

AXCELIS TECHNOLOGIES INC  
 Form 4  
 July 16, 2009

**FORM 4**

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

OMB APPROVAL

OMB Number: 3235-0287  
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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).

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

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

(Print or Type Responses)

1. Name and Address of Reporting Person \*  
 THOMPSON H BRIAN

2. Issuer Name and Ticker or Trading Symbol  
 AXCELIS TECHNOLOGIES INC  
 [ACLS]

5. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

(Last) (First) (Middle)

3. Date of Earliest Transaction  
 (Month/Day/Year)  
 07/15/2009

Director  10% Owner  
 Officer (give title below)  Other (specify below)

C/O AXCELIS TECHNOLOGIES, INC., 108 CHERRY HILL DRIVE

(Street)

4. If Amendment, Date Original Filed(Month/Day/Year)

6. Individual or Joint/Group Filing(Check Applicable Line)  
 Form filed by One Reporting Person  
 Form filed by More than One Reporting Person

BEVERLY, MA 01915

(City) (State) (Zip)

**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 Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Ownership (Instr. 4) |     |       |
|---------------------------------|--------------------------------------|----------------------------------------------------|--------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------------|----------------------------------------------------------|-----------------------------------|-----|-------|
|                                 |                                      |                                                    |                                | (A) or (D)                                                        | Code                                                                                | V                                                        | Amount                            | (D) | Price |

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

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SEC 1474  
 (9-02)

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

| 1. Title of Derivative | 2. Conversion | 3. Transaction Date (Month/Day/Year) | 3A. Deemed Execution Date, if | 4. Transaction | 5. Number of Derivative | 6. Date Exercisable and Expiration Date | 7. Title and Amount of Underlying Securities |
|------------------------|---------------|--------------------------------------|-------------------------------|----------------|-------------------------|-----------------------------------------|----------------------------------------------|
|------------------------|---------------|--------------------------------------|-------------------------------|----------------|-------------------------|-----------------------------------------|----------------------------------------------|

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| Security (Instr. 3)         | or Exercise Price of Derivative Security | any (Month/Day/Year) | Code (Instr. 8)  | Securities Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5) | (Month/Day/Year) | (Instr. 3 and 4) |                  |                 |              |                            |
|-----------------------------|------------------------------------------|----------------------|------------------|-----------------------------------------------------------------|------------------|------------------|------------------|-----------------|--------------|----------------------------|
|                             |                                          |                      | Code             | V                                                               | (A)              | (D)              | Date Exercisable | Expiration Date | Title        | Amount or Number of Shares |
| Stock option (right to buy) | \$ 0.44                                  | 07/15/2009           | A <sup>(1)</sup> |                                                                 | 50,000           |                  | 01/14/2010       | 07/15/2019      | Common Stock | 50,000                     |

### Reporting Owners

| Reporting Owner Name / Address                                                                   | Relationships |           |         |       |
|--------------------------------------------------------------------------------------------------|---------------|-----------|---------|-------|
|                                                                                                  | Director      | 10% Owner | Officer | Other |
| THOMPSON H BRIAN<br>C/O AXCELIS TECHNOLOGIES, INC.<br>108 CHERRY HILL DRIVE<br>BEVERLY, MA 01915 | X             |           |         |       |

### Signatures

Lynnette C. Fallon, as attorney-in-fact for H. Brian Thompson 07/16/2009

\*\*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) Granted Pursuant to the Axcelis Technologies, Inc. 2000 Stock Plan.

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.