PUMA MARY G Form 4 May 19, 2010

### FORM 4

#### **OMB APPROVAL**

### UNITED STATES SECURITIES AND EXCHANGE COMMISSION Washington, D.C. 20549

**OMB** 3235-0287 Number:

Check this box if no longer subject to Section 16.

January 31, Expires: 2005

#### STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF **SECURITIES**

Estimated average burden hours per response... 0.5

Form 4 or Form 5 obligations may continue. See Instruction

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section

30(h) of the Investment Company Act of 1940

1(b).

(Print or Type Responses)

1. Name and Address of Reporting Person * PUMA MARY G			2. Issuer Name <b>and</b> Ticker or Trading Symbol AXCELIS TECHNOLOGIES INC [ACLS]	5. Relationship of Reporting Person(s) to Issuer  (Check all applicable)			
(Last) (First) (Middle)  C/O AXCELIS TECHNOLOGIES, INC., 108 CHERRY HILL DRIVE		OLOGIES,	3. Date of Earliest Transaction (Month/Day/Year) 05/17/2010	X Director 10% OwnerX Officer (give title Other (specify below) Chairman, President and CEO			
(Street) BEVERLY, MA 01915			4. If Amendment, Date Original Filed(Month/Day/Year)	6. Individual or Joint/Group Filing(Check Applicable Line) _X_ Form filed by One Reporting Person Form filed by More than One Reporting Person			
(City)	(State)	(Zip)	Table I - Non-Derivative Securities Acc	uired. Disposed of, or Beneficially Owned			

(City) (State) (Zip)		Table	able I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned								
1.Title of	2. Transaction Date		3.		4. Securi			5. Amount of	6. Ownership		
Security (Instr. 3)	(Month/Day/Year)	Execution Date, if any (Month/Day/Year)	Code		nAcquired (A) or Disposed of (D) (Instr. 3, 4 and 5)		Securities Beneficially Owned Following	Form: Direct (D) or Indirect (I) (Instr. 4)	Indirect Beneficial Ownership (Instr. 4)		
			Code	V	Amount	(A) or (D)	Price	Reported Transaction(s) (Instr. 3 and 4)			
Common Stock	05/17/2010		W	V	1,665	A	\$ 0 (1)	299,057	D		
Common Stock	05/18/2010		W	V	1,665	A	\$ 0 (1)	300,722 (2)	D		
Common Stock								20,000	I	Shares owned by spouse	

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

Persons who respond to the collection of SEC 1474 information contained in this form are not (9-02)

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# 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. Transactio Code (Instr. 8)	of Derivative Securities Acquired			Secur	unt of rlying	8. Price of Derivative Security (Instr. 5)	9. Nu Deriv Secur Bene Owne Follo
					(A) or Disposed of (D) (Instr. 3, 4, and 5)	Date Exercisable	Expiration Date	Title	Amount or Number of		Repo Trans (Instr
				Code V	(A) (D)				Shares		

## **Reporting Owners**

Reporting Owner Name / Address Relationships

Director 10% Owner Officer Other

PUMA MARY G C/O AXCELIS TECHNOLOGIES, INC. 108 CHERRY HILL DRIVE BEVERLY, MA 01915

X

Chairman, President and CEO

### **Signatures**

Lynnette C. Fallon, as attorney in fact for Mary G.

Puma 05/19/2010

\*\*Signature of Reporting Person Date

### **Explanation of Responses:**

- \* 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).
- (1) Ms. Puma acquired these shares under a will and/or by the laws of descent and distribution.
  - Of the shares held as of May 18, 2010, 95,347 were issuable on vesting of restricted stock units granted the executive under the 2000
- (2) 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.

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, *see* Instruction 6 for procedure. Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.

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