

OMB APPROVAL	
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**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

1. Name and Address of Reporting Person* <u>Halterman Craig M</u>  (Last) (First) (Middle) <u>108 CHERRY HILL DRIVE</u>  (Street) <u>BEVERLY MA 01915</u>  (City) (State) (Zip)	2. Issuer Name and Ticker or Trading Symbol <u>AXCELIS TECHNOLOGIES INC [ ACLS ]</u>	5. Relationship of Reporting Person(s) to Issuer (Check all applicable)  Director 10% Owner <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) <u>Senior VP and CIO</u>
	3. Date of Earliest Transaction (Month/Day/Year) <u>12/31/2008</u>	
	4. If Amendment, Date of Original Filed (Month/Day/Year)	
		6. Individual or Joint/Group Filing (Check Applicable Line)  <input checked="" type="checkbox"/> Form filed by One Reporting Person  <input type="checkbox"/> 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	12/31/2008		j <sup>(1)</sup>	v	1,500	A	\$0.4335	133,368 <sup>(2)</sup>	D	

**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)		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)					

**Explanation of Responses:**

- Purchased under the Axcelis Technologies, Inc. Employee Stock Purchase Plan, qualified under I.R.C. Section 423.
- Of the shares held as of December 31, 2008, 87,145 were issuable on vesting of restricted stock units granted to the executive under the 2000 Stock Plan and are subject to forfeiture. A portion of these shares will be withheld by the Company on vesting to satisfy tax withholding requirements.

Lynnette C. Fallon, as attorney 01/06/2009  
in fact for Craig Halterman

\*\* 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.