

MKS INSTRUMENTS, INC.

AMENDED & RESTATED AUDIT COMMITTEE CHARTER

(Last amended and restated on February 11, 2019)

A. Purpose

The purpose of the Audit Committee of the Board of Directors (the “Board”) of MKS Instruments, Inc. (the “Company”) is to assist the Board’s oversight of the Company’s accounting and financial reporting processes and the audits of the Company’s financial statements.

B. Structure and Membership

1. Number. Except as otherwise permitted by the applicable Nasdaq rules, the Audit Committee shall consist of at least three members of the Board.
2. Independence. Except as otherwise permitted by the applicable Nasdaq rules, each member of the Audit Committee shall be an “independent director” as defined by Nasdaq Rule 5605(a)(2), meet the criteria for independence set forth in Rule 10A-3(b)(1) under the Securities Exchange Act of 1934, as amended (the “Exchange Act”) (subject to the exemptions provided in Rule 10A-3(c)), and not have participated in the preparation of the financial statements of the Company or any current subsidiary of the Company at any time during the past three years.
3. Financial Literacy. Each member of the Audit Committee must be able to read and understand fundamental financial statements, including the Company’s balance sheet, income statement, and cash flow statement, at the time of his or her appointment to the Audit Committee. In addition, at least one member must have past employment experience in finance or accounting, requisite professional certification in accounting, or any other comparable experience or background which results in the individual’s financial sophistication, including being or having been a chief executive officer, chief financial officer or other senior officer with financial oversight responsibilities. Unless otherwise determined by the Board (in which case disclosure of such determination shall be made in the Company’s annual report filed with the Securities and Exchange Commission (“SEC”)), at least one member of the Audit Committee shall be an “audit committee financial expert” (as defined by applicable SEC rules).
4. Chair. Unless the Board elects a Chair of the Audit Committee, the Audit Committee shall elect a Chair by majority vote.

5. Compensation. The compensation of Audit Committee members shall be determined by the Board. No member of the Audit Committee may receive, directly or indirectly, any consulting, advisory or other compensatory fee from the Company or any of its subsidiaries, other than fees paid in his or her capacity as a member of the Board of Directors or a committee of the Board.
6. Selection and Removal. Members of the Audit Committee shall be appointed by the Board, upon the recommendation of the Nominating and Corporate Governance Committee. The Board may remove members of the Audit Committee from such committee, with or without cause.

C. Authority and Responsibilities

General

The Audit Committee shall discharge its responsibilities and shall assess the information provided by the Company's management and the Company's registered public accounting firm (the "independent auditor"), in accordance with its business judgment. Management is responsible for the preparation, presentation, and integrity of the Company's financial statements, for the appropriateness of the accounting principles and reporting policies that are used by the Company and for establishing and maintaining adequate internal control over financial reporting. The independent auditor is responsible for auditing the Company's financial statements and the Company's internal control over financial reporting and for reviewing the Company's unaudited interim financial statements. The authority and responsibilities set forth in this Charter do not reflect or create any duty or obligation of the Audit Committee to plan or conduct any audit, to determine or certify that the Company's financial statements are complete, accurate, fairly presented, or in accordance with generally accepted accounting principles or applicable law, or to guarantee the independent auditor's reports.

Oversight of Independent Auditor

1. Selection. The Audit Committee shall be solely and directly responsible for appointing, evaluating, retaining and, when necessary, terminating the engagement of the independent auditor. The Audit Committee may, in its discretion, seek stockholder ratification of the independent auditor it appoints.
2. Independence. The Audit Committee shall take, or recommend that the full Board take, appropriate action to oversee the independence of the independent auditor. In connection with this responsibility, the Audit Committee shall obtain and review the written disclosures and the letter from the independent auditor required by applicable requirements of the Public Company Accounting Oversight Board ("PCAOB") regarding the independent auditor's communications with the Audit Committee concerning independence. The Audit Committee shall actively engage in dialogue with the independent auditor concerning any disclosed relationships or services that might impact the objectivity and independence of the auditor.

3. Compensation. The Audit Committee shall have sole and direct responsibility for setting the compensation of the independent auditor. The Audit Committee is empowered, without further action by the Board, to cause the Company to pay the compensation of the independent auditor established by the Audit Committee.
4. Preapproval of Services. The Audit Committee shall preapprove all audit services to be provided to the Company, whether provided by the principal auditor or other firms, and all other services (review, attest and non-audit) to be provided to the Company by the independent auditor; provided, however, that de minimis non-audit services may instead be approved in accordance with applicable SEC rules.
5. Oversight. The independent auditor shall report directly to the Audit Committee, and the Audit Committee shall have sole and direct responsibility for overseeing the work of the independent auditor, including resolution of disagreements between Company management and the independent auditor regarding financial reporting. In connection with its oversight role, the Audit Committee shall, from time to time as appropriate, receive and consider the reports and other communications required to be made by the independent auditor regarding:
 - critical accounting policies and practices;
 - alternative treatments within generally accepted accounting principles for policies and practices related to material items that have been discussed with Company management, including ramifications of the use of such alternative disclosures and treatments, and the treatment preferred by the independent auditor;
 - other material written communications between the independent auditor and Company management; and
 - all other matters required to be communicated by the independent auditor to the Audit Committee under the standards of the PCAOB, including AS 1301: Communications with Audit Committees (“AS 1301”).

Audited Financial Statements

6. Review and Discussion. The Audit Committee shall review and discuss with the Company's management and independent auditor the Company's audited financial statements, including the matters required to be discussed by AS 1301.
7. Recommendation to Board Regarding Financial Statements. The Audit Committee shall consider whether it will recommend to the Board that the Company's audited financial statements be included in the Company's Annual Report on Form 10-K.
8. Audit Committee Report. The Audit Committee shall prepare an annual committee report for inclusion where necessary in the proxy statement of the Company relating to its annual meeting of security holders.

Review of Other Financial Disclosures

9. **Independent Auditor Review of Interim Financial Statements.** The Audit Committee shall direct the independent auditor to use its best efforts to perform all reviews of interim financial information prior to disclosure by the Company of such information and to discuss promptly with the Audit Committee and the Chief Financial Officer any matters identified in connection with the auditor's review of interim financial information which are required to be discussed by applicable auditing standards. The Audit Committee shall direct management to advise the Audit Committee in the event that the Company proposes to disclose interim financial information prior to completion of the independent auditor's review of interim financial information.
10. **Earnings Release and Other Financial Information.** The Audit Committee shall discuss generally the types of information to be disclosed in the Company's earnings press releases, as well as in financial information and earnings guidance provided to analysts, rating agencies and others. The Audit Committee need not discuss in advance each earnings release or each instance in which the Company may provide earnings guidance.
11. **Quarterly Financial Statements.** The Company shall distribute to the Audit Committee and provide the Audit Committee the opportunity to comment on, the Company's quarterly financial statements prior to the public disclosure thereof.

Controls and Procedures

12. **Oversight.** The Audit Committee shall coordinate the Board's oversight of the Company's internal control over financial reporting, disclosure controls and procedures and code of conduct. The Audit Committee shall receive and review the reports of the Chief Executive Officer and Chief Financial Officer required by Rule 13a-14 under the Exchange Act.

The Audit Committee shall review the reports on internal accounting controls contemplated by Sections 103 and 404 of the Sarbanes-Oxley Act.

The Audit Committee, where appropriate, shall discuss with the Company's outside counsel, legal matters that may have a material impact on the financial statements or the Company's compliance policies.

The Audit Committee shall be notified of all communications and discussions with the SEC's accounting staff.

13. **Financial Risk Management.** The Audit Committee shall discuss the Company's policies with respect to financial risk assessment and financial risk management, including guidelines and policies to govern the process by which the Company's exposure to such risk is handled.

14. Procedures for Complaints. The Audit Committee shall 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 of concerns regarding questionable accounting or auditing matters.
15. Oversight of Related-Person Transactions. The Audit Committee shall review the Company's procedures for reviewing "related person transactions" (defined as transactions required to be disclosed pursuant to Item 404 of Regulation S-K) and recommend any changes to such procedures to the Board. In accordance with Nasdaq rules, the Audit Committee shall conduct appropriate review and oversight of all related person transactions for potential conflict of interest situations on an ongoing basis.
16. Review and Approve Swaps. The Audit Committee is authorized to review and approve the Company's entry into swaps, including transactions in swaps that are subject to mandatory clearing, and to approve use of the end-user exception from clearing. The Audit Committee is also authorized to adopt and shall review annually thereafter a policy relating to the Company's use of the non-financial end-user exception and shall report to the Board on the Company's compliance with and implementation of this policy on at least an annual basis. The Audit Committee may delegate responsibility for implementation of the non-financial end-user policy to the Company's management, as the Audit Committee deems appropriate.
17. Additional Duties. The Audit Committee shall have such other duties as may be delegated from time to time by the Board.

D. Procedures and Administration

1. Meetings. The Audit Committee shall meet as often as it deems necessary in order to perform its responsibilities. The Audit Committee may also act by unanimous written consent in lieu of a meeting. The Audit Committee may, as deemed necessary, meet separately with: (i) the independent auditor; (ii) Company management; and (iii) the Company's internal auditors. The Audit Committee shall keep such records of its meetings as it shall deem appropriate.
2. Subcommittees. The Audit Committee may form and delegate authority to one or more subcommittees as it deems appropriate from time to time under the circumstances (including a subcommittee consisting of a single member). Any decision of a subcommittee to preapprove audit, review, attest or non-audit services shall be presented to the full Audit Committee at its next scheduled meeting.
3. Reports to Board. The Audit Committee shall report regularly to the Board. The Audit Committee shall review with the full Board any issues that arise with respect to the quality or integrity of the Company's financial statements, the

Company's compliance with legal or regulatory requirements, the performance and independence of the Company's independent auditors or the performance of the internal audit function.

4. Charter. At least annually, the Audit Committee shall review and reassess the adequacy of this Charter and recommend any proposed changes to the Board for approval.
5. Independent Advisors. The Audit Committee is authorized, without further action by the Board, to engage such independent legal, accounting and other advisors as it deems necessary or appropriate to carry out its responsibilities. Such independent advisors may be the regular advisors to the Company. The Audit Committee is empowered, without further action by the Board, to cause the Company to pay the compensation of such advisors as established by the Audit Committee.
6. Investigations. The Audit Committee shall have the authority to conduct or authorize investigations into any matters within the scope of its responsibilities as it shall deem appropriate, including the authority to request any officer, employee or advisor of the Company to meet with the Audit Committee or any advisors engaged by the Audit Committee.
7. Funding. The Audit Committee is empowered, without further action by the Board, to cause the Company to pay the ordinary administrative expenses of the Audit Committee that are necessary or appropriate in carrying out its duties.
8. Annual Self-Evaluation. At least annually, the Audit Committee shall evaluate its own performance.