

**INITIAL STATEMENT OF BENEFICIAL OWNERSHIP OF SECURITIES**

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934  
or Section 30(h) of the Investment Company Act of 1940

OMB APPROVAL	
OMB Number:	3235-0104
Estimated average burden hours per response:	0.5

<b>1. Name and Address of Reporting Person*</b> <u>ALDEBORGH JOHN E</u> <hr/> (Last) (First) (Middle) <u>108 CHERRY HILL DRIVE</u> <hr/> (Street) <u>BEVERLY MA 01915</u> <hr/> (City) (State) (Zip)	<b>2. Date of Event Requiring Statement (Month/Day/Year)</b> <u>02/13/2013</u>	<b>3. Issuer Name and Ticker or Trading Symbol</b> <u>AXCELIS TECHNOLOGIES INC [ ACLS ]</u>
		<b>4. Relationship of Reporting Person(s) to Issuer (Check all applicable)</b> Director <span style="float:right">10% Owner</span> <input checked="" type="checkbox"/> Officer (give title below) <span style="float:right">Other (specify below)</span> <p align="center"><u>EVP, Customer Operations</u></p>

**Table I - Non-Derivative Securities Beneficially Owned**

1. Title of Security (Instr. 4)	2. Amount of Securities Beneficially Owned (Instr. 4)	3. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	4. Nature of Indirect Beneficial Ownership (Instr. 5)
<u>Common Stock</u>	<u>0</u>	<u>D</u>	

**Table II - Derivative Securities Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)**

1. Title of Derivative Security (Instr. 4)	2. Date Exercisable and Expiration Date (Month/Day/Year)		3. Title and Amount of Securities Underlying Derivative Security (Instr. 4)	4. Conversion or Exercise Price of Derivative Security	5. Ownership Form: Direct (D) or Indirect (I) (Instr. 5)	6. Nature of Indirect Beneficial Ownership (Instr. 5)
	Date Exercisable	Expiration Date				
<u>Stock option (right to buy)</u>	<u>01/15/2017<sup>(1)</sup></u>	<u>01/15/2020</u>	<u>Common Stock</u>	<u>200,000</u>	<u>1.27</u>	<u>D</u>

**Explanation of Responses:**

1. To become exercisable as to 25% of the shares granted on each of 1/15/2014, 1/15/2015, 1/15/2016 and 1/15/2017.

Lynnette C. Fallon, as attorney in fact for John E. Aldeborgh 02/13/2013

\*\* Signature of Reporting Person

Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

\* If the form is filed by more than one reporting person, see instruction 5 (b)(v).

\*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.

POWER OF ATTORNEY  
For Executing Reports under Section 16(a)  
with respect to securities of  
AXCELIS TECHNOLOGIES INC.

(1) The undersigned hereby constitutes and appoints each of Mary G. Puma, Lynnette C. Fallon, Matthew C. Dallett and Stanley Keller, each acting singly, the undersigned to execute, for and on behalf of the undersigned, Forms 3, 4 and 5 with respect to securities of Axcelis Technologies, Inc. in accordance with Section 16(a) of the Securities Exchange Act of 1934.

(2) The undersigned hereby grants to each such attorney-in-fact full power and authority to do and perform all and every act and thing whatsoever requisite, necessary and proper to carry out the above and to execute the same, and to sign, seal, deliver, execute and file with the appropriate authorities all and every instrument, document and form that may be necessary or desirable to complete the execution of any such Form 3, 4 or 5.

IN WITNESS WHEREOF, the undersigned has caused this Power of Attorney to be executed this 16th day of January, 2013.

/s/ John E. Aldeborgh \_\_\_\_\_  
John E. Aldeborgh

Conformed Copy