

**STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP**

Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

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	
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<b>1. Name and Address of Reporting Person*</b> <u>PUMA MARY G</u>  (Last) (First) (Middle) <u>C/O AXCELIS TECHNOLOGIES, INC.</u> <u>108 CHERRY HILL DRIVE</u>  (Street) <u>BEVERLY MA 01915</u>  (City) (State) (Zip)	<b>2. Issuer Name and Ticker or Trading Symbol</b> <u>AXCELIS TECHNOLOGIES INC [ ACLS ]</u>	<b>5. Relationship of Reporting Person(s) to Issuer</b> (Check all applicable)  <input checked="" type="checkbox"/> Director 10% Owner  <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) <u>Chairman, President and CEO</u>
	<b>3. Date of Earliest Transaction (Month/Day/Year)</b> <u>03/18/2013</u>	
	<b>4. If Amendment, Date of Original Filed (Month/Day/Year)</b>	<b>6. Individual or Joint/Group Filing (Check Applicable Line)</b>  <input checked="" type="checkbox"/> Form filed by One Reporting Person  Form filed by More than One Reporting Person

**Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned**

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Stock	03/18/2013		s <sup>(1)</sup>		14,573	D	\$1.21	433,516 <sup>(2)</sup>	D	
Common Stock								20,000	I	Held by spouse

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

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)		5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)		6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4)	8. Price of Derivative Security (Instr. 5)	9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4)	10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)
				Code	V	(A)	(D)	Date Exercisable	Expiration Date					

**Explanation of Responses:**

- This sale is pursuant to a prior election by the executive officer to sell shares issued on the vesting of restricted stock units in order to generate funds to pay to the Company to cover the executive's tax liability arising from the vesting event. The proceeds of this sale will be paid to the Company.
- Of the shares held as of March 18, 2013, 110,728 were issuable on vesting of restricted stock units granted the executive under the 2012 Equity Incentive Plan and are subject to forfeiture.

Lynnette C. Fallon, as attorney 03/19/2013  
in fact for Mary G. Puma

\*\* 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 4 (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.