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8. SHARED DISPOSITIVE POWER
12,989,637

9. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

12,989,637

10. CHECK BOX IF AGGREGATE AMOUNT IN ROW (9) EXCLUDES CERTAIN
SHARES []

11. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (9)
13.38%

12. TYPE OF REPORTING PERSON
IA, HC

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Item 1(a). Name of Issuer:

AXCELIS TECHNOLOGIES, INC.

Item 1(b). Address of Issuer's Principal Executive Offices:

55 Cherry Hill Drive
Beverly MA 01915

Item 2(a). Name of Person Filing:

Wellington Management Company, LLP ('WMC')

Item 2(b). Address of Principal Business Office or, if None,
Residence:

75 State Street
Boston, Massachusetts 02109

Item 2(c). Citizenship:

Massachusetts

Item 2(d). Title of Class of Securities:

COMMON STOCK

Item 2(e). CUSIP Number:

054540109

Item 3. If This Statement is Filed Pursuant to Rule 13d-1(b), or
13d-2(b) or (c), Check Whether the Person Filing is a:

- (a) [] Broker or dealer registered under Section 15 of the Act.
- (b) [] Bank as defined in Section 3(a)(6) of the Act.
- (c) [] Insurance Company as defined in Section 3(a)(19) of
the Act.

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(d) [] Investment Company registered under Section 8 of the
Investment Company Act.

(e) [X] An investment adviser in accordance with
Rule 13d-1(b)(1)(ii)(E);

(f) [] An employee benefit plan or endowment fund in accordance
with Rule 13d-1(b)(1)(ii)(F);

(g) [X] A parent holding company or control person in accordance

with Rule 13d-1(b)(1)(ii)(G); see item 7;

- (h) [] A savings association as defined in Section 3(b) of the Federal Deposit Insurance Act;
- (i) [] A church plan that is excluded from the definition of an investment company under Section 3(c)(14) of the Investment Company Act;
- (j) [] Group, in accordance with Rule 13d-1(b)(1)(ii)(J).

If this statement is filed pursuant to Rule 13d-1(c), check this box []

Item 4. Ownership.

Provide the following information regarding the aggregate number and percentage of the class of securities of the issuer identified in Item 1.

- (a) Amount beneficially owned: WMC, in its capacity as investment adviser, may be deemed to beneficially own 12,989,637 shares of the Issuer which are held of record by clients of WMC.
- (b) Percent of class: 13.38%
- (c) Number of shares as to which such person has:
 - (i) Sole power to vote or to direct the vote 0
 - (ii) Shared power to vote or to direct the vote 3,987,334
 - (iii) Sole power to dispose or to direct the disposition of 0
 - (iv) Shared power to dispose or to direct the disposition of 12,989,637

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Item 5. Ownership of Five Percent or Less of a Class.

If this statement is being filed to report the fact that as of the date hereof the reporting person has ceased to be the beneficial owner of more than five percent of the class of securities, check the following

[].

Item 6. Ownership of More than Five Percent on Behalf of Another Person.

The securities as to which this Schedule is filed by WMC, in its capacity as investment adviser, are owned of record by clients of WMC. Those clients have the right to receive, or the power to direct the receipt of, dividends from, or the proceeds from the sale of, such securities. No such client is known to have such right or power with respect to more than five percent of this class of securities, except as follows:

Vanguard Windsor Fund

Item 7. Identification and Classification of the Subsidiary Which Acquired the Security Being Reported on by the Parent Holding Company.

See Exhibit A

Item 8. Identification and Classification of Members of the Group.

Not Applicable. This schedule is not being filed Pursuant to Rule 13d-1(b)(1)(ii)(J) or Rule 13d-1(d).

Item 9. Notice of Dissolution of Group.

Not Applicable.

Item 10. Certification.

- (a) The following certification shall be included if the statement

is filed pursuant to Rule 13d-1(b):

"By signing below I certify that, to the best of my knowledge and belief, the securities referred to above were acquired and are held in the ordinary course of business and were not acquired and are not held for the purpose of or with the

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effect of changing or influencing the control of the issuer of the securities and were not acquired and are not held in connection with or as a participant in any transaction having that purpose or effect. "

SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

By:--//Brian P. Hillery/--
Name: Brian P. Hillery
Title: Assistant Vice President
Date: February 10, 2001

* Signed pursuant to a Power of Attorney dated January 15, 1997 and filed with the SEC on January 24, 1997.

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Exhibit A

Pursuant to the instructions in Item 7 of this Schedule 13G, the identity and the Item 3 classification of the relevant subsidiary are: Wellington Trust Company, NA, 75 State Street, Boston MA 02109, a wholly-owned subsidiary of Wellington Management Company, LLP and a bank as defined in Section 3(a)(6) of the Securities Exchange Act of 1934.