

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

FORM 10-Q

(Mark One)

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

For the quarterly period ended June 30, 2013

Or

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

For the transition period from _____ to _____

Commission file number 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, including zip code)

(978) 787-4000
(Registrant's telephone number, including area code)

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

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T 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 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
(Do not check if a smaller reporting company)

Smaller reporting company

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

As of July 26, 2013 there were 108,866,951 shares of the registrant's common stock outstanding.

[PART I - FINANCIAL INFORMATION](#)

Item 1.	Financial Statements (Unaudited)	
	Consolidated Statements of Operations for the three and six months ended June 30, 2013 and 2012	3
	Consolidated Statements of Comprehensive Loss for the three and six months ended June 30, 2013 and 2012	4

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations
 Overview
 Critical Accounting Estimates
 Results of Operations
 Liquidity and Capital Resources

Item 3. Quantitative and Qualitative Disclosures About Market Risk

Item 4. Controls and Procedures

PART II - OTHER INFORMATION

Item 1. Legal Proceedings

Item 1A. Risk Factors

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

Item 3. Defaults Upon Senior Securities

Item 4. Mine Safety Disclosures

Item 5. Other Information

Item 6. Exhibits

[Table of Contents](#)

PART 1—FINANCIAL INFORMATION

Item 1. Financial Statements.

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

	Three months ended June 30,		Six months ended June 30,	
	2013	2012	2013	2012
Revenue				
Product	\$ 40,769	\$ 51,465	\$ 75,220	\$ 99,003
Services	6,732	7,649	13,006	15,117
Total revenue	<u>47,501</u>	<u>59,114</u>	<u>88,226</u>	<u>114,120</u>
Cost of revenue				
Product	25,457	30,599	47,638	59,883
Services	5,307	5,727	10,910	10,913
Total cost of revenue	<u>30,764</u>	<u>36,326</u>	<u>58,548</u>	<u>70,796</u>
Gross profit	16,737	22,788	29,678	43,324
Operating expenses				
Research and development	8,503	10,478	17,709	22,147
Sales and marketing	5,594	6,231	10,796	12,814
General and administrative	6,412	6,488	13,001	14,287
Gain on sale of dry strip assets and intellectual property	(799)	—	(1,167)	—
Restructuring charges	421	153	2,222	3,034
Total operating expenses	<u>20,131</u>	<u>23,350</u>	<u>42,561</u>	<u>52,282</u>
Loss from operations	(3,394)	(562)	(12,883)	(8,958)
Other income (expense)				
Interest income	3	9	6	18
Interest expense	(51)	—	(115)	—
Other, net	(314)	551	580	(373)
Total other income (expense)	<u>(362)</u>	<u>560</u>	<u>471</u>	<u>(355)</u>
Loss before income taxes	(3,756)	(2)	(12,412)	(9,313)
Income taxes	263	469	596	1,186
Net loss	<u>\$ (4,019)</u>	<u>\$ (471)</u>	<u>\$ (13,008)</u>	<u>\$ (10,499)</u>
Net loss per share				
Basic and Diluted	<u>\$ (0.04)</u>	<u>\$ (0.00)</u>	<u>\$ (0.12)</u>	<u>\$ (0.10)</u>
Shares used in computing net loss per share				
Basic and diluted weighted average common shares	<u>108,409</u>	<u>107,639</u>	<u>108,319</u>	<u>107,353</u>

[Table of Contents](#)

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

	Three months ended June 30,		Six months ended June 30,	
	2013	2012	2013	2012
Net loss	\$ (4,019)	\$ (471)	\$ (13,008)	\$ (10,499)
Other comprehensive income (loss):				
Foreign currency translation adjustments	119	(1,469)	(1,959)	(1,413)
Amortization of actuarial losses from pension plan	8	—	16	—
Comprehensive loss	<u>\$ (3,892)</u>	<u>\$ (1,940)</u>	<u>\$ (14,951)</u>	<u>\$ (11,912)</u>

See accompanying Notes to these Consolidated Financial Statements

[Table of Contents](#)

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

	June 30, 2013	December 31, 2012
ASSETS		
Current assets		
Cash and cash equivalents	\$ 34,639	\$ 44,986
Accounts receivable, net	30,220	24,843
Inventories, net	96,412	100,234
Restricted cash	104	106
Prepaid expenses and other current assets	6,025	5,056
Total current assets	<u>167,400</u>	<u>175,225</u>
Property, plant and equipment, net	32,964	34,413
Other assets	13,406	12,520
Total assets	<u>\$ 213,770</u>	<u>\$ 222,158</u>
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities		
Accounts payable	\$ 16,188	\$ 10,166
Accrued compensation	6,559	7,283
Warranty	1,419	1,700
Income taxes	226	278
Deferred revenue	5,728	6,423
Other current liabilities	4,432	3,932
Total current liabilities	<u>34,552</u>	<u>29,782</u>
Long-term deferred revenue	259	456
Other long-term liabilities	5,829	5,844
Total liabilities	<u>40,640</u>	<u>36,082</u>
Commitments and contingencies (Note 13)		
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; 108,772 shares issued and 108,652 shares outstanding at June 30, 2013; 108,293 shares issued and 108,173 shares outstanding at December 31, 2012	109	108
Additional paid-in capital	506,647	504,643
Treasury stock, at cost, 120 shares at June 30, 2013 and December 31, 2012	(1,218)	(1,218)
Accumulated deficit	(335,485)	(322,477)
Accumulated other comprehensive income	3,077	5,020
Total stockholders' equity	<u>173,130</u>	<u>186,076</u>
Total liabilities and stockholders' equity	<u>\$ 213,770</u>	<u>\$ 222,158</u>

See accompanying Notes to these Consolidated Financial Statements

[Table of Contents](#)

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

	Six months ended June 30,	
	2013	2012
Cash flows from operating activities		
Net loss	\$ (13,008)	\$ (10,499)
Adjustments to reconcile net loss to net cash used for operating activities:		
Depreciation and amortization	2,719	3,625
Gain on sale of dry strip assets and intellectual property	(1,167)	—
Deferred taxes	52	995
Stock-based compensation expense	1,644	2,010
Provision for excess inventory	2,370	406
Changes in operating assets & liabilities		
Accounts receivable	(5,587)	16
Inventories	431	(7,213)
Prepaid expenses and other current assets	(1,049)	(808)
Accounts payable and other current liabilities	5,642	(3,928)
Deferred revenue	(891)	(3,109)
Income taxes	(48)	(286)
Other assets and liabilities	(1,905)	6,226
Net cash used for operating activities	<u>(10,797)</u>	<u>(12,565)</u>
Cash flows from investing activities		
Proceeds from sale of dry strip assets and intellectual property	1,200	—
Expenditures for property, plant, and equipment	(336)	(385)
Decrease in restricted cash	2	3
Net cash provided by (used for) investing activities	<u>866</u>	<u>(382)</u>
Cash flows from financing activities		
Proceeds from exercise of stock options	206	847
Proceeds from Employee Stock Purchase Plan	197	179
Net cash provided by financing activities	<u>403</u>	<u>1,026</u>
Effect of exchange rate changes on cash	(819)	(1,159)
Net decrease in cash and cash equivalents	(10,347)	(13,080)
Cash and cash equivalents at beginning of period	44,986	46,877
Cash and cash equivalents at end of period	<u>\$ 34,639</u>	<u>\$ 33,797</u>

See accompanying Notes to these Consolidated Financial Statements

[Table of Contents](#)

Axcelis Technologies, Inc.
Notes to Consolidated Financial Statements (Unaudited)

Note 1. Nature of Business

Axcelis Technologies, Inc. (“Axcelis” or the “Company”) is a worldwide producer of ion implantation, dry strip 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, and maintenance services to the semiconductor industry.

In December 2012, the Company sold its intellectual property rights and certain assets relating to the Company’s dry strip product line to Lam Research Corporation (“Lam”). As a result of this transaction, the Company will cease the sale of 300 mm dry strip wafer processing equipment in 2013. The Company will be able to continue to sell dry strip systems for smaller wafers until December 2015 and to support its installed base of all dry strip systems indefinitely. The Gain on Sale of Dry Strip Assets and Intellectual Property are more fully described in Note 3 below and in Note 3 to the consolidated financial statements in the Company’s 2012 Annual Report on Form 10-K.

The accompanying unaudited consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles for interim financial information and with the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, they do not include all of the information and footnotes required by generally accepted accounting principles for complete financial statements. In the opinion of management, all adjustments which are of a normal recurring nature and considered necessary for a fair presentation of these financial statements have been included. Operating results for the interim periods presented are not necessarily indicative of the results that may be expected for other interim periods or for the year as a whole.

The balance sheet at December 31, 2012 has been derived from the audited financial statements at that date but does not include all of the information and footnotes required by generally accepted accounting principles for complete financial statements. For further information, refer to the consolidated financial statements and footnotes thereto included in Axcelis Technologies, Inc.'s Annual Report on Form 10-K for the year ended December 31, 2012.

The Company, incorporated in December 1995, is a successor to an ion implantation business founded in 1978.

Note 2. Stock-Based Compensation

The Company maintains the Axcelis Technologies, Inc. 2012 Equity Incentive Plan (the "2012 Equity Plan"), which became effective on May 2, 2012, and permits the issuance of options, restricted stock, restricted stock units and performance awards to selected employees, directors and consultants of the Company. The Company's 2000 Stock Plan (the "2000 Stock Plan"), expired on May 1, 2012 and no new grants may be made under that plan after this 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 Company also maintains the Axcelis Technologies, Inc. Employee Stock Purchase Plan (the "ESPP"), an Internal Revenue Code Section 423 plan.

The 2012 Equity Plan and the ESPP are more fully described in Note 13 to the consolidated financial statements in the Company's 2012 Annual Report on Form 10-K.

The Company recognized stock-based compensation expense of \$0.8 million and \$0.9 million for the three-month periods ended June 30, 2013 and 2012, respectively. The Company recognized stock-based compensation expense of \$1.6 million and \$2.0 million for the six-month periods ended June 30, 2013 and 2012, respectively. These amounts include compensation expense related to restricted stock units, non-qualified stock options and stock to be issued to participants under the ESPP.

[Table of Contents](#)

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

In December 2012, the Company sold its dry strip assets and intellectual property to Lam. A portion of the purchase consideration (up to \$2.0 million) is contingent upon the Company achieving certain milestones. The Company recorded \$0.8 million and \$1.2 million for the proceeds received based on its achievement of milestones during the three and six months ended June 30, 2013, respectively. These amounts were partially offset by additional costs associated with the lab system purchased by Lam.

Note 4. Computation of Net Loss per Share

Basic earnings or loss per share is computed by dividing income available or loss attributable 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 components of net loss per share are as follows:

	Three months ended June 30,		Six months ended June 30,	
	2013	2012	2013	2012
	(in thousands, except per share data)			
Net loss attributable to common stockholders	\$ (4,019)	\$ (471)	\$ (13,008)	\$ (10,499)
Weighted average common shares outstanding used in computing basic and diluted net loss per share	108,409	107,639	108,319	107,353
Net loss per share				
Basic and Diluted	\$ (0.04)	\$ (0.00)	\$ (0.12)	\$ (0.10)

The Company incurred net losses for the three and six-month periods ended June 30, 2013 and 2012, and has excluded the incremental shares 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 following table sets forth the number of incremental shares excluded from the calculation above:

	Three months ended June 30,		Six months ended June 30,	
	2013	2012	2013	2012
	(in thousands)			
Incremental shares excluded from the calculation of net loss per share	2,183	1,390	2,159	1,809

Note 5. Accumulated Other Comprehensive Income

The following table presents the changes in accumulated other comprehensive income, net of tax, by component for the six months ended June 30, 2013:

	Foreign currency	Defined benefit pension plan (in thousands)	Total
Balance at December 31, 2012	\$ 5,375	\$ (355)	\$ 5,020
Other comprehensive loss before reclassifications	(1,959)	—	(1,959)
Amounts reclassified from accumulated other comprehensive income (1)	—	16	16
Net current-period other comprehensive loss	(1,959)	16	(1,943)

Balance at June 30, 2013	\$	3,416	\$	(339)	\$	3,077
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(1) Amount presented before taxes as the tax effect is not material to the consolidated financial statements.

[Table of Contents](#)

Note 6. Inventories, net

The components of inventories are as follows:

	June 30, 2013	December 31, 2012
	(in thousands)	
Raw materials	\$ 60,760	\$ 72,013
Work in process	16,514	12,253
Finished goods (completed systems)	19,138	15,968
	<u>\$ 96,412</u>	<u>\$ 100,234</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. As of June 30, 2013 and December 31, 2012, inventories are stated net of inventory reserves of \$34.9 million and \$33.6 million respectively.

During the three and six months ended June 30, 2013, the Company recorded a charge to cost of sales of \$0 and \$2.1 million, respectively, for 300mm dry strip components. Under the terms of the agreement with Lam, the Company was permitted to manufacture and sell dry strip products through September 2013. Due to changes in the forecasted sales of the Company's dry strip products that become known during the six months ended June 30, 2013, a portion of the dry strip inventory components were determined to be non-recoverable.

During the three months and six months ended June 30, 2013, the Company recorded a charge to cost of sales of \$0 and \$0.5 million, respectively, due to production levels below normal capacity. Similar charges recorded during the six months ended June 30, 2012, were not material to the financial results of the Company.

Note 7. Restructuring Charges

In 2012, the Company completed reductions in force related to actions taken by management to control costs, improve the focus of its operations, sustain future profitability and conserve cash. As of December 31, 2012, approximately \$0.7 million of these costs were accrued and unpaid.

During the six months ended June 30, 2013, the Company implemented further actions, which resulted in restructuring charges for severance and related costs of \$2.2 million recorded. The liability at June 30, 2013 of \$0.5 million is expected to be paid primarily in the third quarter of 2013.

Changes in the Company's restructuring liability, which consists primarily of severance and related costs, included in amounts reported as other current liabilities, are as follows:

	(In thousands)
Balance at December 31, 2012	\$ 659
Severance and related costs	2,222
Cash payments	(2,392)
Balance at June 30, 2013	<u>\$ 489</u>

[Table of Contents](#)

Note 8. 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 standard product warranty liability are as follows:

	Six months ended June 30,	
	2013	2012
	(in thousands)	
Balance at January 1 (beginning of year)	\$ 1,801	\$ 3,697
Warranties issued during the period	925	1,657
Settlements made during the period	(705)	(1,873)

Changes in estimate of liability for pre-existing warranties during the period	(536)	(770)
Balance at June 30 (end of period)	\$ 1,485	\$ 2,711
Amount classified as current	\$ 1,419	\$ 2,589
Amount classified as long-term	66	122
Total warranty liability	\$ 1,485	\$ 2,711

Note 9. 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 on a Recurring Basis

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.

10

[Table of Contents](#)

The following table sets forth Company's assets which are measured at fair value on a recurring basis by level within the fair value hierarchy.

	June 30, 2013			
	Fair Value Measurements			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Assets				
Cash equivalents:				
Money market funds	\$ 11,782	\$ —	\$ —	\$ 11,782

	December 31, 2012			
	Fair Value Measurements			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Assets				
Cash equivalents:				
Money market funds	\$ 29,179	\$ —	\$ —	\$ 29,179

(c) Other Financial Instruments

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

Note 10. Financing Arrangements

Bank Credit Facility

Until July 5, 2013, the Company had a revolving credit facility with a bank pursuant to an Amended and Restated Loan and Security Agreement dated April 25, 2011 and subsequently amended (the "Revolving Credit Facility"). The facility provided for borrowings up to \$30 million, based primarily on accounts receivable, and was subject to certain financial covenants requiring the Company to maintain minimum levels of operating results and liquidity. The Company used the facility to support letters of credit and for short term borrowing as needed. The agreement was expected to terminate on April 10, 2015.

There were no borrowings against this facility during the six months ended June 30, 2013.

As disclosed in Note 15, the Company terminated the Revolving Credit Facility on July 5, 2013.

Note 11. Income Taxes

Income tax expense relates principally to operating results of foreign entities in jurisdictions, primarily in Europe and Asia, where the Company earns taxable income. The Company has significant net operating losses in the United States and certain jurisdictions and, as a result, does not pay significant income taxes in those jurisdictions.

As of December 31, 2012 there was a valuation allowance of approximately \$145 million. 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 the 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.

[Table of Contents](#)

Note 12. Concentration of Risk

For the three months ended June 30, 2013, three customers accounted for approximately 15.1%, 14.7%, and 10.6% of consolidated revenue. For the six months ended June 30, 2013, one customer accounted for approximately 10.6% of consolidated revenue.

For the three months ended June 30, 2012, three customers accounted for approximately 23.4%, 15.7%, and 10.2% of consolidated revenue, respectively. For the six months ended June 30, 2012, two customers accounted for approximately 24.0% and 15.0% of consolidated revenue, respectively.

At June 30, 2013, one customer accounted for 28.4% of consolidated accounts receivable. At December 31, 2012, two customers accounted for 11.9% and 11.5% of consolidated accounts receivable, respectively.

Note 13. Contingencies

(a) 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.

(b) 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 14. Recent Accounting Guidance

Accounting Standards or Updates Recently Adopted

Effective January 1, 2013, the Company adopted Accounting Standards Update No. 2013-02, *Reporting of Amounts Reclassified out of Accumulated Other Comprehensive Income*. This newly issued accounting update requires that companies present either in a single note or parenthetically on the face of the financial statements, the effect of significant amounts reclassified from each component of accumulated other comprehensive income based on its source and the income statement line items affected by the reclassification. If a component is not required to be reclassified to net income in its entirety, companies would instead cross reference to the related footnote for additional information. As this update only requires enhanced disclosure, the adoption of this update did not impact the Company's financial position or results of operations.

Accounting Standards or Updates Not Yet Effective

The Company has evaluated the accounting guidance recently issued and has determined that these standards or updates will not have a material impact on its financial position or results of operations.

Note 15. Subsequent Events

Term Loan Secured by Real Estate

On July 5, 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 (the "Term Loan"). The Company will use the proceeds of the Term Loan as needed to fund growth, specifically investments in the leading edge Purion ion implant platform, and other working capital and general corporate purposes.

[Table of Contents](#)

The Term Loan bears interest at the rate of 5.5% per annum, with payments of principal beginning August 5, 2014 on a 10 year amortization schedule. Interest is payable monthly beginning on August 5, 2013. All outstanding principal and unpaid interest is due and payable on July 5, 2016.

Subject to exceptions, the Term Loan limits the Company's ability to, among other things, dispose of assets, engage in a new line of business, have a material change in its executive management, have a change of control, acquire another business, incur additional indebtedness, incur liens, pay dividends and make other distributions, and make investments. In addition, under the Term Loan, the Company must comply with the following financial covenants:

- **Debt Service Ratio.** Commencing in 2014, the Company's quarterly net operating income multiplied by 4 must be not less than the actual annual debt service over the twelve months following the start of such quarter, multiplied by 1.45.
- **Net Worth.** The Company must maintain a net worth of at least \$100.0 million, as shown in its quarterly financial statements.
- **Liquidity.** The Company must maintain consolidated domestic cash and cash equivalents, and investments with maturities of fewer than twelve (12) months of not less than \$7.5 million.

The Term Loan provides for events of default including, but not limited to, non-payment, breach of covenants, material adverse change to the business or impairment of the collateral, insolvency, or defaults on other debt. Upon an event of default and during its continuance, the interest rate will automatically increase 5% above the otherwise applicable interest rate.

In addition, upon an event of default, the Bank may elect a number of remedies including, but not limited to, declaring all obligations (including principal, interest and expenses) immediately due and payable, which shall occur automatically if the Company becomes insolvent. The Term Loan is secured by a mortgage on the property located at 108 Cherry Hill Drive and 25 Sam Fonzo Drive, Beverly, Massachusetts.

Except for prepayments of up to 20% of the outstanding Term Loan balance per annum, the Company must pay a 3% early termination fee on amounts prepaid prior to July 5, 2014, 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.

Termination of Revolving Credit Facility

Effective July 5, 2013, the Company terminated the Revolving Credit Facility with Silicon Valley Bank, which had provided for borrowings up to \$30.0 million based primarily on accounts receivable. With the termination of this facility, the Company has cash collateralized two letters of credit issued by Silicon Valley Bank in the aggregate amount of \$1.5 million. The Company paid a \$0.3 million early termination fee to Silicon Valley Bank.

Item 2. 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-Q. 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.

[Table of Contents](#)

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.

In December 2012, we sold to Lam Research Corporation the intellectual property rights and other assets relating to our dry strip systems product line. The purchased intellectual property rights include, among other things, worldwide patent rights, patent applications, copyrights, industrial designs, know-how and related rights used by us in our dry strip products. Lam granted us a worldwide, non-exclusive, non-transferable, royalty free license to use the intellectual property rights sold by us. The license allows us to make and sell 300 mm dry strip wafer processing equipment for semiconductor applications through 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. Due to this continuing interest in the dry strip business, the sale of the intellectual property rights and other assets to Lam have been reported in continuing operations.

The sizable expense of building, upgrading or expanding a semiconductor fabrication facility is increasingly causing semiconductor companies to contract with foundries to manufacture their semiconductors. Consolidation and partnering within the semiconductor manufacturing industry has resulted in a small number of customers representing a substantial portion of our business. Our net revenue from our ten largest customers accounted for 70.0% of total revenue for the six months ended June 30, 2013; compared to 83.8% of revenue for the six months ended June 30, 2012.

Weak industry conditions that we experienced in 2012 continued through the first quarter of 2013, but we believe that beginning in the second quarter of 2013 we have entered a period of market improvement. We continue to maintain tight control of discretionary spending. Our financial results reflect efforts in recent years to lower our breakeven revenue levels while continuing to invest a significant portion of our personnel and financial resources in research and development programs.

Operating results for the interim periods 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.

Management has not identified any need to make any material change in, and has not changed, any of our critical accounting estimates and judgments as described in Management's Discussion and Analysis of Financial Conditions and Results of Operations included in our Annual Report on Form 10-K for the year ended December 31, 2012.

[Table of Contents](#)

Results of Operations

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

	Three months ended June 30,		Six months ended June 30,	
	2013	2012	2013	2012
Revenue:				
Product	85.8%	87.1%	85.3%	86.8%
Services	14.2	12.9	14.7	13.2
Total revenue	100.0	100.0	100.0	100.0
Cost of revenue:				
Product	53.6	51.8	54.0	52.4
Services	11.2	9.7	12.4	9.6
Total cost of revenue	64.8	61.5	66.4	62.0
Gross profit	35.2	38.5	33.6	38.0
Operating expenses:				
Research and development	17.9	17.7	20.1	19.4
Sales and marketing	11.7	10.5	12.2	11.2
General and administrative	13.5	11.0	14.7	12.5
Gain on sale of dry strip assets and intellectual property	(1.7)	—	(1.3)	—
Restructuring charges	0.9	0.3	2.5	2.7
Total operating expenses	42.3	39.5	48.2	45.8
Loss from operations:	(7.1)	(1.0)	(14.6)	(7.8)
Other income (expense):				
Interest expense	(0.1)	—	(0.1)	—
Other, net	(0.7)	1.0	0.7	(0.3)
Total other income (expense)	(0.8)	1.0	0.6	(0.3)
Loss before income taxes	(7.9)	0.0	(14.0)	(8.1)
Income taxes	0.6	0.8	0.7	1.1
Net loss	(8.5)%	(0.8)%	(14.7)%	(9.2)%

[Table of Contents](#)

Revenue

The following table sets forth our revenues.

	Three months ended June 30,		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2013	2012	\$	%	2013	2012	\$	%
(dollars in thousands)								
Revenues:								
Product	\$ 40,769	\$ 51,465	\$ (10,696)	(20.8)%	\$ 75,220	\$ 99,003	\$ (23,783)	(24.0)%
Percentage of revenues	85.8%	87.1%			85.3%	86.8%		
Services	6,732	7,649	(917)	(12.0)%	13,006	15,117	(2,111)	(14.0)%
Percentage of revenues	14.2%	12.9%			14.7%	13.2%		
Total revenues	<u>\$ 47,501</u>	<u>\$ 59,114</u>	<u>\$ (11,613)</u>	(19.6)%	<u>\$ 88,226</u>	<u>\$ 114,120</u>	<u>\$ (25,894)</u>	(22.7)%

Three Months Ended June 30, 2013 Compared with Three Months Ended June 30, 2012

Product

Product revenue, which includes system sales, sales of spare parts and product upgrades, was \$40.8 million, or 85.8%, of revenue during the three months ended June 30, 2013, compared with \$51.5 million, or 87.1% of revenue for the three months ended June 30, 2012. The year over year decrease in product revenue is attributable to weak semiconductor market spending which has kept revenue levels low over the past four quarters.

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 June 30, 2013 and December 31, 2012 was \$6.0 million and \$6.9 million, respectively. The decrease was mainly due to the decrease in systems sales during the six months ended June 30, 2013, and the timing of acceptance of deferred system sales.

Services

Service revenue, which includes the labor component of maintenance and service contracts and fees for service hours provided by on-site service personnel, was \$6.7 million, or 14.2% of revenue for the three months ended June 30, 2013, compared with \$7.6 million, or 12.9% of revenue for the three months ended June 30, 2012. Service revenue fluctuates from period to period based on capacity utilization at customers' manufacturing facilities, which affects the need for equipment service. The decrease during the three months ended June 30, 2013 was primarily due to lower fab utilization in the semiconductor industry as compared to the three months ended June 30, 2012.

Six Months Ended June 30, 2013 Compared with Six Months Ended June 30, 2012

Product

Product revenue was \$75.2 million, or 85.3% of revenue for the six months ended June 30, 2013, compared with \$99.0 million, or 86.8% of revenue for the six months ended June 30, 2012. The decrease in product revenue is attributable to weak semiconductor market spending.

[Table of Contents](#)

Services

Service revenue, which includes the labor component of maintenance and service contracts and fees for service hours provided by on-site service personnel, was \$13.0 million, or 14.7% of revenue for the six months ended June 30, 2013, compared with \$15.1 million, or 13.2% of revenue for the six months ended June 30, 2012. Service revenue fluctuates from period to period based on capacity utilization at customers' manufacturing facilities, which affects the need for equipment service. Results for the first two quarters of 2013 were primarily driven by lower fab utilization in the semiconductor industry as compared to the first two quarters of 2012.

Revenue Categories used by Management

As an alternative 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.

Three Months Ended June 30, 2013 Compared with Three Months Ended June 30, 2012

Ion Implant

Included in total revenue of \$47.5 million during the three months ended June 30, 2013 is revenue from sales of ion implantation products and related service of \$39.0 million, or 82.1% of total revenue, compared with \$50.6 million, or 85.6%, of total revenue for the three months ended June 30, 2012. The dollar decrease was due to the factors discussed above for product revenue.

Aftermarket

Our product revenue includes sales of spare parts and product upgrades as well as complete systems. We refer to the business of selling spare parts and product upgrades, combined with the sale of maintenance labor and service contracts and service hours, as the "aftermarket" business. Included in total revenue of \$47.5 million during the three months ended June 30, 2013 is revenue from our aftermarket business of \$30.9 million, compared to \$32.9 million for the three months ended June 30, 2012. Aftermarket revenue fluctuates from period to period based on capacity utilization at customers' manufacturing facilities which affects the sale of spare parts and demand for equipment service. The decrease in aftermarket revenue for the three months ended June 30, 2013 as compared to the same period in 2012 was due to lower levels of fab utilization in the semiconductor industry that began in the second half of 2012 and has continued through the first quarter of 2013.

Six Months Ended June 30, 2013 Compared with Six Months Ended June 30, 2012

Ion Implant

Included in total revenue of \$88.2 million during the six months ended June 30, 2013 is revenue from sales of ion implantation products and related service of \$71.4 million, or 81.0% of total revenue, compared with \$90.9 million, or 79.7%, of total revenue for the six months ended June 30, 2012. The dollar decrease was due to the factors discussed above for product revenue.

Aftermarket

Included in total revenue of \$88.2 million during the six months ended June 30, 2013 is revenue from our aftermarket business of \$58.9 million, compared to \$65.0 million for the six months ended June 30, 2012. Aftermarket revenue fluctuates from period to period based on capacity utilization at customers' manufacturing facilities which affects the sale of spare parts and demand for equipment service. The decrease in aftermarket revenue in the first half of 2013 as compared to the same period in 2012 was due to a decrease in fab utilization in the semiconductor industry that began in the second half of 2012 and has continued through the first quarter of 2013.

[Table of Contents](#)

Gross Profit / Gross Margin

The following table sets forth our gross profit / gross margin.

	Three months ended June 30,		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2013	2012	\$	%	2013	2012	\$	%
(dollars in thousands)								
Gross Profit:								
Product	\$ 15,312	\$ 20,866	\$ (5,554)	(26.6)%	\$ 27,582	\$ 39,120	\$ (11,538)	(29.5)%
Product gross margin	37.6%	40.5%			36.7%	39.5%		
Services	1,425	1,922	(497)	(25.9)%	2,096	4,204	(2,108)	(50.1)%
Services gross margin	21.2%	25.1%			16.1%	27.8%		
Total gross profit	\$ 16,737	\$ 22,788	\$ (6,051)	(26.6)%	\$ 29,678	\$ 43,324	\$ (13,646)	(31.5)%
Gross margin	35.2%	38.5%			33.6%	38.0%		

Three Months Ended June 30, 2013 Compared with Three Months Ended June 30, 2012

Product

Gross profit from product revenue was 37.6% for the three months ended June 30, 2013, compared to 40.5% for the three months ended June 30, 2012. The decrease in gross profit of 2.9 percentage points is due lower systems sales volumes which reduced gross profit by 7.7 percentage points, offset by a 4.8 percentage point increase in gross profit resulting from the favorable impact of an increased mix of parts and upgrade revenue at higher margins.

Services

Service revenue gross margin was 21.2% for the three months ended June 30, 2013, compared to 25.1% for the three months ended June 30, 2012. The decrease in gross margin is attributable to lower sales volume and the unfavorable absorption of fixed service costs.

Six Months Ended June 30, 2013 Compared with Six Months Ended June 30, 2012

Product

Gross profit from product revenue was 36.7% for the six months ended June 30, 2013, compared to 39.5% for the six months ended June 30, 2012. The decrease in gross profit of 2.8 percentage points is due lower systems sales volumes which reduced gross profit by 4.1 percentage points and a charge for excess inventory which reduced gross profit by 2.6 percentage points, offset by a 3.9 percentage point increase in gross profit resulting from the favorable impact of an increased mix of parts and upgrade revenue at higher margins.

Services

Service revenue gross margin was 16.1% for the six months ended June 30, 2013, compared to 27.8% for the six months ended June 30, 2012. The decrease in gross margin is attributable to lower sales volume and the unfavorable absorption of fixed service costs.

[Table of Contents](#)

Operating Expenses

The following table sets forth our operating expenses:

	Three months ended June 30		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2013	2012	\$	%	2013	2012	\$	%
(dollars in thousands)								
Research and development	\$ 8,503	\$ 10,478	\$ (1,975)	(18.8)%	\$ 17,709	\$ 22,147	(4,438)	(20.0)%
Percentage of revenues	17.9%	17.7%			20.1%	19.4%		
Sales and marketing	5,594	6,231	(637)	(10.2)%	10,796	12,814	(2,018)	(15.7)%
Percentage of revenues	11.7%	10.5%			12.2%	11.2%		
General and administrative	6,412	6,488	(76)	(1.2)%	13,001	14,287	(1,286)	(9.0)%
Percentage of revenues	13.5%	11.0%			14.7%	12.5%		
Gain on sale of dry strip assets and intellectual property	(799)	—	(799)	—	(1,167)	—	(1,167)	—
Percentage of revenues	(1.7)%	0.0%			(1.3)%	0.0%		
Restructuring charges	421	153	268	175.2%	2,222	3,034	(812)	(26.8)%
Percentage of revenues	0.9%	0.3%			2.5%	2.7%		
Total operating expenses	\$ 20,131	\$ 23,350	\$ (3,219)	(13.8)%	\$ 42,561	\$ 52,282	(9,721)	(18.6)%
Percentage of revenues	42.3%	39.5%			48.2%	45.8%		

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 \$11.6 million and \$24.5 million, or 58.4% and 59.9%, of our total operating expenses, excluding the gain on sale of the dry strip assets and intellectual property and restructuring charges, for the three and six-month periods ended June 30, 2013, respectively. For the three and six-month periods ended June 30, 2012, personnel costs were \$13.4 million and \$28.8 million, or 57.8% and 58.4%, of our total operating expenses excluding restructuring charges.

We continue to maintain tight control over our discretionary spending. As a result of the current economic conditions in the semiconductor industry, we took a number of actions during the first half of 2013 to reduce our operating expenses and manage our cash. These actions included a reduction in our global

workforce; focusing our R&D spending on critical programs; and asking our employees to take two weeks of unpaid shutdowns.

The impact of these actions and our operating results are discussed below.

Research and Development

	Three months ended June 30		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2013	2012	\$	%	2013	2012	\$	%
	(dollars in thousands)							
Research and development	\$ 8,503	\$ 10,478	\$ (1,975)	(18.8)%	\$ 17,709	\$ 22,147	\$ (4,438)	20.0%
Percentage of revenues	17.9%	17.7%			20.1%	19.4%		

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.

[Table of Contents](#)

Three Months Ended June 30, 2013 Compared with Three Months Ended June 30, 2012

Research and development expense was \$8.5 million during the three months ended June 30, 2013; a decrease of \$2.0 million, or 18.8%, compared with \$10.5 million during the three months ended June 30, 2012. The decrease included the reduction in payroll costs of \$1.2 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 \$0.6 million and depreciation expense for internal use assets used as demonstration and/or test systems decreased by \$0.4 million.

Six Months Ended June 30, 2013 Compared with Six Months Ended June 30, 2012

Research and development expense was \$17.7 million during the six months ended June 30, 2013; a decrease of \$4.4 million, or 20.0%, compared with \$22.1 million during the six months ended June 30, 2012. The decrease included the reduction in payroll costs of \$2.1 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 \$1.6 million and depreciation expense for internal use assets used as demonstration and/or test systems decreased by \$0.9 million.

Sales and Marketing

	Three months ended June 30		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2013	2012	\$	%	2013	2012	\$	%
	(dollars in thousands)							
Sales and marketing	\$ 5,594	\$ 6,231	\$ (637)	(10.2)%	\$ 10,796	\$ 12,814	\$ (2,018)	(15.7)%
Percentage of revenues	11.7%	10.5%			12.2%	11.2%		

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

Three Months Ended June 30, 2013 Compared with Three Months Ended June 30, 2012

Sales and marketing expense was \$5.6 million during the three months ended June 30, 2013; a decrease of \$0.6 million, or 10.2%, compared with \$6.2 million during the three months ended June 30, 2012. The decrease was primarily due to the reduction in payroll and related costs of \$0.8 million as a result of lowering our headcount through reductions in force and the cost savings realized by one week of unpaid shutdown taken by our employees.

Six Months Ended June 30, 2013 Compared with Six Months Ended June 30, 2012

Sales and marketing expense was \$10.8 million during the six months ended June 30, 2013; a decrease of \$2.0 million, or 15.7%, compared with \$12.8 million during the six months ended June 30, 2012. The decrease was primarily due to the reduction in payroll and related costs of \$1.4 million as a result of lowering our headcount through reductions in force and the cost savings realized by two weeks of unpaid shutdown taken by our employees. As a result of our tightened control over discretionary spending, we reduced our travel and entertainment costs, our consulting, project material and related costs, and freight and facilities related expenses by \$0.5 million.

[Table of Contents](#)

General and Administrative

	Three months ended June 30		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2013	2012	\$	%	2013	2012	\$	%
	(dollars in thousands)							
General and administrative	\$ 6,412	\$ 6,488	\$ (76)	(1.2)%	\$ 13,001	\$ 14,287	\$ (1,286)	(9.0)%
Percentage of revenues	13.5%	11.0%			14.7%	12.5%		

Our general and administrative expenses result primarily from the costs associated with our executive, finance, legal and human resource functions.

Three Months Ended June 30, 2013 Compared with Three Months Ended June 30, 2012

General and administrative expense was \$6.4 million during the three months ended June 30, 2013; a decrease of \$0.1 million, or 1.2%, compared with \$6.5 million during the three months ended June 30, 2012, essentially flat for the second quarter.

Six Months Ended June 30, 2013 Compared with Six Months Ended June 30, 2012

General and administrative expense was \$13.0 million during the six months ended June 30, 2013; a decrease of \$1.3 million, or 9.0%, compared with \$14.3 million during the six months ended June 30, 2012. The decrease was primarily due to the reduction in salary and fringe benefits of \$0.7 million as a result of lowering our headcount through reductions in force and the cost savings realized by two weeks of unpaid shutdown taken by our employees. As a result of our tightened control over discretionary spending we reduced our professional fees, facilities and supplies related expenses during the six months ended June 30, 2013 by \$0.6 million as compared to the same period in 2012.

Gain on Sale of Dry Strip Assets and Intellectual Property

	Three months ended June 30		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2013	2012	\$	%	2013	2012	\$	%
	(dollars in thousands)							
Gain on Sale of Dry Strip Assets and Intellectual Property	\$ (799)	\$ —	\$ (799)	—%	\$ (1,167)	\$ —	\$ (1,167)	—%
Percentage of revenues	(1.7)%	0.0%			(1.3)%	0.0%		

In December 2012, we sold our dry strip assets and intellectual property to Lam. A portion of the purchase consideration (up to \$2.0 million) is contingent upon our achieving certain milestones. During the three and six-month periods ended June 30, 2013, the Company recorded \$0.8 million and \$1.2 million, respectively, for the milestones achieved. These amounts were partially offset by additional costs associated with the lab system purchased by Lam.

[Table of Contents](#)

Restructuring Charges

	Three months ended June 30		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2013	2012	\$	%	2013	2012	\$	%
	(dollars in thousands)							
Restructuring charges	\$ 421	\$ 153	\$ 268	175.2%	\$ 2,222	\$ 3,034	\$ (812)	(26.8)%
Percentage of revenues	0.9%	0.3%			2.5%	2.7%		

We continue to align our organization with market demands. Due to economic conditions in the semiconductor industry, we implemented reductions in force in the periods presented to improve the focus of our operations, control costs, achieve future profitability and conserve cash. As a result of these actions, we recorded a restructuring expense for severance and related costs during the three and six-month periods ended June 30, 2013 and 2012, respectively.

Other Income (Expense)

	Three months ended June 30		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2013	2012	\$	%	2013	2012	\$	%
	(dollars in thousands)							
Other income (expense), net	\$ (362)	\$ 560	\$ (922)	(164.6)%	\$ 471	\$ (355)	\$ 826	(232.7)%
Percentage of revenues	(0.8)%	1.0%			0.6%	(0.3)%		

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, interest earned on our invested cash balances and bank fees associated with maintaining our credit facility.

During the three and six-month periods ended June 30, 2013 and 2012, we had no significant off-balance-sheet risk such as foreign exchange contracts, option contracts or other foreign hedging arrangements.

Income Taxes

	Three months ended June 30		Period-to-Period Change		Six months ended June 30,		Period-to-Period Change	
	2013	2012	\$	%	2013	2012	\$	%
	(dollars in thousands)							
Income taxes	\$ 263	\$ 469	\$ (206)	(43.9)%	\$ 596	\$ 1,186	\$ (590)	(49.7)%
Percentage of revenues	0.6%	0.8%			0.7%	1.1%		

We incur income tax expense relating principally to operating results of foreign entities in Europe and Asia, where we earn taxable income. We have significant net operating loss carryforwards in the United States and certain European tax 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 losses in the United States and certain foreign tax jurisdictions as we believe it is more likely than not that these benefits will not be recognized.

[Table of Contents](#)

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, which limits our ability to reduce costs in proportion to declining sales. We have tried to reduce operating expense to achieve profitability towards the lower end of our quarterly revenue swings. 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.

During the six-month periods ended June 30, 2013 and 2012, the Company used \$10.8 million and \$12.6 million, respectively, of cash to support operating activities. The cash used by operations during the six months ended June 30, 2013 was predominately driven by the Company's loss from operations excluding non-cash charges for depreciation and amortization and stock based compensation expense, the increase in the accounts receivable, prepaid expenses and other current assets, and other assets and liabilities balances, and the increase in our accounts payable and accrued liability balances. Investing activities included \$1.2 million in cash received for the achievement of a milestone associated with the Lam transaction and partially offset the use of cash in operations, resulting in cash and cash equivalents at June 30, 2013 of \$34.6 million, compared to \$45.0 million at December 31, 2012. Financing activities were not significant.

As noted in Note 15 to the consolidated financial statements in this Report on Form 10-Q, effective July 5, 2013, the Company terminated the Revolving Credit Facility with Silicon Valley Bank, which had provided for borrowings up to \$30.0 million based primarily on accounts receivable. With the termination of this facility, the Company has cash collateralized two letters of credit issued by Silicon Valley Bank in the aggregate amount of \$1.5 million. The Company paid a \$0.3 million early termination fee to Silicon Valley Bank.

Additionally, on July 5, 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 (the "Term Loan"). \$.8M of the loan proceeds will be held in a restricted interest reserve escrow account at the Bank. The Bank will also maintain a reserve on the Company's loan account with the Bank for the Company's quarterly real estate taxes on the mortgaged property. The Company will use the proceeds of the Term Loan as needed to fund growth, specifically investments in the leading edge Purion ion implant platform, and other working capital and general corporate purposes. The Term Loan bears interest at the rate of 5.5% per annum, with payments of principal beginning August 5, 2014 on a 10 year amortization schedule. Interest is payable monthly beginning on August 5, 2013. All outstanding principal and unpaid interest is due and payable on July 5, 2016. The Company is required to comply with certain financial covenants under the Business Loan Agreement.

We expect that our capital expenditures in the next twelve months will not exceed \$2.5 million.

We believe that based on our current market, revenue, expense and cash flow forecasts, our existing cash and cash equivalents will be sufficient to satisfy our anticipated cash requirements for the short and long-term.

Commitments and Contingencies

Significant commitments and contingencies at June 30, 2013 are consistent with those discussed in Item 7, "Management's Discussion and Analysis of Financial Condition and Results of Operations," and Note 16 to the consolidated financial statements in our Annual Report on Form 10-K for the fiscal year ended December 31, 2012.

[Table of Contents](#)

Item 3. Quantitative and Qualitative Disclosures about Market Risk.

As of June 30, 2013, there have been no material changes to the quantitative information about market risk disclosed in Item 7A to our annual report on Form 10-K for the year ended December 31, 2012.

Item 4. 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 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.

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 the three months ended June 30, 2013 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

[Table of Contents](#)

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

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

Item 1A. Risk Factors.

As of June 30, 2013, there have been no material changes to the risk factors described in Item 1A to our annual report on Form 10-K for the year ended December 31, 2012.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

None.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not Applicable.

Item 5. Other Information.

None.

25

[Table of Contents](#)**Item 6. Exhibits.**

The following exhibits are filed herewith:

Exhibit No	Description
3.1	Amended and Restated Certificate of Incorporation of the Company adopted May 6, 2009. Incorporated by reference to Exhibit 3.1 of the Company's Current Report on Form 8-K filed with the Commission on May 11, 2009.
3.2	Bylaws of the Company, as amended as of August 8, 2007. Incorporated by reference to Exhibit 3.2 of the Company's Form 10-Q for the quarterly period ended June 30, 2007, filed with the Commission on August 9, 2007.
10.1	Business Loan Agreement dated as of July 5, 2013 between the Company and Northern Bank & Trust Company. Filed herewith.
10.2	Mortgage and Fixture Filing dated as of July 5, 2013 by the Company in favor of Northern Bank & Trust Company. 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 May August 2, 2013. 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 August 2, 2013. Filed herewith.
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 August 2, 2013. 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 August 2, 2013. Filed herewith.
101	The following materials from the Company's Form 10-Q for the quarter ended June 30, 2013, formatted in eXtensible Business Reporting Language (XBRL): (i) Consolidated Statements of Operations, (ii) Consolidated Statements of Comprehensive Loss, (iii) Consolidated Balance Sheets, (iv) Consolidated Statements of Cash Flows and (v) Notes to Consolidated Financial Statements (Unaudited).

26

[Table of Contents](#)**SIGNATURES**

Pursuant to the requirements 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.

DATED: August 2, 2013

AXCELIS TECHNOLOGIES, INC.
By: /s/ KEVIN J. BREWER

Kevin J. Brewer
Executive Vice President and Interim Chief Financial Officer
Duly Authorized Officer and Principal Financial Officer

BUSINESS LOAN AGREEMENT

Borrower: Axcelis Technologies, Inc.
108 Cherry Hill Drive
Beverly, MA 01915-1066

Lender: Northern Bank & Trust Company
275 Mishawum Road
Woburn, MA 01801

THIS BUSINESS LOAN AGREEMENT dated as of July 5, 2013, is made and executed between Axcelis Technologies, Inc. (“Borrower”) and Northern Bank & Trust Company (“Lender”) on the following terms and conditions. Borrower has applied to Lender for a commercial loan or loans or other financial accommodations, including those which may be described on any exhibit or schedule attached to this Agreement (collectively, the “Loan”). Borrower understands and agrees that: (A) in granting, renewing, or extending any Loan, Lender is relying upon Borrower’s representations, warranties, and agreements as set forth in this Agreement; (B) the granting, renewing, or extending of any Loan by Lender at all times shall be subject to Lender’s sole judgment and discretion; and (C) all such Loans shall be and remain subject to the terms and conditions of this Agreement.

TERM. This Agreement shall be effective as of July 5, 2013, and shall continue in full force and effect until such time as all of Borrower’s Loans in favor of Lender have been paid in full, including principal, interest, costs, expenses, attorneys’ fees, and other fees and charges, or until July 5, 2016, whichever is later.

REPRESENTATIONS AND WARRANTIES. Borrower represents and warrants to Lender, as of the date of this Agreement, as of the date of each disbursement of loan proceeds, as of the date of any renewal, extension or modification of any Loan, and at all times any Indebtedness exists:

Organization. Borrower is a corporation for profit which is, and at all times shall be, duly organized, validly existing, and in good standing under and by virtue of the laws of the State of Delaware. Borrower is duly authorized to transact business in all other states in which Borrower is doing business, having obtained all necessary filings, governmental licenses and approvals for each state in which Borrower is doing business. Specifically, Borrower is, and at all times shall be, duly qualified as a foreign corporation in all states in which the failure to so qualify would have a material adverse effect on its business or financial condition. Borrower has the full power and authority to own its properties and to transact the business in which it is presently engaged or presently proposes to engage. Borrower maintains an office at 108 Cherry Hill Drive, Beverly, MA 01915-1066. Unless Borrower has designated otherwise in writing, the principal office is the office at which Borrower keeps its books and records including its records concerning the Collateral. Borrower will notify Lender prior to any change in the location of Borrower’s state of organization or any change in Borrower’s name. Borrower shall do all things necessary to preserve and to keep in full force and effect its existence, rights and privileges, and shall comply with all regulations, rules, ordinances, statutes, orders and decrees of any governmental or quasi-governmental authority or court applicable to Borrower and Borrower’s business activities.

Assumed Business Names. Borrower has filed or recorded all documents or filings required by law relating to all assumed business names used by Borrower. Excluding the name of Borrower, the following is a complete list of all assumed business names under which Borrower does business:
None

Authorization. Borrower’s execution, delivery, and performance of this Agreement and all the Related Documents have been duly authorized by all necessary action by Borrower and do not conflict with, result in a violation of, or constitute a default under (1) any provision of (a) Borrower’s certificate of incorporation or bylaws, or (b) any agreement or other instrument binding upon Borrower, including but not limited to Borrower’s loan arrangement with Silicon Valley Bank or any other institutional lender, or (2) any law, governmental regulation, court decree, or order applicable to Borrower or to Borrower’s properties. Borrower represents and warrants that it has received the written consent of Silicon Valley Bank to this Loan.

Financial Information. Each of Borrower’s financial statements supplied to Lender truly and completely disclosed Borrower’s financial condition as of the date of the statement, and there has been no material adverse change in Borrower’s financial condition subsequent to the date of the most recent financial statement supplied to Lender. Borrower has no material contingent obligations except as disclosed in such financial statements.

Legal Effect. This Agreement constitutes, and any instrument or agreement Borrower is required to give under this Agreement when delivered will constitute legal, valid, and binding obligations of Borrower enforceable against Borrower in

accordance with their respective terms

Properties. Except as contemplated by this Agreement or as previously disclosed in Borrower’s financial statements or in writing to Lender and as accepted by Lender, and except for Permitted Liens and property tax liens for taxes not presently due and payable, Borrower owns and has good title to all of Borrower’s properties free and clear of all Security Interests, and has not executed any security documents or financing statements relating to such properties. All of Borrower’s properties are titled in Borrower’s legal name, and Borrower has not used or filed a financing statement under any other name for the last five (5) years.

Hazardous Substances. Except as disclosed to and acknowledged by Lender in writing and except as provided in the Hazardous Substance Certificate and Indemnity Agreement, Borrower represents and warrants that: (1) During the period of Borrower’s ownership of the Collateral, there has not and to Borrower’s knowledge there has been no use, generation, manufacture, storage, treatment, disposal, release or threatened release of any Hazardous Substance by any person on, under, about or from any of the Collateral, except in compliance with applicable laws. (2) Borrower has no knowledge that there has been (a) any breach or violation of any Environmental Laws; (b) any use, generation, manufacture, storage, treatment, disposal, release or threatened release of any Hazardous Substance on, under, about or from the Collateral by any prior owners or occupants of any of the Collateral, except in compliance with applicable laws; or (c) any actual or threatened in writing litigation or claims of any kind by any person relating to such matters. (3) Neither Borrower nor any tenant, contractor, agent or other authorized user of any of the Collateral shall use, generate, manufacture, store, treat, dispose of or release any Hazardous Substance on, under, about or from any of the Collateral except in compliance with all applicable federal, state, and local laws, regulations, and ordinances, including without limitation all Environmental Laws. Borrower authorizes Lender and its agents to enter upon the Collateral to make such inspections and tests as Lender may deem appropriate to determine compliance of the Collateral with this section of the Agreement after first delivering reasonable prior notice of such entry and except in

cases where Lender has reason to believe that there is imminent danger to the Collateral or the environment. In addition, Borrower represents and warrants that to Borrower's knowledge, Borrower's Collateral does not contain urea formaldehyde foam insulation or urea formaldehyde resin in violation of any applicable state laws. Any inspections or tests made by Lender shall be at Borrower's expense and for Lender's purposes only and shall not be construed to create any responsibility or liability on the part of Lender to Borrower or to any other person. Borrower hereby (1) releases and waives any future claims against Lender for indemnity or contribution in the event Borrower becomes liable for cleanup or other costs under any such laws, and (2) agrees to indemnify, defend, and hold harmless Lender against any and all claims, losses, liabilities, damages, penalties, and expenses which Lender may directly or indirectly sustain or suffer resulting from a breach of this section of the Agreement or as a consequence of any use, generation, manufacture, storage, disposal, release or threatened release of a hazardous waste or substance on the Collateral except in each instance to the extent Lender, its contractors, employees or agents causes or exacerbates such release of hazardous waste or substance on the Collateral. The provisions of this section of the Agreement, including the obligation to indemnify and defend, shall survive the payment of the Indebtedness and the termination, expiration or satisfaction of this Agreement and shall not be affected by Lender's acquisition of any interest in any of the Collateral, whether by foreclosure or otherwise.

Litigation and Claims. No litigation, claim, investigation, administrative proceeding or similar action (including those for unpaid taxes) against Borrower is pending or threatened in writing, and no other event has occurred which may materially adversely affect Borrower's financial condition or properties, other than litigation, claims, or other events, if any, that have been disclosed to and acknowledged by Lender in writing.

Taxes. All of Borrower's tax returns and reports that are or were required to be filed, have been filed, and all taxes, assessments and other governmental charges have been paid in full, except those presently being or to be contested by Borrower in good faith in the ordinary course of business and for which adequate reserves have been provided.

Lien Priority. Unless otherwise previously disclosed to Lender in writing, Borrower has not entered into or granted any Security Agreements, or permitted the filing or attachment of any Security Interests on or affecting any of the Collateral directly or indirectly securing repayment of Borrower's Loan and Note, other than Permitted Liens, that would be prior or that may in any way be superior to Lender's Security Interests and rights in and to such Collateral. Lender acknowledges that Borrower has a prior loan arrangement with Silicon Valley Bank. Silicon Valley Bank has expressly consented in writing to the Loan on the terms and conditions contained in such consent.

Binding Effect. This Agreement, the Note, all Security Agreements (if any), and all Related Documents are binding upon the signers thereof, as well as upon their successors, representatives and assigns, and are legally enforceable in

accordance with their respective terms.

Title to Collateral. At the date hereof the Borrower is (and as to Collateral that the Borrower may acquire after the date hereof, will be) the lawful owner of the Collateral, and the Collateral and each item thereof is, will be and shall continue to be free of all restrictions, liens, encumbrances or other rights, title or interests (other than the security interest therein granted to the Lender and Permitted Liens), credits, defenses, recoupments, set-offs or counterclaims whatsoever. The Borrower has and will have full power and authority to grant to Lender a security interest in the Collateral and the Borrower has not transferred, assigned, sold, pledged, encumbered, subjected to lien or granted any security interest in, and will not transfer, assign, sell (except sales or other dispositions in the ordinary course of business in respect to inventory as expressly permitted in this Agreement), pledge, encumber, subject to lien or grant any security interest in any of the Collateral (or any of the Borrower's right, title or interest therein), to any person other than Lender. The Collateral is and will be valid and genuine in all respects. The Borrower will warrant and defend the Lender's right to and interest in the Collateral against all claims and demands of all persons whatsoever.

Location of Collateral. Except for sale, processing, use, consumption or other disposition in the ordinary course of business, the Borrower will keep all inventory and equipment granted to Lender as Collateral only at locations specified in this Agreement or specified to Lender in writing. The Borrower shall, during the term of this Agreement, keep Lender currently and accurately informed in writing of each location where the Borrower's records relating to its accounts and contract rights, respectively, are kept, and shall not remove such records or any of them to another location without giving Lender at least thirty (30) days prior written notice thereof.

Personal Use. Borrower represents to Lender that the proceeds of this Note will not be used for personal, family or household purposes or for the purpose of purchasing or carrying margin stock or margin securities within the meaning of Regulations U and X of the Board of Governors of the Federal Reserve System, 12 C.F.R. Parts 221 and 224.

AFFIRMATIVE COVENANTS. Borrower covenants and agrees with Lender that, so long as this Agreement remains in effect, Borrower will:

Notices of Claims and Litigation. Promptly inform Lender in writing of (1) all material adverse changes in Borrower's financial condition, and (2) all existing and all threatened litigation, claims, investigations, administrative proceedings or similar actions affecting Borrower which could materially affect the financial condition of Borrower.

Financial Records. Maintain its books and records in accordance with GAAP, applied on a consistent basis, and permit Lender to examine and audit Borrower's books and records at all reasonable times and on reasonable notice to Borrower.

Financial Statements. Furnish Lender with the following:

Annual Statements. As soon as available, but in no event later than seventy five (75) days after the end of each fiscal year, Borrower's balance sheet and income statement for the year ended, prepared by Borrower in form satisfactory to Lender. Borrower shall provide Lender with a copy of its Form 10-K filing with the Securities and Exchange Commission concurrently with such filing.

Quarterly Statements. Borrower shall provide Lender with a copy of its quarterly Form 10-Q filing with the Securities and Exchange Commission concurrently with such filing.

Tax Returns. As soon as available, but in no event later than twenty one (21) days after the applicable filing date for the tax reporting period ended (taking into account any duly filed extension periods), Borrower's Federal and other governmental income tax returns, prepared by a tax professional satisfactory to Lender.

Additional Requirements. Except as otherwise provided herein, Borrower shall provide Lender with quarterly bank statements from all of Borrower's domestic bank accounts showing cash balances held for Borrower with other financial institutions. If the Borrower shall fail to provide said Form 10-Ks, Form 10-Qs, bank statements and/or tax returns within the stated time, the Bank may, in its sole and absolute discretion, increase the interest rate stated in the Note to the Default Rate as stated in said Note. The rate increase shall remain in effect until the Form 10-Ks, Form 10-Qs, bank statements and/or tax returns are provided to Lender.

All financial reports required to be provided under this Agreement shall be prepared in accordance with GAAP, applied on a consistent basis, and certified by Borrower as being true and correct, unless otherwise stated.

Additional Information. Furnish such additional information and statements, as Lender may reasonably request from time to time.

Insurance. Maintain fire and other risk insurance, public liability insurance, and such other insurance for risks and in amounts standard for companies in Borrower's industry and location and as Lender may reasonably request. Insurance policies shall be in a form, with companies, and in amounts that are reasonably satisfactory to Lender. Borrower, upon request of Lender, will deliver to Lender from time to time the policies or certificates of insurance in form satisfactory to Lender. Each insurance policy also shall include an endorsement providing that coverage in favor of Lender will not be impaired in any way by any act, omission or default of Borrower or any other person. In connection with all policies covering assets in which Lender holds or is offered a security interest for the Loans, Borrower will provide Lender with such lender's loss payable or other endorsements as Lender may reasonably require.

Insurance Reports. Furnish to Lender, upon request of Lender, not more than one (1) time in any twelve (12) month period provided that satisfactory proof of insurance has been provided to Lender, reports on each existing insurance policy showing such information as Lender may reasonably request, including without limitation the following: (1) the name of the insurer; (2) the risks insured; (3) the amount of the policy; (4) the properties insured; (5) the then current property values on the basis of which insurance has been obtained, and the manner of determining those values; and (6) the expiration date of the policy.

Other Agreements. Comply with all terms and conditions of all other agreements, whether now or hereafter existing, between Borrower and any other party and notify Lender immediately in writing of any default in connection with any other such agreements, except to the extent such non-compliance or default would not have a material adverse effect on the Borrower or on the Collateral.

Loan Proceeds. Use all Loan proceeds solely for Borrower's business operations, unless specifically consented to the contrary by Lender in writing.

Taxes, Charges and Liens. Pay and discharge when due all of its indebtedness and obligations, including without limitation all assessments, taxes, governmental charges, levies and liens, of every kind and nature, imposed upon Borrower or its properties, income, or profits, prior to the date on which penalties would attach, and all lawful claims that, if unpaid, might become a lien or charge upon any of Borrower's properties, income, or profits. Provided however, Borrower will not be required to pay and discharge any such assessment, tax, charge, levy, lien or claim so long as (1) the legality of the same shall be contested in good faith by appropriate proceedings, and (2) Borrower shall have established on Borrower's books adequate reserves with respect to such contested assessment, tax, charge, levy, lien, or claim in accordance with GAAP.

Performance. Perform and comply, in a timely manner, with all terms, conditions, and provisions set forth in this Agreement, in the Related Documents, and in all other instruments and agreements between Borrower and Lender. Borrower shall notify Lender immediately in writing of any default in connection with any agreement.

Operations. Maintain executive and management personnel with substantially the same qualifications and experience as the present executive and management personnel; provide written notice to Lender of any change in executive officer; conduct its business affairs in a reasonable and prudent manner.

Environmental Studies. Promptly conduct and complete, at Borrower's expense, all such investigations, studies, samplings and testings as may be reasonably requested by Lender or any governmental authority relative to any substance, or any waste or by-product of any substance defined as toxic or a hazardous substance under applicable federal, state, or local law, rule, regulation, order or directive, at or affecting any property or any facility owned, leased or used by Borrower, as stated in the Hazardous Substance Certificate and Indemnity Agreement.

Compliance with Governmental Requirements. Comply with all laws, ordinances, and regulations, now or hereafter in effect, of all governmental authorities applicable to the conduct of Borrower's properties, businesses and operations, and to the use or occupancy of the Collateral, including without limitation, the Americans With Disabilities Act. Borrower may contest in good faith any such law, ordinance, or regulation and withhold compliance during any proceeding, including appropriate appeals, so long as Borrower has notified Lender in writing prior to doing so. Lender may require Borrower to post adequate security or a surety bond, reasonably satisfactory to Lender, to protect Lender's interest.

Inspection. Permit employees or agents of Lender at any reasonable time after reasonable prior notice to inspect any and all Collateral for the Loan or Loans and Borrower's other properties and to examine or audit Borrower's books, accounts, and records and to make copies and memoranda of Borrower's books, accounts, and records. If Borrower now or at any time hereafter maintains any records (including without limitation computer generated records and

computer software programs for the generation of such records) in the possession of a third party, Borrower, upon request of Lender, shall notify such party to permit Lender reasonable access to such records at all reasonable times after reasonable prior notice and to provide Lender with copies of any records it may request, all at Borrower's expense.

Compliance Certificates. Unless waived in writing by Lender, provide Lender at least annually, with a certificate executed by Borrower's chief financial officer, or other officer or person acceptable to Lender, certifying that the representations and warranties set forth in this Agreement are true

and correct as of the date of the certificate and further certifying that, as of the date of the certificate, no Event of Default exists under this Agreement.

Environmental Compliance and Reports. Borrower shall comply in all respects with any and all Environmental Laws; not cause or permit to exist, as a result of an intentional or unintentional action or omission on Borrower's part or on the part of any third party, on property owned and/or occupied by Borrower, any environmental activity where damage may result to the environment except in compliance with all applicable Environmental Laws, unless such environmental activity is pursuant to and in compliance with the conditions of a permit issued by the appropriate federal, state or local governmental authorities; shall furnish to Lender promptly and in any event within thirty (30) days after receipt thereof a copy of any notice, summons, lien, citation, directive, letter or other communication from any governmental agency or instrumentality concerning any intentional or unintentional action or omission on Borrower's part in connection with any environmental activity whether or not there is damage to the environment and/or other natural resources.

Additional Assurances. Make, execute and deliver to Lender such promissory notes, mortgages, deeds of trust, security agreements, assignments, financing statements, instruments, documents and other agreements as Lender or its attorneys may reasonably request to evidence and secure the Loans and to perfect all Security Interests.

Maintenance. Borrower will keep and maintain the Collateral and its other properties, if any, in good repair, working order and condition. Borrower will immediately notify Lender of any loss or damage to or any occurrence which would materially adversely affect the value of any Collateral. The Lender may, at its option, upon and during the continuance of an Event of Default, from time to time on reasonable prior notice to Borrower, take any other action that Lender may deem proper to repair, maintain or preserve any of the Collateral, and the Borrower will pay to the Lender on demand or Lender in its sole discretion may charge to the Borrower all reasonable amounts so paid or incurred by it.

Operating and Deposit Accounts. The Borrower shall establish with Lender a deposit account in which Borrower shall maintain all of its cash maintained in US bank accounts, other than up to Ten Million and no/100ths Dollars (\$10,000,000.00) which the Borrower may maintain in other US accounts used to support operations. A list of the US bank accounts in which the Borrower maintains cash has been attached hereto as Schedule B and incorporated herein. In the event that Borrower makes any changes to the number or location of such of accounts, Borrower shall notify Lender immediately of such change. The sole remedy for Borrower's failure to maintain such a deposit account with Lender having such a balance is that Lender may, in its sole and absolute discretion, increase the stated interest rate of the Indebtedness to the Default Rate stated in the Note. On the first business day of each month, Borrower shall transfer all cash in excess of Ten Million and no/100ths Dollars (\$10,000,000.00) to the deposit account with Lender. Borrower shall further provide Lender with a copy of all bank statements of domestic accounts not held by Lender by the fifteenth (15th) day of each month.

Interest Reserve Account. Borrower shall establish an interest reserve account with the Lender (the "Interest Reserve Account"), which will be funded as of the date hereof with an opening balance of Eight Hundred Twenty Five Thousand and no/100ths Dollars (\$825,000.00). All Loan payments and fees will be automatically debited from the Borrower's Interest Reserve Account. On the fifth (5th) day of each month, Borrower will deposit sufficient funds into the Interest Reserve Account to maintain a balance of Eight Hundred Twenty Five Thousand and no/100ths Dollars (\$825,000.00) after deduction of the payment due on this Loan. Borrower shall pledge the Interest Reserve Account to Lender as additional collateral for the Loan.

Tax Escrow Account. Borrower shall establish an escrow account with the Lender for the purpose of paying any and all real and personal property taxes and other assessments on the Property (the "Property Tax Escrow Account") from which Lender will pay all real and personal property taxes, assessments and charges in a timely manner. Borrower will make monthly deposits of 1/12th of the annual real property tax amount to the Property Tax Escrow Account on the fifth (5th) day of each month. Lender will advise Borrower of any increases or decreases to the monthly payment amount on an annual basis. Borrower shall pledge the Property Tax Escrow Account to Lender as additional collateral for the

Loan.

Debt Service Ratio. Commencing in 2014, Borrower shall maintain a minimum Debt Service Coverage Ratio of 1.45x, which will be calculated on a quarterly basis by dividing (A) the Projected Annual Net Operating Income which shall equal the quarterly Net Operating Income of the Borrower (as shown on Borrower's quarterly financial statements) multiplied by four (4), by (B) the actual annual debt service required to amortize the amounts outstanding hereunder over a ten (10) year amortization schedule at an interest rate of Five and One Half Percent (5.50%) over the twelve month period beginning on the first day of the quarter covered by such quarterly financial statements..

Loan to Value. Borrower will maintain a Loan to Value Ratio (as defined herein) of no greater than Fifty Percent (50%) based on a fair market appraisal of the real property located at 108 Cherry Hill Drive and 25 Sam Fonzo Drive, Beverly, MA 01915 (the "Real Property") conducted by an independent appraiser satisfactory to the Bank. The Lender may require the Borrower to have the Real Property re-appraised at the Borrower's expense, upon the occurrence of a material adverse change in the financial condition of the Borrower. "Loan to Value Ratio" shall mean the outstanding principal amount of the Promissory Note of even date from Borrower to Lender in the original principal amount of Fifteen Million and no/100ths Dollars (\$15,000,000.00) divided by the value of the Real Property as determined by the appraisal secured by the Lender.

Net Worth. Borrower shall maintain a net worth of at least One Hundred Million and no/100ths Dollars (\$100,000,000.00) according to its financial statements submitted to the Lender and liquidity in the form of consolidated domestic cash and cash equivalents, and investments with maturities of fewer than twelve (12) months determined according to GAAP of at least Seven Million and no/100ths Dollars (\$7,500,000.00).

LENDER'S EXPENDITURES. If any action or proceeding is commenced that would materially affect Lender's interest in the Collateral or if Borrower fails to comply with any provision of this Agreement and such failure amounts to an Event of Default hereunder or any Related Documents, including but not limited to Borrower's failure to discharge or pay when due any amounts Borrower is required to discharge or pay under this Agreement or any Related Documents, Lender on Borrower's behalf may (but shall not be obligated to) take any action that Lender deems reasonably appropriate, including but not limited to discharging or paying all taxes, liens, security interests, encumbrances and other claims, at any time levied or placed on any Collateral and paying all costs for insuring, maintaining and preserving any Collateral. All such expenditures incurred or paid by Lender for such purposes will then bear interest at the rate charged under the Note from the date incurred or paid by Lender to the date of repayment by Borrower. All such expenses will become a part of the Indebtedness and, at Lender's option, will (A) be payable on demand; (B) be added to the balance of the Note

and be apportioned among and be payable with any installment payments to become due during either (1) the term of any applicable insurance policy; or (2) the remaining term of the Note; or (C) be treated as a balloon payment which will be due and payable at the Note's maturity.

NEGATIVE COVENANTS. Borrower covenants and agrees with Lender that while this Agreement is in effect, Borrower shall not, without the prior written consent of Lender:

Indebtedness and Liens. Except for trade debt incurred in the normal course of business, such other debts as may be listed on **Schedule A**, attached hereto and made a part hereof and indebtedness to Lender contemplated by this Agreement, (1) create, incur or assume indebtedness for borrowed money, including capital leases, (2) sell, transfer, mortgage, assign, pledge, lease, grant a security interest in, or encumber any of Borrower's assets (except as allowed as Permitted Liens), or (3) sell with recourse any of Borrower's accounts, except to Lender.

Continuity of Operations. (1) Engage in any business activities substantially different than those in which Borrower is presently engaged, (2) cease operations, liquidate, merge, transfer, acquire or consolidate with any other entity, change its name, dissolve or transfer or sell Collateral out of the ordinary course of business, or (3) pay any dividends on Borrower's stock (other than dividends payable in its stock), or purchase or retire any of Borrower's outstanding shares or alter or amend Borrower's capital structure.

Loans, Acquisitions and Guaranties. (1) Loan, invest in or advance money or assets to any other person, enterprise or entity (other than to employees in the ordinary course of business and in amounts not to exceed \$10,000.00 per employee), (2) purchase, create or acquire any interest in any other enterprise or entity, (3) incur any obligation as surety or guarantor other than in the ordinary course of business, or (4) enter into leases of the real property at 108 Cherry Hill Drive, Beverly, MA without the written consent of the Lender, which will not be unreasonably withheld, conditioned or delayed.

Agreements. Enter into any agreement containing any provisions which would be violated or breached by the performance of Borrower's obligations under this Agreement or in connection herewith.

CESSATION OF ADVANCES. If Lender has made any commitment to make any Loan to Borrower, whether under this Agreement or under any other agreement, Lender shall have no obligation to make Loan Advances or to disburse Loan proceeds if: (A) Borrower is in default beyond any applicable grace or cure period under the terms of this Agreement or any of the Related Documents or any other agreement that Borrower has with Lender; (B) Borrower becomes insolvent, files a petition in bankruptcy or similar proceedings, or is adjudged a bankrupt; or (C) there occurs a material adverse change in Borrower's financial condition, or in the value of any Collateral securing any Loan.

RIGHT OF SETOFF. To the extent permitted by applicable law, Lender reserves a right of setoff in all Borrower's accounts with Lender (whether checking, savings, or some other account). This includes all accounts Borrower holds jointly with someone else and all accounts Borrower may open in the future. Borrower authorizes Lender, to the extent permitted by applicable law, to charge or setoff all sums owing on the Indebtedness against any and all such accounts.

DEFAULT. Each of the following shall constitute an Event of Default under this Agreement:

Payment Default. Borrower fails to make any payment when due under the Loan within five (5) days of the date due or fails to maintain a balance of Eight Hundred Twenty-Five Thousand and no/100ths Dollars (\$825,000.00) in the Interest Reserve Account established with the Lender.

Other Defaults. Borrower fails to comply with or to perform any other term, obligation, covenant or condition contained in this Agreement or in any of the Related Documents or to comply with or to perform any term, obligation, covenant or condition contained in any other agreement between Lender and Borrower, or a failure to maintain a minimum net worth or the minimum liquidity level as required by this Agreement, and Borrower has not cured such non-compliance within thirty (30) days after notice from Lender; provided, however, that except with respect to minimum liquidity and net worth requirements, Borrower may have such additional time as may be necessary to cure such default so long as Borrower has commenced such cure within such 30-day period and Borrower diligently pursues such cure to completion.

Environmental Default. Failure of any party to comply with or perform when due any term, obligation, covenant or condition beyond any applicable grace, cure or notice periods provided for herein, contained in any environmental agreement executed in connection with the Loan.

Default in Favor of Third Parties. Borrower defaults beyond any applicable grace, cure or notice periods provided for therein, under any loan, extension of credit, security agreement, purchase or sales agreement, or any other agreement, in favor of any other creditor or person, including but not limited to Silicon Valley Bank, that may materially affect any of Borrower's property or Borrower's ability to repay the Loans or perform its respective obligations under this Agreement or any of the Related Documents.

False Statements. Any warranty, representation or statement made or furnished to Lender by Borrower or on Borrower's behalf under this Agreement or the Related Documents is false or misleading in any material respect, either now or at the time made or furnished or, to the extent it may materially affect any of Borrower's property or Borrower's ability to repay the Loan or perform its respective obligations under this Agreement or any of the Related Documents, and such warranty, representation or statement becomes false or misleading at any time thereafter.

Insolvency. The dissolution or termination of Borrower's existence as a going business, the insolvency of Borrower, the appointment of a receiver for any part of Borrower's property, any assignment for the benefit of creditors, any trust mortgage or any other type of creditor workout, or the commencement of any proceeding under any bankruptcy or insolvency laws by or against Borrower, which if involuntary, is not dismissed within sixty (60) days..

Defective Collateralization. This Agreement or any of the Related Documents ceases to be in full force and effect (including failure of any collateral document to create a valid and perfected security interest or lien) at any time and for any reason.

Creditor or Forfeiture Proceedings. Commencement of foreclosure or forfeiture proceedings, whether by judicial proceeding, self-help, repossession or any other method, by any creditor of Borrower or by any governmental agency against any collateral securing the Loan, is not dismissed within sixty (60) days. This includes a garnishment of any of Borrower's accounts, including deposit accounts, with Lender. However,

this Event of Default shall not apply if there is a good faith dispute by Borrower as to the validity or reasonableness of the claim which is the basis of the creditor or forfeiture proceeding and if Borrower gives Lender written notice of the creditor or forfeiture proceeding and deposits

with Lender monies or a surety bond for the creditor or forfeiture proceeding, in an amount determined by Lender, in its sole discretion, as being an adequate reserve or bond for the dispute.

Adverse Change. A material adverse change occurs in Borrower's financial condition, or Lender believes the prospect of payment or performance of the Loan is impaired.

Right to Cure. Any default, other than a default on Indebtedness, may be cured if Borrower or Grantor, as the case may be: (1) cures the default within thirty (30) days; or (2) if the cure requires more than thirty (30) days, immediately initiate steps which Lender deems in Lender's sole discretion to be sufficient to cure the default and thereafter continue and complete all reasonable and necessary steps sufficient to produce compliance as soon as reasonably practical.

EFFECT OF AN EVENT OF DEFAULT. If any Event of Default shall occur, except where otherwise provided in this Agreement or the Related Documents, all commitments and obligations of Lender under this Agreement or the Related Documents or any other agreement immediately will terminate (including any obligation to make further Loan Advances or disbursements), and, at Lender's option, all Indebtedness immediately will become due and payable, all without notice of any kind to Borrower, except that in the case of an Event of Default of the type described in the "Insolvency" subsection above, such acceleration shall be automatic and not optional. In addition, Lender shall have all the rights and remedies provided in the Related Documents or available at law, in equity, or otherwise. Except as may be prohibited by applicable law, all of Lender's rights and remedies shall be cumulative and may be exercised singularly or concurrently. Election by Lender to pursue any remedy shall not exclude pursuit of any other remedy, and an election to make expenditures or to take action to perform an obligation of Borrower or of any Grantor shall not affect Lender's right to declare a default and to exercise its rights and remedies.

COMPLETE AGREEMENT. This Agreement and the other Related Documents constitute the entire agreement and understanding between and among the parties hereto relating to the subject matter hereof, and supersedes all prior proposals, negotiations, agreements and understandings among the parties hereto with respect to such subject matter.

ADDITIONAL DOCUMENTS. Borrower shall provide Lender with the following additional documents.

CERTIFICATE OF INCORPORATION AND COMPANY RESOLUTIONS. Borrower has provided or will provide Lender with a copy of Borrower's Certificate of Incorporation, together with a certified copy of resolutions properly adopted by the Board of Directors of the Borrower, under which the Board of Directors authorized one or more designated officers or employees to execute this Agreement, the Note and any and all Security Agreements directly or indirectly securing repayment of the same, and to consummate the borrowings and other transactions as contemplated under this Agreement, and to consent to the remedies following any default by Borrower as provided in this Agreement and in any Security Agreements.

OPINION OF COUNSEL. When required by Lender, Borrower has provided or will provide Lender with an opinion of Borrower's counsel certifying to and that: (1) Borrower's Note, any Security Agreements and this Agreement constitute valid and binding obligations on Borrower's part that are enforceable in accordance with their respective terms; (2) Borrower is validly existing and in good standing; (3) Borrower has authority to enter into this Agreement and to consummate the transactions contemplated under this Agreement; and (4) such other legal opinions as may have been reasonably requested by Lender or by Lender's counsel.

CROSS COLLATERALIZATION. This Agreement and the Related Documents are intended to secure the payment and performance of all Indebtedness, whether now existing or hereinafter incurred by reason of future advances by Lender or otherwise, and regardless of whether such Indebtedness is or was contemplated by the parties as of the date hereof. This Business Loan Agreement is secured by all collateral granted to Lender by Borrower or any endorser hereof or by any other party and shall be secured by any additional collateral hereafter granted to Lender by Borrower or any endorser hereof or by any other party.

WAIVERS AND MISCELLANEOUS PROVISIONS. The following miscellaneous provisions are a part of this Agreement:

Amendments. This Agreement, together with any Related Documents, constitutes the entire understanding and agreement of the parties as to the matters set forth in this Agreement. No alteration of or amendment to this Agreement shall be effective unless given in writing and signed by the party or parties sought to be charged or bound by the alteration or amendment.

Attorneys' Fees; Expenses. Borrower agrees to pay upon demand all of Lender's costs and expenses, including

Lender's reasonable attorneys' fees and Lender's legal expenses, incurred in connection with the enforcement of this Agreement. Lender may hire or pay someone else to help enforce this Agreement, and Borrower shall pay the out-of-pocket costs and expenses of such enforcement. Costs and expenses include Lender's attorneys' fees and legal expenses whether or not there is a lawsuit, including reasonable attorneys' fees and legal expenses for bankruptcy proceedings (including efforts to modify or vacate any automatic stay or injunction), appeals, and any anticipated post-judgment collection services. Borrower also shall pay all court costs and such additional fees as may be directed by the court.

Caption Headings. Caption headings in this Agreement are for convenience purposes only and are not to be used to interpret or define the provisions of this Agreement.

Consent to Loan Participation. Borrower agrees and consents to Lender's sale or transfer, whether now or later, of one or more participation interests in the Loan to one or more purchasers, whether related or unrelated to Lender. Lender may provide, without any limitation whatsoever, to any one or more purchasers, or potential purchasers, any information or knowledge Lender may have about Borrower or about any other matter relating to the Loan, and Borrower hereby waives any rights to privacy Borrower may have with respect to such matters. Borrower additionally waives any and all notices of sale of participation interests, as well as all notices of any repurchase of such participation interests. Borrower also

agrees that the purchasers of any such participation interests will be considered as the absolute owners of such interests in the Loan and will have all the rights granted under the participation agreement or agreements governing the sale of such participation interests. Borrower further waives all rights of offset or counterclaim that it may have now or later against Lender or against any purchaser of such a participation interest and unconditionally agrees that either Lender or such purchaser may enforce Borrower's obligation under the Loan irrespective of the failure or insolvency of any holder of any interest in the Loan. Borrower further agrees that the purchaser of any such participation interests may enforce its interests irrespective of any personal claims or defenses that Borrower may have against Lender.

Governing Law. This Agreement will be governed by federal law applicable to Lender and, to the extent not preempted by federal law, the laws of the Commonwealth of Massachusetts without regard to its conflicts of law provisions. This Agreement has been accepted by Lender in the Commonwealth of Massachusetts.

No Waiver by Lender. Lender shall not be deemed to have waived any rights under this Agreement unless such waiver is given in writing and signed by Lender. No delay or omission on the part of Lender in exercising any right shall operate as a waiver of such right or any other right. A waiver by Lender of a provision of this Agreement shall not prejudice or constitute a waiver of Lender's right otherwise to demand strict compliance with that provision or any other provision of this Agreement. No prior waiver by Lender, nor any course of dealing between Lender and Borrower, or between Lender and any Grantor, shall constitute a waiver of any of Lender's rights or of any of Borrower's or any Grantor's obligations as to any future transactions. Whenever the consent of Lender is required under this Agreement, the granting of such consent by Lender in any instance shall not constitute continuing consent to subsequent instances where such consent is required and in all cases such consent may be granted or withheld in the sole discretion of Lender.

Notices. Any notice required to be given under this Agreement shall be given in writing, and shall be effective when actually delivered, when actually received by telefacsimile (unless otherwise required by law), when deposited with a nationally recognized overnight courier, or, if mailed, when deposited in the United States mail, as first class, certified or registered mail postage prepaid, directed to the addresses shown near the beginning of this Agreement. Any party may change its address for notices under this Agreement by giving formal written notice to the other parties, specifying that the purpose of the notice is to change the party's address. For notice purposes, Borrower agrees to keep Lender informed at all times of Borrower's current address. Unless otherwise provided or required by law, if there is more than one Borrower, any notice given by Lender to any Borrower is deemed to be notice given to all Borrowers.

Severability. If a court of competent jurisdiction finds any provision of this Agreement to be illegal, invalid, or unenforceable as to any circumstance, that finding shall not make the offending provision illegal, invalid, or unenforceable as to any other circumstance. If feasible, the offending provision shall be considered modified so that it becomes legal, valid and enforceable. If the offending provision cannot be so modified, it shall be considered deleted from this Agreement. Unless otherwise required by law, the illegality, invalidity, or unenforceability of any provision of this Agreement shall not affect the legality, validity or enforceability of any other provision of this Agreement.

Subsidiaries and Affiliates of Borrower. To the extent the context of any provisions of this Agreement makes it appropriate any representation, warranty or covenant with respect to the word "business of Borrower" shall refer to the consolidated business conducted by the Borrower and all of Borrower's subsidiaries and affiliates. Notwithstanding the foregoing however, under no circumstances shall this Agreement be construed to require Lender to make any Loan or other financial accommodation to any of Borrower's subsidiaries or affiliates.

Successors and Assigns. All covenants and agreements by or on behalf of Borrower contained in this Agreement or any Related Documents shall bind Borrower's successors and assigns and shall inure to the benefit of Lender and its successors and assigns. Borrower shall not, however, have the right to assign Borrower's rights under this Agreement or any interest therein, without the prior written consent of Lender.

Survival of Representations and Warranties. Borrower understands and agrees that in making the Loan, Lender is relying on all representations, warranties, and covenants made by Borrower in this Agreement or in any certificate or other instrument delivered by Borrower to Lender under this Agreement or the Related Documents. Borrower further agrees that regardless of any investigation made by Lender, all such representations, warranties and covenants will survive the making of the Loan and delivery to Lender of the Related Documents, shall be continuing in nature, and shall remain in full force and effect until such time as Borrower's Indebtedness shall be paid in full, or until this Agreement shall be terminated in the manner provided above, whichever is the last to occur.

Time is of the Essence. Time is of the essence in the performance of this Agreement.

Waive Jury. All parties to this Agreement hereby waive the right to any jury trial in any action, proceeding, or counterclaim brought by any party against any other party.

Choice of Venue. If there is a lawsuit, Borrower irrevocably submits to the jurisdiction of any federal or state court sitting in the Commonwealth of Massachusetts.

DEFINITIONS. The following capitalized words and terms shall have the following meanings when used in this Agreement. Unless specifically stated to the contrary, all references to dollar amounts shall mean amounts in lawful money of the United States of America. Words and terms used in the singular shall include the plural, and the plural shall include the singular, as the context may require. Words and terms not otherwise defined in this Agreement shall have the meanings attributed to such terms in the Uniform Commercial Code. Accounting words and terms not otherwise defined in this Agreement shall have the meanings assigned to them in accordance with generally accepted accounting principles as in effect on the date of this Agreement:

Advance. The word "Advance" means a disbursement of Loan funds made, or to be made, to Borrower or on Borrower's behalf on a line of credit or multiple advance basis under the terms and conditions of this Agreement.

Agreement. The word "Agreement" means this Business Loan Agreement and the other Related Documents, as amended from time to time.

Borrower. The word "Borrower" means Axcelis Technologies, Inc. and includes all co-signers and co-makers signing the Note and all their successors and assigns.

Collateral. The word “Collateral” means all property and assets granted as collateral security for a Loan, whether real or personal property, whether granted directly or indirectly, whether granted now or in the future, and whether granted in the form of a security interest, mortgage, collateral mortgage, deed of trust, assignment, pledge, crop pledge, chattel mortgage, collateral chattel mortgage, chattel trust, factor’s lien, equipment trust, conditional sale, trust receipt, lien, charge, lien or title retention contract, lease or consignment intended as a security device, or any other security or lien interest whatsoever, whether created by law, contract, or otherwise.

Environmental Laws. The words “Environmental Laws” mean any and all state, federal and local statutes, regulations and ordinances relating to the protection of human health or the environment, including without limitation the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. Section 9601, et seq. (“CERCLA”), the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499 (“SARA”), the Hazardous Materials Transportation Act, 49 U.S.C. Section 1801, et seq., the Resource Conservation and Recovery Act, 42 U.S.C. Section 6901, et seq., the Massachusetts Hazardous Waste Management Act, Mass. Gen. Laws Ch. 21C, the Massachusetts Oil and Hazardous Material Release Prevention Act, Mass. Gen. Laws, Ch. 21E, or other applicable state or federal laws, rules, or regulations adopted pursuant thereto.

Event of Default. The words “Event of Default” mean any of the events of default set forth in this Agreement in the default section of this Agreement.

GAAP. The word “GAAP” means generally accepted accounting principles.

Grantor. The word “Grantor” means each and all of the persons or entities granting a Security Interest in any Collateral for the Loan, including without limitation all Borrowers granting such a Security Interest.

Hazardous Substances. The words “Hazardous Substances” mean materials that, because of their quantity, concentration or physical, chemical or infectious characteristics, may cause or pose a present or potential hazard to human health or the environment when improperly used, treated, stored, disposed of, generated, manufactured, transported or otherwise handled. The words “Hazardous Substances” are used in their very broadest sense and include without limitation any and all hazardous or toxic substances, materials or waste as defined by or listed under the Environmental Laws. The term “Hazardous Substances” also includes, without limitation, petroleum and petroleum by-products or any fraction thereof and asbestos.

Indebtedness. The word “Indebtedness” means without limitation all loans, advances, notes liabilities and amounts, liquidated or unliquidated, now or hereafter owing by the Borrower to Lender at any time, of each and every kind, nature and description, including without limitation, all principal, interest, and other amounts, costs and expenses payable under the Note or Related Documents, together with all renewals of, extensions of, modifications of, consolidations of and substitutions for the Note or Related Documents and any amounts expended or advanced by Lender to discharge Borrower’s obligations or expenses incurred by Lender to enforce Borrower’s obligations under this Agreement, together with interest on such amounts as provided in this Agreement or under any of the Related Documents.

Lender. The word “Lender” means Northern Bank & Trust Company, its successors and assigns.

Loan. The word “Loan” means any and all loans and financial accommodations from Lender to Borrower whether now or hereafter existing, and however evidenced, including without limitation those loans and financial accommodations described herein or described on any exhibit or schedule attached to this Agreement from time to time.

Note. The word “Note” means the Note dated as of July 5, 2013 and executed by Axcelis Technologies, Inc. in the principal amount of \$15,000,000.00, together with all renewals of, extensions of, modifications of, refinancings of, consolidations of, and substitutions for the note or credit agreement.

Permitted Liens. The words “Permitted Liens” mean (1) liens and security interests securing Indebtedness owed by Borrower to Lender or Other Indebtedness listed on Schedule A; (2) liens for taxes, assessments, or similar charges either not yet due or being contested in good faith; (3) liens of materialmen, mechanics, warehousemen, or carriers, or other like liens arising in the ordinary course of business and securing obligations which are not yet delinquent; (4) purchase money liens or purchase money security interests upon or in any property acquired or held by Borrower in the ordinary course of business to secure indebtedness outstanding on the date of this Agreement or permitted to be incurred under the paragraph of this Agreement titled “Indebtedness and Liens”; (5) liens and security interests which, as of the date of this Agreement, have been disclosed to and approved by the Lender in writing, including but not limited to liens listed in any title report on the Collateral or lien report delivered to Lender and reasonably satisfactory to Lender; and (6) those liens and security interests which in the aggregate constitute an immaterial and insignificant monetary amount with respect to the net value of Borrower’s assets.

Related Documents. The words “Related Documents” mean all promissory notes, credit agreements, loan agreements, environmental agreements, guaranties, security agreements, mortgages, deeds of trust, security deeds, collateral mortgages, and all other instruments, agreements and documents, whether now or hereafter existing, executed in connection with the Loan, including but not limited to the letter agreement dated May 23, 2013 between the Lender and the Borrower regarding Non-Disclosure of Evaluation Materials..

Security Agreement. The words “Security Agreement” mean and include without limitation any agreements, promises, covenants, arrangements, understandings or other agreements, whether created by law, contract, or otherwise, evidencing, governing, representing, or creating a Security Interest.

Security Interest. The words “Security Interest” mean, without limitation, any and all types of collateral security, present and future, whether in the form of a lien, charge, encumbrance, mortgage, deed of trust, security deed, assignment, pledge, crop pledge, chattel mortgage, collateral chattel mortgage, chattel trust, factor’s lien, equipment

trust, conditional sale, trust receipt, lien or title retention contract, lease or consignment intended as a security device, or any other security or lien interest whatsoever whether created by law, contract, or otherwise.

BORROWER ACKNOWLEDGES HAVING READ ALL THE PROVISIONS OF THIS BUSINESS LOAN AGREEMENT AND BORROWER AGREES TO ITS TERMS. THIS BUSINESS LOAN AGREEMENT IS DATED JULY 5, 2013.

THIS AGREEMENT IS GIVEN UNDER SEAL AND IT IS INTENDED THAT THIS AGREEMENT IS AND SHALL CONSTITUTE AND HAVE THE EFFECT OF A SEALED INSTRUMENT ACCORDING TO LAW.

**BORROWER:
AXCELIS TECHNOLOGIES, INC.**

By: /s/Mary G. Puma (Seal) By: /s/ Amy Rasimas (Seal)
Mary G. Puma, President Amy Rasimas, Treasurer

**LENDER:
NORTHERN BANK & TRUST COMPANY**

By: /s/ James J. Mawn (Seal)
James J. Mawn, President

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Schedule A

Other Indebtedness

Obligations under a revolving line of credit to be obtained by Borrower from one or more lenders on customary terms, providing for borrowings of up to \$30,000,000, and secured by a first priority lien on assets of the Borrower other than (A) those assets which are the Collateral for the Loan from the Lender and (B) an amount of cash equal to the outstanding balance of the Loan.

Reimbursement obligations that may arise under surety bonds (including custom bonds and Value Added Tax Recovery Bonds), letters of credit and/or similar instruments incurred in the ordinary course of business.

Schedule B

Domestic Accounts with Institutions Other than Lender

This Schedule, listing Axcelis Technologies, Inc.'s domestic bank accounts with institutions other than Northern Bank & Trust Company, has been omitted from this Conformed Copy since it does not contain information which is material to an investment decision and which is not otherwise disclosed in the agreement. Axcelis will furnish supplementally a copy of this Schedule to Commission upon request.

MORTGAGE AND FIXTURE FILING

WHEN RECORDED MAIL TO:

Northern Bank & Trust Company, 275 Mishawum Road, Woburn, MA 01801

FOR RECORDER'S USE ONLY

Property Address: 108 Cherry Hill Drive and 25 Sam Fonzo Drive, Beverly, MA 01915-1066.

THIS MORTGAGE dated as of July 5, 2013, is made and executed between Axcelis Technologies, Inc., a Delaware corporation, whose address is 108 Cherry Hill Drive, Beverly, MA 01915-1066 (referred to below as "Grantor") and Northern Bank & Trust Company, whose address is 275 Mishawum Road, Woburn, MA 01801 (referred to below as "Lender").

GRANT OF MORTGAGE. For valuable consideration, Grantor grants to Lender with **MORTGAGE COVENANTS** all of Grantor's right, title, and interest in and to the following described real property, together with all existing or subsequently erected or affixed buildings, improvements and fixtures; all easements, rights of way, and appurtenances; all water, water rights, watercourses and ditch rights (including stock in utilities with ditch or irrigation rights); and all other rights, royalties, and profits relating to the real property, including without limitation all minerals, oil, gas, geothermal and similar matters, **(the "Real Property") located in Essex County, Commonwealth of Massachusetts:**

See Exhibit A, which is attached to this Mortgage and made a part of this Mortgage as if fully set forth herein.

The Real Property or its address is commonly known as 108 Cherry Hill Drive and 25 Sam Fonzo Drive, Beverly, MA 01915-1066.

Grantor presently assigns to Lender all of Grantor's right, title, and interest in and to all present and future leases of the Property and all Rents from the Property. In addition, Grantor grants to Lender a Uniform Commercial Code security interest in the Personal Property and Rents.

THIS MORTGAGE IS INTENDED TO CONSTITUTE: (i) A MORTGAGE DEED UNDER MASSACHUSETTS GENERAL LAWS c. 183, §18, AND (ii) A SECURITY AGREEMENT AND FINANCING STATEMENT UNDER THE UNIFORM COMMERCIAL CODE ENACTED IN THE COMMONWEALTH OF MASSACHUSETTS.

THIS MORTGAGE, INCLUDING THE ASSIGNMENT OF RENTS AND THE SECURITY INTEREST IN THE RENTS AND PERSONAL PROPERTY, IS GIVEN TO SECURE (A) PAYMENT OF THE INDEBTEDNESS AND (B) PERFORMANCE OF ANY AND ALL OBLIGATIONS UNDER THE NOTE, THE RELATED DOCUMENTS, AND THIS MORTGAGE. THIS MORTGAGE IS GIVEN AND ACCEPTED ON THE FOLLOWING TERMS:

PAYMENT AND PERFORMANCE. Except as otherwise provided in this Mortgage, Grantor shall pay to Lender all amounts secured by this Mortgage as they become due and shall strictly perform all of Grantor's obligations under this Mortgage.

POSSESSION AND MAINTENANCE OF THE PROPERTY. Grantor agrees that Grantor's possession and use of the Property shall be governed by the following provisions:

Possession and Use. Until the occurrence of an Event of Default, Grantor may (1) remain in possession and control of the Property; (2) use, operate or manage the Property; and (3)

collect the Rents from the Property.

Duty to Maintain. Grantor shall maintain the Property in good order and condition and promptly perform all repairs, replacements, and maintenance necessary to preserve its value.

Compliance With Environmental Laws. Grantor shall comply with its obligations and warranties with respect to Hazardous Materials and Environmental Laws as provided in the Loan Agreement and that certain Hazardous Substances Certificate and Indemnity Agreement between Grantor and Lender dated as of the date hereof.

Nuisance, Waste. Grantor shall not cause, conduct or permit any nuisance nor commit, permit, or suffer any stripping of or waste on or to the Property or any portion of the Property. Without limiting the generality of the foregoing, Grantor will not remove, or grant to any other party the right to remove, any timber, minerals (including oil and gas), coal, clay, scoria, soil, gravel or rock products without Lender's prior written consent.

Removal of Improvements. Grantor shall not demolish or remove any Improvements from the Real Property without Lender's prior written consent. As a condition to the removal of any Improvements, Lender may require Grantor to make arrangements satisfactory to Lender to replace such Improvements with Improvements of at least equal value.

Lender's Right to Enter. Lender and Lender's agents and representatives may enter upon the Real Property at all reasonable times and upon reasonable prior notice to attend to Lender's interests and to inspect the Real Property for purposes of Grantor's compliance with the terms and conditions of this Mortgage.

Compliance with Governmental Requirements. Grantor shall promptly comply with all laws, ordinances, and regulations, now or hereafter in effect, of all governmental authorities applicable to the use or occupancy of the Property, including without limitation, the Americans With Disabilities Act. Grantor may contest in good faith any such law, ordinance, or regulation and withhold compliance during any proceeding, including appropriate appeals, so long as Grantor has notified Lender in writing prior to doing so and so long as,

in Lender's sole opinion, Lender's interests in the Property are not jeopardized. Lender may require Grantor to post adequate security or a surety bond, reasonably satisfactory to Lender, to protect Lender's interest.

Duty to Protect. Grantor agrees neither to abandon or leave unattended the Property. Grantor shall do all other acts, in addition to those acts set forth above in this section, which from the character and use of the Property are reasonably necessary to protect and preserve the Property.

DUE ON SALE - CONSENT BY LENDER. Lender may, at Lender's option, declare immediately due and payable all sums secured by this Mortgage upon the sale or transfer, without Lender's prior written consent, of all or any part of the Real Property, or any interest in the Real Property. A "sale or transfer" means the conveyance of Real Property or any right, title or interest in the Real Property; whether legal, beneficial or equitable; whether voluntary or involuntary; whether by outright sale, deed, installment sale contract, land contract, contract for deed, leasehold interest with a term greater than seven (7) years, lease-option contract, or by sale, assignment, or transfer of any beneficial interest in or to any land trust holding title to the Real Property, or by any other method of conveyance of an interest in the Real Property. However, this option shall not be exercised by Lender if such exercise is prohibited by federal law or by Massachusetts law.

TAXES AND LIENS. The following provisions relating to the taxes and liens on the Property are part of this Mortgage:

Payment. Grantor shall pay prior to delinquency all taxes, payroll taxes, special taxes, assessments, water charges and sewer service charges levied against or on account of the Property, and shall pay when due all claims for work done on or for services rendered or material furnished to the Property. Grantor shall maintain the Property free of any liens having priority over or equal to the interest of Lender under this Mortgage, except for any Permitted Liens (as defined in the Loan Agreement) those liens specifically agreed to in writing by Lender, and except for the lien

of taxes and assessments not due as further specified in the Right to Contest paragraph.

Right to Contest. Grantor may withhold payment of any tax, assessment, or claim in connection with a good faith dispute over the obligation to pay, so long as Lender's interest in the Property is not jeopardized. If a lien arises or is filed as a result of nonpayment, Grantor shall within fifteen (15) days after the lien arises or, if a lien is filed, within fifteen (15) days after Grantor has notice of the filing, secure the discharge of the lien, or if requested by Lender, deposit with Lender cash or a sufficient corporate surety bond or other security satisfactory to Lender in an amount sufficient to discharge the lien plus any costs and attorneys' fees, or other charges that could accrue as a result of a foreclosure or sale under the lien. In any contest, Grantor shall defend itself and Lender and shall satisfy any adverse judgment before enforcement against the Property. Grantor shall name Lender as an additional obligee under any surety bond furnished in the contest proceedings.

Evidence of Payment. Grantor shall upon demand furnish to Lender satisfactory evidence of payment of the taxes or assessments and shall authorize the appropriate governmental official to deliver to Lender at any time a written statement of the taxes and assessments against the Property.

Notice of Construction. Grantor shall notify Lender at least fifteen (15) days before any material work is commenced, any services are furnished, or any materials are supplied to the Property other than in the normal course of business and maintenance of the Property, if any mechanic's lien, materialmen's lien, or other lien could be asserted on account of the work, services, or materials. Grantor will upon request of Lender furnish to Lender advance assurances satisfactory to Lender that Grantor can and will pay the cost of such improvements.

PROPERTY DAMAGE INSURANCE. The following provisions relating to insuring the Property are a part of this Mortgage:

Maintenance of Insurance. Grantor shall procure and maintain policies of insurance as required under the Loan Agreement.

Application of Proceeds. Grantor shall promptly notify Lender of any material loss or damage to the Property. Lender may make proof of loss if Grantor fails to do so within fifteen (15) days of the casualty. Whether or not Lender's security is impaired, Lender may, at Lender's election, receive and retain the proceeds of any insurance and apply the proceeds to the reduction of the Indebtedness, payment of any lien affecting the Property, or the restoration and repair of the Property. If Lender elects to apply the proceeds to restoration and repair, Grantor shall repair or replace the damaged or destroyed Improvements in a commercially reasonable manner reasonably satisfactory to Lender. Lender shall, upon satisfactory proof of such expenditure, pay or reimburse Grantor from the proceeds for the reasonable cost of repair or restoration if Grantor is not in default beyond any applicable grace or cure periods under this Mortgage. Any proceeds which have not been disbursed within 180 days after their receipt and which Lender has not committed to the repair or restoration of the Property shall be used first to pay any amount owing to Lender under this Mortgage, then to pay accrued interest, and the remainder, if any, shall be applied to the principal balance of the Indebtedness. If Lender holds any proceeds after payment in full of the Indebtedness, such proceeds shall be paid to Grantor as Grantor's interests may appear.

Grantor's Report on Insurance. Upon request of Lender, however not more than once a year, Grantor shall furnish to Lender a report on each existing policy of insurance related to the insurance coverages required for the Property showing: (1) the name of the insurer; (2) the risks insured; (3) the amount of the policy; (4) the property insured, the then current replacement value of such property, and the manner of determining that value; and (5) the expiration date of the policy.

TAX AND INSURANCE RESERVES. Subject to any limitations and consistent with any requirements set by applicable law, Lender may require Grantor to maintain with Lender reserves for payment of annual taxes, assessments, and insurance premiums related to the insurance coverages required for

the Property, which reserves shall be created by an initial deposit and subsequent monthly payments, or payments at such other interval as payments under the Note may be due, of a sum estimated by Lender to be sufficient to pay the total annual taxes, assessments, and insurance premiums Lender reasonably anticipates to be paid from these reserves. The reserve funds shall be held by Lender as a general deposit from Grantor, which Lender shall satisfy by payment of the taxes, assessments, and insurance premiums required to be paid by Grantor as they become due. Lender shall have the right to draw upon the reserve funds to pay such items, and Lender shall not be required to determine the validity or accuracy of any item before paying it. Nothing in the Mortgage shall be construed as requiring Lender to advance other monies for such purposes, and Lender shall not incur any liability for anything it may do or omit to do with respect to the reserve account. Subject to any limitations set by applicable law, if the reserve funds disclose a shortage or deficiency, Grantor shall pay such shortage or deficiency as required by Lender. All amounts in the reserve account are hereby pledged to further secure the Indebtedness, and Lender is hereby authorized to withdraw and apply such amounts on the Indebtedness upon the occurrence and during the continuance of an Event of Default. Lender shall not be required to pay any interest or earnings on the reserve funds unless required by law or agreed to by Lender in writing.

LENDER'S EXPENDITURES. If any action or proceeding is commenced that would materially affect Lender's interest in the Property or if Grantor fails to comply with any provision of this Mortgage or any Related Documents, including but not limited to Grantor's failure to discharge or pay when due any amounts Grantor is required to discharge or pay under this Mortgage or any Related Documents and such failure amounts to an Event of Default hereunder, Lender on Grantor's behalf may (but shall not be obligated to) take any action that Lender deems appropriate, including but not limited to discharging or paying all taxes, liens, security interests, encumbrances and other claims, at any time levied or placed on the Property and paying all costs for insuring, maintaining and preserving the Property. All such expenditures incurred or paid by Lender for such purposes will then bear interest at the rate charged under the Note from the date incurred or paid by Lender to the date of repayment by Grantor. All such expenses will become a part of the Indebtedness and, at Lender's option, will (A) be payable on demand; (B) be added to the balance of the Note and be apportioned among and be payable with any installment payments to become due during either (1) the term of any applicable insurance policy; or (2) the remaining term of the Note; or (C) be treated as a balloon payment which will be due and payable at the Note's maturity. The Mortgage also will secure payment of these amounts. Such right shall be in addition to all other rights and remedies to which Lender may be entitled upon Default.

WARRANTY; DEFENSE OF TITLE. The following provisions relating to ownership of the Property are a part of this Mortgage:

Title. Grantor warrants that: (a) Grantor holds good title of record to the Property in fee simple, free and clear of all liens and encumbrances other than those set forth in the Real Property description or in any title insurance policy, title report, or final title opinion issued in favor of, and accepted by, Lender in connection with this Mortgage, and (b) Grantor has the full right, power, and authority to execute and deliver this Mortgage to Lender.

Defense of Title. Subject to the exception in the paragraph above, Grantor warrants and will forever defend the title to the Property against the lawful claims of all persons. In the event any action or proceeding is commenced that questions Grantor's title or the interest of Lender under this Mortgage, Grantor shall defend the action at Grantor's expense. Grantor may be the nominal party in such proceeding, but Lender shall be entitled to participate in the proceeding and to be represented in the proceeding by counsel of Lender's own choice, and Grantor will deliver, or cause to be delivered, to Lender such instruments as Lender may request from time to time to permit such participation.

Compliance With Laws. Grantor warrants that to Grantor's knowledge the Property and Grantor's use of the Property complies with all existing applicable laws, ordinances, and regulations of governmental authorities.

Survival of Representations and Warranties. All representations, warranties, and agreements made by Grantor in this Mortgage shall survive the execution and delivery of this Mortgage, shall be continuing in nature, and shall remain in full force and effect until such time as Grantor's Indebtedness shall be paid in full.

CONDEMNATION. The following provisions relating to condemnation proceedings are a part of this Mortgage:

Proceedings. If any proceeding in condemnation is filed, Grantor shall promptly notify Lender in writing, and Grantor shall promptly take such steps as may be necessary to defend the action and obtain the award. Grantor may be the nominal party in such proceeding, but Lender shall be entitled to participate in the proceeding and to be represented in the proceeding by counsel of its own choice, and Grantor will deliver or cause to be delivered to Lender such instruments and documentation as may be requested by Lender from time to time to permit such participation.

Application of Net Proceeds. If all or any part of the Property is condemned by eminent domain proceedings or by any proceeding or purchase in lieu of condemnation, Lender may at its election require that all or any portion of the net proceeds of the award be applied to the Indebtedness or the repair or restoration of the Property. The net proceeds of the award shall mean the award after payment of all reasonable costs, expenses, and attorneys' fees incurred by Lender in connection with the condemnation.

IMPOSITION OF TAXES, FEES AND CHARGES BY GOVERNMENTAL AUTHORITIES. The following provisions relating to governmental taxes, fees and charges are a part of this Mortgage:

Current Taxes, Fees and Charges. Upon request by Lender, Grantor shall execute such documents in addition to this Mortgage and take whatever other action is reasonably requested by Lender to perfect and continue Lender's lien on the Real Property. Grantor shall reimburse Lender for all taxes, as described below, together with all expenses incurred in recording, perfecting or continuing this Mortgage, including without limitation all taxes, fees, documentary stamps, and other charges for recording or registering this Mortgage.

Taxes. The following shall constitute taxes to which this section applies: (1) a specific tax upon this type of Mortgage or upon all or any part of the Indebtedness secured by this Mortgage; (2) a specific tax on Grantor which Grantor is authorized or required to deduct from payments on the Indebtedness secured by this type of Mortgage; (3) a tax on this type of Mortgage chargeable against the Lender or the holder of the Note; and (4) a specific tax on all or any portion of the Indebtedness or on payments of principal and interest made by Grantor.

Subsequent Taxes. If any tax to which this section applies is enacted subsequent to the date of this Mortgage, this event shall have the same effect as an Event of Default, and Lender may exercise any or all of its available remedies for an Event of Default as provided below unless Grantor either (1) pays the tax before it becomes delinquent, or (2) contests the tax as provided above in the Taxes and Liens section and deposits with Lender cash or a sufficient corporate surety bond or other security satisfactory to Lender.

SECURITY AGREEMENT; FINANCING STATEMENTS. The following provisions relating to this Mortgage as a security agreement are a part of this Mortgage:

Security Agreement. This instrument shall constitute a Security Agreement to the extent any of the Property constitutes fixtures, and Lender shall have all of the rights of a secured party under the Uniform Commercial Code as amended from time to time.

Security Interest. Upon request by Lender, Grantor shall take whatever action is requested by Lender to perfect and continue Lender's security interest in the Rents and Personal Property. In addition to recording this Mortgage in the real property records, Lender may, at any time and without further authorization from Grantor, file executed counterparts, copies or reproductions of this Mortgage as a financing statement. Grantor shall reimburse Lender for all expenses incurred in perfecting or continuing this security interest. Upon and during the continuance of an Event of

Default, Grantor shall not remove, sever or detach the Personal Property from the Property. Upon default, Grantor shall assemble any Personal Property not affixed to the Property in a manner and at a place reasonably convenient to Grantor and Lender and make it available to Lender within three (3) days after receipt of written demand from Lender to the extent permitted by applicable law.

Addresses. The mailing addresses of Grantor (debtor) and Lender (secured party) from which information concerning the security interest granted by this Mortgage may be obtained (each as required by the Uniform Commercial Code) are as stated on the first page of this Mortgage.

The information provided in this Section is provided so that this Mortgage shall comply with the requirements of the Uniform Commercial Code for a mortgage instrument to be filed as a financing statement.

FURTHER ASSURANCES. The following provisions relating to further assurances and attorney-in-fact are a part of this Mortgage:

Further Assurances. At any time, and from time to time, upon request of Lender, Grantor will make, execute and deliver, or will cause to be made, executed or delivered, to Lender or to Lender's designee, and when requested by Lender, cause to be filed, recorded, refiled, or rerecorded, as the case may be, at such times and in such offices and places as Lender may deem appropriate, any and all such mortgages, deeds of trust, security deeds, security agreements, financing statements, continuation statements, instruments of further assurance, certificates, and other documents as may, in the sole opinion of Lender, be necessary or desirable in order to effectuate, complete, perfect, continue, or preserve (1) Grantor's obligations under the Note, this Mortgage, and the Related Documents, and (2) the liens and security interests created by this Mortgage as first and prior liens on the Property, whether now owned or hereafter acquired by Grantor. Unless prohibited by law or Lender agrees to the contrary in writing, Grantor shall reimburse Lender for all costs and expenses incurred in connection with the matters referred to in this paragraph.

FULL PERFORMANCE. If Grantor pays all the Indebtedness when due, and otherwise performs all the obligations imposed upon Grantor under this Mortgage, Lender shall execute and deliver to Grantor a suitable satisfaction of this Mortgage and suitable statements of termination of any financing statement on file evidencing Lender's security interest in the Rents and the Personal Property. Grantor will pay, if permitted by applicable law, any reasonable termination fee as determined by Lender from time to time.

RIGHTS AND REMEDIES ON DEFAULT. This Mortgage is upon the **STATUTORY CONDITION** for any breach of which Lender, the mortgagee, shall have the **STATUTORY POWER OF SALE**. In addition, upon the occurrence of an Event of Default and at any time thereafter, Lender, at Lender's option, may exercise any one or more of the following rights and remedies, in addition to any other rights or remedies provided by law:

Accelerate Indebtedness. Lender shall have the right at its option without notice to Grantor to declare the entire Indebtedness immediately due and payable, including any prepayment penalty that Grantor would be required to pay.

Foreclosure. Lender may invoke the **STATUTORY POWER OF SALE**, in which case Lender shall mail a copy of a notice of sale to Grantor and to any other person required by applicable law, in the manner provided by applicable law. Lender shall publish the notice of sale, and the Property shall be sold in the manner prescribed by applicable law.

UCC Remedies. With respect to all or any part of the Personal Property, Lender shall have all the rights and remedies of a secured party under the Uniform Commercial Code.

Collect Rents. Lender shall have the right, without notice to Grantor, to take possession of the Property and collect the Rents, including amounts past due and unpaid, and apply the net proceeds, over and above Lender's costs, against the Indebtedness. In furtherance of this right,

Lender may require any tenant or other user of the Property to make payments of rent or use fees directly to Lender. If the Rents are collected by Lender, then Grantor irrevocably designates Lender as Grantor's attorney-in-fact to endorse instruments received in payment thereof in the name of Grantor and to negotiate the same and collect the proceeds. Payments by tenants or other users to Lender in response to Lender's demand shall satisfy the obligations for which the payments are made, whether or not any proper grounds for the demand existed. Lender may exercise its rights under this subparagraph either in person, by agent, or through a receiver.

Appoint Receiver. Lender shall have the right to have a receiver appointed to take possession of all or any part of the Property, with the power to protect and preserve the Property, to operate the Property preceding foreclosure or sale, and to collect the Rents from the Property and apply the proceeds, over and above the cost of the receivership, against the Indebtedness. The receiver may serve without bond if permitted by law. Lender's right to the appointment of a receiver shall exist whether or not the apparent value of the Property exceeds the Indebtedness by a substantial amount. Employment by Lender shall not disqualify a person from serving as a receiver.

Deficiency Judgment. If permitted by applicable law, Lender may obtain a judgment for any deficiency remaining in the Indebtedness due to Lender after application of all amounts received from the exercise of the rights provided in this section.

Tenancy at Sufferance. If Grantor remains in possession of the Property after the Property is sold as provided above or Lender otherwise becomes entitled to possession of the Property upon default of Grantor, Grantor shall become a tenant at sufferance of Lender or the purchaser of the Property and shall, at Lender's option, either (1) pay a reasonable rental for the use of the Property, or (2) vacate the Property immediately upon the demand of Lender.

Other Remedies. Lender shall have all other rights and remedies provided in this Mortgage or the Note or available at law or in equity.

Sale of the Property. To the extent permitted by applicable law, Grantor hereby waives any and all right to have the Property marshaled. In exercising its rights and remedies, Lender shall be free to sell all or any part of the Property together or separately, in one sale or by separate sales. Lender shall be entitled to bid at any public sale on all or any portion of the Property.

Notice of Sale. Lender shall give Grantor reasonable notice of the time and place of any public sale of the Personal Property or of the time after which any private sale or other intended disposition of the Personal Property is to be made. Reasonable notice shall mean notice given at least fourteen (14) days before the time of the sale or disposition. Any sale of the Personal Property may be made in conjunction with any sale of the Real Property.

Election of Remedies. Election by Lender to pursue any remedy shall not exclude pursuit of any other remedy, and an election to make expenditures or to take action to perform an obligation of Grantor under this Mortgage, after Grantor's failure to perform, shall not affect Lender's right to declare a default and exercise its remedies. Nothing under this Mortgage or otherwise shall be construed so as to limit or restrict the rights and remedies available to Lender following an Event of Default, or in any way to limit or restrict the rights and ability of Lender to proceed directly against Grantor and/or against any other co-maker, guarantor, surety or endorser and/or to proceed against any other collateral directly or indirectly securing the Indebtedness.

Attorneys' Fees; Expenses. If Lender institutes any suit or action to enforce any of the terms of this Mortgage, Lender shall be entitled to recover such sum as the court may adjudge reasonable as attorneys' fees at trial and upon any appeal. Whether or not any court action is involved, and to the extent not prohibited by law, all reasonable expenses Lender incurs that in Lender's opinion are reasonably necessary at any time for the protection of its interest or the enforcement of its rights shall become a part of the Indebtedness payable on demand and shall bear interest at the Note rate from the date of the expenditure until repaid. Expenses covered by this paragraph include, without limitation, however subject to any limits under applicable law, Lender's reasonable, out-of-pocket attorneys' fees and Lender's legal expenses, whether or not there is a lawsuit, including

attorneys' fees and expenses for bankruptcy proceedings (including efforts to modify or vacate any automatic stay or injunction), appeals, and any anticipated post-judgment collection services, the cost of searching records, obtaining title reports (including foreclosure reports), surveyors' reports, and appraisal fees and title insurance, to the extent permitted by applicable law. Grantor also will pay any court costs, in addition to all other sums provided by law.

NOTICES. Any notice required to be given under this Mortgage, including without limitation any notice of default and any notice of sale shall be given in writing, and shall be effective when actually delivered, when actually received by telefacsimile (unless otherwise required by law), when deposited with a nationally recognized overnight courier, or, if mailed, when deposited in the United States mail, as first class, certified or registered mail postage prepaid, directed to the addresses shown near the beginning of this Mortgage. All copies of notices of foreclosure from the holder of any lien which has priority over this Mortgage shall be sent to Lender's address, as shown near the beginning of this Mortgage. Any party may change its address for notices under this Mortgage by giving formal written notice to the other parties, specifying that the purpose of the notice is to change the party's address. For notice purposes, Grantor agrees to keep Lender informed at all times of Grantor's current address. Unless otherwise provided or required by law, if there is more than one Grantor, any notice given by Lender to any Grantor is deemed to be notice given to all Grantors.

LIEN. The amount of principal obligations outstanding and evidenced by the Note, Related Documents and this Mortgage total \$15,000,000.00 but this Mortgage shall nevertheless secure payment and performance of all Indebtedness (as defined herein).

REPRESENTATIONS AND WARRANTIES. The Grantor represents and warrants that:

This Mortgage has been duly executed and delivered by the Grantor and is the legal, valid and binding obligation of the Grantor enforceable in accordance with its terms, except as limited by bankruptcy, insolvency, reorganization, moratorium or other laws affecting the enforcement of creditors' rights generally;

The Grantor is the sole legal owner of the Property, holding good and marketable fee simple title to the Property, subject to no liens, encumbrances, leases, security interests or rights of others except for the Permitted Liens (as defined in the Loan Agreement);

The Grantor is the sole legal owner of the entire lessor's interest in leases, if any, with full power and authority to encumber the Property in the manner set forth herein, and the Grantor has not executed any other assignment of leases or any of the rights or rents arising thereunder; and

Each obligation is a commercial obligation and does not represent a loan used for personal, family or household purposes and is not a consumer transaction.

CHOICE OF VENUE. If there is a lawsuit, Grantor irrevocably submits to the jurisdiction of any federal or state court sitting in the Commonwealth of Massachusetts.

CROSS COLLATERALIZATION. This Mortgage is intended to secure the payment and performance of all Indebtedness, whether now existing or hereinafter incurred by reason of future advances by Lender or otherwise, and regardless of whether such Indebtedness is or was contemplated by the parties as of the date hereof. This Mortgage is secured by all collateral granted to Lender by Borrower or any endorser hereof or by any other party and shall be secured by any additional collateral hereafter granted to Lender by Borrower or any endorser hereof or by any other party.

WAIVERS AND MISCELLANEOUS PROVISIONS. The following miscellaneous provisions are a part of this Mortgage:

Amendments. This Mortgage, together with any Related Documents, constitutes the entire understanding and agreement of the parties as to the matters set forth in this Mortgage. No alteration of or amendment to this Mortgage shall be effective unless given in writing and signed by the party or parties sought to be charged or bound by the alteration or amendment.

Caption Headings. Caption headings in this Mortgage are for convenience purposes only and are not to be used to interpret or define the provisions of this Mortgage.

Governing Law. This Mortgage will be governed by federal law applicable to Lender and, to the extent not preempted by federal law, the laws of the Commonwealth of Massachusetts without regard to its conflicts of law provisions. This Mortgage has been accepted by Lender in the Commonwealth of Massachusetts.

No Waiver by Lender. Lender shall not be deemed to have waived any rights under this Mortgage unless such waiver is given in writing and signed by Lender. No delay or omission on the part of Lender in exercising any right shall operate as a waiver of such right or any other right. A waiver by Lender of a provision of this Mortgage shall not prejudice or constitute a waiver of Lender's right otherwise to demand strict compliance with that provision or any other provision of this Mortgage. No prior waiver by Lender, nor any course of dealing between Lender and Grantor, shall constitute a waiver of any of Lender's rights or of any of Grantor's obligations as to any future transactions. Whenever the consent of Lender is required under this Mortgage, the granting of such consent by Lender in any instance shall not constitute continuing consent to subsequent instances where such consent is required and in all cases such consent may be granted or withheld in the sole discretion of Lender.

Severability. If a court of competent jurisdiction finds any provision of this Mortgage to be illegal, invalid, or unenforceable as to any circumstance, that finding shall not make the offending provision illegal, invalid, or unenforceable as to any other circumstance. If feasible, the offending provision shall be considered modified so that it becomes legal, valid and enforceable. If the offending provision cannot be so modified, it shall be considered deleted from this Mortgage. Unless otherwise required by law, the illegality, invalidity, or unenforceability of any provision of this Mortgage shall not affect the legality, validity or enforceability of any other provision of this Mortgage.

Merger. There shall be no merger of the interest or estate created by this Mortgage with any other interest or estate in the Property at any time held by or for the benefit of Lender in any capacity, without the written consent of Lender.

Successors and Assigns. Subject to any limitations stated in this Mortgage on transfer of Grantor's interest, this Mortgage shall be binding upon and inure to the benefit of the parties, their successors and assigns. If ownership of the Property becomes vested in a person other than Grantor, Lender, without notice to Grantor, may deal with Grantor's successors with reference to this Mortgage and the Indebtedness by way of forbearance or extension without releasing Grantor from the obligations of this Mortgage or liability under the Indebtedness.

Time is of the Essence. Time is of the essence in the performance of this Mortgage.

Waive Jury. All parties to this Mortgage hereby waive the right to any jury trial in any action, proceeding, or counterclaim brought by any party against any other party.

DEFINITIONS. The following capitalized words and terms shall have the following meanings when used in this Mortgage. Unless specifically stated to the contrary, all references to dollar amounts shall mean amounts in lawful money of the United States of America. Words and terms used in the singular shall include the plural, and the plural shall include the singular, as the context may require. Words and terms not otherwise defined in this Mortgage shall have the meanings attributed to such terms in the Uniform Commercial Code:

Borrower. The word "Borrower" means Axcelis Technologies, Inc. and includes all co-signers and co-makers signing the Note and all their successors and assigns.

Environmental Laws. The words "Environmental Laws" mean any and all state, federal and local statutes, regulations and ordinances relating to the protection of human health or the environment, including without limitation the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended, 42 U.S.C. Section 9601, et seq.

("CERCLA"), the Superfund Amendments and Reauthorization Act of 1986, Pub. L. No. 99-499 ("SARA"), the Hazardous Materials Transportation Act, 49 U.S.C. Section 1801, et seq., the Resource Conservation and Recovery Act, 42 U.S.C. Section 6901, et seq., the Massachusetts Hazardous Waste Management Act, Mass. Gen. Laws Ch. 21C, the Massachusetts Oil and Hazardous Material Release Prevention Act, Mass. Gen. Laws, Ch. 21E, or other applicable state or federal laws, rules, or regulations adopted pursuant thereto.

Event of Default. The words "Event of Default" or "Default" shall have the same meaning under this Mortgage as ascribed to that term under the Loan Agreement.

Grantor. The word "Grantor" means Axcelis Technologies, Inc.

Hazardous Substances. The words "Hazardous Substances" mean materials that, because of their quantity, concentration or physical, chemical or infectious characteristics, may cause or pose a present or potential hazard to human health or the environment when improperly used, treated, stored, disposed of, generated, manufactured, transported or otherwise handled. The words "Hazardous Substances" are used in their very broadest sense and include without limitation any and all hazardous or toxic substances, materials or waste as defined by or listed under the Environmental Laws. The term "Hazardous Substances" also includes, without limitation, petroleum and petroleum by-products or any fraction thereof and asbestos.

Improvements. The word "Improvements" means all existing and future improvements, buildings, structures, mobile homes affixed on the Real Property, facilities, additions, replacements and other construction on the Real Property.

Indebtedness. The word "Indebtedness" means without limitation all loans, advances, notes liabilities and amounts, liquidated or unliquidated, now or hereafter owing by the Grantor to Lender at any time, of each and every kind, nature and description, including without limitation, all principal, interest, and other amounts, costs and expenses payable under the Note or Related Documents, together with all renewals of, extensions of, modifications of, consolidations of and substitutions for the Note or Related Documents and any amounts expended or advanced by Lender to discharge Grantor's obligations or expenses incurred by Lender to enforce Grantor's obligations under this Mortgage, together with interest on such amounts as provided in this Mortgage.

Lender. The word "Lender" means Northern Bank & Trust Company, its successors and assigns.

Loan Agreement. The Business Loan Agreement, dated as of the date hereof, between Grantor, as borrower, and Lender, as lender.

Mortgage. The word "Mortgage" means this Mortgage between Grantor and Lender.

Note. The word "Note" means the promissory note dated July 5, 2013, in the original principal amount of \$15,000,000.00 from Grantor to Lender, together with all renewals of, extensions of, modifications of, refinancings of, consolidations of, and substitutions for the promissory note or agreement. The maturity date of this Mortgage is July 5, 2016.

Personal Property. The words "Personal Property" mean all equipment, and other articles of personal property now or hereafter owned by Grantor which are deemed "fixtures" under applicable law, and now or hereafter attached or affixed to the Real Property; together with all accessions, parts, and additions to, all replacements of, and all substitutions for, any of such property; and together with all proceeds (including without limitation all insurance proceeds and refunds of premiums) from any sale or other disposition of the Property.

Property. The word "Property" means collectively the Real Property and the Personal Property.

Real Property. The words "Real Property" mean the real property, interests and rights, as further described in this Mortgage.

Related Documents. The words "Related Documents" mean all promissory notes, credit

agreements, loan agreements, environmental agreements, guaranties, security agreements, mortgages, deeds of trust, security deeds, collateral mortgages, and all other instruments, agreements and documents, whether now or hereafter existing, executed in connection with the Indebtedness.

Rents. The word "Rents" means all present and future rents, revenues, income, issues, royalties, profits, and other benefits derived from the Property.

GRANTOR ACKNOWLEDGES HAVING READ ALL THE PROVISIONS OF THIS MORTGAGE, AND GRANTOR AGREES TO ITS TERMS.

[Signature page follows]

THIS MORTGAGE IS GIVEN UNDER SEAL AND IT IS INTENDED THAT THIS MORTGAGE IS AND SHALL CONSTITUTE AND HAVE THE EFFECT OF A SEALED INSTRUMENT ACCORDING TO LAW.

**GRANTOR:
AXCELIS TECHNOLOGIES, INC.**

By: /s/ Mary G. Puma (Seal)
Mary G. Puma, President

By: /s/ Amy Rasimas (Seal)
Amy Rasimas, Treasurer

CORPORATE ACKNOWLEDGMENT

COMMONWEALTH OF MASSACHUSETTS

)
) SS
)

COUNTY OF ESSEX

On this 5th day of July, 2013, before me, the undersigned notary public, personally appeared **Mary G. Puma, President and Amy Rasimas, Treasurer of Axcelis Technologies, Inc.**, proved to me through satisfactory evidence of identification, which were Mass. Drivers Licenses, to be the persons whose names are signed on the preceding or attached document, and acknowledged to me that they signed it voluntarily for its stated purpose as authorized agents for **Axcelis Technologies, Inc.**, a corporation.

/s/ Theresa Coffey
Notary Public

My commission expires July 30, 2015

LASER PRO Lending, Ver. 13.1.0.004 Copr. Harland Financial Solutions, Inc. 1997, 2013. All Rights Reserved. - MA c:\harland\CFI\PL\G03.FC TR-63 PR-3 (M)

EXHIBIT A

This EXHIBIT A is attached to and by this reference is made a part of the Mortgage, dated as of July 5, 2013, and executed in connection with a loan or other financial accommodations between NORTHERN BANK & TRUST COMPANY and Axcelis Technologies, Inc.

Property Description

Property Description

PARCEL 1

A certain parcel of land situated on the northerly side of Conant Street and the easterly side of Cherry Hill Drive in Beverly, Essex County, Massachusetts, being shown as Lot 15A on a plan recorded with Essex County (South) Registry of Deeds in Plan Book 184, Plan 24, entitled "Plan of Land in Beverly, Mass., owned by Thomas J. Flatley, Scale 1"=100"; September 8, 1983; The Russell A. Wheatly Co., Inc., Land Surveyors & Engineers" containing 12.200 acres and being bounded and described as follows:

Beginning at a stone bound in the northerly line of said Conant Street, it being the southeast corner of the herein described premises and the southwest corner of Lot 16A as shown on said plan;

- Thence S 73° 27' 18" W, 237.72 feet in the northerly line of said Conant Street to a point;
- Thence S 72° 28' 23" W, 397.49 feet in the northerly line of said Conant Street to a point of curve at the intersection of said Conant Street with said Cherry Hill Drive;
- Thence northwesterly by a curving line to the right of which the radius is 60.00 feet, a distance of 91.81 feet to a point of tangent in the easterly line of said Cherry Hill Drive;
- Thence N 19° 51' 06" W, 617.63 feet in the easterly line of said Cherry Hill Drive to a point of curve;
- Thence northwesterly in the northeasterly line of said Cherry Hill Drive by a curving line to the left of which the radius is 684.63 feet, a distance of 123.49 feet to Lot 14A as shown on said plan;
- Thence N 34° 54' 51" E, 615.24 feet by said Lot 14A to Lot 16A as shown on said plan;
- Thence S 03° 59' 56" E, 323.07 feet by Lot 16A to a point;
- Thence S 32° 27' 44" E, 360.22 feet by Lot 16A to a point;
- Thence N 57° 32' 16" E, 99.00 feet by Lot 16A to a point;
- Thence S 31° 38' 21" E, 556.21 feet by Lot 16A to a point of beginning.

Together with the easement rights set forth in an Easement from 55 Cherry Hill Drive, LLC dated January 28, 2004 and recorded in Book 22333, Page 523.

PARCEL 2

A certain parcel of land situated in Beverly in the County of Essex and said Commonwealth of Massachusetts bounded and described as follows:

SOUTHERLY by Conant Street ten hundred ninety four and 25/100 (1094.25) feet;
SOUTHWESTERLY five hundred fifty six and 21/100 (556.21) feet
SOUTHEASTERLY ninety nine (99) feet; and
SOUTHWESTERLY and WESTERLY six hundred eighty three and 29/100 (683.29) feet by land now or formerly of H.P. Hood & Sons, Inc.;;
NORTHWESTERLY by lots 2 and 5, as shown on plan hereinafter mentioned, one thousand one hundred seventy four and 73/100 (1174.73) feet;
NORTHERLY and NORTHEASTERLY by said lot 5, as shown on said plan, one thousand one hundred and thirty six and 71/100 (1136.71) feet;
EASTERLY about two hundred sixty eight (268) feet by land now or formerly of Louise A. Cook;
NORTHERLY by a Ditch on land of said Louise A. Cook;
SOUTHEASTERLY by a Brook on lands now or formerly of Frank A. DiNardo et al and of William J. Drohan et al; and
NORTHEASTERLY by said Drohan land about two hundred eighty two (282) feet.

The above boundaries are now known as Lot 31 and Lot 32 as shown upon plan numbered 31995-M drawn by Hayes Engineering, Inc., Civil Engineers and Land Surveyors, dated January 18, 1999 as approved by the Court, filed in the Land Registration Office.

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 quarterly report on Form 10-Q 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 registrant as of, and for, the periods presented in this report;
4. The registrant'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 registrant 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 registrant, 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 registrant'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 registrant's internal control over financial reporting that occurred during the registrant'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 registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant'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 registrant'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: August 2, 2013

/s/ MARY G. PUMA

Mary G. Puma,
Chairman, Chief Executive Officer and President

**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 quarterly report on Form 10-Q 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 registrant as of, and for, the periods presented in this report;
4. The registrant'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 registrant 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 registrant, 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 registrant'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 registrant's internal control over financial reporting that occurred during the registrant'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 registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant'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 registrant'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: August 2, 2013

/s/ KEVIN J. BREWER

Kevin J. Brewer,
Executive Vice President and Interim Chief Financial Officer

AXCELIS TECHNOLOGIES, INC.
Certification of the Principal 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-Q quarterly 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 August 2, 2013.

/s/ MARY G. PUMA

Mary G. Puma
Chairman, Chief Executive Officer and President of Axcelis Technologies, Inc.

AXCELIS TECHNOLOGIES, INC.
Certification of the Principal 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-Q quarterly 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 August 2, 2013.

/s/ KEVIN J. BREWER

Kevin J. Brewer
*Executive Vice President and Interim Chief Financial Officer of Axcelis
Technologies, Inc.*
