

**BY-LAWS
OF
AXCELIS TECHNOLOGIES, INC.**

Effective on May 13, 2014

ARTICLE I STOCKHOLDERS

SECTION 1.1. Place of Meetings. All meetings of stockholders shall be held at the principal office of the corporation or at such other place as may be named in the notice.

SECTION 1.2. Annual Meeting. The annual meeting of stockholders for the election of directors and the transaction of such other business as may properly come before the meeting shall be held on such date and at such hour and place as the directors or an officer designated by the directors may determine. If the annual meeting is not held on the date designated therefor, the directors shall cause the meeting to be held as soon thereafter as convenient.

SECTION 1.3. Special Meetings. Special meetings of the stockholders may be called at any time by the Chairman of the Board, the Chief Executive Officer, or by the Board of Directors. Business conducted at a special meeting of stockholders shall be limited to the purpose or purposes of the meeting as stated in the notice of such meeting given by the person calling such special meeting. Any previously scheduled special meeting of stockholders may be rescheduled or canceled by the Board of Directors.

SECTION 1.4. Notice of Meetings. Except where some other notice is required by law, written notice of each meeting of stockholders, stating the place, date and hour thereof and the purposes for which the meeting is called, shall be given by the Secretary not less than ten nor more than sixty days before the date fixed for such meeting, to each stockholder of record entitled to vote at such meeting. Notice shall be given personally to each stockholder or left at his or her residence or usual place of business or mailed postage prepaid and addressed to the stockholder at his or her address as it appears upon the records of the corporation. In case of the death, absence, incapacity or refusal of the Secretary, such notice may be given by a person designated either by the Secretary or by the person or persons calling the meeting or by the Board of Directors. A waiver of such notice in writing, signed by the person or persons entitled to said notice, whether before or after the time stated therein, shall be deemed equivalent to such notice. Attendance of a person at a meeting of stockholders shall constitute a waiver of notice of such meeting, except when the stockholder attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Neither the business to be transacted at, nor the purpose of, any regular or special meeting of the stockholders need be specified in any written waiver of notice. Except as required by statute, notice of any adjourned meeting of the stockholders shall not be required.

SECTION 1.5. Record Date. The Board of Directors may fix in advance a record date for the determination of the stockholders entitled to notice of or to vote at any meeting of stockholders, or entitled to receive payment of any dividend or other distribution or allotment of any rights, or entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action. Such record date shall not be more than 60 nor less than 10 days before the date of such meeting, nor more than 60 days before any other action to which such record date relates. If no record date is fixed, the record date for determining stockholders entitled to notice of or to vote at a meeting of stockholders shall be at the close of business on the day before the day on which notice is given, or, if notice is waived, at the close of business on the day before the day on which the meeting is

held, and the record date for determining stockholders for any other purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating to such purpose. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; provided, however, that the Board of Directors may fix a new record date for the adjourned meeting.

SECTION 1.6. Nomination of Directors.

(a) Only persons who are nominated in accordance with the following procedures shall be eligible for election as directors at any annual or special meeting of stockholders. Nominations of persons for election as directors may be made only by or at the direction of the Board of Directors, or by a qualifying stockholder at any annual meeting of stockholders or at any special meeting for which the election of directors is a purpose specified in the notice of meeting given by the person calling the special meeting. A nomination by a qualifying stockholder may be made only pursuant to timely notice in proper written form to the Secretary. To be in proper form, such stockholder's notice shall set forth:

(i) as to each person whom the stockholder proposes to nominate for election or re-election as a director:

(A) the name, age, business address and residence address of the person,

(B) the principal occupation or employment of the person,

(C) the class and number of shares of capital stock of the corporation that are, directly or indirectly, owned, beneficially or of record, by the person and/or the person's affiliates and associates,

(D) 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 nominating stockholder, each other beneficial owner of the corporation's capital stock, 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 any such other 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 Securities and Exchange Commission ("SEC") Regulation S-K if the nominating stockholder and any such beneficial owner 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 of such registrant, and

(E) any other information relating to the proposed nominee and his or her affiliates and associates that is required to be disclosed in solicitations for proxies for election of directors pursuant to Regulation 14A under the Securities Exchange Act of 1934, as amended (the "Exchange Act"); and

(ii) as to the nominating stockholder and each beneficial owner, if any, on whose behalf the nomination is being made:

(A) the name, address and principal occupation or business activity of such stockholder and each such beneficial owner,

(B) the class, series, and number of shares of capital stock of the corporation that are, directly or indirectly, owned, beneficially or of record, by such stockholder and each such beneficial owner and their respective affiliates and associates,

(C) a description of any agreement, arrangement or understanding between or among such stockholder and/or such beneficial owner and/or their respective affiliates and associates and each proposed nominee, the nominee's affiliates and associates and any other person or persons (including their names) pursuant to which the nomination(s) are being made or who may participate in the solicitation of proxies in favor of electing such nominee(s),

(D) a description of any agreement, arrangement or understanding (including any derivative or short positions, swaps, profits 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 any such beneficial owner, or any of their respective affiliates and associates, 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 any such beneficial owner or any of their respective affiliates and associates with respect to shares of stock of the corporation,

(E) a description of any material pending or threatened legal proceeding in which such stockholder or any such beneficial owner or any of their respective affiliates and associates is a party or material participant involving the corporation or any affiliate of the corporation,

(F) any other material relationship between such stockholder or any such beneficial owner or any of their respective affiliates and associates, on the one hand, and the corporation, any affiliate of the corporation, or any principal competitor of the corporation, on the other hand,

(G) any direct or indirect material interest of such stockholder or any such beneficial owner or any of their respective affiliates and associates in any material contract or agreement with the corporation, any affiliate of the corporation or any principal competitor of the corporation (the information called for by clauses (D) through (G) is referred to hereinafter as the "Stockholder Information"),

(H) any other information relating to such stockholder and any such beneficial owner and their respective affiliates and associates 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,

(I) a representation that such stockholder is entitled to vote for the election of directors at the meeting and intends to appear in person or by proxy at the meeting to nominate the person(s) named in its notice, and

(J) a representation whether such stockholder and/or any such beneficial owner intends or is part of a group that 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 reasonably believed by such stockholder or such beneficial owner to be sufficient 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 solicitation materials).

The foregoing notwithstanding, the Stockholder Information need not be provided with respect to the ordinary course business activities of any broker, dealer, bank, or other nominee who is a nominating stockholder solely as a result of being the stockholder directed to prepare and submit the notice required by these by-laws on behalf of a beneficial owner. A stockholder shall not have complied with this Section 1.6 if the stockholder (or any beneficial owner 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 made pursuant to the foregoing clause (J).

(b) To be eligible to be a nominee for election or reelection as a director of the corporation, a person must deliver timely notice to the Secretary of the corporation at the principal executive offices of the corporation his or her written consent to serve as a director if elected and a written questionnaire with respect to his or her background and qualification (which questionnaire shall be provided by the Secretary upon written request) and a written representation and agreement (in the form provided by the Secretary upon written request) that he or she

(i) is not and will not become a party to (A) any agreement, arrangement or understanding with, and has not given any commitment or assurance to, any person or entity as to how he or she, if elected as a director of the corporation, will act or vote on any issue or question (a "Voting Commitment") that has not been disclosed to the corporation or (B) any Voting Commitment that could limit or interfere with his or her ability to comply, if elected as a director of the corporation, with his or her fiduciary duties under applicable law,

(ii) is not and will not become a party to any agreement, arrangement or understanding with any person or entity other than the corporation with respect to any direct or indirect compensation, reimbursement or indemnification in connection with service or action as a director that has not been disclosed therein, and

(iii) in his or her individual capacity and on behalf of any person or entity on whose behalf the nomination is being made, would be in compliance, if elected as a director of the corporation, and will comply with, applicable law and all applicable publicly disclosed corporate governance, conflict of interest, corporate opportunities, confidentiality and stock ownership and trading policies and guidelines of the corporation.

The corporation may require any proposed nominee to furnish such other information as the corporation may reasonably require to determine the eligibility of such proposed nominee to serve as a director of the corporation or whether such nominee would be independent under applicable SEC and stock exchange listing standards and the corporation's publicly disclosed corporate governance guidelines.

(c) Not later than each of (i) five days after the record date for the meeting and (ii) eight days before the meeting, the nominating stockholder and the proposed nominee shall supplement the information required by Section 1.6(a)(i), clauses (A)-(H) of Section 1.6(a)(ii), and Section 1.6(b), as applicable, by providing to the Secretary at the principal executive offices of the corporation updated information current as of the record date and as of the tenth day before the meeting, respectively.

(d) The chairman of the meeting shall, if the facts warrant, determine and declare to the meeting that a nomination was not made in accordance with the foregoing procedure, and if the chairman should so determine, he or she shall so declare to the meeting and the defective nomination shall be disregarded.

(e) For purposes of Sections 1.6 and 1.7 of these by-laws:

(i) a “qualifying stockholder” is a stockholder who (A) is entitled to vote at the meeting for the election of directors or the proposed business, as applicable, (B) is present in person at the meeting (or, if the stockholder is not an individual, is represented at the meeting by an individual duly authorized by a written proxy provided to the corporation at the meeting), (C) was a beneficial owner of shares of the corporation both at the time of giving the required notice and at the time of the meeting, and (D) has complied with the notice procedures set forth in this Section 1.6 or in Section 1.7, as applicable;

(ii) “timely notice” shall mean that the stockholder's notice is delivered to or mailed and received at the principal executive offices of the corporation (A) in the case of an annual meeting, not less than 90 days nor more than 120 days before the first anniversary of the preceding year’s annual meeting; provided, however, that in the event the date of the meeting is more than 30 days before or more than 60 days after such anniversary, the stockholder's notice must be so received not earlier than the close of business on the 120th day before such annual meeting and not later than the close of business on the later of (1) the 90th day before such annual meeting and (2) the tenth day following the day on which public disclosure of the date of the meeting is first made or (B) in the case of a special meeting, not earlier than the 120th day before such special meeting and not later than the close of business on the later of (1) the 90th day before the date of such special meeting and (2) if the first public disclosure of the date of such special meeting is less than 100 days before the date of such special meeting, the tenth day following the day on which public disclosure of the date of the meeting is first made; provided that, in no event shall any adjournment or postponement of an annual or special meeting or the announcement thereof commence a new time period (or extend any time period) for the giving of a stockholder's notice as described above:

(iii) “beneficial” ownership of securities has the meaning given in Rule 13d-3 under the Exchange Act but shall include all securities of which the respective person has a right to acquire beneficial ownership at any time in the future; and

(iii) “public disclosure” of the date of a stockholders meeting shall mean disclosure of such date in any of a mailing to stockholders, a press release reported by a national news service, or a document publicly filed by the corporation with the SEC pursuant to any of Sections 13, 14 or 15(d) of the Exchange Act.

SECTION 1.7. Advance Notice of Business at Annual Meetings.

(a) At an annual meeting of the stockholders, only such business shall be conducted as shall have been properly brought before the meeting. To be brought properly before an annual meeting, business (other than the nomination of a person for election as a director, which is governed by Section 1.6) must be either (i) specified in the notice of meeting (or any supplement thereto) given by or at the direction of the Chief Executive Officer, President or the Board of Directors, (ii) otherwise properly brought before the meeting by or at the direction of the Board, or (iii) otherwise properly brought before the meeting by a qualifying stockholder.

(b) In addition to any other applicable requirements, for business to be brought properly before an annual meeting by a stockholder, the business must constitute a proper matter under Delaware law for stockholder action and the proposing stockholder must have given timely notice thereof in proper written form to the Chairman of the Board, if any, the Chief Executive Officer, the President or the Secretary. To be in proper form, such stockholder’s notice shall set forth:

(i) as to each matter the stockholder proposes to bring before the annual meeting: (A) a brief description of the business desired to be brought before the annual meeting, (B) the text of the proposal (including the exact text of any resolution(s) 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 (C) the reasons for conducting such business at the annual meeting, and

(ii) as to the proposing stockholder and each beneficial owner, if any, on whose behalf the proposal is being made:

(A) the name, address and principal occupation or business activity of such stockholder and each such beneficial owner,

(B) the class, series, and number of shares of capital stock of the corporation that are, directly or indirectly, owned, beneficially or of record, by such stockholder and each such beneficial owner and their respective affiliates and associates,

(C) a description of any material interest of such stockholder and of any such beneficial owner and the respective affiliates and associates of, or others acting in concert with, such stockholder or such beneficial owner in the business desired to be brought before the annual meeting,

(D) 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,

(E) the Stockholder Information,

(F) any other information relating to such stockholder and any 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 Exchange Act and the rules and regulations promulgated thereunder,

(G) a representation that such stockholder is entitled to vote on the proposed business at the meeting and intends to appear in person or by proxy at the meeting to bring such business before the meeting, and

(H) a representation whether such stockholder and/or any such beneficial owner intends or is part of a group that 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 reasonably believed by such stockholder or such beneficial owner to be sufficient 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).

The foregoing notwithstanding, the information required by clauses (D) and (E) need not be provided with respect to the ordinary course business activities of any broker, dealer, bank, or other nominee who is a nominating stockholder solely as a result of being the stockholder directed to prepare and submit the notice required by these by-laws on behalf of a beneficial owner. A stockholder shall not have complied with this Section 1.7 if the stockholder (or any beneficial owner 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 made pursuant to the foregoing clause (H).

(c) Not later than each of (i) five days after the record date for the meeting and (ii) eight days before the meeting, the proposing stockholder shall supplement the information required by Section 1.7(b)(i) and clauses (A)-(F) of Section 1.7(b)(ii) by providing to the Secretary at the principal executive offices of the corporation updated information current as of the record date and as of the tenth day before the meeting, respectively.

(d) Notwithstanding anything in these by-laws to the contrary, no business shall be conducted at the annual meeting except in accordance with the procedures set forth in this Section 1.7, provided, however, that (i) any stockholder proposal that 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 1.7 and (ii) nothing in this Section 1.7 shall be deemed to preclude discussion by any stockholder of any business properly brought before the annual meeting in accordance with said procedure.

(e) The chairman of an annual meeting shall, if the facts warrant, determine and declare to the meeting that business was not properly brought before the meeting in accordance with the provisions of this Section 1.7, and if the chairman should so determine, he or she shall so declare to the meeting and any such business not properly brought before the meeting shall not be transacted.

SECTION 1.8. Voting List. The officer who has charge of the stock ledger of the corporation shall make or have made, at least 10 days before every meeting of stockholders, a complete list of the stockholders, arranged in alphabetical order and showing the address of each stockholder and the number of shares registered in the name of each stockholder. Such list shall be open to the examination of any stockholder for any purpose germane to the meeting, during ordinary business hours, for a period of at least 10 days before the meeting, either at a place within the city where the meeting is to be held, which place shall be specified in the notice of the meeting, or if not so specified, at the place where the meeting is to be held. The list shall also be produced and kept at the time and place of the meeting during the whole time thereof, and may be inspected by any stockholder who is present. The stock ledger shall be the only evidence as to who are the stockholders entitled to examine the stock ledger, the list required by this section or the books of the corporation, or to vote at any meeting of stockholders.

SECTION 1.9. Quorum of Stockholders. At any meeting of the stockholders, the holders of a majority in interest of all stock issued and outstanding and entitled to vote upon a question to be considered at the meeting, present in person or represented by proxy, shall constitute a quorum for the consideration of such question, but in the absence of a quorum a smaller group may adjourn any meeting from time to time. When a quorum is present at any meeting, a majority of the votes properly cast shall, except where a different vote is required by law, by the Certificate of Incorporation or by these by-laws, decide any question brought before such meeting. Any election by stockholders shall be determined by a plurality of the votes cast by the stockholders entitled to vote at the election.

SECTION 1.10. Proxies and Voting. Unless otherwise provided in the Certificate of Incorporation, each stockholder shall at every meeting of the stockholders be entitled to one vote in person or by proxy for each share of the capital stock held of record by such stockholder, but no proxy shall be voted or acted upon after three years from its date, unless said proxy provides for a longer period. Persons holding stock in a fiduciary capacity shall be entitled to vote the shares so held, and persons whose stock is pledged shall be entitled to vote unless in the transfer by the pledgor on the books of the corporation the pledgee shall have been expressly empowered to vote thereon, in which case only the pledgee or the pledgee's proxy may represent said stock and vote thereon. Shares of the capital stock of the corporation belonging to the corporation or to another corporation, a majority of whose shares entitled

to vote in the election of directors is owned by the corporation, shall neither be entitled to vote nor be counted for quorum purposes.

SECTION 1.11. Conduct of Meeting. Meetings of the stockholders shall be presided over by one of the following officers in the order specified and if present and acting: the Chairman or, in the event of the Chairman's absence or disability, the Vice Chairman, if any, or, in the event of the Vice Chairman's absence or disability, the Chief Executive Officer, or in the event of such person's absence or disability, a presiding officer chosen by a majority of the Board of Directors. The Secretary of the corporation, if present, or an Assistant Secretary, shall act as secretary of every meeting, but if neither the Secretary nor an Assistant Secretary is present the chairman of the meeting shall appoint a secretary of the meeting.

The Board of Directors may adopt such rules, regulations and procedures for the conduct of the meeting of stockholders as it shall deem appropriate. Except to the extent inconsistent with such rules and regulations as adopted by the Board of Directors, the chairman of the meeting 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, (i) the establishment of an agenda or order of business for the meeting, (ii) rules and procedures for maintaining order at the meeting and the safety of those present, (iii) limitations on attendance at or participation in the meeting to stockholders of record of the corporation, their duly authorized and constituted proxies or such other persons as the chairman of the meeting shall determine, (iv) restrictions on entry to the meeting after the time fixed for the commencement thereof, and (v) 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.

ARTICLE II DIRECTORS

SECTION 2.1. General Powers. The business and affairs of the corporation shall be managed by or under the direction of a Board of Directors, who may exercise all of the powers of the corporation that are not by law required to be exercised by the stockholders. 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.

SECTION 2.2. Number; Election; Tenure and Qualification. Subject to any restrictions contained in the Certificate of Incorporation, the number of directors that shall constitute the whole Board shall be fixed by resolution of the Board of Directors. The directors shall be elected in the manner provided in the Certificate of Incorporation, by such stockholders as have the right to vote thereon. The number of directors may be increased or decreased by action of the Board of Directors. Directors need not be stockholders of the corporation.

SECTION 2.3. Enlargement of the Board. Subject to any restrictions contained in the Certificate of Incorporation, the number of the Board of Directors may be increased at any time, such increase to be effective immediately unless otherwise specified in the resolution, by vote of a majority of the directors then in office.

SECTION 2.4. Vacancies. Unless and until filled by the stockholders at an annual or special meeting called for the purpose and except as otherwise determined by the Board of Directors in establishing a series of Preferred Stock as to directors elected by the holders of such series, any vacancy

on the board of directors that results from an increase in the number of directors shall be filled only by a majority of the board of directors then in office, provided that a quorum is present, and any other vacancy occurring in the board of directors shall be filled by a majority of the directors then in office, even if less than a quorum, or by a sole remaining director. If at any time there are no directors in office, then an election of directors may be held in accordance with the General Corporation Law of the State of Delaware.

SECTION 2.5. Resignation. Any director may resign at any time upon written notice to the corporation. Such resignation shall take effect at the time specified therein, or if no time is specified, at the time of its receipt by the Chairman, the Chief Executive Officer or the Secretary.

SECTION 2.6. Removal. Directors may be removed from office only as provided in the Certificate of Incorporation. The vacancy or vacancies created by the removal of a director may be filled by the stockholders at the meeting held for the purpose of removal or, if not so filled, by the directors in the manner provided in Section 2.4 of Article II hereof.

SECTION 2.7. Committees. The Board of Directors may, by resolution or resolutions passed by a majority of the whole Board of Directors, designate one or more committees, each committee to consist of one or more directors of the corporation. The Board of Directors may designate one or more directors as alternate members of any committee to replace any absent or disqualified member at any meeting of the committee. In the absence or disqualification of any member of any such committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of such absent or disqualified member. The Board of Directors shall have the power to change the members of any such committee at any time, to fill vacancies therein and to discharge any such committee, either with or without cause, at any time.

Any such committee, to the extent permitted by law and to the extent provided in the resolution of the Board of Directors or in these by-laws, shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the corporation, and may authorize the seal of the corporation to be affixed to all papers that may require it.

A majority of all the members of any such committee may fix its rules of procedure, determine its action and fix the time and place, whether within or without the State of Delaware, of its meetings and specify what notice thereof, if any, shall be given, unless the Board of Directors shall otherwise by resolution provide. Each committee shall keep regular minutes of its meetings and make such reports as the Board of Directors may from time to time request.

SECTION 2.8. Meetings of the Board of Directors. Regular meetings of the Board of Directors may be held without call or formal notice at such places either within or without the State of Delaware and at such times as the Board may by vote from time to time determine. A regular meeting of the Board of Directors may be held without call or formal notice immediately after and at the same place as the annual meeting of the stockholders, or any special meeting of the stockholders at which a Board of Directors is elected.

Special meetings of the Board of Directors may be held at any place either within or without the State of Delaware at any time when called by the Chairman of the Board or, in the event of such person's absence or disability, by the Vice Chairman of the Board, if any, or, in the event of such person's absence or disability, by the Chief Executive Officer, or, in the event of such person's absence or disability, by the President or, in the event of such person's absence or disability, by a majority of the Board of Directors. Reasonable notice of the time and place of a special meeting shall be given to each director unless such

notice is waived by attendance or by written waiver in the manner provided in these by-laws for waiver of notice by stockholders. Notice may be given by, or by a person designated by, the Secretary, the person or persons calling the meeting, or the Board of Directors. No notice of any adjourned meeting of the Board of Directors shall be required. In any case it shall be deemed sufficient notice to a director to send notice by mail at least seventy-two hours, or by telegram or fax at least forty-eight hours, before the meeting, addressed to such director at his or her usual or last known business or home address.

Directors or members of any committee may participate in a meeting of the Board of Directors or of such committee by means of conference telephone or similar communications equipment by means of which all persons participating in the meeting can hear each other, and participation by such means shall constitute presence in person at such meeting.

SECTION 2.9. Quorum and Voting. A majority of the total number of directors shall constitute a quorum, except that when a vacancy or vacancies exist in the Board, a majority of the directors then in office (but not less than one-third of the total number of the directors) shall constitute a quorum. A majority of the directors present, whether or not a quorum is present, may adjourn any meeting from time to time. The vote of a majority of the directors present at any meeting at which a quorum is present shall be the act of the Board of Directors, except where a different vote is required by law, by the Certificate of Incorporation or by these by-laws.

SECTION 2.10. Compensation. The Board of Directors may fix fees for their services and for their membership on committees, and expenses of attendance may be allowed for attendance at each meeting. Nothing herein contained shall be construed to preclude any director from serving the corporation in any other capacity, as an officer, agent or otherwise, and receiving compensation therefor.

SECTION 2.11. Action Without Meeting. Any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting and without notice if a written consent thereto is signed by all members of the Board of Directors or of such committee, as the case may be, and such written consent is filed with the minutes of proceedings of the Board of Directors or of such committee.

ARTICLE III OFFICERS

SECTION 3.1. Number. The officers of the Corporation shall be chosen by the Board of Directors and may include, without limit, a Chairman of the Board of Directors, a Vice Chairman of the Board of Directors, a Chief Executive Officer, a President, one or more Vice Presidents, a Secretary, a Treasurer and such other officers as may be elected in accordance with Article III, Section 3.2 of these By-Laws. Any number of offices may be held by the same person. No officer need be a director of the Corporation. The Chairman of the Board of Directors shall be a non-executive position.

SECTION 3.2. Election. Unless otherwise determined by the Board of Directors, the officers of the Corporation shall be elected by the Board of Directors at the annual meeting of the Board of Directors, and shall be elected to hold office until the next succeeding annual meeting of the Board of Directors. Each officer shall hold office until his or her successor has been elected and qualified, or until his or her earlier death, resignation or removal.

SECTION 3.3. Compensation. 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 or any committee thereof appointed for the purpose.

SECTION 3.4. Removal and Resignation; Vacancies. Any officer may be removed for or without cause at any time by the Board of Directors. Any officer may resign at any time by delivering a written notice of resignation, signed by such officer, to the Board of Directors, the Chief Executive Officer, or the President. Unless otherwise specified therein, such resignation shall take effect upon delivery. Any vacancy occurring in any office of the Corporation by death, resignation, removal or otherwise, shall be filled by the Board of Directors.

SECTION 3.5. Authority and Duties of Officers. The officers of the Corporation shall have such authority and shall exercise such powers and perform such duties as may be specified in these By-Laws, except that in any event each officer shall exercise such powers and perform such duties as may be required by law.

SECTION 3.6. The Chairman. The Chairman, or, in the event of the Chairman's absence or disability, the Vice Chairman, or in the event of the Vice Chairman's absence or disability, a presiding officer chosen by a majority of the Board of Directors, shall preside at all meetings of the stockholders and of the Board of Directors and shall perform such other duties as may from time to time be assigned to the Chairman by the Board of Directors.

SECTION 3.7. The Vice Chairman. The Vice Chairman shall assist the Chairman and shall perform such other duties as may from time to time be assigned to the Vice Chairman by the Chairman or by the Board of Directors.

SECTION 3.8. The Chief Executive Officer. The Chief Executive Officer shall have general executive charge and control over the affairs of the Corporation, subject to the Board of Directors, shall see that all orders and resolutions of the Board of Directors are carried out, shall report thereon to the Board of Directors, and shall have such other powers and perform such other duties as shall be prescribed from time to time by the Board of Directors. In the absence of the President, the duties of the President shall be performed, and the President's powers may be exercised, by the Chief Executive Officer, or in the absence of the Chief Executive Officer, by such Vice President as shall be designated by the Chief Executive Officer, or failing such designation, such duties shall be performed and such powers may be exercised by each Vice President in the order described in Section 3.10, subject in any case to review and superseding action by the Chief Executive Officer.

SECTION 3.9. The President. The President shall have general and active management of the operations of the business of the Corporation, subject to the authority and direction of the Chief Executive Officer. The President shall have and exercise such further powers and duties as may be specifically delegated to or vested in the President from time to time by these By-Laws, the Chief Executive Officer or the Board of Directors. In the absence of the Chief Executive Officer, or in the event of the inability of or refusal to act by the Chief Executive Officer, or if the Board of Directors has not designated a Chief Executive Officer, the President shall perform the duties of the Chief Executive Officer, and, when so acting, shall have all of the powers and be subject to all of the restrictions upon the Chief Executive Officer.

SECTION 3.10. The Vice Presidents. Each Vice President shall perform such duties and exercise such powers as may be assigned to him or her from time to time by the Board of Directors, the Chief Executive Officer or the President.

In the case of a Vice President who is designated as the Chief Financial Officer, he or she shall perform such duties and exercise such powers as may be assigned to him or her from time to time by the Board of Directors or the Chief Executive Officer, including without limitation, the power and duty to render to the Board of Directors or the Chief Executive Officer, whenever requested, a statement of the financial condition of the Corporation, and to render a full financial report at the annual meeting of the stockholders, if called upon to do so, and to require from all officers or agents of the Corporation reports

or statements giving such information as he or she may desire with respect to any and all financial transactions of the Corporation.

The Board of Directors may assign to any Vice President the title of Executive Vice President, Senior Vice President or any other title selected by the Board of Directors. In the absence of the President or in the event of his or her inability or refusal to act, the duties of the President shall be performed by the Executive Vice-President, if any, Senior Vice President, if any, or Vice President, if any, in that order (and, in the event there be more than one person in any such office, in the order of their seniority), and when so acting, such officer shall have all the powers of and be subject to all the restrictions upon the President.

SECTION 3.11. Secretary and Assistant Secretaries. The Secretary shall attend all meetings of the Board of Directors and of the stockholders and record all the proceedings of such meetings in a book to be kept for that purpose, shall give, or cause to be given, notice of all meetings of the stockholders and special meetings of the Board of Directors, shall maintain, or cause to be maintained, a stock ledger and prepare, or cause to be prepared, lists of stockholders and their addresses as required and shall have custody of the corporate seal, which the Secretary or any Assistant Secretary shall have authority to affix to any instrument requiring it and attest by any of their signatures. The Board of Directors may give general authority to any other officer to affix and attest the seal of the corporation.

Any Assistant Secretary may, in the absence of the Secretary or in the event of the Secretary's inability or refusal to act, perform the duties and exercise the powers of the Secretary.

SECTION 3.12. Treasurer and Assistant Treasurers. The Treasurer shall have the custody of the corporate funds and securities, shall keep full and accurate accounts of receipts and disbursements in books belonging to the corporation and shall deposit all moneys and other valuable effects in the name and to the credit of the corporation in such depositories as may be designated by or pursuant to resolution of the Board of Directors. The Treasurer shall disburse the funds of the corporation upon the authorized depositories, taking proper vouchers for such disbursements.

Any Assistant Treasurer may, in the absence of the Treasurer or in the event of his or her inability or refusal to act, perform the duties and exercise the powers of the Treasurer.

SECTION 3.13. Additional Officers. The Board of Directors may appoint such other officers and agents as it may deem appropriate, and such other officers and agents shall hold their offices for such terms and shall exercise such powers and perform such duties as may be determined from time to time by the Board of Directors. The Board of Directors from time to time may delegate to any officer or agent the power to appoint subordinate officers or agents and to prescribe their respective rights, terms of office, authorities and duties. Any such officer or agent may remove any such subordinate officer or agent appointed by him or her, for or without cause.

ARTICLE IV STOCK

SECTION 4.1. Certificates of Stock. The shares of the corporation shall be represented by certificates or shall be uncertificated. Certificates for shares of stock, if any, shall be in such form as is consistent with the Certificate of Incorporation and applicable law. Each holder of stock represented by certificates shall be entitled to receive one or more stock certificates, signed by the Chairman or Vice-Chairman of the Board of Directors or by the President or a Vice President and by the Treasurer or an Assistant Treasurer or the Secretary or an Assistant Secretary, certifying the number of shares owned by the stockholder in certificated form.. Any or all signatures on any such certificates may be facsimiles. In case any officer, transfer agent or registrar who shall have signed or whose facsimile signature shall have

been placed upon a certificate shall have ceased to be such an officer, transfer agent or registrar before such certificate is issued, it may be issued by the corporation with the same effect as if he or she were such officer, transfer agent or registrar at the date of issue.

Each certificate for shares of stock that are subject to any restriction on transfer pursuant to the Certificate of Incorporation, the by-laws, applicable securities laws, or any agreement among any number of stockholders or among such holders and the corporation shall have conspicuously noted on the face or back of the certificate either the full text of the restriction or a statement of the existence of such restriction.

SECTION 4.2. Transfers of Shares of Stock. Subject to the restrictions, if any, stated or noted on the stock certificates or in uncertificated share registration records, 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, or, in the case of uncertificated shares, by notification to the corporation or its transfer agent of the transfer of such shares, accompanied by written authorization properly executed. The corporation shall be entitled to treat the record holder of stock as shown on its books as the owner of such stock for all purposes, including the payment of dividends and the right to vote with respect to that stock, regardless of any transfer, pledge or other disposition of that stock, until the shares have been transferred on the books of the corporation in accordance with the requirements of these by-laws.

SECTION 4.3. Lost Certificates. A new stock certificate may be issued in the place of any certificate theretofore issued by the corporation and alleged to have been lost, stolen, destroyed or mutilated, upon such terms in conformity with law as the Board of Directors shall prescribe. The directors may, in their discretion, require the owner of the lost, stolen, destroyed or mutilated certificate, or the owner's legal representatives, to give the corporation a bond, in such sum as they may direct, to indemnify the corporation against any claim that may be made against it on account of the alleged loss, theft, destruction or mutilation of any such certificate, or the issuance of any such new certificate.

SECTION 4.4. Fractional Share Interests. The corporation may, but shall not be required to, issue fractions of a share. If the corporation does not issue fractions of a share, it shall (i) arrange for the disposition of fractional interests by those entitled thereto, (ii) pay in cash the fair value of fractions of a share as of the time when those entitled to receive such fractions are determined, or (iii) issue scrip or warrants in registered or bearer form, which shall entitle the holder to receive a certificate for a full share upon the surrender of such scrip or warrants aggregating a full share. A certificate for a fractional share shall, but scrip or warrants shall not unless otherwise provided therein, entitle the holder to exercise voting rights, to receive dividends thereon, and to participate in any of the assets of the corporation in the event of liquidation. The Board of Directors may cause scrip or warrants to be issued subject to the conditions that they shall become void if not exchanged for certificates representing full shares before a specified date, or subject to the conditions that the shares for which scrip or warrants are exchangeable may be sold by the corporation and the proceeds thereof distributed to the holders of scrip or warrants, or subject to any other conditions that the Board of Directors may impose.

SECTION 4.5. Dividends. Subject to the provisions of the Certificate of Incorporation, the Board of Directors may, out of funds legally available therefor, at any regular or special meeting, declare dividends upon the capital stock of the corporation as and when they deem expedient.

ARTICLE V INDEMNIFICATION OF DIRECTORS AND OFFICERS

The corporation shall, to the extent legally permissible, indemnify each person who may serve or who has served at any time as a director or officer of the corporation or of any of its subsidiaries, or who at the request of the corporation may serve or at any time has served as a director, officer or trustee of, or in a similar capacity with, another organization or an employee benefit plan, against all expenses and liabilities (including counsel fees, judgments, fines, excise taxes, penalties and amounts payable in settlements) reasonably incurred by or imposed upon such person in connection with any threatened, pending or completed action, suit or other proceeding, whether civil, criminal, administrative or investigative, in which he may become involved by reason of his serving or having served in such capacity (other than a proceeding voluntarily initiated by such person unless he is successful on the merits, the proceeding was authorized by the corporation or the proceeding seeks a declaratory judgment regarding his own conduct); provided that no indemnification shall be provided for any such person with respect to any matter as to which he shall have been finally adjudicated in any proceeding not to have acted in good faith in the reasonable belief that his action was in the best interests of the corporation and, with respect to any criminal action or proceeding, he had reasonable cause to believe his conduct was unlawful or, to the extent such matter relates to service with respect to any employee benefit plan, in the best interests of the participants or beneficiaries of such employee benefit plan; and provided, further, that as to any matter disposed of by a compromise payment by such person, pursuant to a consent decree or otherwise, the payment and indemnification thereof have been approved by the corporation, which approval shall not unreasonably be withheld, or by a court of competent jurisdiction. Such indemnification shall include payment by the corporation of expenses incurred in defending a civil or criminal action or proceeding in advance of the final disposition of such action or proceeding, upon receipt of an undertaking by the person indemnified to repay such payment if he shall be adjudicated to be not entitled to indemnification under this article, which undertaking may be accepted without regard to the financial ability of such person to make repayment.

A person entitled to indemnification hereunder whose duties include service or responsibilities as a fiduciary with respect to a subsidiary or other organization shall be deemed to have acted in good faith in the reasonable belief that his action was in the best interests of the corporation if he acted in good faith in the reasonable belief that his action was in the best interests of such subsidiary or organization or of the participants or beneficiaries of, or other persons with interests in, such subsidiary or organization to whom he had a fiduciary duty.

For purposes of determining whether a person is entitled to indemnification hereunder, the termination of any action, suit or other proceeding by judgment, order, settlement (with or without court approval), conviction, or upon a plea of *nolo contendere*, or its equivalent, shall not create a presumption that the person did not act in good faith and in a manner which he reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had reasonable cause to believe that his conduct was unlawful.

Where indemnification hereunder requires authorization or approval by the corporation, such authorization or approval shall be conclusively deemed to have been obtained, and in any case where a director of the corporation approves the payment of indemnification, such director shall be wholly protected, if:

(i) the payment has been approved or ratified (1) by a majority vote of a quorum of the directors consisting of persons who are not at that time parties to the proceeding, (2) by a majority vote of a committee of two or more directors who are not at that time parties to the proceeding and are selected for this purpose by the full board (in which selection directors who are parties may participate), or (3) by a majority vote of a quorum of the outstanding shares of stock of all classes entitled to vote for directors,

voting as a single class, which quorum shall consist of stockholders who are not at that time parties to the proceeding; or

(ii) the action is taken in reliance upon the opinion of independent legal counsel (who may be counsel to the corporation) appointed for the purpose by vote of the directors or in the manner specified in clauses (1), (2) or (3) of subparagraph (i); or

(iii) the payment is approved by a court of competent jurisdiction; or

(iv) the directors have otherwise acted in accordance with the standard of conduct set forth in the Delaware General Corporation Law.

Any indemnification or advance of expenses under this article shall be paid promptly, and in any event within 30 days, after the receipt by the corporation of a written request therefor from the person to be indemnified, unless with respect to a claim for indemnification the corporation shall have determined that the person is not entitled to indemnification. If the corporation denies the request or if payment is not made within such 30 day period, the person seeking to be indemnified may at any time thereafter seek to enforce his rights hereunder in a court of competent jurisdiction and, if successful in whole or in part, he shall be entitled also to indemnification for the expenses of prosecuting such action. Unless otherwise provided by law, the burden of proving that the person is not entitled to indemnification shall be on the corporation.

The right of indemnification under this article shall be a contract right inuring to the benefit of the directors, officers and other persons entitled to be indemnified hereunder. Any amendment or repeal of this Article V shall only apply prospectively, and no amendment or repeal of this Article V or the relevant provisions of any laws of the State of Delaware shall adversely affect in any way the rights of such director, officer or other persons entitled to be indemnified hereunder with respect to any action, suit or proceeding arising out of or relating to any actions or failures to act, transaction or facts occurring before the amendment or repeal.

The indemnification provided hereunder shall continue as to a person who has ceased to be a director or officer and shall inure to the benefit of the heirs, executors and administrators of a director, officer or other person entitled to indemnification hereunder. The indemnification provided hereunder may, to the extent authorized by the corporation, apply to the directors, officers and other persons associated with constituent corporations that have been merged into or consolidated with the corporation who would have been entitled to indemnification hereunder had they served in such capacity with or at the request of the corporation.

The right of indemnification under this article shall be in addition to and not exclusive of all other rights to which such director or officer or other persons may be entitled. Nothing contained in this article shall affect any rights to indemnification to which corporation employees or agents other than directors and officers and other persons entitled to indemnification hereunder may be entitled by contract or otherwise under law.

The corporation shall have power to purchase and maintain insurance on behalf of any person who is or was a director, officer, employee or agent of the corporation or is or was serving at the request of the corporation as a director, officer, trustee, employee or agent of another corporation, partnership, joint venture, trust, other enterprise or employee benefit plan against any liability asserted against such person and incurred by such person in any such capacity or arising out of such person's status as such, whether or not the corporation would have the power to indemnify such person against such liability under the provisions of the General Corporation Law of the State of Delaware.

ARTICLE VI GENERAL PROVISIONS

SECTION 6.1. Fiscal Year. Except as otherwise designated from time to time by the Board of Directors, the fiscal year of the corporation shall begin on the first day of January and end on the last day of December.

SECTION 6.2. Corporate Seal. The corporate seal shall be in such form as shall be approved by the Board of Directors. The Secretary shall be the custodian of the seal, and a duplicate seal may be kept and used by each Assistant Secretary and by any other officer the Board of Directors may authorize.

SECTION 6.3. Certificate of Incorporation. All references in these by-laws to the Certificate of Incorporation shall be deemed to refer to the Certificate of Incorporation of the corporation, as in effect from time to time.

SECTION 6.4. Execution of Instruments. Unless otherwise determined by resolution of the Board of Directors, the Chief Executive Officer, the President, and Vice President, the Secretary or the Treasurer shall have power to execute and deliver on behalf and in the name of the corporation any instrument requiring the signature of an officer of the corporation, including deeds, contracts, mortgages, bonds, notes, debentures, checks, drafts and other orders for the payment of money. In addition, the Board of Directors, the President, each Vice President, the Treasurer and the Secretary may expressly delegate such powers to any other officer or agent of the corporation.

SECTION 6.5. Voting of Securities. Unless otherwise determined by resolution of the Board of Directors, the Chief Executive Officer, the President, any Vice President or any other officer shall have full power and authority on behalf of the corporation to attend any meeting of stockholders of any corporation in which the corporation may hold stock, and to act, vote (or execute proxies to vote) and exercise in person or by proxy all other rights, powers and privileges incident to the ownership of such stock. Such officers acting on behalf of the Corporation shall have full power and authority to execute any instrument expressing consent to or dissent from any action of any such corporation without a meeting. The Board of Directors may by resolution from time to time confer such power and authority upon any other person or persons.

SECTION 6.6. Evidence of Authority. A certificate by the Secretary, an Assistant Secretary or a temporary secretary as to any action taken by the stockholders, directors, a 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 that action.

SECTION 6.7. Transactions with Interested Parties. No contract or transaction between the corporation and one or more of the directors or officers, or between the corporation and any other corporation, partnership, association or other organization in which one or more of the directors or officers are directors or officers or have a financial interest, shall be void or voidable solely for that reason or solely because the director or officer is present at or participates in the meeting of the Board of Directors or a committee of the Board of Directors that authorizes the contract or transaction or solely because the vote of any such director is counted for such purpose, if:

(1) The material facts as to the relationship or interest and as to the contract or transaction are disclosed or are known to the Board of Directors or such committee, and the Board or committee in good faith authorizes the contract or transaction by the affirmative votes of a majority of the disinterested directors, even though the disinterested directors be less than a quorum; or

(2) The material facts as to the relationship or interest and as to the contract or transaction are disclosed or are known to the stockholders entitled to vote thereon, and the contract or transaction is specifically approved in good faith by vote of the stockholders; or

(3) The contract or transaction is fair to the corporation as of the time it is authorized, approved or ratified by the Board of Directors, a committee of the Board of Directors or the stockholders.

Common or interested directors may be counted in determining the presence of a quorum at a meeting of the Board of Directors or of a committee that authorizes the contract or transaction.

SECTION 6.8. Books and Records. The books and records of the corporation shall be kept at such places within or without the State of Delaware as the Board of Directors may from time to time determine.

SECTION 6.9. Exclusive Forum. Unless the corporation consents in writing to the selection of an alternative forum, the sole and exclusive forum for (a) any derivative action or proceeding brought on behalf of the corporation, (ii) any action asserting a claim of breach of a fiduciary duty owed by any director or officer or other employee of the corporation to the corporation or the corporation's stockholders, (iii) any action asserting a claim against the corporation or any director or officer or other employee of the corporation arising pursuant to any provision of the General Corporation Law of the State of Delaware or the corporation's Certificate of Incorporation or by-laws (as either may be amended from time to time), or (iv) any action asserting a claim against the corporation or any director or officer or other employee of the corporation governed by the internal affairs doctrine shall be a state court located within the State of Delaware (or, if no state court located within the State of Delaware has jurisdiction, the federal district court for the District of Delaware).

ARTICLE VII AMENDMENTS

SECTION 7.1. By the Board of Directors. These by-laws may be altered, amended or repealed or new by-laws may be adopted by the affirmative vote of a majority of the directors present at any regular or special meeting of the Board of Directors at which a quorum is present.

SECTION 7.2. By the Stockholders. These by-laws may be altered, amended or repealed or new by-laws may be adopted by the affirmative vote of the holders of a majority of votes properly cast at any regular meeting of stockholders, or at any special meeting of stockholders, provided notice of such alteration, amendment, repeal or adoption of new by-laws shall have been stated in the notice of such special meeting.