

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP

| OMB APPROVAL | |
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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) C/O AXCELIS TECHNOLOGIES, INC. 108 CHERRY HILL DRIVE (Street) BEVERLY MA 01915 (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) President and CEO |
| | 3. Date of Earliest Transaction (Month/Day/Year) 05/15/2020 | |
| 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 | 05/15/2020 | | A | | 43,578 | A | \$0.00 ⁽¹⁾ | 376,119 ⁽²⁾ | D | |
| Common Stock | 05/15/2020 | | A | | 43,578 | A | \$0.00 ⁽³⁾ | 419,697 ⁽⁴⁾ | D | |
| Common Stock | 05/15/2020 | | F | | 5,055 | D ⁽⁵⁾ | \$23.52 ⁽⁶⁾ | 414,642 ⁽⁷⁾ | D | |
| Common Stock | 05/16/2020 | | F | | 8,326 | D ⁽⁵⁾ | \$23.95 ⁽⁶⁾ | 406,316 ⁽⁸⁾ | D | |
| Common Stock | 05/16/2020 | | F | | 3,611 | D ⁽⁵⁾ | \$23.95 ⁽⁶⁾ | 402,705 ⁽⁹⁾ | D | |
| Common Stock | 05/17/2020 | | F | | 3,816 | D ⁽⁵⁾ | \$23.95 ⁽⁶⁾ | 398,889 ⁽¹⁰⁾ | D | |
| Common Stock | | | | | | | | 6,000 | 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:

- 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 15, 2021, May 15, 2022, May 15, 2023 and May 15, 2024.
- Of the shares held after this first grant on May 15, 2020, 172,221 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. Based on the achievement of performance goals and assuming continuation of employment, up to 50% of these restricted stock units will vest on each of February 28, 2021 and February 28, 2022. Unearned restricted stock units will forfeit on February 28, 2021.
- Of the shares held after this second grant on May 15, 2020, 215,799 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 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 tax withholding forfeiture (and related vesting) on May 15, 2020, 204,414 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 first tax withholding forfeiture (and related vesting) on May 16, 2020, 185,664 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 16, 2020, 177,533 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, 2020, 168,939 were issuable on vesting of restricted stock units granted to the executive under the 2012 Equity Incentive Plan and are subject to forfeiture.

Remarks:

Lynnette C. Fallon, as attorney 05/19/2020
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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