

OMB APPROVAL	
OMB Number:	3235-0287
Estimated average burden hours per response:	0.5

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>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)	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) <input checked="" type="checkbox"/> Director 10% Owner <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) <p style="text-align: center;">President and CEO</p>
	3. Date of Earliest Transaction (Month/Day/Year) <u>05/15/2022</u>	
4. If Amendment, Date of Original Filed (Month/Day/Year)		

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	05/15/2022		F		5,050	D ⁽¹⁾	\$56.38 ⁽²⁾	388,851 ⁽³⁾	D	
Common Stock	05/15/2022		F		4,832	D ⁽¹⁾	\$56.38 ⁽²⁾	384,019 ⁽⁴⁾	D	
Common Stock	05/16/2022		F		3,607	D ⁽¹⁾	\$56.38 ⁽²⁾	380,412 ⁽⁵⁾	D	
Common Stock	05/16/2022		A		21,008	A	\$0.00 ⁽⁶⁾	401,420 ⁽⁷⁾	D	
Common Stock	05/16/2022		A		21,008	A	\$0.00 ⁽⁸⁾	422,428 ⁽⁹⁾	D	
Common Stock	05/17/2022		F		3,232	D ⁽¹⁾	\$60.56 ⁽²⁾	419,196 ⁽¹⁰⁾	D	
Common Stock								5,000	I	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:

- These shares were withheld by the Company to cover the tax withholding obligations of the executive on the vesting of restricted stock units.
- Represents the closing price of the common stock on the date of the tax withholding.
- Of the shares held after this first tax withholding forfeiture (and related vesting) on May 15, 2022, 103,201 shares were issuable on vesting of restricted stock units granted to the executive under the 2012 Equity Incentive Plan and are subject to forfeiture.
- Of the shares held after this second tax withholding forfeiture (and related vesting) on May 15, 2022, 92,307 shares were issuable on vesting of restricted stock units granted to the executive under the 2012 Equity Incentive Plan and are subject to forfeiture.
- Of the shares held after this tax withholding forfeiture (and related vesting) on May 16, 2022, 84,176 shares were issuable on vesting of restricted stock units granted to the executive under the 2012 Equity Incentive Plan and are subject to forfeiture.
- These shares are issuable on vesting of restricted stock units granted under the Company's 2012 Equity Incentive Plan. Assuming continuation of employment, 25% of these restricted stock units will vest on each of May 16, 2023, May 16, 2024, May 16, 2025 and May 16, 2026.
- Of the shares held after this first grant on May 16, 2022, 105,184 were issuable on vesting of restricted stock units granted to the executive under the 2012 Equity Incentive Plan and are subject to forfeiture.
- In this grant under the Company's 2012 Equity Incentive Plan, the executive may earn shares of common stock, ranging from zero to 150% of the granted units. The shares are earned based on the achievement of 2022 performance goals. Assuming continuation of employment, 50% of the earned shares will vest on each of February 28, 2023 and February 28, 2024. Unearned restricted stock units will forfeit on February 28, 2023.
- Of the shares held after this second grant on May 16, 2022, 126,192 shares were issuable on vesting of restricted stock units granted to the executive under the 2012 Equity Incentive Plan and are subject to forfeiture.
- Of the shares held after this tax withholding forfeiture (and related vesting) on May 17, 2022, 118,906 shares were issuable on vesting of restricted stock units granted to the executive under the 2012 Equity Incentive Plan and are subject to forfeiture.

Remarks:

Lynette C. Fallon, as attorney 05/18/2022
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.

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