

AXCELIS TECHNOLOGIES, INC.

Audit Committee Charter, as amended

As Adopted by the Board of Directors on May 7, 2010

The Audit Committee shall be responsible to assist the Board of Directors in monitoring and oversight of (1) the integrity of the Company's financial statements and its systems of internal accounting and financial controls and (2) the independence and performance of the Company's internal and independent auditors.

Composition of the Audit Committee

The Audit Committee shall be comprised of at least three directors appointed by the Board, each of whom:

(1) must (a) be independent as defined under Rule 4200 of the Nasdaq Marketplace Rules (the "Nasdaq Rules") (subject to the limited exception in Nasdaq Rule 4350(d)(2)(B)); (b) meet the criteria for independence set forth in Section 301 of the Sarbanes-Oxley Act of 2002; and (c) not own or control 20% or more of the Company's voting securities, or such lower measurement as may be established by the Securities and Exchange Commission (the "SEC") in rulemaking under Section 301 of the Sarbanes-Oxley Act; and

(2) must be able to read and understand fundamental financial statements, including the Company's balance sheet, income statement, and cash flow statements.

Additionally, at least one member of the Audit Committee must be a "financial expert" as defined by the SEC as required by Section 407(b) of the Sarbanes-Oxley Act of 2002.

Authority to Engage Advisors

The Audit Committee shall have the authority to retain special legal, accounting or other consultants to advise the Committee as the Committee determines necessary to carry out its duties as required by the Section 301(5) of the Sarbanes Oxley Act and the Nasdaq Rules. The Audit Committee shall be provided with adequate funding for auditing services and other consultants as contemplated by Section 301(6) of the Sarbanes Oxley Act of 2002. The Audit Committee may request any officer or employee of the Company or the Company's outside counsel or independent auditor to attend a meeting of the Committee or to meet with any members of, or consultants to, the Committee.

Audit Committee Duties

The Audit Committee shall:

Audit Committee Charter

1. Review and reassess the adequacy of this Charter annually and recommend any proposed changes to the Board for approval.

Review of Financial Statements and Accounting Policies

2. Discuss with management and the independent auditor the Company's quarterly earnings press releases, including the quarterly financial information and business outlook included therein. Prior to the filing of each Form 10-Q, review with management and the independent auditor such Form 10-Q, including the quarterly financial statements therein. This review may be conducted either through the entire Committee or through its Chairman on the Committee's behalf.
3. Review and discuss reports from management and the independent auditors on (a) all critical accounting policies and practices used by the Company, and (b) alternative accounting treatments within GAAP related to material items that have been discussed with management including the ramifications of the use of the alternative treatments and the treatment preferred by the independent auditor. Discuss with the independent auditor any accounting issues which were referred to the auditor's national office during the period. In regard to quarterly reviews, this discussion may be held either through the entire Committee or through its Chairman on the Committee's behalf.
4. Review the Form 10-K, including the Company's annual audited financial statements with management and the independent auditor before publication, including major issues regarding accounting and auditing principles and practices as well as the adequacy of internal controls that could significantly affect the financial statements, and the schedule of audit adjustments if any. When satisfied, recommend to the Board that the financial statements be included in the annual report to shareholders and annual report on Form 10-K.
5. Review with management any off-balance sheet related entities on the Company's financial statements.
6. Review analyses prepared by management and the independent auditor of significant financial reporting issues and judgments made in connection with the preparation of the Company's financial statements.
7. Review with the independent auditor any problems or difficulties the auditor may have encountered and any management letter provided by the auditor and the Company's response to that letter.

8. Review with the Company's General Counsel legal matters that may have a material impact on the Company's financial statements.
9. Meet periodically with management to review the Company's major risk exposures and the steps management has taken to monitor and control such exposures.
10. Review at least annually any transactions between the Company and any shareholder, director, officer or employee of the Company, other than ordinary course compensation arrangements.

Appointment and Review of External Auditing Function.

11. Recommend to the Board the appointment of the independent auditor, which will be accountable to the Audit Committee and the Board, as representatives of the stockholders of the Company. The Audit Committee shall have the sole authority for the compensation, definition of the scope of, and oversight of, the work of any registered public accounting firm employed by the Company (including resolution of disagreements between management and the auditor regarding financial reporting) for the purpose of preparing or issuing an audit report or related work, and each such registered public accounting firm shall report directly to the Audit Committee.
12. Pre-approve the fees to be paid to the independent auditor for audit services.
13. Evaluate and pre-approve the retention of the independent auditor for non-audit services and the fees for such services, other than those services exempted by virtue of the de minimus exception contained in Section 202(i)(3) of the Sarbanes Oxley Act of 2002. Non-audit services shall mean all services provided by the independent auditor to the Company other than auditing of the Company's financial statements and statutory audits of consolidated subsidiaries required by law and comfort opinions in connection with securities underwriting, and otherwise as defined by the SEC in rulemaking under the Sarbanes-Oxley Act. In evaluating whether to approve non-auditing services, the Committee shall take into account whether such non-auditing services (1) do not create an apparent conflict of interest for the auditing firm, (2) are synergistic with the audit work and (3) involve fees that could be material.
14. Receive annually a formal written statement from the independent auditor delineating all relationships between the auditor and the Company, consistent with the Public Company Accounting Oversight Board New Ethics and Independence Rule 3526, *Communication with Audit Committees Concerning Independence*, and discuss such statement with the auditor and, if so determined by the Audit Committee, recommend that the Board take appropriate action to satisfy itself of the independence of the auditor.

15. Annually review with the independent auditor and management the experience and qualification of the senior members of the independent auditor team and the quality control procedures of the auditing firm.
16. Evaluate the performance of the independent auditor as part of the annual consideration of the Committee's recommendation to the Board to re-appoint the independent auditor. In addition, the Committee should consider, at least every five years, whether replacement of the independent auditor is desirable for reasons other than performance.
17. Approve any employment by the Company of an individual who had, at any time during the prior three year period, provided services to the Company while employed by the Company's independent auditor. The Company may not employ any person as the Company's chief executive officer, controller, chief financial officer, chief accounting officer or any person serving in an equivalent position for the Company, who, during the one- year period preceding the date of the initiation of the current audit (1) was employed by the Company's current independent auditor and (2) participated in any capacity in the audit of the Company.

Internal Controls over Financing Reporting and Other Internal Audit Activities.

18. Review and approve the internal controls framework implemented by management for the Company. Review management's processes for refining and improving internal controls using such framework as applied to the Company's operations.
19. Review management's processes for implementing and assessing the effectiveness of internal controls over financial reporting, as such term is defined in Rule 13a-15(f) under the Securities Exchange Act of 1934 (the "Exchange Act"). Meet with any the appropriate members of financial management at the Company to review the scope, planning and staffing of the activities relating to management's implementation and assessment of internal controls over financial reporting. In addition, the Committee shall regularly receive reports from the independent auditor with respect to their processes to attest to the Company's internal controls over financial reporting.
20. In the event that internal audit services (beyond those related to the activities undertaken by management to assess the effectiveness of internal controls over financial reporting as required by the Exchange Act) are engaged in by management or the Committee:
 - a. Review the scope and resources to implement management's internal auditing plans;
 - b. Review the appointment (and replacement) of any senior internal auditing

- staff or the engagement of any external firm to provide internal audit services;
- c. Meet with any director of internal auditing or provider of out-sourced internal audit services to review the scope, planning and staffing of the internal audit activities; and
- d. Review the reports of any director of internal auditing or provider of out-sourced internal audit services. Review and discuss with management the Company's responses to such reports and observations.

Committee Meetings; Reporting and Oversight Functions.

- 21. Meet at least quarterly with the Company's chief financial officer, director of internal auditing (if any), out-sourced internal audit function representatives (if any), and independent auditor in separate executive sessions. Meet with the general counsel in a separate executive session as needed.
- 22. Prepare the report required by the rules of the SEC to be included in the Company's annual proxy statement.
- 23. Establish procedures for:
 - (i) the receipt, retention, and treatment of complaints received by the Company regarding accounting, internal accounting controls, or auditing matters; and
 - (ii) the confidential, anonymous submission by employees of the Company regarding questionable accounting or auditing matters.
- 24. The Audit Committee shall make regular reports to the Board concerning the Committee's actions, conclusions and recommendations.

While the Audit Committee shall have the responsibilities and powers set forth in this Charter, it shall not be the duty of the Committee to plan or conduct audits or to determine that the Company's financial statements are complete and accurate and in accordance with generally accepted accounting principles. These instead shall be the responsibility of management and the independent auditor. Except in the case where matters are brought to the attention of the Audit Committee, it shall not be the duty of the Audit Committee to conduct investigations, or to assure compliance with laws and regulations or the Company's code of conduct.