

AMENDED AND RESTATED BY-LAWS
OF
MKS INSTRUMENTS, INC.

BY-LAWS

Table of Contents

	<u>Page</u>
ARTICLE I	STOCKHOLDERS 1
1.1.	Annual Meeting 1
1.2.	Notice of Business at Annual Meetings 1
1.3.	Special Meetings 3
1.4.	Place of Meetings 4
1.5.	Requirement of Notice 4
1.6.	Waiver of Notice 5
1.7.	Quorum 5
1.8.	Voting and Proxies 5
1.9.	Nomination of Directors 5
1.10.	Conduct of Meetings 8
1.11.	Action By Consent 8
1.12.	Record Date 8
1.13.	Meetings by Remote Communication 9
1.14.	Form of Stockholder Action 9
1.15.	Stockholder List for Meeting 9
ARTICLE II	DIRECTORS 10
2.1.	Powers 10
2.2.	Number and Election 10
2.3.	Enlargement of the Board 11
2.4.	Tenure 11
2.5.	Vacancies 11
2.6.	Resignation 11
2.7.	Removal 11
2.8.	Regular Meetings 12
2.9.	Special Meetings 12
2.10.	Notice 12
2.11.	Waiver of Notice 12
2.12.	Quorum 12
2.13.	Action at Meeting 12
2.14.	Action Without Meeting 13
2.15.	Telephone Conference Meetings 13
2.16.	Chairman of the Board and Vice-Chairman of the Board 13
2.17.	Committees 13
2.18.	Compensation 13
2.19.	Standard of Conduct for Directors 13
2.20.	Conflict of Interest 14
ARTICLE III	MANNER OF NOTICE 15

ARTICLE IV	OFFICERS	16
4.1.	Enumeration	16
4.2.	Appointment	16
4.3.	Qualification	16
4.4.	Tenure	16
4.5.	Resignation	16
4.6.	Removal	17
4.7.	Vacancies	17
4.8.	President; Chief Executive Officer	17
4.9.	Vice Presidents.....	17
4.10.	Treasurer and Assistant Treasurers	17
4.11.	Secretary and Assistant Secretaries	17
4.12.	Salaries	18
4.13.	Standard of Conduct for Officers.....	18
ARTICLE V	PROVISIONS RELATING TO SHARES	18
5.1.	Issuance and Consideration.....	18
5.2.	Share Certificates	19
5.3.	Uncertificated Shares	19
5.4.	Transfers; Record and Beneficial Owners	19
5.5.	Replacement of Certificates	20
ARTICLE VI	CORPORATE RECORDS	20
6.1.	Records to be Kept.....	20
6.2.	Inspection of Records by Stockholders.....	21
6.3.	Scope of Inspection Right.....	22
6.4.	Inspection of Records by Directors.....	22
ARTICLE VII	MISCELLANEOUS	22
7.1.	Fiscal Year	22
7.2.	Seal.....	22
7.3.	Voting of Securities	22
7.4.	Checks, Notes, Drafts and Other Instruments.....	23
7.5.	Evidence of Authority.....	23
7.6.	Articles of Organization.....	23
7.7.	Severability	23
7.8.	Pronouns	23
7.9.	Massachusetts Control Share Acquisition Act.....	23
7.10.	Interpretation.....	23
ARTICLE VIII	AMENDMENTS	23

ARTICLE I
STOCKHOLDERS

1.1. Annual Meeting. The Corporation shall hold an annual meeting of stockholders at a time to be fixed by the Board of Directors, the Chief Executive Officer or the President and stated in the notice of the meeting. The purposes for which the annual meeting is to be held, in addition to those prescribed by the Articles of Organization, shall be for electing Directors and for such other purposes as shall be specified in the notice for the meeting, and only business within such purposes may be conducted at the meeting. In the event an annual meeting is not held at the time fixed in accordance with these By-Laws or the time for an annual meeting is not fixed in accordance with these By-Laws to be held within 13 months after the last annual meeting, the Corporation may designate a special meeting as a special meeting in lieu of the annual meeting, and such meeting shall have all of the effect of an annual meeting.

1.2. Notice of Business at Annual Meetings.

(a) At any annual meeting of the stockholders, only such business shall be conducted as shall have been properly brought before the meeting. To be properly brought before an annual meeting, business must be specified in the notice of meeting (or any supplement thereto) given by or at the direction of the Board of Directors. For business to be properly brought before an annual meeting by a stockholder, (i) if such business relates to the nomination of a person for election as a Director of the Corporation, the procedures in Section 1.9 must be complied with and (ii) if such business relates to any other matter, the business must constitute a proper matter under Massachusetts law for stockholder action and the stockholder must (x) have given timely notice thereof in writing to the Secretary in accordance with the procedures in Section 1.2(b), (y) be a stockholder of record on the date of the giving of such notice and on the record date for the determination of stockholders entitled to vote at such annual meeting and (z) be entitled to vote at such annual meeting.

(b) To be timely, a stockholder's notice must be received in writing by the Secretary at the principal executive offices of the Corporation not less than 90 days nor more than 120 days prior to the first anniversary of the preceding year's annual meeting; provided, however, that in the event that the date of the annual meeting is advanced by more than 20 days, or delayed by more than 60 days, from the first anniversary of the preceding year's annual meeting, a stockholder's notice must be so received not earlier than the 120th day prior to such annual meeting and not later than the close of business on the later of (A) the 90th day prior to such annual meeting and (B) the seventh day following the day on which notice of the date of such annual meeting was mailed or public disclosure of the date of such annual meeting was made, whichever first occurs. In no event shall the adjournment or postponement of an annual meeting (or the public announcement thereof) commence a new time period (or extend any time period) for the giving of a stockholder's notice.

The stockholder's notice to the Secretary shall set forth: (A) as to each matter the stockholder proposes to bring before the annual meeting (1) a brief description of the business desired to be brought before the annual meeting, (2) the text of the proposal (including the exact text of any resolutions proposed for consideration and, in the event that such business includes a

proposal to amend the By-laws, the exact text of the proposed amendment), and (3) the reasons for conducting such business at the annual meeting, and (B) as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the proposal is being made (1) the name and address of such stockholder, as they appear on the Corporation's books, and of such beneficial owner, (2) the class and number of shares of stock of the Corporation which are, directly or indirectly, owned, beneficially or of record, by such stockholder and such beneficial owner, (3) a description of any material interest of such stockholder or such beneficial owner and the respective affiliates and associates of, or others acting in concert with, such stockholder or such beneficial owner in such business, (4) a description of any agreement, arrangement or understanding between or among such stockholder and/or such beneficial owner and any other person or persons (including their names) in connection with the proposal of such business or who may participate in the solicitation of proxies in favor of such proposal, (5) a description of any agreement, arrangement or understanding (including any derivative or short positions, swaps, profit interests, options, warrants, convertible securities, stock appreciation or similar rights, hedging transactions, and borrowed or loaned shares) that has been entered into by, or on behalf of, such stockholder or such beneficial owner, the effect or intent of which is to mitigate loss to, manage risk or benefit of share price changes for, or increase or decrease the voting power of, such stockholder or such beneficial owner with respect to shares of stock of the Corporation, (6) any other information relating to such stockholder and such beneficial owner that would be required to be disclosed in a proxy statement or other filings required to be made in connection with solicitations of proxies for the business proposed pursuant to Section 14 of the Securities Exchange Act of 1934, as amended (the "Exchange Act") and the rules and regulations promulgated thereunder, (7) a representation that such stockholder intends to appear in person or by proxy at the annual meeting to bring such business before the meeting and (8) a representation whether such stockholder and/or such beneficial owner intends or is part of a group which intends (x) to deliver a proxy statement and/or form of proxy to holders of at least the percentage of the Corporation's outstanding capital stock required to approve or adopt the proposal (and such representation shall be included in any such proxy statement and form of proxy) and/or (y) otherwise to solicit proxies from stockholders in support of such proposal (and such representation shall be included in any such solicitation materials). Not later than 10 days after the record date for the meeting, the stockholder giving such notice shall provide an update, as of the record date, of the information required by Items (A)(3) and (B)(1)-(6) of the prior sentence. Notwithstanding anything in these By-laws to the contrary, no business shall be conducted at any annual meeting of stockholders except in accordance with the procedures in this Section 1.2; provided that any stockholder proposal which complies with Rule 14a-8 of the proxy rules (or any successor provision) promulgated under the Exchange Act and is to be included in the Corporation's proxy statement for an annual meeting of stockholders shall be deemed to comply with the notice requirements of this Section 1.2. A stockholder shall not have complied with this Section 1.2(b) if the stockholder (or beneficial owner, if any, on whose behalf the proposal is made) solicits or does not solicit, as the case may be, proxies in support of such stockholder's proposal in contravention of the representations with respect thereto required by this Section 1.2.

(c) The chairman of any annual meeting shall have the power and duty to determine whether business was properly brought before the annual meeting in accordance with the provisions of this Section 1.2 (including whether the stockholder or beneficial owner, if any, on whose behalf the proposal is made solicited (or is part of a group which solicited) or did not

so solicit, as the case may be, proxies in support of such stockholder's proposal in compliance with the representation with respect thereto required by this Section 1.2), and if the chairman should determine that business was not properly brought before the annual meeting in accordance with the provisions of this Section 1.2, the chairman shall so declare to the meeting and such business shall not be brought before the annual meeting.

(d) Except as otherwise required by law, nothing in this Section 1.2 shall obligate the Corporation or the Board of Directors to include in any proxy statement or other stockholder communication distributed on behalf of the Corporation or the Board of Directors information with respect to any proposal submitted by a stockholder.

(e) Notwithstanding the foregoing provisions of this Section 1.2, unless otherwise required by law, if the stockholder (or a qualified representative of the stockholder) does not appear at the annual meeting to present business, such business shall not be considered, notwithstanding that proxies in respect of such business may have been received by the Corporation. For purposes of this Section 1.2, to be considered a "qualified representative of the stockholder", a person must be authorized by a written instrument executed by such stockholder or an electronic transmission delivered by such stockholder to act for such stockholder as proxy at the meeting of stockholders and such person must produce such written instrument or electronic transmission, or a reliable reproduction of the written instrument or electronic transmission, at the meeting of stockholders.

(f) For purposes of this Section 1.2, "public disclosure" shall include disclosure in a press release reported by the Dow Jones News Service, Associated Press or comparable national news service or in a document publicly filed by the Corporation with the Securities and Exchange Commission pursuant to Sections 13, 14 or 15(d) of the Exchange Act.

1.3. Special Meetings. Special meetings of stockholders may be called by the President or by the Board of Directors. In addition, upon written application of one or more stockholders who are entitled to vote and who hold at least the Required Percentage (as defined below) of the capital stock entitled to vote at the meeting, special meetings shall be called by the Secretary, or in case of the death, absence, incapacity or refusal of the Secretary, by any other officer.

Only business within the purpose or purposes described in the meeting notice may be conducted at a special meeting of stockholders.

For purposes of this Section 1.3, the "Required Percentage" shall be (i) 10% at any time at which the Corporation shall not have a class of voting stock registered under the Exchange Act, and (ii) 40% at any time at which the Corporation shall have a class of voting stock registered under the Exchange Act.

Any request for a call of a special meeting of stockholders (a "Call") by the holders of the Required Percentage of the capital stock entitled to vote at the meeting (the "Voting Stock") shall be governed by and subject to the following:

(a) Any stockholder of record seeking to solicit requests for a Call pursuant to this Section 1.3 shall so notify the Corporation in writing to the Secretary of the Corporation and

such written notification shall set forth the reason or reasons for the Call and the purpose of such special meeting.

(b) No solicitation of stockholder requests for a Call (a “Call Solicitation”) may be commenced (i) before the Call Request Record Date (as defined in paragraph (c) of this Section 1.3) or (ii) during the period of 90 days following the most recent meeting of the stockholders of the Corporation.

(c) In order that the Corporation may determine the stockholders entitled to request a Call, the Board of Directors of the Corporation shall fix a record date (the “Call Request Record Date”). Any stockholder of record seeking to solicit stockholder requests for a Call shall, with delivery to the Corporation of the written information specified in paragraph (a), request in writing that the Board of Directors fix the Call Request Record Date. The Board of Directors shall, within 10 days after the date on which such request is received, adopt a resolution fixing the Call Request Record Date and such Call Request Record Date shall be not more than 10 days after the date upon which such resolution is adopted by the Board of Directors.

(d) All requests for a Call and revocations thereof shall be delivered to the Corporation no later than the 30th day (the “Delivery Date”) after the Call Request Record Date.

(e) Any stockholder may revoke a prior request for a Call or opposition to a Call by an instrument in writing delivered prior to the Delivery Date.

(f) Promptly after the Delivery Date, requests for a Call and revocations thereof shall be counted and verified by an independent party selected by the Corporation.

(g) If, in response to any Call Solicitation, the holders of record of the Required Percentage of the Voting Stock as of the Call Request Record Date submit valid and unrevoked requests for a Call no later than the Delivery Date, the Board of Directors of the Corporation shall fix a record date pursuant to Section 1.12 hereof and a meeting date for the special meeting; provided that the date to be fixed for such meeting shall be no earlier than 60 days or later than 90 days after the Delivery Date; and provided, further, that the Board of Directors shall not be obligated to fix a meeting date or to hold any meeting of stockholders within 60 days of the next scheduled meeting of the stockholders of the Corporation.

(h) In the absence of a quorum at any special meeting called pursuant to a Call Solicitation, such special meeting may be postponed or adjourned from time to time only by the officer of the Corporation entitled to preside at such meeting.

1.4. Place of Meetings. All meetings of stockholders shall be held at the principal office of the Corporation unless a different place is fixed by the Board of Directors, the Chief Executive Officer or the President and specified in the notice of the meeting.

1.5. Requirement of Notice. A written notice of the date, time and place of each annual and special stockholders’ meeting describing the purposes of the meeting shall be given to stockholders entitled to vote at the meeting (and, to the extent required by law or the Articles of Organization, to stockholders not entitled to vote at the meeting) no fewer than seven nor more

than 60 days before the meeting date. If an annual or special meeting of stockholders is adjourned to a different date, time or place, notice need not be given of the new date, time or place if the new date, time or place is announced at the meeting before adjournment. If a new record date for the adjourned meeting is fixed, however, notice of the adjourned meeting shall be given under this Section 1.5 to persons who are stockholders as of the new record date. All notices to stockholders shall conform to the requirements of Article III of these By-Laws.

1.6. Waiver of Notice. A stockholder may waive any notice required by law, the Articles of Organization or these By-Laws before or after the date and time stated in the notice. The waiver shall be in writing, be signed by the stockholder entitled to the notice, and be delivered to the Corporation for inclusion with the records of the meeting. A stockholder's attendance at a meeting: (a) waives objection to lack of notice or defective notice of the meeting, unless the stockholder at the beginning of the meeting objects to holding the meeting or transacting business at the meeting; and (b) waives objection to consideration of a particular matter at the meeting that is not within the purpose or purposes described in the meeting notice, unless the stockholder objects to considering the matter when it is presented.

1.7. Quorum. The holder or holders of a majority in interest of all stock issued, outstanding, and entitled to vote at a meeting, present in person or represented by proxy, shall constitute a quorum, but the majority of a lesser interest so present may, from time to time, postpone to a new time or place any meeting and the postponed meeting may be held without further notice, except as provided in Section 1.5.

1.8. Voting and Proxies. Each stockholder entitled to vote shall have one vote, to be exercised in person or by proxy, for each share of stock held by him, and a proportionate vote for a fractional share. When a quorum is present at any meeting the vote of the holders of a majority in interest of the stock represented which is entitled to vote and voting shall decide any matter properly brought before the meeting, except in the case of elections by stockholders, which shall be decided by a plurality of the votes cast by stockholders entitled to vote at the election, and except when a larger vote is required by law, the Articles of Organization or these By-Laws. No vote need be taken by ballot unless so requested by any stockholder entitled to vote thereon. Proxies must be in writing and filed with the Secretary of the meeting before being voted. The person named in a proxy may vote at any adjournment of the meeting for which the proxy was given, but the proxy shall terminate after final adjournment of the meeting. Except to the extent permitted by law, no proxy dated more than eleven months before the meeting named in it shall be valid. A proxy purporting to be executed by or on behalf of a stockholder shall be deemed valid unless challenged at or prior to its exercise and the burden of proving invalidity shall rest on the challenger. A proxy with respect to stock held in the name of two or more persons shall be valid if executed by any one of them unless at or prior to the exercise of the proxy the Corporation receives a specific notice to the contrary from any one of them. Inspectors of election, if any, shall be appointed by the Board of Directors or, in the absence of such appointment, by the officer presiding at any meeting of the stockholders.

1.9. Nomination of Directors.

(a) Except for (1) any Directors entitled to be elected by the holders of any class or series of Preferred Stock, (2) any Directors elected by the Board of Directors in accordance

with Section 2.3 of these By-Laws to fill vacancies or newly created directorships or (3) as otherwise required by applicable law or stock market regulation, only persons who are nominated in accordance with the procedures in this Section 1.9 shall be eligible for election as Directors. Nomination for election to the Board of Directors at a meeting of stockholders may be made (i) by or at the direction of the Board of Directors or (ii) by any stockholder of the Corporation who (x) complies with the notice procedures set forth in Section 1.9(b), (y) is a stockholder of record on the date of the giving of such notice and on the record date for the determination of stockholders entitled to vote at such meeting and (z) be entitled to vote at such annual meeting.

(b) To be timely, a stockholder's notice must be received in writing by the Secretary at the principal executive offices of the Corporation as follows: (i) in the case of an election of Directors at an annual meeting of stockholders, not less than 90 days nor more than 120 days prior to the first anniversary of the preceding year's annual meeting; provided, however, that in the event that the date of the annual meeting is advanced by more than 20 days, or delayed by more than 60 days, from the first anniversary of the preceding year's annual meeting, a stockholder's notice must be so received not earlier than the 120th day prior to such annual meeting and not later than the close of business on the later of (A) the 90th day prior to such annual meeting and (B) the seventh day following the day on which notice of the date of such annual meeting was mailed or public disclosure of the date of such annual meeting was made, whichever first occurs; or (ii) in the case of an election of Directors at a special meeting of stockholders, provided that the Board of Directors has determined that Directors shall be elected at such meeting, not earlier than the 120th day prior to such special meeting and not later than the close of business on the later of (x) the 90th day prior to such special meeting and (y) the seventh day following the day on which notice of the date of such special meeting was mailed or public disclosure of the date of such special meeting was made, whichever first occurs. In no event shall the adjournment or postponement of a stockholders' meeting (or the public announcement thereof) commence a new time period (or extend any time period) for the giving of a stockholder's notice.

The stockholder's notice to the Secretary shall set forth: (A) as to each proposed nominee (1) such person's name, age, business address and, if known, residence address, (2) such person's principal occupation or employment, (3) the class and number of shares of stock of the Corporation which are directly or indirectly, owned, beneficially or of record by such person, (4) a description of all direct and indirect compensation and other material monetary agreements, arrangements and understandings during the past three years, and any other material relationships, between or among (x) the stockholder, the beneficial owner, if any, on whose behalf the nomination is being made and the respective affiliates and associates of, or others acting in concert with, such stockholder and such beneficial owner, on the one hand, and (y) each proposed nominee, and his or her respective affiliates and associates, or others acting in concert with such nominee(s), on the other hand, including all information that would be required to be disclosed pursuant to Item 404 of Regulation S-K under the Exchange Act if the stockholder making the nomination and any beneficial owner on whose behalf the nomination is made or any affiliate or associate thereof or person acting in concert therewith were the "registrant" for purposes of such Item and the proposed nominee were a director or executive officer of such registrant, and (5) any other information concerning such person that must be disclosed as to nominees in proxy solicitations pursuant to Regulation 14A under the Exchange Act; and (B) as

to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination is being made or who may participate in the solicitation of proxies in favor of electing such nominee(s), (1) such stockholder's name and address, as they appear on the Corporation's books, and the name and address of such beneficial owner, (2) the class and number of shares of stock of the Corporation which are directly or indirectly, owned, beneficially or of record, by such stockholder and such beneficial owner, (3) a description of all agreements, arrangements or understandings between or among such stockholder and/or such beneficial owner and each proposed nominee and any other person or persons (including their names) pursuant to which the nomination(s) are to be made by such stockholder, (4) a description of any agreement, arrangement or understanding (including any derivative or short positions, swaps, profit interests, options, warrants, convertible securities, stock appreciation or similar rights, hedging transactions, and borrowed or loaned shares) that has been entered into by, or on behalf of, such stockholder or such beneficial owner, the effect or intent of which is to mitigate loss to, manage risk or benefit of share price changes for, or increase or decrease the voting power of, such stockholder or beneficial owner with respect to shares of stock of the Corporation, (5) any other information relating to such stockholder that would be required to be disclosed in a proxy statement or other filings required to be made in connection with solicitations of proxies for the election of directors in a contested election pursuant to Section 14 of the Exchange Act and the rules and regulations promulgated thereunder, (6) a representation that such stockholder intends to appear in person or by proxy at the meeting to nominate the person(s) named in its notice, and (7) a representation whether the stockholder and/or such beneficial owner intends or is part of a group which intends (x) to deliver a proxy statement and/or form of proxy to holders of at least the percentage of the Corporation's outstanding capital stock required to elect the nominee (and such representation shall be included in any such proxy statement and form of proxy) and/or (y) otherwise to solicit proxies from stockholders in support of such nomination (and such representation shall be included in any such proxy statement and form of proxy). Not later than 10 days after the record date for the meeting, the stockholder giving such notice shall provide an update, as of the record date, of the information required by Items (A)(1)-(5) and (B)(1)-(5) of the prior sentence. In addition, to be effective, the stockholder's notice must be accompanied by the written consent of the proposed nominee to serve as a Director if elected. The Corporation may require any proposed nominee to furnish such other information as may reasonably be required to determine the eligibility of such proposed nominee to serve as a Director of the Corporation. A stockholder shall not have complied with this Section 1.9(b) if the stockholder (or beneficial owner, if any, on whose behalf the nomination is made) solicits or does not solicit, as the case may be, proxies in support of such stockholder's nominee in contravention of the representations with respect thereto required by this Section 1.9.

(c) The chairman of any meeting shall have the power and duty to determine whether a nomination was made in accordance with the provisions of this Section 1.9 (including whether the stockholder or beneficial owner, if any, on whose behalf the nomination is made solicited (or is part of a group which solicited) or did not so solicit, as the case may be, proxies in support of such stockholder's nominee in compliance with the representations with respect thereto required by this Section 1.9), and if the chairman should determine that a nomination was not made in accordance with the provisions of this Section 1.9, the chairman shall so declare to the meeting and such nomination shall be disregarded.

(d) Except as otherwise required by law, nothing in this Section 1.9 shall obligate the Corporation or the Board of Directors to include in any proxy statement or other stockholder communication distributed on behalf of the Corporation or the Board of Directors information with respect to any nominee for Director submitted by a stockholder.

(e) Notwithstanding the foregoing provisions of this Section 1.9, if the stockholder (or a qualified representative of the stockholder) does not appear at the annual or special meeting of stockholders of the Corporation to present a nomination, such nomination shall be disregarded, notwithstanding that proxies in respect of such vote may have been received by the Corporation.

(f) For purposes of this Section 1.9, the terms “qualified representative of the stockholder” and “public disclosure” shall have the same meaning as in Section 1.2.

1.10. Conduct of Meetings. The Board of Directors may adopt by resolution such rules, regulations and procedures for the conduct of any meeting of stockholders as it shall deem appropriate, including without limitation such guidelines and procedures as it may deem appropriate regarding the participation by means of remote communication of stockholders and proxyholders not physically present at a meeting. Except to the extent inconsistent with such rules, regulations and procedures as adopted by the Board of Directors, the chairman of any meeting of stockholders shall have the right and authority to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairman, are appropriate for the proper conduct of the meeting. Such rules, regulations or procedures, whether adopted by the Board of Directors or prescribed by the chairman of the meeting, may include, without limitation, the following: (a) the establishment of an agenda or order of business for the meeting; (b) rules and procedures for maintaining order at the meeting and the safety of those present; (c) limitations on attendance at or participation in the meeting to stockholders, their duly authorized and constituted proxies or attorneys or such other persons as shall be determined; (d) restrictions on entry to the meeting after the time fixed for the commencement thereof; and (e) limitations on the time allotted to questions or comments by participants. Unless and to the extent determined by the Board of Directors or the chairman of the meeting, meetings of stockholders shall not be required to be held in accordance with the rules of parliamentary procedure.

1.11. Action By Consent. Any action required or permitted to be taken by stockholders may be taken without a meeting if all stockholders entitled to vote on the matter consent in writing to the action and such written consents are filed with the records of the meetings of stockholders. Such consents shall be treated for all purposes as a vote at a meeting.

1.12. Record Date. The Board of Directors may fix the record date in order to determine the stockholders entitled to notice of a stockholders’ meeting, to demand a special meeting, to vote or to take any other action. If a record date for a specific action is not fixed by the Board of Directors, and is not supplied by law, except as provided for in Section 1.3, the record date shall be (a) the close of business either on the day before the first notice is sent to stockholders, or, if no notice is sent, on the day before the meeting or (b) in the case of action without a meeting by written consent, the date the first stockholder signs the consent or (c) for purposes of determining stockholders entitled to demand a special meeting of stockholders, the date the first stockholder signs the demand or (d) for purposes of determining stockholders entitled to a distribution, other

than one involving a purchase, redemption or other acquisition of the Corporation's shares, the date the Board of Directors authorizes the distribution. A record date fixed under this Section 1.12 may not be more than 70 days before the meeting or action requiring a determination of stockholders. A determination of stockholders entitled to notice of or to vote at a stockholders' meeting is effective for any adjournment of the meeting unless the Board of Directors fixes a new record date, which it shall do if the meeting is adjourned to a date more than 120 days after the date fixed for the original meeting.

1.13. Meetings by Remote Communication. Unless otherwise provided in the Articles of Organization, if authorized by the Board of Directors: subject to such guidelines and procedures as the Board of Directors may adopt, stockholders and proxyholders not physically present at a meeting of stockholders may, by means of remote communication: (a) participate in a meeting of stockholders; and (b) be deemed present in person and vote at a meeting of stockholders, provided that: (1) the Corporation shall implement reasonable measures to verify that each person deemed present and permitted to vote at the meeting by means of remote communication is a stockholder or proxyholder; (2) the Corporation shall implement reasonable measures to provide such stockholders and proxyholders a reasonable opportunity to participate in the meeting and to vote on matters submitted to the stockholders, including an opportunity to read or hear the proceedings of the meeting substantially concurrently with such proceedings; and (3) if any stockholder or proxyholder votes or takes other action at the meeting by means of remote communication, a record of such vote or other action shall be maintained by the Corporation.

1.14. Form of Stockholder Action.

(a) Any vote, consent, waiver, proxy appointment or other action by a stockholder or by the proxy or other agent of any stockholder shall be considered given in writing, dated and signed, if, in lieu of any other means permitted by law, it consists of an electronic transmission that sets forth or is delivered with information from which the Corporation can determine (1) that the electronic transmission was transmitted by the stockholder, proxy or agent or by a person authorized to act for the stockholder, proxy or agent; and (2) the date on which such stockholder, proxy, agent or authorized person transmitted the electronic transmission. The date on which the electronic transmission is transmitted shall be considered to be the date on which it was signed. The electronic transmission shall be considered received by the Corporation if it has been sent to any address specified by the Corporation for the purpose or, if no address has been specified, to the principal office of the Corporation, addressed to the Secretary or other officer or agent having custody of the records of proceedings of stockholders.

(b) Any copy, facsimile or other reliable reproduction of a vote, consent, waiver, proxy appointment or other action by a stockholder or by the proxy or other agent of any stockholder may be substituted or used in lieu of the original writing for any purpose for which the original writing could be used, but the copy, facsimile or other reproduction shall be a complete reproduction of the entire original writing.

1.15. Stockholder List for Meeting.

(a) After fixing a record date for a stockholders' meeting, the Corporation shall prepare an alphabetical list of the names of all its stockholders who are entitled to notice of the meeting. The list shall be arranged by voting group, and within each voting group by class or series of shares, and show the address of and number of shares held by each stockholder, but need not include an electronic mail address or other electronic contact information for any stockholder.

(b) The list of stockholders shall be available for inspection by any stockholder, beginning two business days after notice is given of the meeting for which the list was prepared and continuing through the meeting: (1) at the Corporation's principal office or at a place identified in the meeting notice in the city where the meeting will be held; or (2) on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting.

(c) A stockholder or his or her agent or attorney is entitled on written demand to inspect and, subject to the requirements of Section 6.2(c) of these By-Laws, to copy the list, during regular business hours and at his or her expense, during the period it is available for inspection.

(d) The Corporation shall make the list of stockholders available at the meeting, and any stockholder or his or her agent or attorney is entitled to inspect the list at any time during the meeting or any adjournment.

ARTICLE II

DIRECTORS

2.1. Powers. The business of the Corporation shall be managed by a Board of Directors, who may exercise all the powers of the Corporation except as otherwise provided by law, by the Articles of Organization or by these By-Laws. In the event of a vacancy in the Board of Directors, the remaining Directors, except as otherwise provided by law, may exercise the powers of the full Board until the vacancy is filled.

2.2. Number and Election. The number of Directors which shall constitute the whole Board of Directors shall be determined by vote of the stockholders or the Board of Directors, but shall consist of not less than three Directors (except that whenever there shall be only two stockholders the number of Directors shall be not less than two and whenever there shall be only one stockholder or prior to the issuance of any stock, there shall be at least one Director). The number of Directors may be decreased at any time and from time to time either by the stockholders or by a majority of the Directors then in office, but only to eliminate vacancies existing by reason of the death, resignation, removal or expiration of the term of one or more Directors. The Directors shall be elected at the annual meeting of stockholders by such stockholders as have the right to vote on such election. No Director need be a stockholder of the Corporation.

Notwithstanding the foregoing provisions, if the Corporation is a "public corporation" as defined in the Massachusetts Business Corporation Act, as in effect from time to time (the

“MBCA”), and has not elected, pursuant to Section 8.06(c) of the MBCA, to be exempt from the provisions of Section 8.06(b) of the MBCA, then:

(a) In accordance with such Section 8.06(e)(4) of the MBCA, the number of directors shall be fixed only by vote of the Board of Directors.

(b) In accordance with Section 8.06(a) of the MBCA, the Directors of the Corporation shall be classified with respect to the time for which they severally hold office, into three classes, as nearly equal in number as possible; each Director shall serve for a term ending on the date of the third annual meeting following the meeting at which such Director was elected and, as of the effective date of these Amended and Restated By-Laws, the term of office of those of the first class ("Class I Directors") shall continue until the Corporation's annual meeting of stockholders held in 2015 and until their successors are duly elected and qualified; the term of office of those of the second class ("Class II Directors") shall continue until the Corporation's annual meeting of stockholders held in 2016 and until their successors are duly elected and qualified; and the term of office of those of the third class ("Class III Directors") shall continue until the Corporation's annual meeting of stockholders held in 2017 and until their successors are duly elected and qualified.

2.3. Enlargement of the Board. The number of Directors may be increased at any time and from time to time by a majority of the Directors then in office. Notwithstanding the foregoing provisions, if the Directors of the Corporation are classified with respect to the time for which they severally hold office pursuant to Section 8.06(c) of the MBCA, the Board of Directors may be enlarged only in accordance with the provisions of 8.06(e).

2.4. Tenure. Except as otherwise provided by law, these By-Laws or the Articles of Organization, each Director shall hold office until the next annual meeting of stockholders and until his successor is elected and qualified, or until his earlier death, resignation or removal

2.5. Vacancies. Unless and until filled by the stockholders, any vacancy in the Board of Directors, however occurring, including a vacancy resulting from an enlargement of the Board of Directors, may be filled by vote of a majority of the Directors present at the meeting of Directors at which a quorum is present. Each such successor shall hold office for the unexpired term of his predecessor and until his successor is chosen and qualified or until his earlier death, resignation or removal. Notwithstanding the foregoing provisions, if the directors of the Corporation are classified with respect to the time for which they severally hold office pursuant to Section 8.06(c) of the MBCA, any vacancy in the Board of Directors, however occurring, shall be filled solely in accordance with the provisions of Section 8.06(e) of the MBCA.

2.6. Resignation. A Director may resign at any time by delivering written notice of resignation to the Board of Directors, the Chairman of the Board or the Corporation. A resignation is effective when the notice is delivered unless the notice specifies a later effective date.

2.7. Removal. A director may be removed from office with or without cause by vote of the holders of a majority of the shares entitled to vote in the election of directors. However, the directors elected by the holders of a particular class or series of stock may be removed from

office with or without cause only by vote of the holders of a majority of the outstanding shares of such class or series. In addition, a director may be removed from office for cause by vote of a majority of the directors then in office. A director may be removed for cause only after reasonable notice and opportunity to be heard before the body proposing to remove him. Notwithstanding the foregoing provision, if the directors of the corporation are classified with respect to the time for which they severally hold office pursuant to paragraph (a) of Section 50A of the Massachusetts Business Corporation Law, as it may be amended from time to time, directors may only be removed for cause pursuant to paragraph (c) of such Section 50A.

2.8. Regular Meetings. Regular meetings of the Board of Directors may be held at such times and places as shall from time to time be fixed by the Board of Directors without notice of the date, time, place or purpose of the meeting.

2.9. Special Meetings. Special meetings of the Board of Directors may be called by the Chairman of the Board, the Chief Executive Officer, the President, the Secretary, any two Directors or one Director in the event that there is only one Director.

2.10. Notice. Special meetings of the Board of Directors must be preceded by at least two days' notice of the date, time and place of the meeting. The notice need not describe the purpose of the special meeting. All notices to Directors shall conform to the requirements of Article III of these By-Laws.

2.11. Waiver of Notice. A Director may waive any notice before or after the date and time of the meeting. The waiver shall be in writing, signed by the Director entitled to the notice, or in the form of an electronic transmission by the Director to the Corporation, and filed with the minutes or corporate records. A Director's attendance at or participation in a meeting waives any required notice to him or her of the meeting unless the Director at the beginning of the meeting, or promptly upon his or her arrival, objects to holding the meeting or transacting business at the meeting and does not thereafter vote for or assent to action taken at the meeting.

2.12. Quorum. Unless otherwise provided by law, the Articles of Organization or these By-Laws, a quorum of the Board of Directors consists of a majority of the Directors then in office, provided always that any number of Directors (whether one or more and whether or not constituting a quorum) constituting a majority of Directors present at any meeting or at any adjourned meeting may make an adjournment thereof.

2.13. Action at Meeting. If a quorum is present when a vote is taken, the affirmative vote of a majority of Directors present is the act of the Board of Directors unless the Articles of Organization or these By-Laws require the vote of a greater number of Directors. A Director who is present at a meeting of the Board of Directors or a committee of the Board of Directors when corporate action is taken is considered to have assented to the action taken unless: (a) he or she objects at the beginning of the meeting, or promptly upon his or her arrival, to holding it or transacting business at the meeting; (b) his or her dissent or abstention from the action taken is entered in the minutes of the meeting; or (c) he or she delivers written notice of his or her dissent or abstention to the presiding officer of the meeting before its adjournment or to the Corporation immediately after adjournment of the meeting. The right of dissent or abstention is not available to a Director who votes in favor of the action taken.

2.14. Action Without Meeting. Any action required or permitted to be taken by the Directors may be taken without a meeting if the action is taken by the unanimous consent of the members of the Board of Directors. The action must be evidenced by one or more consents describing the action taken, in writing, signed by each Director, or delivered to the Corporation by electronic transmission, to the address specified by the Corporation for the purpose or, if no address has been specified, to the principal office of the Corporation, addressed to the Secretary or other officer or agent having custody of the records of proceedings of Directors, and included in the minutes or filed with the corporate records reflecting the action taken. Action taken under this Section 2.14 is effective when the last Director signs or delivers the consent, unless the consent specifies a different effective date. A consent signed or delivered under this Section 2.14 has the effect of a meeting vote and may be described as such in any document.

2.15. Telephone Conference Meetings. The Board of Directors may permit any or all Directors to participate in a regular or special meeting by, or conduct the meeting through the use of, any means of communication by which all Directors participating may simultaneously hear each other during the meeting. A Director participating in a meeting by this means is considered to be present in person at the meeting.

2.16. Chairman of the Board and Vice-Chairman of the Board. The Board of Directors may appoint a Chairman of the Board. If the Board of Directors appoints a Chairman of the Board, he shall perform such duties and possess such powers as are assigned to him by the Board of Directors. If the Board of Directors appoints a Vice-Chairman of the Board, he shall, in the absence or disability of the Chairman of the Board, perform the duties and exercise the powers of the Chairman of the Board and shall perform such other duties and possess such other powers as may from time to time be vested in him by the Board of Directors.

2.17. Committees. The Board of Directors may create one or more committees and appoint members of the Board of Directors to serve on them. Each committee may have one or more members, who serve at the pleasure of the Board of Directors. The creation of a committee and appointment of members to it must be approved by a majority of all the Directors in office when the action is taken. Article III and Sections 2.10 through 2.15 of these By-Laws shall apply to committees and their members. To the extent specified by the Board of Directors, each committee may exercise the authority of the Board of Directors to the extent permitted by law. The creation of, delegation of authority to, or action by a committee does not alone constitute compliance by a Director with the standards of conduct described in Section 2.19 of these By-Laws.

2.18. Compensation. The Board of Directors may fix the compensation of Directors.

2.19. Standard of Conduct for Directors.

(a) A Director shall discharge his or her duties as a Director, including his or her duties as a member of a committee: (1) in good faith; (2) with the care that a person in a like position would reasonably believe appropriate under similar circumstances; and (3) in a manner the Director reasonably believes to be in the best interests of the Corporation. In determining what the Director reasonably believes to be in the best interests of the Corporation, a Director may consider the interests of the Corporation's employees, suppliers, creditors and customers,

the economy of the state, the region and the nation, community and societal considerations, and the long-term and short-term interests of the Corporation and its stockholders, including the possibility that these interests may be best served by the continued independence of the Corporation.

(b) In discharging his or her duties, a Director who does not have knowledge that makes reliance unwarranted is entitled to rely on information, opinions, reports or statements, including financial statements and other financial data, if prepared or presented by: (1) one or more officers or employees of the Corporation whom the Director reasonably believes to be reliable and competent with respect to the information, opinions, reports or statements presented; (2) legal counsel, public accountants or other persons retained by the Corporation, as to matters involving skills or expertise the Director reasonably believes are matters (i) within the particular person's professional or expert competence or (ii) as to which the particular person merits confidence; or (3) a committee of the Board of Directors of which the Director is not a member if the Director reasonably believes the committee merits confidence.

(c) A Director is not liable for any action taken as a Director, or any failure to take any action, if he or she performed the duties of his or her office in compliance with this Section 2.19.

2.20. Conflict of Interest.

(a) A conflict of interest transaction is a transaction with the Corporation in which a Director of the Corporation has a material direct or indirect interest. A conflict of interest transaction is not voidable by the Corporation solely because of the Director's interest in the transaction if any one of the following is true:

(1) the material facts of the transaction and the Director's interest were disclosed or known to the Board of Directors or a committee of the Board of Directors and the Board of Directors or committee authorized, approved or ratified the transaction;

(2) the material facts of the transaction and the Director's interest were disclosed or known to the stockholders entitled to vote and they authorized, approved or ratified the transaction; or

(3) the transaction was fair to the Corporation.

(b) For purposes of this Section 2.20, and without limiting the interests that may create conflict of interest transactions, a Director of the Corporation has an indirect interest in a transaction if: (1) another entity in which he or she has a material financial interest or in which he or she is a general partner is a party to the transaction; or (2) another entity of which he or she is a director, officer or trustee or in which he or she holds another position is a party to the transaction and the transaction is or should be considered by the Board of Directors.

(c) For purposes of clause (1) of subsection (a) of this Section 2.20, a conflict of interest transaction is authorized, approved or ratified if it receives the affirmative vote of a majority of the Directors on the Board of Directors (or on the committee) who have no direct or indirect interest in the transaction, but a transaction may not be authorized, approved or ratified

under this Section 2.20 by a single Director. If a majority of the Directors who have no direct or indirect interest in the transaction vote to authorize, approve or ratify the transaction, a quorum is present for the purpose of taking action under this Section 2.20. The presence of, or a vote cast by, a Director with a direct or indirect interest in the transaction does not affect the validity of any action taken under clause (1) of subsection (a) of this Section 2.20 if the transaction is otherwise authorized, approved or ratified as provided in that subsection.

(d) For purposes of clause (2) of subsection (a) of this Section 2.20, a conflict of interest transaction is authorized, approved or ratified if it receives the vote of a majority of the shares entitled to be counted under this subsection (d). Shares owned by or voted under the control of a Director who has a direct or indirect interest in the transaction, and shares owned by or voted under the control of an entity described in clause (1) of subsection (b) of this Section 2.20, may not be counted in a vote of stockholders to determine whether to authorize, approve or ratify a conflict of interest transaction under clause (2) of subsection (a) of this Section 2.20. The vote of those shares, however, is counted in determining whether the transaction is approved under other provisions of these By-Laws. A majority of the shares, whether or not present, that are entitled to be counted in a vote on the transaction under this subsection constitutes a quorum for the purpose of taking action under this Section 2.20.

ARTICLE III

MANNER OF NOTICE

Except as otherwise provided by law, all notices provided for under these By-Laws shall conform to the following requirements:

(a) Notice shall be in writing unless oral notice is reasonable under the circumstances. Notice by electronic transmission is written notice.

(b) Notice may be communicated in person; by telephone, voice mail, telegraph, teletype or other electronic means; by mail; by electronic transmission; or by messenger or delivery service. If these forms of personal notice are impracticable, notice may be communicated by a newspaper of general circulation in the area where published; or by radio, television or other form of public broadcast communication.

(c) Written notice, other than notice by electronic transmission, by the Corporation to any of its stockholders, if in a comprehensible form, is effective upon deposit in the United States mail, if mailed postpaid and correctly addressed to the stockholder's address shown in the Corporation's current record of stockholders.

(d) Written notice by electronic transmission by the Corporation to any of its stockholders, if in comprehensible form, is effective: (1) if by facsimile telecommunication, when directed to a number furnished by the stockholder for the purpose; (2) if by electronic mail, when directed to an electronic mail address furnished by the stockholder for the purpose; (3) if by a posting on an electronic network together with separate notice to the stockholder of such specific posting, directed to an electronic mail address furnished by the stockholder for the purpose, upon the later of (i) such posting and (ii) the giving of such separate notice; and (4) if

by any other form of electronic transmission, when directed to the stockholder in such manner as the stockholder shall have specified to the Corporation. An affidavit of the Secretary or an Assistant Secretary of the Corporation, the transfer agent or other agent of the Corporation that the notice has been given by a form of electronic transmission shall, in the absence of fraud, be prima facie evidence of the facts stated therein.

(e) Except as provided in subsection (c) of this Article III, written notice, other than notice by electronic transmission, if in a comprehensible form, is effective at the earliest of the following: (1) when received; (2) five days after its deposit in the United States mail, if mailed postpaid and correctly addressed; (3) on the date shown on the return receipt, if sent by registered or certified mail, return receipt requested; or if sent by messenger or delivery service, on the date shown on the return receipt signed by or on behalf of the addressee; or (4) on the date of publication if notice by publication is permitted.

(f) Oral notice is effective when communicated if communicated in a comprehensible manner.

ARTICLE IV

OFFICERS

4.1. Enumeration. The Corporation shall have a President, a Treasurer, a Secretary and such other officers as may be appointed by the Board of Directors from time to time in accordance with these By-Laws, including, but not limited to, a Chief Executive Officer and one or more Vice Presidents, Assistant Treasurers and Assistant Secretaries.

4.2. Appointment. The officers shall be appointed by the Board of Directors. A duly appointed officer may appoint one or more officers or assistant officers if authorized by the Board of Directors. Each officer has the authority and shall perform the duties set forth in these By-Laws or, to the extent consistent with these By-Laws, the duties prescribed by the Board of Directors or by direction of an officer authorized by the Board of Directors to prescribe the duties of other officers. The appointment of an officer shall not itself create contract rights.

4.3. Qualification. The same individual may simultaneously hold more than one office in the Corporation. No officer need be a stockholder.

4.4. Tenure. Except as otherwise provided by law, the Articles of Organization or these By-Laws, each officer shall hold office until his or her successor is duly appointed, unless a different term is specified in the vote appointing him or her, or until his or her earlier death, resignation or removal.

4.5. Resignation. An officer may resign at any time by delivering notice of the resignation to the Corporation. A resignation is effective when the notice is delivered unless the notice specifies a later effective date. If a resignation is made effective at a later date and the Corporation accepts the future effective date, the Board of Directors may fill the pending vacancy before the effective date if the Board of Directors provides that the successor shall not take office until the effective date. An officer's resignation shall not affect the Corporation's contract rights, if any, with the officer.

4.6. Removal. The Board of Directors may remove any officer at any time with or without cause. An officer's removal shall not affect the officer's contract rights, if any, with the Corporation.

4.7. Vacancies. The Board of Directors may fill any vacancy occurring in any office for any reason and may, in its discretion, leave unfilled for such period as it may determine any offices other than those of President, Treasurer and Secretary. Each such successor shall hold office for the unexpired term of his or her predecessor and until his or her successor is duly appointed, or until he or she sooner dies, resigns or is removed.

4.8. President; Chief Executive Officer. Unless the Board of Directors has designated another person as Chief Executive Officer, the President shall be the Chief Executive Officer. The Chief Executive Officer shall have general charge and supervision of the business of the Corporation, subject to the direction of the Board of Directors. The President shall perform such other duties and shall have such other powers as the Board of Directors or the Chief Executive Officer (if the President is not the Chief Executive Officer) may from time to time prescribe. In the event of the absence, inability or refusal to act of the Chief Executive Officer or the President (if the President is not the Chief Executive Officer), the Vice President (or, if there shall be more than one, the Vice Presidents in the order determined by the Board of Directors) shall perform the duties of the Chief Executive Officer and, when so performing such duties, shall have all the powers of and be subject to all the restrictions upon, the Chief Executive Officer.

4.9. Vice Presidents. Any Vice President shall perform such duties and shall possess such powers as the Board of Directors, the Chief Executive Officer or the President may from time to time prescribe. The Board of Directors may assign to any Vice President the title Executive Vice President, Senior Vice President or any other title selected by the Board of Directors.

4.10. Treasurer and Assistant Treasurers. The Treasurer shall perform such duties and shall have such powers as may from time to time be assigned to him or her by the Board of Directors, the Chief Executive Officer or the President. In addition, the Treasurer shall perform such duties and have such powers as are incident to the office of treasurer, including without limitation the duty and power to keep and be responsible for all funds and securities of the Corporation, to deposit funds of the Corporation in depositories, to disburse such funds as ordered by the Board of Directors, the Chief Executive Officer or the President, to make proper accounts of such funds, and to render as required by the Board of Directors, the Chief Executive Officer or the President statements of all such transactions and of the financial condition of the Corporation.

Any Assistant Treasurer shall perform such duties and possess such powers as the Board of Directors, the Chief Executive Officer, the President or the Treasurer may from time to time prescribe. In the event of the absence, inability or refusal to act of the Treasurer, the Assistant Treasurer (or if there shall be more than one, the Assistant Treasurers in the order determined by the Board of Directors) shall perform the duties and exercise the powers of the Treasurer.

4.11. Secretary and Assistant Secretaries. The Secretary shall perform such duties and shall possess such powers as the Board of Directors, the Chief Executive Officer or the President

may from time to time prescribe. In addition, the Secretary shall perform such duties and shall have such powers as are incident to the office of the secretary, including without limitation the duty and power to give notices of all meetings of stockholders and Directors, to attend all meetings of stockholders and Directors, to prepare minutes of the meetings of stockholders and Directors, to authenticate the records of the Corporation, to maintain a stock ledger and prepare lists of stockholders and their addresses as required, to be custodian of corporate records and the corporate seal and to affix and attest to the same on documents.

Any Assistant Secretary shall perform such duties and possess such powers as the Board of Directors, the Chief Executive Officer, the President or the Secretary may from time to time prescribe. In the event of the absence, inability or refusal to act of the Secretary, the Assistant Secretary (or if there shall be more than one, the Assistant Secretaries in the order determined by the Board of Directors) shall perform the duties and exercise the powers of the Secretary.

In the absence of the Secretary or any Assistant Secretary at any meeting of stockholders or Directors, the person presiding at the meeting shall designate a temporary secretary to prepare the minutes of the meeting.

4.12. Salaries. Officers of the Corporation shall be entitled to such salaries, compensation or reimbursement as shall be fixed or allowed from time to time by the Board of Directors.

4.13. Standard of Conduct for Officers. An officer shall discharge his or her duties: (a) in good faith; (b) with the care that a person in a like position would reasonably exercise under similar circumstances; and (c) in a manner the officer reasonably believes to be in the best interests of the Corporation. In discharging his or her duties, an officer who does not have knowledge that makes reliance unwarranted is entitled to rely on information, opinions, reports or statements, including financial statements and other financial data, if prepared or presented by: (1) one or more officers or employees of the Corporation whom the officer reasonably believes to be reliable and competent with respect to the information, opinions, reports or statements presented; or (2) legal counsel, public accountants or other persons retained by the Corporation as to matters involving skills or expertise the officer reasonably believes are matters (i) within the particular person's professional or expert competence or (ii) as to which the particular person merits confidence. An officer shall not be liable to the Corporation or its stockholders for any decision to take or not to take any action taken, or any failure to take any action, as an officer, if the duties of the officer are performed in compliance with this Section 4.13.

ARTICLE V

PROVISIONS RELATING TO SHARES

5.1. Issuance and Consideration. The Board of Directors may issue the number of shares of each class or series authorized by the Articles of Organization. The Board of Directors may authorize shares to be issued for consideration consisting of any tangible or intangible property or benefit to the Corporation, including cash, promissory notes, services performed, contracts for services to be performed, or other securities of the Corporation. Before the

Corporation issues shares, the Board of Directors shall determine that the consideration received or to be received for shares to be issued is adequate. The Board of Directors shall determine the terms upon which the rights, options or warrants for the purchase of shares or other securities of the Corporation are issued and the terms, including the consideration, for which the shares or other securities are to be issued.

5.2. Share Certificates. If shares are represented by certificates, at a minimum each share certificate shall state on its face: (a) the name of the Corporation and that it is organized under the laws of The Commonwealth of Massachusetts; (b) the name of the person to whom issued; and (c) the number and class of shares and the designation of the series, if any, the certificate represents. Every certificate for shares of stock that are subject to any restriction on the transfer or registration of transfer of such shares pursuant to the Articles of Organization, these By-Laws, an agreement among stockholders or an agreement among stockholders and the Corporation, shall have conspicuously noted on the front or back of such certificate the existence of such restrictions. If different classes of shares or different series within a class are authorized, then the variations in rights, preferences and limitations applicable to each class and series, and the authority of the Board of Directors to determine variations for any future class or series, must be summarized on the front or back of each certificate. Alternatively, each certificate may state conspicuously on its front or back that the Corporation will furnish the stockholder this information on request in writing and without charge. Each share certificate shall be signed, either manually or in facsimile, by the Chief Executive Officer, the President or a Vice President and by the Treasurer or an Assistant Treasurer or the Secretary or an Assistant Secretary, or any two officers designated by the Board of Directors, and may bear the corporate seal or its facsimile. If the person who signed, either manually or in facsimile, a share certificate no longer holds office when the certificate is issued, the certificate shall be nevertheless valid.

5.3. Uncertificated Shares. The Board of Directors may authorize the issue of some or all of the shares of any or all of the Corporation's classes or series without certificates. The authorization shall not affect shares already represented by certificates until they are surrendered to the Corporation. Within a reasonable time after the issue or transfer of shares without certificates, the Corporation shall send the stockholder a written statement of the information required by the MBCA to be on certificates.

5.4. Transfers; Record and Beneficial Owners. Subject to the restrictions, if any, stated or noted on the stock certificates, shares of stock may be transferred on the books of the Corporation by the surrender to the Corporation or its transfer agent of the certificate representing such shares properly endorsed or accompanied by a written assignment or power of attorney properly executed, and with such proof of authority or the authenticity of signature as the Corporation or its transfer agent may reasonably require. The Corporation shall be entitled to treat the record holder of shares as shown on its books as the owner of such shares for all purposes, including the payment of dividends and other distributions and the right to vote with respect thereto, regardless of any transfer, pledge or other disposition of such shares until the shares have been transferred on the books of the Corporation in accordance with the requirements of these By-Laws. Notwithstanding anything to the contrary herein, to the extent the Board of Directors has established a procedure by which the beneficial owner of shares that are registered in the name of a nominee will be recognized by the Corporation as a stockholder,

the Corporation shall be entitled to treat the beneficial owner of shares as the stockholder to the extent of the rights granted by a nominee certificate on file with the Corporation.

5.5. Replacement of Certificates. The Board of Directors may, subject to applicable law, determine the conditions upon which a new share certificate may be issued in place of any certificate alleged to have been lost, destroyed or wrongfully taken. The Board of Directors may, in its discretion, require the owner of such share certificate, or his or her legal representative, to give a bond, sufficient in its opinion, with or without surety, to indemnify the Corporation against any loss or claim which may arise by reason of the issue of the new certificate.

ARTICLE VI

CORPORATE RECORDS

6.1. Records to be Kept.

(a) The Corporation shall keep as permanent records minutes of all meetings of its stockholders and Board of Directors, a record of all actions taken by the stockholders or Board of Directors without a meeting, and a record of all actions taken by a committee of the Board of Directors in place of the Board of Directors on behalf of the Corporation. The Corporation shall maintain appropriate accounting records. The Corporation or its agent shall maintain a record of its stockholders, in a form that permits preparation of a list of the names and addresses of all stockholders, in alphabetical order by class of shares showing the number and class of shares held by each. The Corporation shall maintain its records in written form or in another form capable of conversion into written form within a reasonable time.

(b) The Corporation shall keep within The Commonwealth of Massachusetts a copy of the following records at its principal office or an office of its transfer agent or of its Secretary or Assistant Secretary or of its registered agent:

- (1) its Articles or Restated Articles of Organization and all amendments to them currently in effect;
- (2) its By-Laws or Restated By-Laws and all amendments to them currently in effect;
- (3) resolutions adopted by its Board of Directors creating one or more classes or series of shares, and fixing their relative rights, preferences and limitations, if shares issued pursuant to those resolutions are outstanding;
- (4) the minutes of all stockholders' meetings, and records of all action taken by stockholders without a meeting, for the past three years;
- (5) all written communications to stockholders generally within the past three years, including the financial statements furnished under Section 16.20 of the MBCA, or any successor Section thereto, for the past three years;

(6) a list of the names and business addresses of its current Directors and officers; and

(7) its most recent annual report delivered to the Massachusetts Secretary of State.

6.2. Inspection of Records by Stockholders.

(a) A stockholder is entitled to inspect and copy, during regular business hours at the office where they are maintained pursuant to Section 6.1(b) of these By-Laws, copies of any of the records of the Corporation described in said Section 6.1(b) if he or she gives the Corporation written notice of his or her demand at least five business days before the date on which he or she wishes to inspect and copy.

(b) A stockholder is entitled to inspect and copy, during regular business hours at a reasonable location specified by the Corporation, any of the following records of the Corporation if the stockholder meets the requirements of subsection (c) of this Section 6.2 and gives the Corporation written notice of his or her demand at least five business days before the date on which he or she wishes to inspect and copy:

(1) excerpts from minutes reflecting action taken at any meeting of the Board of Directors, records of any action of a committee of the Board of Directors while acting in place of the Board of Directors on behalf of the Corporation, minutes of any meeting of the stockholders, and records of action taken by the stockholders or Board of Directors without a meeting, to the extent not subject to inspection under subsection (a) of this Section 6.2;

(2) accounting records of the Corporation, but if the financial statements of the Corporation are audited by a certified public accountant, inspection shall be limited to the financial statements and the supporting schedules reasonably necessary to verify any line item on those statements; and

(3) the record of stockholders described in Section 6.1(a) of these By-Laws.

(c) A stockholder may inspect and copy the records described in subsection (b) of this Section 6.2 only if:

(1) his or her demand is made in good faith and for a proper purpose;

(2) he or she describes with reasonable particularity his or her purpose and the records he or she desires to inspect;

(3) the records are directly connected with his or her purpose; and

(4) the Corporation shall not have determined in good faith that disclosure of the records sought would adversely affect the Corporation in the conduct of its business or, in the case of a public corporation, constitutes material non-public information at the

time when the stockholder's notice of demand to inspect and copy is received by the Corporation.

(d) For purposes of this Section 6.2, "stockholder" includes a beneficial owner whose shares are held in a voting trust or by a nominee on his or her behalf.

6.3. Scope of Inspection Right.

(a) A stockholder's agent or attorney has the same inspection and copying rights as the stockholder represented.

(b) The Corporation may, if reasonable, satisfy the right of a stockholder to copy records under Section 6.2 of these By-Laws by furnishing to the stockholder copies by photocopy or other means chosen by the Corporation, including copies furnished through an electronic transmission.

(c) The Corporation may impose a reasonable charge, covering the costs of labor, material, transmission and delivery, for copies of any documents provided to the stockholder. The charge may not exceed the estimated cost of production, reproduction, transmission or delivery of the records.

(d) The Corporation may comply at its expense with a stockholder's demand to inspect the record of stockholders under clause (3) of subsection (b) of Section 6.2 of these By-Laws by providing the stockholder with a list of stockholders that was compiled no earlier than the date of the stockholder's demand.

(e) The Corporation may impose reasonable restrictions on the use or distribution of records by the demanding stockholder.

6.4. Inspection of Records by Directors. A Director is entitled to inspect and copy the books, records and documents of the Corporation at any reasonable time to the extent reasonably related to the performance of the Director's duties as a Director, including duties as a member of a committee, but not for any other purpose or in any manner that would violate any duty to the Corporation.

ARTICLE VII

MISCELLANEOUS

7.1. Fiscal Year. Except as otherwise determined from time to time by the Board of Directors, the fiscal year of the Corporation shall in each year end on December 31.

7.2. Seal. The seal of the Corporation shall, subject to alteration by the Board of Directors, bear the Corporation's name, the word "Massachusetts" and the year of its incorporation.

7.3. Voting of Securities. Except as the Board of Directors may otherwise designate, the Chief Executive Officer, President or Treasurer may waive notice of, and act as, or appoint

any person or persons to act as, proxy or attorney-in-fact for the Corporation (with or without power of substitution) at, any meeting of stockholders of any other corporation or organization, the securities of which may be held by the Corporation.

7.4. Checks, Notes, Drafts and Other Instruments. Checks, notes, drafts and other instruments for the payment of money drawn or endorsed in the name of the Corporation may be signed by any officer or officers or person or persons authorized by the directors to sign the same. No officer or person shall sign any such instrument as aforesaid unless authorized by the directors to do so.

7.5. Evidence of Authority. A certificate by the Secretary, an Assistant Secretary or a temporary Secretary as to any action taken by the stockholders, Directors, any committee or any officer or representative of the Corporation shall as to all persons who rely on the certificate in good faith be conclusive evidence of such action.

7.6. Articles of Organization. All references in these By-Laws to the Articles of Organization shall be deemed to refer to the Articles of Organization of the Corporation, as amended and in effect from time to time.

7.7. Severability. Any determination that any provision of these By-Laws is for any reason inapplicable, illegal or ineffective shall not affect or invalidate any other provision of these By-Laws.

7.8. Pronouns. All pronouns used in these By-Laws shall be deemed to refer to the masculine, feminine or neuter, singular or plural, as the identity of the person or persons may require.

7.9. Massachusetts Control Share Acquisition Act. The provisions of Chapter 110D of the Massachusetts General Laws shall not apply to the Corporation.

7.10. Interpretation. All references to “Section 50A of the Massachusetts Business Corporation Law, as it may be amended from time to time” or “such Section 50A” are deemed to include Section 8.06 of the MBCA.

ARTICLE VIII

AMENDMENTS

These By-Laws may be amended by vote of the holders of at least sixty-six and two-thirds percent (66 2/3%) of the shares of each class of the capital stock at the time outstanding and entitled to vote at any annual or special meeting of stockholders, if notice of the substance of the proposed amendment is stated in the notice of such meeting. If authorized by the Articles of Organization, the Board of Directors, by a majority of their number then in office, may also make, amend or repeal these By-Laws, in whole or in part, except with respect to (a) the provisions of these By-Laws governing (i) the removal of directors and (ii) the amendment of these By-Laws and (b) any provision of these By-Laws which by law, the Articles of Organization or these By-Laws requires action by the stockholders.

Not later than the time of giving notice of the meeting of stockholders next following the making, amending or repealing by the Board of Directors of any By-Law, notice stating the substance of such change shall be given to all stockholders entitled to vote on amending the By-Laws.

Approved as Amended and Restated by the
Board of Directors on May 5, 2014