay for the actual approved costs of Deferred Maintenance or to reimburse Tenant therefor, upon completion of such Deferred Maintenance (or, upon partial completion in the case of Deferred Maintenance made pursuant to Paragraph 2.2(g) hereof) as reasonably determined by Landlord. In no event shall Landlord be obligated to disburse funds from the Deferred Maintenance Reserve Account if an Event of Default exists and is continuing.

(c) Each request for disbursement from the Deferred Maintenance Reserve Account shall specify (i) the Deferred Maintenance for which the disbursement is requested, describing the same in reasonable detail, (ii) the quantity and price of each item purchased having a value in excess of Ten Thousand Dollars (\$10,000.00), if the Deferred Maintenance includes the purchase or replacement of specific items costing in excess of such amount, (iii) the price of all materials (grouped by type or category, as Tenant shall reasonably determine) used in any Deferred Maintenance other than the purchase or replacement of specific items specified by Tenant pursuant to clause (ii) hereof, and (iv) the cost of all contracted construction and other labor or other services (such as, but not limited to, architectural, engineering, survey, geotechnical and other soft costs) applicable to each item of Deferred Maintenance for which such request for disbursement is made. With each request Tenant shall certify or cause its project architect to certify that all Deferred Maintenance has been made in accordance with all applicable Legal Requirements. Each request for disbursement shall include copies of invoices for all items or materials purchased costing in excess of \$10,000 and for all contracted labor or services provided and, unless Landlord has agreed to issue joint checks as described below in connection with a particular item of Deferred Maintenance, each request shall include evidence reasonably satisfactory to Landlord of payment of all such amounts. Except as provided in Paragraph 2.2(e) hereof, each request for disbursement from the Deferred Maintenance Reserve Account shall be made only after completion of the item of Deferred Maintenance for which disbursement is requested. Tenant shall provide Landlord evidence of completion of the subject item of Deferred Maintenance satisfactory to Landlord in its reasonable judgment.

(d) Tenant shall pay all invoices in connection with any Deferred Maintenance with respect to which a disbursement is requested prior to submitting such request for disbursement from the Deferred Maintenance Reserve Account or, at the request of Tenant, Landlord shall issue joint checks, payable to Tenant and the contractor, supplier, materialman, mechanic, subcontractor or other party to whom payment is due in connection with an item of Deferred Maintenance. In the case of payments made by joint check, Landlord may require a waiver of lien from each Person receiving payment prior to Landlord's disbursement from the Deferred Maintenance Reserve Account (which waiver of lien may be conditioned on such Person's receipt of the applicable payment). In addition, as a condition to any disbursement, Landlord may require Tenant to obtain lien waivers from each contractor, supplier, materialman, mechanic or subcontractor who receives payment in an amount equal to or greater than \$25,000.00 for completion of its work or delivery of its materials. Any lien waiver delivered hereunder shall conform to the requirements of applicable law and shall cover all work performed and materials supplied (including equipment and fixtures) for the Leased Premises by that contractor, supplier, subcontractor, mechanic or materialman through the date covered by the current reimbursement request (or, if payment to such contractor, supplier, subcontractor,

mechanic or materialmen is to be made by a joint check, the release of lien shall be effective through the date covered by the previous release of funds request).

(e) If (i) the cost of a Deferred Maintenance item exceeds \$25,000.00, (ii) a contractor performing such item of Deferred Maintenance or a portion thereof requires periodic payments pursuant to terms of a written contract, and (iii) Landlord has approved in writing in advance such periodic payments (such approval not to be unreasonably withheld, conditioned or delayed), a request for reimbursement from the Deferred Maintenance Reserve Account may be made after completion of a portion of the work under such contract or other designated interval under such contract, provided (A) such contract requires payment upon completion of such portion of the work or upon such other designated interval, (B) the materials for which the request is made are on site at the Leased Premises and are properly secured or have been installed in the Leased Premises (or are stored off-site in a commercially reasonable manner and free and clear of mechanics' Lien claims), (C) all other conditions in this Lease for the requested disbursement have been satisfied, (D) funds remaining in the Deferred Maintenance Reserve Account are, in Landlord's reasonable judgment, sufficient to complete such Deferred Maintenance, and (E) if required by Landlord's Lender, each contractor or subcontractor who is to receive payment in an amount equal to or greater than \$25,000.00 for completion of its work or delivery of its materials and receiving payments under such contract shall provide a waiver of lien with respect to amounts which have been paid to that contractor or subcontractor.

(f) Tenant shall not make a request for disbursement from the Deferred Maintenance Reserve Account more frequently than once in any calendar month and (except in connection with the final disbursement for a particular item of Deferred Maintenance or for an item of Deferred Maintenance costing less than \$25,000.00) the total cost of all items of Deferred Maintenance in any request shall not be less than \$25,000.00.

2.3 Performance of Deferred Maintenances. (a) Nothing in this Paragraph 2.3 shall: (i) make Landlord responsible for making or completing any Deferred Maintenance; (ii) require Landlord to itself expend funds in addition to the Deferred Maintenance Reserve Fund to make or complete any Deferred Maintenance; (iii) obligate Landlord to proceed with any Deferred Maintenance; or (iv) obligate Landlord to demand from Tenant additional sums to make or complete any Deferred Maintenance.

(b) Tenant shall permit Landlord (including Landlord's engineer, architect, or inspector), upon reasonable prior notice and subject to reasonable safety precautions, to enter onto the Leased Premises during normal business hours to inspect the progress of any Deferred Maintenance and all observable materials being used in connection therewith, to examine all plans and shop drawings relating to such Deferred Maintenance which are kept at the Leased Premises.

(c) The Deferred Maintenance and all materials, equipment, fixtures, or any other item comprising a part of any item of Deferred Maintenance shall be constructed, installed or completed, as applicable, free and clear of all Liens.

Exhibit G-5

(d) All Deferred Maintenance shall comply with all applicable Legal Requirements and applicable Insurance Requirements including applicable building codes, special use permits, environmental regulations, and requirements of insurance underwriters.

2.4 Balance in the Deferred Maintenance Reserve Account. The insufficiency of any balance in the Deferred Maintenance Reserve Account shall not relieve Tenant from its obligation to fulfill all preservation and maintenance covenants in this Lease.

Exhibit G-6

APPENDIX A

DEFINITIONS

"Additional Rent" shall mean all amounts, costs, expenses, monetary liabilities and monetary obligations (including Tenant's obligation to pay any Net Awards, Additional Payments, the Replacements Reserve Monthly Deposit, the Deferred Maintenance Monthly Reserve Deposit, Impositions, Default Rate interest or Late Charges hereunder) which Tenant is required to pay to Landlord pursuant to the terms of this Lease other than Basic Rent.

"Additional Payments" shall mean all amounts that are, in accordance with the terms of this Lease, due and owing to Lender or Landlord by reason of any default by Tenant in complying with its obligations under this Lease.

"Adjoining Property" shall mean all sidewalks, curbs, gores and vault spaces adjoining the Leased Premises.

"Affiliate" of any Person shall mean any other Person directly or indirectly controlling, controlled by or under common control with such Person and shall include, if such Person is a natural person, member of the immediate family of such Person, and trusts for the benefit of such natural person. For the purposes of this definition, the term "control" (including the correlative meanings of the terms "controlling", "controlled by" and "under common control with"), as used with respect to any Person, shall mean the possession, directly or indirectly, of the power to direct or cause the direction of the management policies of such Person, whether through the ownership of voting securities or by contract or otherwise.

"After-Tax Basis" shall mean, with respect to any payment received or accrued by any Person, the amount of such payment (the "base payment") supplemented by a further payment (the "additional payment") to that Person so that the sum of the base payment plus the additional payment shall, after taking into account the amount of all Taxes required to be paid by such Person in respect of the receipt or accrual of the base payment and the additional payment (after any current credits or deductions arising therefrom and the timing thereof), be equal to the amount required to be received. Such calculations shall be made (a) in the case of entities subject to United States Federal income tax, at the highest marginal United States federal, state and local income tax rates applicable to individuals or corporations (as the case may be) resident or domiciled in the jurisdiction where the recipient of such payment is located (or where the recipient indicates such payment will be required to be reported, if different); (b) in the case of an organization exempt from United States Federal

income tax, at the highest marginal United States federal, state and local tax rates applicable to unrelated business taxable income (or any tax that is a supplement or addition to or substitute for or in lieu thereof, whether or not expressly so designated), but only if the payments with respect to the Leased Premises are subject to such tax; or (c) if Landlord is not a US taxpayer, at Landlord's actual effective overall tax rate, if lower. In the case of any flow through entity, "Landlord" shall include the direct or indirect members or other equity owners of Landlord that are required to report the gross or net income of Landlord and/or other items of income, expense, deduction and credit with respect thereto, and in the case of any entity, "Landlord" and the owners thereof shall include any consolidated, combined or unitary group of which Landlord is a part for income tax purposes.

A-1

"Alteration" or "Alterations" shall mean any or all changes, additions (whether or not adjacent to or abutting any then existing buildings), expansions (whether or not adjacent to or abutting any then existing buildings), improvements, reconstructions, removals or replacements of any of the Improvements or Equipment, both interior or exterior, and ordinary and extraordinary, excluding, however, painting, installation of carpeting, tile, hardwood and other finish flooring, installation of modular office furniture, installations of low-voltage wiring for computer, telecommunications or other purposes, installation of Trade Fixtures and other non-material changes such as hanging of pictures, shelving, temporary structures and the like (provided the same comply with all applicable Legal Requirements).

"Anticipated Lease Income" shall mean the amounts expected to be included in gross income with respect to this Lease including only (i) Basic Rent and Additional Rent, (ii) payments as a consequence of a sale or other disposition (other than in the case of the exercise of remedies after an Event of Default) of the Leased Premises, and (iii) an amount received pursuant to the indemnity set for in Paragraph 30.

"Basic Rent" shall mean the amounts set forth on Exhibits B, attached hereto.

"Basic Rent Payment Dates" shall mean the first Business Day of February, 2015 and the first Business Day of each month thereafter during the Term.

"Building Systems" shall mean all Equipment including, built-in heating, ventilating, air conditioning, building controls and communications, electrical equipment (including meters and power panels) and other building systems utilized in connection with the base building operation of the Leased Premises (as opposed to the business conducted thereon) and which (i) are not readily removable without unrepaired damage to the Leased Premises, (ii) removal of which would reduce the fair market value, economic life or utility of the Leased Premises if removed and (iii) are required for the occupancy and continued operation of the Leased Premises for its Permitted Use in accordance with the Legal Requirements.

"Business Days" shall mean Monday through Friday, except any days upon which banks are permitted to be closed in the Commonwealth of Massachusetts (each such day being referred to as a "Business Day").

"CERCLA" shall mean the Comprehensive Environmental Response, Compensation and Liability Act, as amended by the Superfund Amendments and Reauthorization Act of 1986, 42 U.S.C. §§ 9601-9657.

"Claims" shall mean Liens (including, without limitation, lien removal and bonding costs) liabilities, obligations, damages, losses, demands, penalties, assessments, payments, fines, claims, actions, suits, judgments, settlements, costs, expenses and disbursements (including, without limitation, reasonable legal fees and expenses and costs of investigation) of any kind and nature whatsoever which are asserted against Landlord or any Affiliate of Landlord by any Person or Governmental Authority other than an Affiliate of Landlord or are incurred by Landlord on account of any Lien arising against the Leased Premises.

"Code" shall mean the Internal Revenue Code of 1986, as amended, supplemented or supplanted from time to time.

A-2

"Commencement Date" shall mean January 30, 2015.

"Condemnation" shall mean a Taking and/or a Requisition.

"Default Rate" shall mean a rate of interest equal to four (4%) percent per annum above the then current Prime Rate.

"Deferred Maintenance" shall have the meaning set forth in Exhibit G.

"Deferred Maintenance Reserve Account" shall have the meaning set forth in Exhibit G.

"Deferred Maintenance Reserve Fund" shall have the meaning set forth in Exhibit G.

"Deferred Maintenance Reserve Initial Deposit" shall have the meaning set forth in Exhibit G.

"Deferred Maintenance Reserve Monthly Deposit" shall have the meaning set forth in Exhibit G.

"Easements" shall mean easements, covenants, waivers, approvals orders of conditions, plan approvals, third party agreements (including, without limitation, with Governmental Authorities) or restrictions for utilities, parking or other matters as may be necessary or desirable for operation of the Leased Premises or properties adjacent thereto and/or the businesses conducted at the Leased Premises from time to time.

"Environmental Insurance Policy" shall mean that certain environmental insurance policy no. _____ dated as of the Commencement Date issued by XL Insurance in favor of Landlord.

"Environmental Laws" shall mean applicable laws and regulations of a Governmental Authority concerning pollution or protection of the environment, including all those relating to the generation, handling, transportation, treatment, storage, disposal, distribution, labeling, discharge, release,

threatened release, control, or cleanup of any Hazardous Materials, including, without limitation the Resource Conservation and Recovery Act of 1976 (RCRA), 42 U.S.C. §§ 6901 6987, as amended by the Hazardous and Solid Waste Amendments of 1984, CERCLA, the Hazardous Materials Transportation Act of 1975, 49 U.S.C. §§ 1801 1812, the Toxic Substances Control Act, 15 U.S.C. §§ 2601 2671, the Clean Air Act, 42 U.S.C. §§ 7401 et seq., and the Federal Insecticide, Fungicide and Rodenticide Act, 7 U.S.C. §§ 136 et seq., and all other federal, state, and local laws, ordinances, rules, orders, statutes, codes and regulations applicable to the Leased Premises which: (i) relate to the environment, human health and natural resources; (ii) regulate, control or impose liabilities or standards of conduct concerning any Hazardous Materials; or (iii) regulate the clean-up or remediation of the Leased Premises or any portion thereof, as any of the foregoing may have been amended, supplemented or supplanted from time to time.

“Emergency” shall mean and refer to any circumstance which could reasonably be expected to give rise to material risk of personal injury, death, or substantial damage to property.

A-3

“Equipment” shall mean, collectively, the machinery and equipment which is attached to the Improvements in such a manner as to become fixtures under Legal Requirements, together with all additions and accessions thereto, substitutions therefor and replacements thereof permitted by this Lease, excepting therefrom the Trade Fixtures. For the avoidance of doubt, the Leased Premises shall include all the “Tangible Personal Property” and “Intangible Personal Property” conveyed or assigned from Tenant to Landlord pursuant to that certain Real Estate Sale Agreement by and between Landlord, as purchaser, and Tenant, as Seller, dated as of October 3, 2014.

“Event of Default” shall mean the occurrence of any one or more of the following events under this Lease: (i) a failure by Tenant to make (regardless of the pendency of any bankruptcy, reorganization, receivership, insolvency or other proceedings, in Legal Requirements, in equity or before any administrative tribunal which had or might have the effect of preventing Tenant from complying with the provisions of this Lease): (x) any payment of Basic Rent or Additional (unless a notice or grace period is otherwise specifically provided for in this Lease) when due and payable, or (y) any payment of any other sum herein required to be paid by Tenant which continues unremedied for a period of five (5) days; (ii) failure by Tenant to provide Landlord evidence of insurance in accordance with this Lease and such default shall continue for a period of ten (10) days after written notice thereof is given by Landlord to Tenant; (iii) failure by Tenant to perform and observe, or a violation or breach of, any other provision in this Lease and such default shall continue for a period of thirty (30) days after written notice thereof is given by Landlord to Tenant, describing the failure in commercially reasonable detail, or if such default is of such a nature that it cannot reasonably be cured within such period of thirty (30) days, such period shall be extended for such longer time as is reasonably necessary (not to exceed sixty (60) days) provided that Tenant has commenced to cure such default within said period of thirty (30) days and is actively, diligently and in good faith proceeding with commercially reasonable continuity to remedy such default; (iv) any representation or warranty made in this Lease, or in connection with this Lease, by any executive officer (as defined by the SEC) of Tenant is determined by Landlord to have been false or misleading in any material respect at the time made; unless (in the event a cure thereof is curable) Tenant cures such breach of representation or warranty within thirty (30) days after written notice thereof is given by Landlord to Tenant describing the breach of representation or warranty reasonable detail, or if such breach is of such a nature that it is curable but cannot reasonably be cured within such period of thirty (30) days, such period shall be extended for such longer time as is reasonably necessary provided that Tenant has commenced to cure such breach within said period of thirty (30) days and is diligently and in good faith proceeding with commercially reasonable continuity to remedy such breach; (v) Tenant shall (A) voluntarily be adjudicated a bankrupt or insolvent, (B) or voluntarily consent to the appointment of a receiver or trustee for itself or for any of the Leased Premises, (C) voluntarily file a petition seeking relief under the bankruptcy or other similar Legal Requirements of the United States, any state or any jurisdiction, or (D) voluntarily file a general assignment for the benefit of creditors; (vi) a court shall enter an order, judgment or decree appointing, with the voluntary consent of Tenant, a receiver or trustee for Tenant relating to a substantial portion of its assets or for the Leased Premises or approving a petition filed against Tenant which seeks relief under the bankruptcy or other similar laws of the United States or any state thereof, and such order, judgment or decree shall remain in force, undischarged or unstayed, ninety (90) days after it is entered; (vii) Tenant shall in any insolvency proceedings be liquidated or dissolved or shall voluntarily commence proceedings towards its liquidation or dissolution;

A-4

(viii) the estate or interest of Tenant in the Leased Premises shall be levied upon or attached in any proceeding and such estate or interest is about to be sold or transferred in violation of this Lease or such process shall not be vacated or discharged within thirty (30) days after such levy or attachment; (ix) the instituting of any proceeding against or with respect to Tenant seeking liquidation of Tenant’s assets or the appointment of (or if Tenant shall consent to or acquiesce in the appointment of) a receiver, liquidator, conservator, trustee or similar official in respect of Tenant or the whole or any substantial part of Tenant’s properties or assets or the taking of any corporate, partnership or limited liability company action by Tenant in furtherance of any of the foregoing which have not been dismissed or stayed within ninety (90) days after institution; (x) the Security Deposit letter of credit issuer fails to maintain a rating of at least “BBB+” by S&P or “A2” by Moody’s for such issuer’s long term unsecured debt obligations, provided, however, that the sole remedy of Landlord with respect to an Event of Default under this clause (x) shall be the right to draw under the Security Deposit letter of credit and provide the letter of credit issuer a certification that “BENEFICIARY IS ENTITLED TO THE AMOUNT DRAWN HEREUNDER PURSUANT TO THAT CERTAIN LEASE AGREEMENT BETWEEN AXCELIS TECHNOLOGIES, INC., AS TENANT, AND BENEFICIARY, AS LANDLORD.” in which event Landlord shall hold and (if applicable) apply the amount so drawn as a cash security deposit subject to and in accordance with the terms and provisions contained in Section 6(g) hereof until such time as Tenant provides Landlord with a replacement letter of credit in the form of the initial letter of credit hereunder (or other form reasonably satisfactory to Landlord and Lender) and from an issuer with a rating of at least “BBB+” by S&P or “A2” by Moody’s; and upon the delivery thereof any unapplied amounts held as such cash security deposit shall be returned to Tenant; (xi) Tenant’s failure to obtain a replacement environmental insurance policy in accordance with Paragraph 26(d) of this Lease; (xii) Tenant’s financial statements are restated due to a material accounting irregularity, error, omission or oversight; (xiii) Tenant fails to cure any covenant failure under Paragraph 29(b) within thirty (30) days after notice thereof by Landlord to Tenant of such failure; (xiv) an involuntary bankruptcy shall be commenced against the Tenant under the bankruptcy Legal Requirements or other similar Legal Requirements of the United States or any State, and such proceeding shall not be dismissed within ninety (90) days of commencement thereof; or (xv) Tenant’s failure to vacate the Lease Premises on the Expiration Date or earlier termination of the Lease in accordance with Paragraph 23 of this Lease.

“Expiration Date” shall mean January 30, 2037.

“Federal Bankruptcy Code” shall mean Title 11 of the United States Code, 11 U.S.C. §101 et seq., as amended, supplemented or supplanted from time to time.

“Fitch” shall mean Fitch Inc.

“Force Majeure” shall mean, whenever a period of time is prescribed for action to be taken by either party hereto, such party shall not be liable or responsible for, and there shall be excluded from the computation of any such period of time, any delays due to, collectively and individually, strike or other labor trouble, fire or other casualty, governmental preemption of priorities or other controls in connection with a national or other public emergency or shortages of fuel, supplies or labor resulting therefrom, or any other cause, whether similar or dissimilar, beyond the party’s reasonable control.

A-5

“GAAP” shall mean those generally accepted accounting principles and practices which are recognized as such by the American Institute of Certified Public Accountants or by the Financial Accounting Standards Board or through appropriate boards or committees of that Board after the Closing Date, and which are consistently applied for all periods, so as to properly reflect the financial position of a Person, except that any accounting principle or practice required or permitted to be changed by the American Institute of Certified Public Accountants or the Financial Accounting Standards Board (or other appropriate board or committee of that Board) in order to continue as a generally accepted accounting principle or practice may be so changed only so long as such required or permitted change shall not have the effect of permitting Tenant’s compliance with any financial covenants or performance tests contained in this lease when without such change, Tenant would not so comply.

“Governmental Authority” shall mean any federal, state, county, municipal, foreign or other governmental or regulatory authority, agency, board, body, instrumentality, court or quasi-governmental authority (or private entity duly authorized in writing by any of the foregoing to act in lieu thereof).

“Guaranties” shall mean all warranties, guaranties and indemnities, express or implied, and similar rights which Landlord may have against any manufacturer, seller, engineer, contractor or builder in respect of any of the Leased Premises, including, but not limited to, any rights and remedies existing under contract or pursuant to the Legal Requirements.

“Hazardous Materials” shall mean all chemicals, petroleum, crude oil or any fraction thereof, hydrocarbons, polychlorinated biphenyls (PCBs), asbestos, asbestos-containing materials and/or products, urea formaldehyde; any substances which are classified as “hazardous” or “toxic” under CERCLA; hazardous waste or solid waste as defined under the Solid Waste Disposal Act, as amended 42 U.S.C. § 6901; air pollutants regulated under the Clean Air Act, as amended, 42 U.S.C. § 7401, et seq.; pollutants as defined under the Clean Water Act, as amended, 33 U.S.C. § 1251, et seq., any pesticide as defined by Federal Insecticide, Fungicide, and Rodenticide Act, as amended, 7 U.S.C. § 136, et seq., any hazardous chemical substance or mixture or imminently hazardous substance or mixture regulated by the Toxic Substances Control Act, as amended, 15 U.S.C. § 2601, et Seq., any substance listed in the United States Department of Transportation Table at 45 CFR 172.101; any pollutants, contaminants or chemicals regulated under the above listed statutes; any explosives, radioactive material, and any chemical regulated by state statutes similar to the federal statutes listed above and regulations promulgated under such state statutes.

“Holder” shall mean, as of any particular date, any holder of a Note.

“Impositions” shall mean, except as excluded from Tenant’s obligations pursuant to the terms contained in Paragraph 8(a)(ii) hereof, collectively, all Taxes of every kind and nature (including real, ad valorem, single business, personal property, gross income, transaction privilege, franchise, withholding, profits and gross receipts taxes) on or with respect to the Leased Premises or Basic Rent, or the use, lease, ownership or operation thereof; all charges and/or taxes for any Easement or agreement maintained for the benefit of the Leased Premises; all payments in lieu of taxes assessed upon or with respect to the Leased Premises; all general and special assessments, levies, permits, inspection and license fees on or with respect to the

A-6

Leased Premises; all water and sewer rents and other utility charges on or with respect to the Leased Premises; and all other public charges and/or taxes whether of a like or different nature, even if unforeseen or extraordinary, imposed or assessed upon or with respect to the Leased Premises or Basic Rent by any Governmental Authority, prior to or during the Term, against Landlord, Tenant, the Basic Rent or any of the Leased Premises as a result of or arising in respect of the occupancy, leasing, use, maintenance, operation, management, repair or possession thereof, or any activity conducted on the Leased Premises, or the Basic Rent or Additional Rent, including without limitation, any gross income tax, sales tax, occupancy tax or excise tax levied by any governmental body on or with respect to such Basic Rent or Additional Rent; all payments required to be made to a Governmental Authority (or private entity in lieu thereof) that are in lieu of any of the foregoing, whether or not expressly so designated; and any penalties, fines, additions or interest thereon or additions thereto.

“Improvements” shall mean, collectively, the buildings, structures and other improvements on the Land.

“Indemnitee” shall mean Landlord, Lender, and each of their respective assignees or other transferees and to the extent Tenant has received notice of their claim, each of their Affiliates, together with their respective officers, directors, employees, shareholders, members or other equity owners.

“Initial Term” shall mean the period of time commencing on the Commencement Date and terminating on the Expiration Date.

“Insurance Expiration Date” shall mean, with respect to an insurance policy, the date that such insurance policy will expire.

“Insurance Requirement” or “Insurance Requirements” shall mean, as the case may be, any one or more of the terms of each insurance policy required to be carried by Tenant under this Lease and the requirements of the issuer of such policy consistent with the terms and conditions thereof, and whenever Tenant shall be engaged in making any Alteration or Alterations, repairs or construction work of any kind (collectively, “Work”), the term “Insurance Requirement” or “Insurance Requirements” shall be deemed to include a requirement that Tenant obtain or cause its contractor to obtain completed value (to the extent insurable) builder’s risk insurance from a company or companies licensed to do business in the State with a claims paying ability rating by Standard & Poor’s of not less than A-, when the estimated cost of the Work in any one instance exceeds the sum of Three Hundred Fifty Thousand and 00/100 Dollars (\$350,000.00) and that Tenant or its contractor shall obtain worker’s compensation insurance or other adequate insurance coverage covering all persons employed in connection with the Work, whether by Tenant, its contractors or subcontractors and with respect to whom death or bodily injury claims could be asserted against Landlord.

“Investment Grade Rating” shall mean a credit rating of not less than (i) baa3, as rated by Moody’s Investor Services, (ii) BBB-, as rated by Standard & Poor’s or (iii) BBB-, as rated by Fitch.

“Land” shall mean the parcel of land described in Exhibit A attached hereto and made a part hereof, together with the easements, rights, benefits, privileges and other appurtenances thereunto belonging or appertaining as of record with either the Essex County South District Registry of Deeds and/or the Essex County South Registry District of the Land Court. The Land shall also include all of Landlord’s rights (if any) in and to strips and gores and any land lying in the bed of any public right of way adjacent to such land. “Landlord” shall mean Beverly Property Owner LLC, a Delaware limited liability company, together with any successors or assigns.

“Landlord” shall mean Beverly Property Owner LLC, a Delaware limited liability company, together with any successors or assigns.

“Late Charge” shall mean, with respect to an overdue installment of Basic Rent, an amount equal to five percent (5%) of such overdue installment of Basic Rent.

“Law” shall mean any constitution, statute or rule of law or regulations promulgated thereunder.

“Lease Year” means (a) the period commencing on the first (1st) day of the first (1st) calendar month following the Commencement Date and ending on but excluding the first anniversary of such date and (b) each one (1) year period thereafter. However, in the event that the Commencement Date does not occur on the first day of the month, the first (1st) Lease Year hereunder shall also include the portion of the calendar month during which the Commencement Date occurs.

“Leased Premises” shall mean, collectively, the Land, the Improvements and the Equipment.

“Legal Requirements” shall mean all existing and future applicable laws (including common laws), constitutions, rules, regulations, requirements, statutes, treaties, codes, ordinances, permits, certificates, orders and licenses, whether foreseen or unforeseen, of any Governmental Authorities, and applicable judgments, decrees, injunctions, writs, orders or like action of any court, arbitrator or other administrative, judicial or quasi-judicial tribunal or agency of competent jurisdiction (including those pertaining to the environment and those pertaining to the construction, use or occupancy of the Leased Premises). Legal Requirements shall also include Environmental Laws and all covenants, restrictions and conditions now of record which may be applicable to Tenant, Landlord (with respect to the Leased Premises) or to all or any part of or interest in the Leased Premises, or to the use, manner of use, occupancy, possession, operation, maintenance, alteration, repair or reconstruction of the Leased Premises, even if compliance therewith (i) necessitates structural changes or improvements (including changes required to comply with the “Americans with Disabilities Act”) or results in interference with the use or enjoyment of the Leased Premises or (ii) requires Tenant to carry insurance other than as required by the provisions of this Lease.

“Lender” shall mean, individually and collectively, any entity identified as such in writing to Tenant which makes a Loan to Landlord, or any other party which becomes the holder of a Mortgage and Note as a result of an assignment thereof, whether or not identified by Landlord.

“Lien” shall mean any lien, mortgage, deed of trust, deed to secure debt, pledge, charge, security interest or encumbrance of any kind, or any type of preferential arrangement that has the practical effect of creating a security interest, including, without limitation, any thereof arising under any conditional sale agreement, capital lease or other title retention agreement.

“Loan” shall mean the loan or loans made by Lender to Landlord secured by a Mortgage or Mortgages and evidenced by a Note, or Notes.

“Loan Documents” shall mean the Note, the Mortgage and any other documents executed in connection with the making of a loan.

“Moody’s” shall mean Moody’s Investors Service, Inc.

“Mold” shall mean any mold, fungi, bacterial or microbial matter present at or in the Leased Premises, including, without limitation, building materials which is in a condition, location, or of a type which may pose a risk to human health or safety or the environment, may result in damage to or would adversely affect or impair the value or marketability of the Leased Premises.

“Mortgage” shall mean a mortgage, deed of trust or similar security instrument hereafter executed covering the Leased Premises from Landlord to Lender.

“Net Award” shall mean the entire award payable to Landlord by reason of a Condemnation, less any reasonable expenses incurred by Landlord in collecting such award.

“Net Proceeds” shall mean the entire proceeds of any insurance required under clauses (i), (iv), (v) or (vi) of Paragraph 14(a) of this Lease, less any actual and reasonable expenses incurred by Landlord in collecting such proceeds.

“Notice” or “Notices” shall mean all notices, demands, requests, consents, approvals, offers, statements and other instruments or communications required or permitted to be given pursuant to the provisions of this Lease.

“Note” or “Notes” shall mean a Promissory Note, Notes or credit agreement hereafter executed from Landlord to Lender in connection with a Loan, which Note, Notes or credit agreement will be secured by a Mortgage and an assignment of leases and rents.

“Permitted Encumbrances” shall mean those covenants, restrictions, reservations, Liens, conditions, encroachments, easements and other matters of title that affect the Leased Premises as of the Commencement Date, excepting, however, any such matters arising from the acts of Landlord (such as but not limited to, Liens arising as a result of judgments against Landlord).

“Permitted Use” shall mean use as a mixed use office, research, development and manufacturing facility, or for any other lawful purpose so long as such other lawful purpose would not (i) have a material adverse effect on the value of the Leased Premises, (ii) materially increase (when compared to its current use) the likelihood that Tenant, Landlord or Lender would incur liability under any provisions of any Environmental Laws, or (iii) result in or give

A-9

rise to any material environmental deterioration or degradation of the Leased Premises when compared to its as of the commencement of this Lease.

“Person” shall mean an individual, the, corporation, partnership, joint venture, association, joint-stock company, trust, limited liability company, non-incorporated organization or government or any agency or political subdivision thereof.

“Prime Rate” shall mean the prime rate of interest published in the *Wall Street Journal* or its successor, from time to time.

“Rating Agency” or “Rating Agencies” shall mean, if any, one or more of Standard & Poor’s, Moody’s, Fitch, or if unavailable, any replacement national statistical rating agency of similar acceptance and reputation by the investment community.

“REA” shall mean a reciprocal easement agreement or any other easement, agreement or document of record now or hereafter affecting the Leased Premises or hereafter entered into with Tenant’s approval.

“Release” shall mean the release under applicable Environmental Laws or the threatened release of any Hazardous Materials into or upon any land or water or air, or otherwise into the environment, including, without limitation, by means of burial, disposal, discharge, emission, injection, spillage, leakage, seepage, leaching, dumping, pumping, pouting, escaping, emptying, placement and the like.

“Rent” shall mean Basic Rent and Additional Rent.

“Replacement(s)” shall have the meaning set forth in Exhibit G.

“Replaced Equipment” shall mean Equipment that has been replaced by Tenant with Replacement Equipment.

“Replacement Equipment” shall mean operational equipment or other parts used by Tenant to replace any of the Equipment.

“Replacement Reserve Account” shall have the meaning set forth in Exhibit G.

“Replacement Reserve Cap” shall have the meaning set forth in Exhibit G.

“Replacement Reserve Fund” shall have the meaning set forth in Exhibit G.

“Replacement Reserve Initial Deposit” shall have the meaning set forth in Exhibit G.

“Replacement Reserve Monthly Deposit” shall have the meaning set forth in Exhibit G.

“Requisition” shall mean any temporary condemnation or confiscation of the use or occupancy of the Leased Premises by any governmental authority, civil or military, whether pursuant to an agreement with such governmental authority in settlement of or under threat of any such requisition or confiscation, or otherwise.

A-10

“Restoration” shall mean, following a casualty or Condemnation, the restoration of the Leased Premises to as nearly as possible its value, condition and character immediately prior to such casualty or Condemnation, in accordance with the provisions of this Lease, including but not limited to the provisions of Paragraphs 11(a), 12 and 15. Notwithstanding the foregoing, such Restoration may depart from the exact condition of the Leased Premises immediately prior to the casualty or Condemnation, provided that (i) neither the fair market value nor the useful life of the Leased Premises shall not be lessened after the completion of the Restoration, (ii) the use of the Leased Premises shall not be changed as a result of any such Restoration, (iii) all such Restoration shall be performed in a good and workmanlike manner, and shall be expeditiously completed in compliance with all Legal Requirements, (iv) Tenant shall (subject to the provisions of Paragraph 18 hereof) discharge all Liens filed against any of the Leased Premises arising out of the same, and (v) no such Alteration shall create any debt or other encumbrance(s) on the Leased Premises.

“Restoration Award” shall mean that portion of the Net Award equal to the cost of Restoration.

“Restoration Fund” shall mean, collectively, the Net Proceeds, Restoration Award and Tenant Insurance Payment.

“SEC” shall mean the Securities and Exchange Commission.

“Security Deposit” shall mean that certain irrevocable “evergreen” letter of credit in a form and substance acceptable to Landlord in favor of Landlord or Lender in the amount of Five Million Nine Hundred Thousand and 00/100 Dollars (\$5,900,000.00).

“Security Deposit Return Conditions” shall mean achievement by Tenant of an Investment Grade Rating as rated by at least two (2) of the Rating Agencies.

“Standard & Poor’s” shall mean Standard & Poor’s Financial Services LLC.

“State” shall mean the State or Commonwealth in which the Leased Premises are located.

“Subordination, Non-Disturbance and Attornment Agreement” shall mean an agreement in recordable form in substantially the form of Exhibit C attached hereto.

“Taking” shall mean any taking of the Leased Premises in or by condemnation or other eminent domain proceedings pursuant to any Law, general or special, or by reason of any agreement with any condemnor in settlement of or under threat of any such condemnation or other eminent domain proceedings or by any other means, or any de facto condemnation.

“Tangible Net Worth” shall mean the company’s total shareholders’ equity less goodwill, as determined in accordance with GAAP in the company’s most recent quarterly balance sheet.

“Tax” or “Taxes” shall mean any and all present and future taxes, including income (gross or net), gross or net receipts, sales, use, value added, franchise, doing business, transfer, capital, property (tangible or intangible), municipal assessments, excise and stamp taxes, levies, imposts, duties, charges, assessments or withholding, together with any penalties, fines, additions

A-11

or interest thereon or additions thereto (any of the forgoing being referred to herein individually as a “Tax”), imposed by any Governmental Authority. Taxes shall include the costs of any contest or appeal pursued which reduces the Taxes (or attempts to do so) including reasonable attorneys’ fees and costs incident thereto. Without limiting the foregoing, if at any time during the term of this Lease the methods of taxation prevailing at the execution hereof shall be changed or altered so that in lieu of or as a supplement or addition to or a substitute for the whole or any part of the real estate taxes or assessments now or from time to time thereafter levied, assessed or imposed by applicable taxing authorities for the funding of governmental services, there shall be imposed (i) a tax, assessment, levy, imposition or charge, wholly or partially as a capital levy or otherwise, on the gross rents received or otherwise attributable to the Leased Premises, or (ii) a tax, assessment, levy (including but not limited to any municipal, state or federal levy), imposition or charge measured by or based in whole or in part upon the Leased Premises or this Lease, and imposed on the Landlord under this Lease or any portion thereof, or (iii) a license fee or other fee or tax measured by the gross rent payable under this Lease, or (iv) any other tax, assessment, levy, charge, fee or the like payable with respect to the Leased Premises, the rents, issues and profits thereof, then all such taxes, assessments, levies, impositions and/or charges, or the part thereof so measured or based, shall be deemed to be Taxes.

“Tax Indemnitee” shall mean Landlord, Lender, any Holder, any servicer of a Loan, any trustee under a Mortgage which is a deed of trust, each of their assignees or other transferees and each of their Affiliates and their respective officers, directors, employees, shareholders, members or other equity owners.

“Tenant” shall mean Axcelis Technologies, Inc., a Delaware corporation.

“Tenant’s Insurance Payment” shall mean, in the event of a damage or destruction, the amount of the proceeds that would have been payable under the third-party insurance required to be maintained pursuant to Paragraph 14(a)(i),(iv),(v) or (vi), plus the amount of any applicable deductible, had such insurance program been in effect.

“Tenant’s Termination Notice” shall mean a written notice from Tenant to Landlord after a Condemnation of Tenant’s intention to terminate this Lease on the Termination Date.

“Term” shall mean the Initial Term..

“Trade Fixtures” shall mean the items listed as Exhibit E and all other fixtures, equipment and other items of personal property (whether or not attached to the Improvements) which are not Building Systems and are owned by Tenant and used in the operation of the business conducted on the Leased Premises.

“Trustee” shall mean the Lender, or if there is no Lender, then a federally insured bank or other financial institution, selected by Landlord and Tenant.

“UCC” shall mean the Uniform Commercial Code enacted in the State.

A-12

Axcelis Technologies, Inc.
Exhibit 21.1 to Form 10-K for the year ended December 31, 2014
Subsidiaries

The following is a list of all direct and indirect wholly-owned subsidiaries of Axcelis Technologies, Inc. as of the date hereof:

Domestic Subsidiaries

1. Axcelis Technologies (Israel) Inc., a Delaware corporation

European Subsidiaries

2. Axcelis Technologies GmbH (Germany)
3. Axcelis Technologies, Srl (Italy)
4. Axcelis Technologies, Sarl (France)

Asian Subsidiaries

5. Axcelis Technologies, KK (Japan)
6. Axcelis Technologies Limited (Korea)
7. Axcelis Technologies, Ltd. (Taiwan)
8. Axcelis Technologies Pte. Ltd. (Singapore)
9. Axcelis Technologies Semiconductor Trading (Shanghai) Co., Ltd. (Peoples Republic of China)

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in the following Registration Statements:

- (1) Registration Statements (Form S-8 Nos. 333-181750, 333-188967 and 333-196157) pertaining to the 2012 Equity Incentive Plan of Axcelis Technologies, Inc.,
- (2) Registration Statement (Form S-8 No. 333-49726) pertaining to the Employee Stock Purchase Plan of Axcelis Technologies, Inc.,
- (3) Registration Statements (Form S-8 No. 333-49768) pertaining to the 2000 Stock Plan of Axcelis Technologies, Inc.,
- (4) Registration Statement (Form S-8 No. 333-120356) pertaining to the 2000 Stock Plan and 2012 Equity Incentive Plan and,
- (5) Registration Statement (Form S-3 No. 333-192533) pertaining to the registration of securities;

of our reports dated March 11, 2015 with respect to the consolidated financial statements and schedule of Axcelis Technologies, Inc., and the effectiveness of internal control over financial reporting of Axcelis Technologies, Inc., included in this Annual Report (Form 10-K) of Axcelis Technologies, Inc. for the year ended December 31, 2014.

/s/ Ernst & Young LLP

Boston, Massachusetts
March 11, 2015

QuickLinks

[Exhibit 23.1](#)

[CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM](#)

CERTIFICATION
of the Principal Executive Officer
Pursuant to Rule 13a-14(a)/15d-14(a) (implementing Section 302 of the Sarbanes-Oxley Act)

I, Mary G. Puma, certify that:

1. I have reviewed this annual report on Form 10-K of Axcelis Technologies, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the company as of, and for, the periods presented in this report;
4. The company's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the company and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the company's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the company's internal control over financial reporting that occurred during the company's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the company's internal control over financial reporting; and
5. The company's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the company's auditors and the audit committee of the company's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the company's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: March 11, 2015

/s/ MARY G. PUMA

Mary G. Puma, *Chairman, Chief Executive Officer and President*

QuickLinks

[Exhibit 31.1](#)

[CERTIFICATION of the Principal Executive Officer Pursuant to Rule 13a-14\(a\)/15d-14\(a\) \(implementing Section 302 of the Sarbanes-Oxley Act\)](#)

CERTIFICATION
of the Principal Financial Officer
Pursuant to Rule 13a-14(a)/15d-14(a) (implementing Section 302 of the Sarbanes-Oxley Act)

I, Kevin J. Brewer, certify that:

1. I have reviewed this annual report on Form 10-K of Axcelis Technologies, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the company as of, and for, the periods presented in this report;
4. The company's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the company and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the company, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the company's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the company's internal control over financial reporting that occurred during the company's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the company's internal control over financial reporting; and
5. The company's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the company's auditors and the audit committee of the company's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the company's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

March 11, 2015

/s/ KEVIN J. BREWER

Kevin J. Brewer, *Executive Vice President and Chief Financial Officer*

QuickLinks

[Exhibit 31.2](#)

[CERTIFICATION of the Principal Financial Officer Pursuant to Rule 13a-14\(a\)/15d-14\(a\) \(implementing Section 302 of the Sarbanes-Oxley Act\)](#)

AXCELIS TECHNOLOGIES, INC.
Certification of the Chief Executive Officer
Pursuant to Section 1350 of Chapter 63 of title 18 of the United States Code

The undersigned Chief Executive Officer of Axcelis Technologies, Inc., a Delaware corporation, hereby certifies, for the purposes of Section 1350 of Chapter 63 of title 18 of the United States Code (as implemented by Section 906 of the Sarbanes-Oxley Act of 2002) as follows:

This Form 10-K annual report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)) and the information contained herein fairly presents, in all material respects, the financial condition and results of operations of the Company.

IN WITNESS WHEREOF, the undersigned has executed this Certification as of March 11, 2015.

/s/ MARY G. PUMA

Mary G. Puma
*Chairman, Chief Executive Officer and President of
Axcelis Technologies, Inc.*

QuickLinks

[Exhibit 32.1](#)

[AXCELIS TECHNOLOGIES, INC. Certification of the Chief Executive Officer Pursuant to Section 1350 of Chapter 63 of title 18 of the United States Code](#)

AXCELIS TECHNOLOGIES, INC.
Certification of the Chief Financial Officer
Pursuant to Section 1350 of Chapter 63 of title 18 of the United States Code

The undersigned Chief Financial Officer of Axcelis Technologies, Inc., a Delaware corporation, hereby certifies, for the purposes of Section 1350 of Chapter 63 of title 18 of the United States Code (as implemented by Section 906 of the Sarbanes-Oxley Act of 2002) as follows:

This Form 10-K annual report fully complies with the requirements of section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m or 78o(d)) and the information contained herein fairly presents, in all material respects, the financial condition and results of operations of the Company.

IN WITNESS WHEREOF, the undersigned has executed this Certification as of March 11, 2015.

/s/ KEVIN J. BREWER

Kevin J. Brewer
*Executive Vice President and Chief Financial Officer of Axcelis
Technologies, Inc.*

QuickLinks

[Exhibit 32.2](#)

[AXCELIS TECHNOLOGIES, INC. Certification of the Chief Financial Officer Pursuant to Section 1350 of Chapter 63 of title 18 of the United States Code](#)