

**AMENDED AND RESTATED
BY-LAWS
OF
ALTAIR NANOTECHNOLOGIES INC.
(a Delaware corporation)**

ARTICLE I

CORPORATE OFFICES

SECTION 1. *Registered Office.* The registered office of the Corporation shall be fixed in the Certificate of Incorporation of the Corporation.

SECTION 2. *Other Offices.* The Corporation may also have an office or offices, and keep the books and records of the Corporation, except as may otherwise be required by law, at such other place or places, either within or without the State of Delaware, as the Board of Directors may from time to time determine or the business of the Corporation may require.

ARTICLE II

STOCKHOLDERS

SECTION 1. *Annual Meetings.* The annual meeting of stockholders for the election of directors and for the transaction of such other business as may be properly brought before the meeting shall be held each year at such date and time, within or without the State of Delaware, as the Board of Directors shall determine. Any previously scheduled annual meeting of the stockholders may be postponed by resolution of the Board of Directors upon public announcement made on or prior to the date previously scheduled for such annual meeting of stockholders. To be properly brought before an annual meeting, business must be (a) specified in the notice of meeting (or any supplement thereto) given by or at the direction of the Board of Directors, (b) otherwise properly brought before the meeting by or at the direction of the Board of Directors, or (c) otherwise properly brought before the meeting by a stockholder of the Corporation who was a stockholder of record at the time of giving of notice provided for in this section, who is entitled to vote at the meeting and complies with the notice procedures set forth in this section. For business to be properly brought before an annual meeting by a stockholder, if such business is related to the election of directors of the Corporation, the procedures in Article II, Section 3 of these By-laws must be complied with. If such business relates to any other matter, the stockholder must have given timely notice thereof in writing to the Secretary of the Corporation. To be timely, a stockholder's notice shall be delivered to or mailed to and received at the principal office of the Corporation not less than 120 days, nor more than 180 days, prior to the first anniversary of the date the Corporation's proxy statement was released to stockholders in connection with the preceding year's annual meeting; *provided* that in the event that the date of the annual meeting is advanced or delayed by more than 30 days from the anniversary of the date of the preceding year's annual meeting, notice by the stockholder to be timely must be so delivered not earlier than the 180th day prior to such annual meeting and not later than the close of business on the later to occur of the 120th day prior to such annual meeting or the 10th day following the day on which public announcement of the date of such meeting is first made. Such stockholder's notice shall set forth in writing as to each matter the stockholder proposes to bring before the annual meeting (i) a brief description of the business desired to be brought before the annual meeting, the reasons for conducting such business at the annual meeting and any material interest in such business of such stockholder and the beneficial owner, if any, on whose behalf the proposal is made; and (ii) as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the proposal is made, (A) the name and address of such stockholder, as they appear on the Corporation's books, and of such beneficial owner and (B) the class and number of shares of the Corporation which are owned beneficially and of record by such stockholder and such beneficial owner. Notwithstanding anything in these By-laws to the contrary, no business shall be conducted at any annual meeting except in accordance with the procedures set forth in this section. The chairman of the 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, and if he should so determine, the chairman shall declare to the meeting that any such business not properly brought before the meeting shall not be transacted. In addition to the provisions of this section, a stockholder shall

also comply with all applicable requirements of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), and the rules and regulations thereunder with respect to the matters set forth herein. Nothing in these By-laws shall be deemed to affect any rights of stockholders to request inclusion of proposals in the Corporation’s proxy statement pursuant to Rule 14a-8 under the Exchange Act. For purposes of this section, “public announcement” has the meaning set forth in Article II, Section 3 of these By-laws.

SECTION 2. *Special Meetings.* Unless otherwise required by applicable law or the Corporation’s certificate of incorporation as from time to time in effect (the “Certificate of Incorporation”), special meetings of stockholders for the transaction of such business as may properly come before the meeting may be called by the Chief Executive Officer (or if none exists, the President), the Chairman of the Board of Directors or a number of directors constituting a majority of the whole Board of Directors, and shall be held at such date and time, within or without the State of Delaware, as may be specified by such order. Whenever such order shall fail to fix such place, the meeting shall be held at the principal executive office of the Corporation. Any previously scheduled special meeting of the stockholders may be postponed by resolution of the Board of Directors upon public announcement made on or prior to the date previously scheduled for such annual meeting of stockholders.

SECTION 3. *Notice of Meetings.* Written notice of all meetings of the stockholders shall be mailed or delivered to each stockholder not less than 10 nor more than 60 days prior to the meeting. Notice of any special meeting shall state in general terms the purpose or purposes for which the meeting is to be held.

SECTION 4. *Stockholder Lists.* The officer who has charge of the stock ledger of the Corporation shall prepare and make, at least 10 days before every meeting of stockholders, a complete list of the stockholders entitled to vote at the meeting, 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 during such 10 day period for any purpose germane to 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 in person or by proxy at any meeting of stockholders.

SECTION 5. *Quorum.* Except as otherwise provided by law or the Certificate of Incorporation, a quorum for the transaction of business at any meeting of stockholders shall consist of at least two (2) stockholders holding at least one third in voting power of the stock issued and outstanding and entitled to vote, present in person or by proxy. At all meetings of the stockholders at which a quorum is present, all matters, except as otherwise provided by law or the Certificate of Incorporation, shall be decided by the vote of the holders of a majority of the shares present in person or by proxy and entitled to vote on the subject matter. If there be no such quorum, the holders of a majority of such shares so present or represented or, if no stockholders are present, any officer entitled to preside at or act as secretary of the meeting may adjourn the meeting from time to time, without further notice, until a quorum shall have been obtained. When a quorum is once present, it is not broken by the subsequent withdrawal of any stockholder.

SECTION 6. *Organization.* Meetings of stockholders shall be presided over by the Chairman, if any, or if none or in the Chairman’s absence, the Chief Executive Officer, if any, or if none or in the Chief Executive Officer’s absence, the President, if any, or if none or in the President’s absence, a Vice President, or if none of the foregoing is present, by a chairman to be chosen by the stockholders entitled to vote who are present in person or by proxy at the meeting. The Secretary of the Corporation, or in the Secretary’s absence an Assistant Secretary, shall act as secretary of every meeting, but if neither the Secretary nor an Assistant Secretary is present, the presiding officer of the meeting shall appoint any person present to act as secretary of the meeting. The Board of Directors may adopt before a meeting such rules for the conduct of the meeting, including an agenda and limitations on the number of speakers and the time which any speaker may address the meeting, as the Board of Directors determines to be necessary or appropriate for the orderly and efficient conduct of the meeting. Subject to any rules for the conduct of the meeting adopted by the Board of Directors, the person presiding at the meeting may also adopt, before or at the meeting, rules for the conduct of the meeting.

SECTION 7. *Voting; Proxies; Required Vote.*

(a) At each meeting of stockholders, every stockholder shall be entitled to vote in person or by proxy appointed by instrument in writing, subscribed by such stockholder or by such stockholder's duly authorized attorney-in-fact, and, unless the Certificate of Incorporation provides otherwise, shall have one vote for each share of stock entitled to vote registered in the name of such stockholder on the books of the Corporation on the applicable record date fixed pursuant to these By-laws. At all elections of directors taken at any meeting of stockholders (at which a quorum was present to organize the meeting) the voting may, but need not, be by ballot and a plurality of the votes cast at such meeting shall be required to elect. Except as otherwise required by law or the Certificate of Incorporation, any other action shall be authorized by a majority of the votes cast at such meeting, whether or not a quorum is present when the vote is taken.

(b) No action required to be taken or which may be taken at any annual or special meeting of stockholders of the Corporation may be taken without a meeting, and the power of stockholders to consent in writing to the taking of any action without a meeting is specifically denied.

(c) Every person entitled to vote for directors, or on any other matter, shall have the right to do so either in person or by one or more agents authorized by a written proxy, which may be in the form of a telegram, cablegram or other means of electronic transmission, signed by the person and filed with the Secretary of the Corporation, but no such proxy shall be voted or acted upon after three (3) years from its date, unless the proxy provides for a longer period. A proxy shall be deemed signed if the stockholder's name is placed on the proxy (whether by manual signature, typewriting, telegraphic transmission or otherwise) by the stockholder or the stockholder's attorney-in-fact. A duly executed proxy shall be irrevocable if it states that it is irrevocable and if, and only as long as, it is coupled with an interest sufficient in law to support an irrevocable power. A stockholder may revoke any proxy which is not irrevocable by attending the meeting and voting in person or by filing an instrument in writing revoking the proxy or by filing another duly executed proxy bearing a later date with the Secretary of the Corporation. A proxy is not revoked by the death or incapacity of the maker unless, before the vote is counted, written notice of such death or incapacity is received by the Corporation.

SECTION 8. *Meetings by Remote Communications.* The Board of Directors may, in its sole discretion, determine that a meeting of stockholders shall not be held at any place, but may instead be held solely by means of remote communication in accordance with Section 211(a)(2) of the DGCL. If authorized by the Board of Directors in its sole discretion, and 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 whether such meeting is to be held at a designated place or solely by means of remote communication, provided that (i) 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; (ii) 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 (iii) 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.

SECTION 9. *Inspectors.* The Board of Directors, in advance of any meeting, may, but need not, appoint one or more inspectors of election to act at the meeting or any adjournment thereof. If an inspector or inspectors are not so appointed, the person presiding at the meeting may, but need not, appoint one or more inspectors. In case any person who may be appointed as an inspector fails to appear or act, the vacancy may be filled by appointment made by the directors in advance of the meeting or at the meeting by the person presiding thereat. Each inspector, if any, before entering upon the discharge of his or her duties, shall take and sign an oath faithfully to execute the duties of inspector at such meeting with strict impartiality and according to the best of his ability. The inspectors, if any, shall determine the number of shares of stock outstanding and the voting power of each, the shares of stock represented at the meeting, the existence of a quorum, and the validity and effect of proxies, and shall receive votes, ballots or consents, hear and determine all challenges and questions arising in connection with the right to vote, count and tabulate all votes, ballots or consents, determine the result, and do such acts as are proper to conduct the election or vote with fairness to all stockholders. On request of the person presiding at the meeting, the inspector or inspectors, if any, shall make a report in writing of any challenge, question or matter determined by such inspector or inspectors and execute a certificate of any fact found by such inspector or inspectors.

ARTICLE III
BOARD OF DIRECTORS

SECTION 1. *General Powers.* The business, property and affairs of the Corporation shall be managed by, or under the direction of, the Board of Directors.

SECTION 2. *Qualification; Number; Term; Remuneration.*

(a) Each director shall be at least 18 years of age. A director need not be a stockholder, a citizen of the United States, or a resident of the State of Delaware. The number of directors shall be between three (3) and fifteen (15) directors, as such number may be fixed from time to time by action of the Board of Directors, one of whom may be selected by the Board of Directors to be its Chairman, provided that the number of directors shall not be reduced at any time so as to shorten the term of any director at the time in office. The use of the phrase "entire Board" herein refers to the total number of directors which the Corporation would have if there were no vacancies.

(b) Directors who are elected at an annual meeting of stockholders, and directors who are elected in the interim to fill vacancies and newly created directorships, shall hold office until the next annual meeting of stockholders and until their successors are elected and qualified or until their earlier resignation or removal.

(c) Directors may be reimbursed or paid in advance their expenses, if any, of attendance at each meeting of the Board of Directors and may be paid a fixed sum for attendance at each meeting of the Board of Directors and/or a stated salary as director. No such payment shall preclude any director from serving the Corporation in any other capacity and receiving compensation therefore. Members of special or standing committees may be allowed like compensation for attending committee meetings and for serving on committees.

SECTION 3. *Nominations.*

(a) Subject to the provisions of Section 2 hereof, only persons who are nominated in accordance with the procedures set forth in this section shall be eligible for election as directors of the Corporation. Nominations of persons for election to the Board of Directors of the Corporation may be made at any annual meeting of stockholders by or at the direction of the Board of Directors or by any stockholder of the Corporation entitled to vote for the election of directors at the meeting who was a stockholder of record at the time of giving of notice provided for in this section and who complies with the notice procedures set forth in this section. Any nomination by a stockholder shall be made pursuant to timely notice in writing to the Secretary of the Corporation. To be timely notice for an annual meeting, a stockholder's notice shall be delivered to the Secretary at the principal executive offices of the Corporation not less than 120 days, nor more than 180 days, prior to the first anniversary of the date the Corporation's proxy statement was released to stockholders in connection with the preceding year's annual meeting; *provided* that in the event that the date of the annual meeting is advanced or delayed by more than 30 days from the anniversary of the date of the preceding year's annual meeting, notice by the stockholder to be timely must be so delivered not earlier than the 180th day prior to such annual meeting and not later than the close of business on the later of the 120th day prior to such annual meeting or the 10th day following the day on which public announcement of the date of such meeting is first made. Notwithstanding anything in the foregoing sentence to the contrary, and subject to the provisions of Section 2, in the event that the number of directors to be elected to the Board of Directors of the Corporation is increased and there is no public announcement naming all of the nominees for director or specifying the size of the increased Board of Directors made by the Corporation at least 70 days prior to the first anniversary of the preceding year's annual meeting, a stockholder's notice required by this section shall also be considered timely, but only with respect to nominees for any new positions created by such increase, if it shall be delivered to the Secretary at the principal executive offices of the Corporation not later than the close of business on the 10th day following the day on which such public announcement is first made by the Corporation (which public announcement shall in no event be made less than 10 days prior to the then current year's annual meeting). Such stockholder's notice shall set forth in writing, (i) as to each person whom the stockholder proposes to nominate for election or re-election as a director and (ii) as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination is made, (A) the name, age, business address and residence address of each such person, (B) the principal occupation or employment of each such person, (C) the class and number of

shares of stock of the Corporation which are owned beneficially and of record by each such person and (D) any other information relating to each such person that is required to be disclosed in connection with the solicitation of proxies for election of directors, or as otherwise required, in each case pursuant to Regulation 14A under the Exchange Act or any successor provision thereto (including, without limitation, such nominee's written consent to being named in a proxy statement as a nominee and to serving as a director if elected).

(b) Nominations of persons for election to the Board of Directors of the Corporation may be made at a special meeting of stockholders at which directors are to be elected pursuant to the Corporation's notice of meeting (i) by or at the direction of the Board of Directors or (ii) provided that the Board of Directors has determined that directors shall be elected at such special meeting, by any stockholder of the Corporation who is a stockholder of record at the time of giving of notice provided for in this section, who shall be entitled to vote at the meeting and who complies with the notice procedures set forth in this section. In the event the Corporation calls a special meeting of stockholders for the purpose of electing one or more directors to the Board of Directors, any such stockholder may nominate a person or persons (as the case may be), for election to such position(s) as specified in the Corporation's notice of meeting, if the stockholder's notice shall be delivered to the Secretary at the principal executive offices of the Corporation not later than the close of business on the later of the 120th day prior to such special meeting or the 10th day following the day on which public announcement is first made of the date of the special meeting and of the nominees proposed by the Board to be elected at such meeting. At the request of the Board of Directors, any person nominated by the Board of Directors for election as a director shall furnish to the Secretary of the Corporation that information required to be set forth in a stockholder's notice of nomination which pertains to the nominee.

(c) 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 procedures prescribed by these By-laws and in that event the defective nomination shall be disregarded. In addition to the provisions of this section, a stockholder shall also comply with all applicable requirements of the Exchange Act and the rules and regulations thereunder with respect to the matters set forth herein. For purposes of this section, "public announcement" shall mean 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 Section 13, 14 or 15(d) of the Exchange Act.

SECTION 4. *Quorum and Manner of Voting.* Except as otherwise provided by law, a majority of the entire Board shall constitute a quorum. A majority of the directors present, whether or not a quorum is present, may adjourn a meeting from time to time to another time and place without notice. The vote of the majority of the directors present at a meeting at which a quorum is present shall be the act of the Board of Directors.

SECTION 5. *Places of Meetings.* Meetings of the Board of Directors may be held at any place within or without the State of Delaware, as may from time to time be fixed by resolution of the Board of Directors, or as may be specified in the notice of meeting.

SECTION 6. *Annual Meeting.* Following the annual meeting of stockholders, the newly elected Board of Directors shall meet for the purpose of the election of officers and the transaction of such other business as may properly come before the meeting. Such meeting may be held without notice immediately after the annual meeting of stockholders at the same place at which such stockholders' meeting is held.

SECTION 7. *Regular Meetings.* Regular meetings of the Board of Directors shall be held at such times and places as the Board of Directors shall from time to time by resolution determine. Notice need not be given of regular meetings of the Board of Directors held at times and places fixed by resolution of the Board of Directors.

SECTION 8. *Special Meetings.* Special meetings of the Board of Directors shall be held whenever called by the Chairman of the Board, Chief Executive Officer, President, Secretary or by any three of the directors then in office. Notice of the place, date and time of each special meeting of the Board of Directors shall be given to each director by mailing the same at least three business days before the special meeting for addresses in the same country as the person mailing the notice and at least ten days before the special meeting for addresses outside the country of the person mailing the notice, or by telegraphing, telecopying or telephoning the same or by delivering the same personally or by electronic transmission not later than the day before the day of the special meeting.

SECTION 9. *Participation in Meetings by Conference Telephone.* Members of the Board of Directors, or of any committee thereof, may participate in a meeting of such Board of Directors or committee by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and such participation shall constitute presence in person at such meeting.

SECTION 10. *Organization.* At all meetings of the Board of Directors, the Chairman, if any, or if none or in the Chairman's absence, the Chief Executive Officer, if any, or in the Chief Executive Officer's absence, the President, if any, or in the President's absence, any Vice President who is a member of the Board of Directors, or in such Vice President's absence, a chairman chosen by the directors, shall preside. The Secretary of the Corporation, or in the Secretary's absence an Assistant Secretary, shall act as secretary of all meetings of the Board of Directors, but if neither the Secretary nor an Assistant Secretary is present, the presiding officer of the meeting shall appoint any person present to act as secretary of the meeting.

SECTION 11. *Resignation.* Any director may resign at any time upon written notice to the Corporation and such resignation shall take effect upon receipt thereof by the Chief Executive Officer, President or Secretary, unless otherwise specified in the resignation.

SECTION 12. *Removal.*

(a) A director may be removed from office for cause by the affirmative vote of the holders of 60% of the outstanding shares of stock entitled to vote in an election of directors. For purposes of this Section 11, "cause" shall mean, with respect to any director, (i) the willful failure by such director to perform, or the gross negligence of such director in performing, the duties of a director, (ii) the engaging by such director in willful or serious misconduct that is injurious to the Corporation or (iii) the conviction of such director of, or the entering by such director of a plea of *nolo contendere* to, a crime that constitutes a felony.

(b) Any director may be removed from office without cause by the affirmative vote of the holders of at least 75% of the outstanding shares of stock entitled to vote in an election of directors.

SECTION 13. *Vacancies.* Any vacancy on the Board of Directors may be filled by the Board of Directors, acting by a majority of the directors then in office, although less than a quorum, and any director so chosen shall hold office until the next election of the class for which such director shall have been chosen and until his successor shall be elected and qualified.

SECTION 14. *Action by Written Consent.* Any action required or permitted to be taken at any meeting of the Board of Directors may be taken without a meeting if all the directors consent thereto in writing, and the writing or writings are filed with the minutes of proceedings of the Board of Directors.

ARTICLE IV

COMMITTEES

SECTION 1. *Appointment.* From time to time the Board of Directors by a resolution adopted by a majority of the entire Board may appoint any committee or committees for any purpose or purposes, to the extent lawful, which shall have such powers as shall be determined and specified by the Board of Directors in the resolution of appointment.

SECTION 2. *Procedures, Quorum and Manner of Acting.* Each committee shall fix its own rules of procedure, and unless otherwise designated by the Board of Directors, designate its own chairman, and shall meet where and as provided by such rules or by resolution of the Board of Directors. Except as otherwise provided by law or in a charter or resolutions governing the committee's operation and approved by the Board of Directors, the presence of a majority of the then appointed members of a committee shall constitute a quorum for the transaction of business by that committee, and in every case where a quorum is present, the affirmative vote of a majority of the members of the committee present shall be the act of the committee. Each committee shall keep minutes of its proceedings, and actions taken by a committee shall be reported to the Board of Directors.

SECTION 3. *Action by Written Consent.* Any action required or permitted to be taken at any meeting of any committee of the Board of Directors may be taken without a meeting if all the members of the committee consent thereto in writing, and the writing or writings are filed with the minutes of proceedings of the committee.

SECTION 4. *Term; Termination.* In the event any person shall cease to be a director of the Corporation, such person shall simultaneously therewith cease to be a member of any committee appointed by the Board of Directors.

ARTICLE V

OFFICERS

SECTION 1. *Election and Qualifications.* The Board of Directors shall elect the officers of the Corporation, which shall include a Chief Executive Officer and a Secretary, and may include, by election or appointment, a President, one or more Vice Presidents (any one or more of whom may be given an additional designation of rank or function), a Treasurer and such Assistant Secretaries, such Assistant Treasurers and such other officers as the Board may from time to time deem proper. The Board may delegate to any such executive officer or to any committee the power to appoint and define the powers and duties of any subordinate officers, agents or employees. Each officer shall have such powers and duties as may be prescribed by these By-laws and as may be assigned by the Board of Directors or the Chief Executive Officer.

SECTION 2. *Term of Office and Remuneration.* The executive officers shall be elected annually and shall hold office until the next annual meeting, but any officer may be removed from office, either with or without cause, at any time by the Board of Directors. Any vacancy in any office arising from any cause may be filled for the unexpired portion of the term by the Board of Directors. The remuneration of all officers of the Corporation may be fixed by the Board of Directors or in such manner as the Board of Directors shall provide.

SECTION 3. *Resignation; Removal.* Any officer may resign at any time upon written notice to the Corporation and such resignation shall take effect upon receipt thereof by the Chief Executive Officer, the President or Secretary, unless otherwise specified in the resignation. Any officer shall be subject to removal, with or without cause, at any time by vote of a majority of the entire Board, and any officer appointed by an executive officer or by a committee may be removed either with or without cause by the officer or committee who appointed him or by the Chairman, Chief Executive Officer or President.

SECTION 4. *Chairman of the Board.* The Chairman of the Board of Directors, if there be one, shall preside at all meetings of the Board of Directors and shall have such other powers and duties as may be provided by the By-laws or from time to time be assigned by the Board of Directors.

SECTION 5. *Chief Executive Officer and/or President.* The Chief Executive Officer shall have general management and supervision of the property, business and affairs of the Corporation and over its other officers and its employees and agents; may appoint and remove assistant officers and other agents and employees, other than any officer appointed by the Board of Directors; and may execute and deliver in the name and on the behalf of the Corporation powers of attorney, contracts, bonds and other obligations and instruments. The Chief Executive Officer may execute and deliver in the name and on the behalf of the Corporation powers of attorney, contracts, bonds and other obligations and instruments, and shall have such other powers and authority as from time to time may be assigned by the Board of Directors. The Board of Directors may separately establish the office of the President, in which case the President shall have the duties to execute and deliver in the name and on behalf of the Corporation, powers of attorney, contracts, bonds and other obligations and instruments pertaining to the regular course of the duties of said office, and shall have such other authority as from time to time may be assigned by the Board of Directors.

SECTION 6. *Vice President.* A Vice President may execute and deliver in the name of the Corporation contracts and other obligations and instruments pertaining to the regular course of the duties of said

office, and shall have such other authority as from time to time may be assigned by the Board of Directors or the Chief Executive Officer.

SECTION 7. *Treasurer.* The Treasurer shall in general have all duties incident to the position of Treasurer and such other duties as may be assigned by the Board of Directors or the Chief Executive Officer.

SECTION 8. *Secretary.* The Secretary shall in general have all duties incident to the position of Secretary and such other duties as may be assigned by the Board of Directors or the Chief Executive Officer.

SECTION 9. *Assistant Officers.* Any assistant officer shall have such powers and duties of the officer such assistant officer assists as such officer or the Board of Directors shall from time to time prescribe.

SECTION 10. *Action with Respect to Securities of Other Corporations.* The Chief Executive Officer or any other officer of the Corporation authorized by the Board of Directors or the Chief Executive Officer is authorized to vote, represent, and exercise on behalf of the Corporation all rights incident to any and all shares of any other corporation or corporations standing in the name of the Corporation. The authority herein granted may be exercised either by such person directly or by any other person authorized to do so by proxy or power of attorney duly executed by the person having such authority.

ARTICLE VI

EXCULPATION AND INDEMNIFICATION OF DIRECTORS, OFFICERS AND OTHERS

SECTION 1. *Limitation on Liability.* A director of the Corporation shall not be personally liable either to the Corporation or to any stockholder for monetary damages for breach of fiduciary duty as a director, except (i) for any breach of the director's duty of loyalty to the Corporation or its stockholders, or (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, or (iii) under Section 174 of the Delaware General Corporation Law (the "DGCL") or any successor provision thereto, or (iv) for any transaction from which the director shall have derived an improper personal benefit. Neither amendment nor repeal of this Section 1 nor the adoption of any provision of the Certificate of Incorporation inconsistent with this Section 1 shall eliminate or reduce the effect of this Section 1 in respect of any matter occurring, or any cause of action, suit or claim that, but for this Section 1, would accrue or arise prior to such amendment, repeal or adoption of an inconsistent provision.

SECTION 2. *Indemnification of Directors, Officers and Others.* The Corporation shall indemnify to the full extent permitted by law any person who is or was a party to, or is threatened to be made a party to, or testifies in, any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative in nature, by reason of the fact that such person is or was, or is alleged to have been, a director or officer of the Corporation or is or was serving, or is alleged to have been serving, at the request of the Corporation as a director or officer of another corporation, partnership, limited liability company, joint venture, employee benefit plan, trust or other enterprise, including any charitable enterprise (an "Other Entity"), against expenses (including attorneys' fees and disbursements), judgments, fines, other liabilities and amounts paid in settlement actually and reasonably incurred by such person in connection with such action, suit or proceeding. Persons who are not directors or officers of the Corporation may be similarly indemnified in respect of service to the Corporation or to any Other Entity at the request of the Corporation to the extent the Board at any time specifies that such persons are entitled to indemnification, and the Corporation may enter into agreements with any such person for the purpose of providing for such indemnification. The Corporation shall not be liable to indemnify any indemnitee under this Article VI for any amounts paid in settlement of any action or claim effected without the Corporation's written consent, which consent shall not be unreasonably withheld, or for any judicial award if the Corporation was not given a reasonable and timely opportunity, at its expense, to participate in the defense of such action. Any director or officer of the Corporation serving as a director, officer, trustee or in any other fiduciary capacity for (a) another corporation of which a majority of the shares entitled to vote in the election of its directors is held, directly or indirectly, by the Corporation or (b) any employee benefit plan of the Corporation or any corporation referred to in clause (a) of this sentence shall be deemed to be doing so at the request of the Corporation.

SECTION 3. *Reimbursement and Advancement of Expenses.* The Corporation shall, from time to time, reimburse or advance to any current or former director or officer the funds necessary for payment of expenses (including attorney's fees and disbursements) actually and reasonably incurred by such person in investigating, responding to, defending or testifying in any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative in nature, to which such person becomes or is threatened to be made a party by reason of the fact that such person is or was, or is alleged to have been, a director or officer of the Corporation, or is or was, or is alleged to have been, serving at the request of the Corporation as a director or officer or in any other fiduciary capacity of or for any Other Entity; provided, however, that the Corporation may pay such expenses in advance of the final disposition of such action, suit or proceeding only upon receipt of an undertaking by or on behalf of such person to repay such amount if it shall ultimately be determined by final judicial decision that such person is not entitled to be indemnified by the Corporation against such expenses as authorized by this Article V. Expenses may be similarly advanced or reimbursed to persons who are and were not directors or officers of the Corporation in respect of their service to the Corporation or to any Other Entity at the request of the Corporation to the extent the Board at any time determines that such persons should be so entitled to advancement or reimbursement of such expenses, and the Corporation may enter into agreements with such persons for the purpose of providing such advances or reimbursement.

SECTION 4. *Insurance.* The Corporation shall have the 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, employee or agent of any Other Entity against any liability asserted against such person or 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 this Article V or otherwise.

SECTION 5. *Subrogation.* In the event of payment under this Article VI, the Corporation shall be subrogated to the extent of such payment to all of the rights of recovery of the indemnitee, who shall execute all papers required and shall do everything that may be necessary to secure such rights, including the execution of such documents necessary to enable the Corporation effectively to bring suit to enforce such rights.

SECTION 6. *Preservation of Other Rights.* The rights to indemnification and reimbursement or advancement of expenses provided by, or granted pursuant to, this Article V shall not be deemed exclusive of any other rights to which a person seeking indemnification or reimbursement or advancement of expenses may have or hereafter be entitled under any statute, this Certificate of Incorporation, the By-laws, any agreement, any vote of stockholders or disinterested directors or otherwise, both as to action in his or her official capacity and as to action in another capacity while holding such office.

SECTION 7. *Survival.* (1) The rights to indemnification and reimbursement or advancement of expenses provided by, or granted pursuant to, this Article V shall continue as to a person who has ceased to be a director or officer (or other person indemnified hereunder) and shall inure to the benefit of the executors, administrators, legatees and distributees of such person. (2) The provisions of this Article V shall be a contract between the Corporation, on the one hand, and each person who was a director and officer at any time while this Article V is in effect and any other person indemnified hereunder, on the other hand, pursuant to which the Corporation and each such person intend to be legally bound. No repeal or modification of this Article V shall affect any rights or obligations hereunder with respect to any action or omission of any such person occurring, or any state of facts then existing, before such repeal or modification, regardless of whether a claim arising out of such action, omission or state of facts is asserted before or after such repeal or amendment.

SECTION 8. *Enforceability of Right to Indemnification.* The rights to indemnification and reimbursement or advancement of expenses provided by, or granted pursuant to, this Article V shall be enforceable by any person entitled to such indemnification or reimbursement or advancement of expenses in any court of competent jurisdiction. The burden of proving that such indemnification or reimbursement or advancement of expenses is not appropriate shall be on the Corporation. Neither the failure of the Corporation (including its Board of Directors, its independent legal counsel and its stockholders) to have made a determination prior to the commencement of such action that such indemnification or reimbursement or advancement of expenses is proper in the circumstances nor an actual determination by the Corporation (including its Board of Directors, its independent legal counsel and its stockholders) that such person is not entitled to such indemnification or reimbursement or

advancement of expenses shall constitute a defense to the action or create a presumption that such person is not so entitled. Such a person shall also be indemnified by the Corporation against any expenses reasonably incurred in connection with successfully establishing his or her right to such indemnification or reimbursement or advancement of expenses, in whole or in part.

SECTION 9. *Election of Applicable Law.* Any person entitled to be indemnified or to reimbursement or advancement of expenses as a matter of right pursuant to this Article V may elect to have the right to indemnification or reimbursement or advancement of expenses interpreted on the basis of the applicable law in effect at the time of the occurrence of the event or events giving rise to the applicable action, suit or proceeding, to the extent permitted by law, or on the basis of the applicable law in effect at the time such indemnification or reimbursement or advancement of expenses is sought. Such election shall be made, by a notice in writing to the Corporation, at the time indemnification or reimbursement or advancement of expenses is sought; provided, however, that if no such notice is given, the right to indemnification or reimbursement or advancement of expenses shall be determined by the law in effect at the time indemnification or reimbursement or advancement of expenses is sought.

ARTICLE VII BOOKS AND RECORDS

SECTION 1. *Location.* The books and records of the Corporation may be kept at such place or places within or without the State of Delaware as the Board of Directors or the respective officers in charge thereof may from time to time determine. The record books containing the names and addresses of all stockholders, the number of shares of stock held by each and the dates when they respectively became the owners of record thereof shall be kept by the Secretary as prescribed in the By-laws and by such officer or agent as shall be designated by the Board of Directors.

SECTION 2. *Reliance Upon Books, Reports and Records.* Each director, each member of any committee designated by the Board of Directors, and each officer of the Corporation shall, in the performance of his or her duties, be fully protected in relying in good faith upon the books of account or other records of the Corporation and upon such information, opinions, reports or statements presented to the Corporation by any of its officers or employees, or committees of the Board of Directors so designated, or by any other person as to matters which such director or committee member reasonably believes are within such other person's professional or expert competence and who has been selected with reasonable care by or on behalf of the Corporation.

SECTION 3. *Addresses of Stockholders.* Notices of meetings and all other corporate notices may be delivered personally or mailed to each stockholder at the stockholder's address as it appears on the records of the Corporation.

SECTION 4. *Fixing Date for Determination of Stockholders of Record.*

(a) In order that the Corporation may determine the stockholders entitled to notice of or to vote at any meeting of stockholders or any adjournment thereof, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors and which record date shall not be more than 60 nor less than 10 days before the date of such meeting. If no record date is fixed by the Board of Directors, 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 next preceding the day on which notice is given, or, if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. 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.

(b) In order that the Corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted and which record date shall be not more than 60 days prior to such action. If no record date is

fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

ARTICLE VIII

CERTIFICATES REPRESENTING STOCK

SECTION 1. *Certificates; Signatures.* The shares of the Corporation shall be represented by certificates, provided that the Board of Directors of the Corporation may provide by resolution or resolutions that some or all of its stock shall be uncertificated shares. Any such resolution shall not apply to shares represented by a certificate until such certificate is surrendered to the Corporation. Notwithstanding the adoption of such a resolution by the Board of Directors, every holder of stock represented by certificates and, upon request, every holder of uncertificated shares shall be entitled to have a certificate, signed by or in the name of the Corporation by the Chairman or Vice-Chairman of the Board of Directors, or the President or a Vice President, and by the Treasurer or an Assistant Treasurer, or the Secretary of the Corporation, representing the number of shares registered in certificate form. Any and all signatures on any such certificate may be facsimiles. In case any officer, transfer agent or registrar who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such officer, transfer agent or registrar before such certificate is issued, it may be issued by the Corporation with the same effect as if he were such officer, transfer agent or registrar at the date of issue. The name of the holder of record of the shares represented thereby, with the number of such shares and the date of issue, shall be entered on the books of the Corporation.

SECTION 2. *Transfers of Stock.* Upon compliance with provisions restricting the transfer or registration of transfer of shares of stock, if any, shares of capital stock shall be transferable on the books of the Corporation only by the holder of record thereof in person, or by duly authorized attorney, upon surrender and cancellation of certificates for a like number of shares, properly endorsed, and the payment of all taxes due thereon.

SECTION 3. *Fractional Shares.* The Corporation may, but shall not be required to, issue certificates for fractions of a share where necessary to effect authorized transactions, or the Corporation may 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 it may issue scrip in registered or bearer form over the manual or facsimile signature of an officer of the Corporation or of its agent, exchangeable as therein provided for full shares, but such scrip shall not entitle the holder to any rights of a stockholder except as therein provided. The Board of Directors shall have power and authority to make all such rules and regulations as it may deem expedient concerning the issue, transfer and registration of certificates representing shares of the Corporation.

SECTION 4. *Lost, Stolen or Destroyed Certificates.* The Corporation may issue a new certificate of stock in place of any certificate, theretofore issued by it, alleged to have been lost, stolen or destroyed, and the Board of Directors may require the owner of any lost, stolen or destroyed certificate, or his legal representative, to give the corporation a bond sufficient to indemnify the Corporation against any claim that may be made against it on account of the alleged loss, theft or destruction of any such certificate or the issuance of any such new certificate.

ARTICLE IX

DIVIDENDS

Subject always to the provisions of law and the Certificate of Incorporation, the Board of Directors shall have full power to determine whether any, and, if any, what part of any, funds legally available for the payment of dividends shall be declared as dividends and paid to stockholders; the division of the whole or any part of such funds of the Corporation shall rest wholly within the lawful discretion of the Board of Directors, and it shall not be required at any time, against such discretion, to divide or pay any part of such funds among or to the stockholders as dividends or otherwise; and before payment of any dividend, there may be set aside out of any funds of the Corporation available for dividends such sum or sums as the Board of Directors from time to time, in its absolute discretion, thinks proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the Corporation, or for such other purposes as the Board of Directors shall think

conducive to the interest of the Corporation, and the Board of Directors may modify or abolish any such reserve in the manner in which it was created.

ARTICLE X

RATIFICATION

Any transaction, including any transaction questioned in any lawsuit on the ground of lack of authority, defective or irregular execution, adverse interest of a director, officer or stockholder, non-disclosure, miscomputation, or the application of improper principles or practices of accounting, may be ratified, before or after judgment is rendered in such lawsuit, by the Board of Directors or by the stockholders, and if so ratified shall have the same force and effect as if the transaction had been originally duly authorized. Such ratification shall be binding upon the Corporation and its stockholders and shall constitute a bar to any claim or execution of any judgment in respect of such questioned transaction.

ARTICLE XI

CORPORATE SEAL

The corporate seal shall have inscribed thereon the name of the Corporation and the year of its incorporation, and shall be in such form and contain such other words and/or figures as the Board of Directors shall determine. The corporate seal may be used by printing, engraving, lithographing, stamping or otherwise making, placing or affixing, or causing to be printed, engraved, lithographed, stamped or otherwise made, placed or affixed, upon any paper or document, by any process whatsoever, an impression, facsimile or other reproduction of said corporate seal.

ARTICLE XII

FISCAL YEAR

The fiscal year of the Corporation shall be fixed, and shall be subject to change, by the Board of Directors. Unless otherwise fixed by the Board of Directors, the fiscal year of the Corporation shall be the calendar year.

ARTICLE XIII

WAIVER OF NOTICE

Whenever notice is required to be given by these By-laws or by the Certificate of Incorporation or by law, a written waiver thereof, signed by the person or persons entitled to said notice, whether before or after the time stated therein, shall be deemed equivalent to notice.

ARTICLE XIV

BANK ACCOUNTS, DRAFTS, CONTRACTS, ETC.

SECTION 1. *Bank Accounts and Drafts.* In addition to such bank accounts as may be authorized by the Board of Directors, the primary financial officer or any person designated by said primary financial officer, whether or not an employee of the Corporation, may authorize such bank accounts to be opened or maintained in the name and on behalf of the Corporation as such person may deem necessary or appropriate, payments from such bank accounts to be made upon and according to the check of the Corporation in accordance with the written instructions of said primary financial officer, or other person so designated by such primary financial officer.

SECTION 2. *Contracts.* The Board of Directors may authorize any person or persons, in the name and on behalf of the Corporation, to enter into or execute and deliver any and all deeds, bonds, mortgages, contracts and other obligations or instruments, and such authority may be general or confined to specific instances.

SECTION 3. *Proxies; Powers of Attorney; Other Instruments.* The Chairman, the Chief Executive Officer or any other person designated by either of them shall have the power and authority to execute and deliver proxies, powers of attorney and other instruments on behalf of the Corporation in connection with the rights and powers incident to the ownership of stock by the Corporation. The Chairman, the Chief Executive Officer or any other person authorized by proxy or power of attorney executed and delivered by either of them on behalf of the Corporation may attend and vote at any meeting of stockholders of any company in which the Corporation may hold stock, and may exercise on behalf of the Corporation any and all of the rights and powers incident to the ownership of such stock at any such meeting, or otherwise as specified in the proxy or power of attorney so authorizing any such person. The Board of Directors, from time to time, may confer like powers upon any other person.

SECTION 4. *Financial Reports.* The Board of Directors may appoint the primary financial officer or other fiscal officer or any other officer to cause to be prepared and furnished to stockholders entitled thereto any special financial notice and/or financial statement, as the case may be, which may be required by any provision of law.

ARTICLE XV

AMENDMENTS

Except as provided in the Certificate of Incorporation, the following provisions of this Article XV or by law, the Board of Directors shall have the power to adopt, amend or repeal By-laws for the Corporation. By-laws may also be adopted, amended or repealed by the stockholders by the affirmative vote of the holders of a majority of the shares of capital stock of the Corporation then entitled to vote generally in the election of directors, except as may otherwise be provided by the Certificate of Incorporation (including any provision concerning the voting rights or powers of any class of series of preferred stock). By-laws adopted by the Board of Directors may be repealed or changed, and new By-laws made, by the stockholders, and the stockholders may prescribe that any By-law which may be made by them shall not be altered, amended or repealed by the Board of Directors.

ARTICLE XVI

EMERGENCY BY-LAW

SECTION 1. *Effective Time.* This Emergency By-law shall become effective if a state of national emergency is declared by the government of the United States and shall cease to be effective when the government of the United States shall declare that the state of national emergency no longer exists. This Emergency By-law may also become effective in the manner outlined in Section 5 of this Article.

SECTION 2. *Management.* In the event this Emergency By-law shall become effective, the business of the Corporation shall continue to be managed by those members of the Board of Directors in office at the time the emergency arises who are available to act during the emergency. If less than three such Directors are available to act, additional Directors, in whatever number is necessary to constitute a Board of three Directors, shall be selected automatically from the first available officers or employees in the order provided in the emergency succession list established by the Board of Directors and in effect at the time an emergency arises.

SECTION 3. *Unavailability of Directors.* For the purposes of Sections 2 and 4(c) of this Article, a Director shall be deemed unavailable to act if he or she shall fail to attend a Directors meeting called in the manner provided in Section 4(a) of this Article. This section, however, shall not affect in any way the right of a Director in office at the time an emergency arises to continue as a Director.

SECTION 4. *Procedures.* The Board of Directors shall be governed by the following basic procedures and shall have the following specific powers in addition to all other powers which it would otherwise have.

(a) Meetings of the Board of Directors may be called by any Director, or by the first available officer or employee in the order provided in the emergency succession list referred to in Section 2 of this Article,

notice of any meeting of the Board of Directors during such an emergency may be given only to such of the Directors as it may be feasible to reach at the time and by such means as may be feasible at the time, including publication or radio.

(b) Three Directors shall constitute a quorum which may in all cases act by majority vote.

(c) If the number of Directors who are available to act shall drop below three, additional Directors, in whatever number is necessary to constitute a Board of three Directors, shall be selected automatically from the first available officers or employees in the order provided in the emergency succession list referred to in Section 2 of this Article.

(d) Additional Directors, beyond the minimum number of three Directors, but not more than three additional Directors, may be elected from any officers or employees on the emergency succession list referred to in Section 2 of this Article.

(e) The Board of Directors may establish any additional procedures and may amend any of the provisions of this Article concerning the interim management of the affairs of the corporation in an emergency if it considers it to be in the best interests of the corporation to do so, except that it may not change Sections 3 or 4(e) of this Article in any manner which excludes from participation any person who was a Director in office at the time an emergency arises.

(f) To the extent that it considers it practical to do so, the Board of Directors shall manage the business of the corporation during an emergency in a manner which is consistent with the Certificate of Incorporation of the Corporation and these Bylaws. It is recognized, however, that in an emergency it may not always be practical to act in this manner and this Emergency By-law is intended to and hereby empowers the Board of Directors with the maximum authority possible under the DGCL, and all other applicable law, to conduct the interim management of the affairs of the corporation in an emergency in what it considers to be in the best interests of the corporation.

SECTION 5. *Obvious Emergency.* If an obvious defense emergency exists because of an enemy attack and, if by reason of the emergency, the government of the United States is itself unable to declare a state of national emergency as contemplated by Section 1 of this Article, then:

(a) A quorum of the Board of Directors pursuant to Article II of these Bylaws may order the effectiveness of this Emergency By-law; or

(b) If a quorum of the Board of Directors pursuant to Article II of these bylaws is not present at the first Board of Directors meeting called, in the manner provided in Section 4(a) of this Article, after an emergency arises, then the provisions of this Emergency By-law shall automatically become effective and shall remain in effect until it is practical for a normally constituted Board of Directors to resume management of the business of the Corporation.