
**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549**

FORM 8-K

**CURRENT REPORT
PURSUANT TO SECTION 13 OR 15(d)
OF THE SECURITIES EXCHANGE ACT OF 1934**

Date of Report (Date of earliest event reported): October 22, 2013

MKS Instruments, Inc.

(Exact name of registrant as specified in its charter)

Massachusetts
(State or other jurisdiction
of incorporation)

000-23621
(Commission
File Number)

04-2277512
(IRS Employer
Identification No.)

2 Tech Drive, Suite 201, Andover, MA
(Address of principal executive offices)

01810
(Zip Code)

Registrant's telephone number, including area code: (978) 645-5500

Not applicable

(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
 - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
 - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
 - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e4(c))
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Item 5.02 Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers.

(b) On October 22, 2013, Leo Berlinghieri, the Chief Executive Officer of MKS Instruments, Inc. (the “Company”), agreed to retire as Chief Executive Officer and as a member of the board of directors of the Company effective as of the close of business on December 30, 2013.

(c) On October 22, 2013, the Board of Directors of the Company appointed Gerald G. Colella, the Company’s President and Chief Operating Officer, to be President and Chief Executive Officer of the Company, effective as of January 1, 2014. Information relating to Mr. Colella required by Items 401(b), (d) and (e) and Item 404(a) of Regulation S-K was included in the Company’s proxy statement filed with the Commission on March 14, 2013, and is hereby incorporated by reference. A description of the material terms of the employment agreement with Mr. Colella is provided at Item 5.02(e) below.

(d) On October 22, 2013, the Board of Directors of the Company appointed Gerald G. Colella as a Class I director of the Company, effective January 1, 2014, thereby filling the vacancy on the Board of Directors left by Mr. Berlinghieri’s retirement. Mr. Colella is not expected to serve on any committees of the Board. Information relating to Mr. Colella required by Item 404(a) of Regulation S-K was included in the Company’s proxy statement filed with the Commission on March 14, 2013, and is incorporated herein by reference.

The press release issued by the Company on October 23, 2013 announcing these management changes is filed as Exhibit 99.1 to this Current Report on Form 8-K.

(e) In connection with the organizational changes described above, the Company entered into the following agreements:

1. Separation Agreement with Leo Berlinghieri.

The Company entered into a separation agreement with Leo Berlinghieri, the Company’s Chief Executive Officer, relating to his agreed retirement as Chief Executive Officer as of December 30, 2013. The agreement provides for the continuation of base salary payments to Mr. Berlinghieri for 12 months after December 30, 2013. Mr. Berlinghieri and his spouse shall also receive retiree medical benefits for life. Mr. Berlinghieri (or his surviving spouse) will make an annual contribution of \$1,500 for these medical benefits, and will in addition pay a decreasing percentage of a portion of the costs of the benefit (from 30% to 10%) from age 62 until he reaches age 65. Mr. Berlinghieri shall also receive a payment equal to the premium for a conversion life insurance policy for one year under the Company’s life insurance program, a cash payment equal to the amount of the Company’s matching contribution had Mr. Berlinghieri continued in the 401(k) plan for one year after the termination date, and a cash payment equal to the Company’s cost of coverage for one year of long term disability insurance. Mr. Berlinghieri shall receive payment under the Company’s 2013 Management Incentive Plan on the basis of actual performance, at the same time such payment is made to executives who continue in employment, but no later than March 15, 2014.

In addition, in accordance with the terms of the supplemental retirement benefit contained in Mr. Berlinghieri’s employment agreement, upon his agreed retirement on December, 30, 2013, Mr.

Berlinghieri shall be fully vested in his supplemental retirement benefits. The benefits provide for a lump sum payment of an aggregate amount calculated based upon actuarial assumptions, payable six months after the date of termination. The benefit amount is determined based upon the actuarial equivalent value of an annuity equal to 50% of Mr. Berlinghieri's final average compensation, which is equal to the average of his three highest years of compensation (salary plus bonus) during the 10 calendar years prior to the year of retirement. The actuarial calculations include assumptions for decreased benefit continuation for Mr. Berlinghieri's surviving spouse (determined as a 50% survivor annuity) in the event of Mr. Berlinghieri's death.

The payments to Mr. Berlinghieri are subject to his execution of and compliance with customary releases, confidentiality obligations and other covenants. In particular, the separation agreement provides that Mr. Berlinghieri may not, during the term of his employment and for the period of one year after retirement, (i) engage in any competitive business or activity, (ii) work for any person who was the Company's executive, officer or agent, or establish any business or partnership with such person that is competitive to the Company, or (iii) have any material financial interest in or be a director, officer, partner, executive or consultant to or exceed specified shareholding limitations in, any of the Company's competitors. In addition, for a period of two years after retirement, Mr. Berlinghieri may not solicit any customer to become a customer, distributor or supplier of any other person or corporation or to cease doing business with the Company; or solicit or hire any of the Company's employees, officers or agents to terminate such person's employment or engagement with the Company or to work for a third party.

The Separation Agreement is filed as Exhibit 10.1 to this Current Report on Form 8-K and is incorporated herein by reference.

2. Employment Agreement with Mr. Colella

On October 22, 2013, in connection with Mr. Colella's appointment as Chief Executive Officer, the Company entered into a new employment agreement with Mr. Colella, effective as of January 1, 2014 (the "Employment Agreement"), which, when it becomes effective, will supersede his amended and restated employment agreement dated April 25, 2005, as amended (including appendices thereto), that is currently in effect between the Company and Mr. Colella (the "Original Employment Agreement").

Under the Employment Agreement, beginning January 1, 2014, Mr. Colella's base salary shall be \$600,000, he shall be eligible to participate in the Company's management bonus program, with a targeted goal of 100% of base salary subject to meeting performance goals to be determined by the Company's Compensation Committee (beginning with the Company's 2014 management incentive bonus program, when it is established), and the targeted value of Mr. Colella's total annual long-term equity-based incentive award shall be \$1,400,000 (determined when such grants are approved by the Company), subject to meeting vesting and/or performance goals to be determined by the Company's Compensation Committee. Mr. Colella's employment term shall be month-to-month, with termination upon 30 days' notice by either party, or upon death, disability, or at the Company's election if Mr. Colella fails to perform his duties or commits any act not in the best interests of the Company.

In the event Mr. Colella's employment is terminated by the Company without cause, he shall be entitled to one year continuation of his base salary, payment of any management bonus program bonus earned for the prior calendar year but not yet paid, reimbursement for premiums he pays (if any) for continuation of life insurance for 12 months if he elects the Company's group life insurance conversion feature, and payment for continuation of medical, dental or vision insurance for 12 months. Payment of such benefits shall be conditioned upon execution of a release by Mr. Colella and his full compliance with the restrictive covenants described below.

In the event Mr. Colella's employment is terminated due to death or total disability, or Mr. Colella voluntarily terminates his employment (other than for "good reason"), the Company shall pay all base salary accrued through the last date of employment, plus payment of any management bonus program bonus earned for the prior calendar year but not yet paid.

In the event Mr. Colella's employment is terminated without cause (as defined in Appendix A of the Employment Agreement) or is terminated by Mr. Colella for good reason (as defined in Appendix A of the Employment Agreement), in either case upon or at any time within two years of a change in control, Mr. Colella shall receive a lump sum payment equal to 36 months of base salary and 36 months of target bonus amount, payment of any management bonus program bonus earned for the prior calendar year but not yet paid, and continued participation in the Company's medical, dental, vision and life plans for 36 months. In the event such payments are determined to be subject to an excise tax imposed by the Internal Revenue Code Section 4999, such payments shall be payable in full or, if applicable, reduced so that no portion of the payments is subject to the excise tax, whichever of the foregoing amounts results in receipt by Mr. Colella on an after-tax basis of the greater amount, taking into account all applicable taxes, including the penalty tax.

The Employment Agreement provides that Mr. Colella may not, during the term of his employment and for the period of one year after termination of employment (or two years in the event Mr. Colella terminates his employment other than for good reason), (i) engage in any competitive business or activity, (ii) work for any person who was the Company's executive, officer or agent, or establish any business or partnership with such person that is competitive to the Company, (iii) give, sell or lease any competitive services or goods to any of the Company's customers; or (iv) have any material financial interest in or be a director, officer, partner, executive or consultant to or exceed specified shareholding limitations in, any of the Company's competitors.

Mr. Colella is also subject to non-solicitation restrictions. During the term of employment and for a period of two years after termination, Mr. Colella may not solicit any customer to become a customer, distributor or supplier of any other person or entity or to cease doing business with the Company; or solicit or hire any of the Company's executives, officers or agents to terminate such person's employment or engagement with the Company or to work for a third party.

In addition, the Employment Agreement continues to provide Mr. Colella the same supplemental retirement benefits as were provided under his Original Employment Agreement. The benefits vest (a) upon Mr. Colella reaching both (i) specified ages, and (ii) 25 years of service with the

Company, in each case while employed with the Company, or (b) upon his earlier death, disability, termination without cause (as defined in the employment agreements) or a qualifying termination in connection with a change in control (as defined in the agreement), and are forfeited in the event of termination for cause. When vested, subject to his execution of and compliance with customary releases, the supplemental retirement benefit provides for a lump sum payment to Mr. Colella (or in the event of his death, his spouse) of an aggregate amount calculated based upon actuarial assumptions, payable not sooner than six months after the date of termination (except in the case of death). The benefit amount is determined based upon the actuarial equivalent value of an annuity equal to 50% of Mr. Colella's final average compensation, which is equal to the average of his three highest years of compensation (salary plus bonus) during the 10 calendar years prior to the year of retirement (or other qualifying termination). The actuarial calculations include assumptions for decreased benefit continuation (determined as a 50% survivor annuity) for Mr. Colella's surviving spouse in the event of Mr. Colella's death. The benefits for Mr. Colella will vest 80%, 90% and 100% in the event of Mr. Colella's voluntary retirement at the ages of 60, 61 and 62, respectively. In the event that any payment under the supplemental retirement benefit would subject Mr. Colella to any excise taxes, interest or penalties imposed under Internal Revenue Code Section 4999, he shall receive gross-up payments for such amounts.

The Employment Agreement also continues to provide Mr. Colella and his spouse the same retiree medical benefits as were provided under his Original Employment Agreement. Accordingly, subject to his execution of and compliance with customary releases, Mr. Colella shall receive retiree medical benefits for life, in the event Mr. Colella (i) retires by at least age 62, (ii) is terminated without cause or terminates his employment for good reason, in each case within three years after a change in control, or (iii) terminates employment due to death or disability. Mr. Colella (or his surviving spouse) would pay an annual contribution of \$1,500, and, in the event of his retirement between age 62 and 65, would pay a decreasing percentage of the costs of the benefit (from 30% to 10%) until he reaches age 65.

The Employment Agreement is filed as Exhibit 10.2 to this Current Report on Form 8-K and is incorporated herein by reference.

Item 9.01 Financial Statements and Exhibits

(d) Exhibits

- 10.1 Separation Agreement between the Company and Leo Berlinghieri, dated October 22, 2013
- 10.2 Employment Agreement between the Company and Gerald G. Colella, dated October 22, 2013
- 99.1 Press Release dated October 23, 2013 announcing organizational change

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Date: October 24, 2013

MKS Instruments, Inc.

By: /s/ Seth H. Bagshaw

Seth H. Bagshaw,

Vice President, Chief Financial Officer & Treasurer

Exhibit Index

<u>Exhibit No.</u>	<u>Description</u>
10.1	Separation Agreement between the Company and Leo Berlinghieri, dated October 22, 2013
10.2	Employment Agreement between the Company and Gerald G. Colella, dated October 22, 2013
99.1	Press Release dated October 23, 2013 announcing organizational change

SEPARATION AGREEMENT

Introduction

Leo Berlinghieri ("Executive") agrees to accept the request of MKS Instruments, Inc. (the "Corporation") that he retire from service effective as of December 30, 2013. This Separation Agreement (the "Agreement") between the Executive and the Corporation sets forth, among other things, the terms under which, intending to be legally bound, Executive agrees to release the Releasees (as defined below) from all claims which the Executive might have against the Releasees in exchange for the receipt of certain payments and benefits set forth below to which the Executive is not otherwise entitled.

Terms

1. **Definitions.** As used in this Agreement, the following words shall mean the following:

(a) "Appendix A" means Appendix A to the Employment Agreement, as amended by the amendment dated December 21, 2012, and appended hereto as Appendix A for the convenience of the parties.

(b) "Corporation" means MKS Instruments, Inc., its subsidiaries, divisions, successors and assigns, its affiliated and predecessor companies or corporations, and their successors and assigns.

(c) "Employment Agreement" means the Employment Agreement between the Corporation and the Executive, dated July 1, 2005, as amended by the amendments to such agreement dated November 13, 2007 and October 19, 2009.

(d) "Executive" means Leo Berlinghieri.

(e) "Releasees" means the Corporation, its present or former directors, officers, shareholders, members, employees, attorneys, insurers, representatives and agents, whether in their individual or official capacities and the current and former trustees or administrators of any pension or other benefit plan applicable to the employees or former employees of the Corporation in their official and individual capacities.

(f) "Second Release" means the general release agreement set forth in Appendix B hereto to be executed by Executive upon the Termination Date.

(g) "Termination Date" means the close of business (Eastern Standard Time) on December 30, 2013.

2. **Severance Payments and Other Benefits.** After receiving this signed Agreement and the signed Second Release (in the form appended hereto as Appendix B) from Executive and upon the expiration of the waiting period described in Paragraph 5 (the "Effective Date") of the Second Release, the Corporation will provide Executive with the payments and benefits described in paragraphs (a) through (d) below:

(a) **Severance Benefit.** Executive will continue to receive payments of his Base Salary (as defined in the Employment Agreement) for 12 months after his Termination Date to be paid on the Corporation's normal payroll dates. The payments in Paragraph 2(a) will commence as soon as practicable following the Effective Date of the Second Release (as defined in Paragraph 5 thereof), but no later than 20 days after the Effective Date of the Second Release.

(b) **Retiree Medical Benefits.** Executive and his eligible spouse will receive retiree medical benefits for their respective lifetimes, except that if the Executive is eligible at any time to receive comparable medical benefits from any subsequent employer, the Executive and his eligible spouse shall not be eligible to receive the benefits under this Section 2(b) during the time that he is eligible to receive such benefits from a subsequent employer, but will be eligible to receive such benefits thereafter. The Corporation shall provide medical coverage either through the Corporation's medical plan or through the purchase of fully insured medical plans for the Executive and his spouse. Any insurance plans purchased for the Executive and his eligible spouse who are less than 65 years old shall be a high benefit plan compared to the Corporation's group medical plan selected by the Executive immediately prior to the termination of employment. The insurance plans purchased for the Executive and his spouse who are 65 or more years old shall be Blue Cross/Blue Shield's Medex Gold or other comparable high benefit medical plan. The Executive (or surviving spouse) will be required to contribute a fixed annual amount of \$1,500 for each year that he (or surviving spouse) remains eligible for retiree medical benefits. In addition to such \$1,500, the Executive (or surviving spouse) shall be required to pay a portion of the expenses of the retiree medical benefit as follows, based upon the age of the Executive:

<u>Age of Employee</u>	<u>Percentage</u>
62	30%
63	20%
64	10%
65 or More	0%

(c) **Supplemental Retirement Benefit.** The Corporation acknowledges and confirms that Executive is fully vested in his entire accrued Supplemental Retirement Benefit under Appendix A. Distribution of his benefit will be made in accordance with the terms of Appendix A. Executive acknowledges that payments of such benefit as a result of his termination of employment cannot begin before the date that is six months after his termination.

(d) **Other Benefit Continuation.** The Executive also shall receive the following benefits:

- (i) The Executive shall receive a cash payment equal to the amount of premium that would apply if Executive were to elect to exercise the conversion feature of the Corporation's group life insurance policy and maintain such policy for the 12-month period following the Executive's termination. Such payment shall be made no later than March 15, 2014.
- (ii) The Corporation will make a cash payment to Executive equal to the matching contribution that would have been contributed to Executive's account in the Corporation's 401(k) plan if he had continued participation in such plan for the 12-month period following the Termination Date. Such payment shall be calculated assuming that the Executive would have contributed the maximum amount permitted under such plan for 2014, and shall be paid no later than March 15, 2014.
- (iii) The Executive shall receive a cash payment equal to the Corporation's cost of coverage for long-term disability insurance coverage equivalent to the coverage that he would receive as an employee of the Corporation for the 12-month period following the Executive's termination. Such payment shall be made no later than March 15, 2014.

In order for Executive to be eligible to receive the payments under paragraphs (a), (b) and (d) above, Executive must (i) sign this Agreement and deliver it to the Corporation no later than October 14, 2013, and not revoke it; and (ii) sign the Second Release and deliver it to the Corporation upon his termination of employment on December 30, 2013, but in no event later than close of business on January 3, 2014, and the Second Release becomes effective in accordance with its terms. Such release provisions shall also be deemed to fully satisfy the release provisions set forth in Appendix A.

Should the Executive breach any of his obligations under the Employment Agreement, this Agreement, or the Corporation's Confidentiality Agreement, or makes a false representation in this Agreement, the Executive's right to severance payments shall immediately cease and Executive shall be required to repay all amounts paid by the Corporation pursuant to Section 2(a) and Section 2(d), except for the amount of \$1,000, which the Executive shall be entitled to retain. If the Corporation is forced to initiate litigation to recover those monies, Executive shall pay the Corporation its attorneys' fees and costs incurred in enforcing this Agreement.

Regardless of whether he returns this Agreement, the Executive also will receive any unpaid base salary (as defined in the Employment Agreement) that has accrued as of December 30, 2013, an amount equivalent to any accrued but unused vacation days, and any unreimbursed expenses due to Executive for which Executive timely has provided acceptable supporting documentation in accordance with the Corporation's policies. The Executive's 2013 annual bonus under the Management Incentive Plan will be paid on the basis of actual performance at the same time such payment is made to executives who continue in employment, but in no event later than March 15, 2014.

The Corporation acknowledges that the Executive is fully vested in his Restricted Stock Unit grants under the Corporation's 2004 Stock Incentive Plan due to his attainment of age 60 with 10 Years of Service, subject to the satisfaction of any performance conditions that may apply to certain grants. Such stock awards shall be transferred as soon as practicable in 2013.

3. General Release of Claims. In exchange for receiving the payments and benefits described in paragraphs (a) through (d) in Section 2 after the Effective Date of the Second Release, which payments and benefits Executive acknowledges are sufficient consideration to support his signing both Releases, Executive hereby agrees that Executive is releasing the Releasees from, and waiving, any claim that Executive may have against them for any act, omission, incident or situation which may have occurred at any time up until the effective date of this Agreement (as defined in Section 5). This includes RELEASING AND FOREVER DISCHARGING the Releasees from AND WAIVING:

(a) Any claims arising under Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act, the Americans with Disabilities Act, the Rehabilitation Act, the Equal Pay Act, 42 U.S.C. §§ 1981, 1982, 1983 and 1985, the Massachusetts Fair Employment Practices Act, M.G.L. c. 151B; the Fair Labor Standards Act; the Family and Medical Leave Act, 29 U.S.C. § 2601 et seq., the Massachusetts Civil Rights Act; the Massachusetts Equal Rights Law; the Massachusetts Minimum Fair Wages Statute (M.G.L. c. 151, §§ 1A and 1B); the Massachusetts Payment of Wages Statute (M.G.L. c. 149, § 148, et seq.); the Massachusetts "Blue Laws" (M.G.L. c. 136); and any other claims arising under Chapters 149 through 154 of the Massachusetts General Laws, and any amendments to these statutes;

(b) Any claims arising under the Family and Medical Leave Act, the National Labor Relations Act, the Sarbanes-Oxley Act of 2002, and all other federal, state, and local laws or ordinances relating to employment;

(c) Any claims arising under the Employee Retirement Income Security Act ("ERISA") (but not claims to vested ERISA benefits) or any other federal or state law pertaining to employee retirement or welfare benefits;

(d) Any claims arising under any other federal, state or local statutory or regulatory provision;

(e) Any claims arising under federal common law or under the common law of any state or country; and

(f) Any claims for attorneys' fees and/or costs.

In addition to waiving and releasing the claims covered by this Section, Executive further agrees and covenants not to sue the Corporation or become party to a lawsuit in any forum for any reason, including but not limited to claims of any type or based on any laws or theories whatsoever covered by the General Release language in this Section.

Notwithstanding the above, this Agreement does not prevent Executive from pursuing any claim to enforce this Agreement or from pursuing any right or claim which cannot be waived

by law. This means, among other things, that even if Executive signs this Agreement, he retains his right to file a charge of discrimination with the Equal Employment Opportunity Commission or the Massachusetts Commission Against Discrimination and to assist in Commission investigations. By signing this Agreement, however, Executive is waiving any right to recover any relief in federal or state court, in any administrative proceeding or in arbitration, whether such a claim for relief is brought by Executive or through the EEOC (or a comparable state or local agency) or as part of a class action proceeding. This Agreement also does not prevent Executive from asserting any future rights Executive may have to any vested benefits that Executive may be entitled to receive.

The Corporation represents to the Executive that the Board is not currently aware of any claims that it intends to pursue against the Executive.

4. **Acknowledgements.** By signing this Agreement, Executive is hereby acknowledging and agreeing that: (a) he is competent to enter into this Agreement and the Corporation has made him fully aware of his right to discuss any and all aspects of this Agreement with an attorney of his choice; (b) except for the promises contained in this document, the Corporation has made no other promise of any kind to Executive to cause Executive to sign this Agreement; (c) what Executive is receiving under this Agreement is in addition to anything of value to which he is already entitled and is adequate and satisfactory to him; (d) the Corporation shall make all necessary withholdings and deductions required by law from the payments described herein; (e) Executive has been equitably compensated and not adversely affected by a discriminatory compensation decision or other discriminatory practice including any claim that compensation, payments or benefits received up to the date of this Agreement were reduced because of discrimination based on gender, race, national origin, age, or disability, and any complaints concerning compensation have been handled in good faith by the Corporation; (f) Executive has not been subject to any retaliation or any other form of adverse action by the Corporation for any action taken as an officer and employee of the Corporation or resulting from Executive's exercise of or attempt to exercise any statutory rights recognized under international, federal, state or local law; (g) Executive has not filed or caused to be filed any complaints, suits, actions, charges, claims and/or proceedings relating to or arising out of his employment including, without limitation, any external complaint, claim, charge, action or proceeding against the Corporation, in any jurisdiction or forum including without any complaint that might fall under any federal or state whistleblower protection act; and (h) Executive has not suffered any on-the-job injury for which he has not already filed a claim; (i) Executive has no personal knowledge of any fraudulent activity or any act(s) that would form the basis of a claim of fraudulent or illegal activity by the Corporation and has no personal knowledge of any facts or circumstances that would give the Executive reason to believe that any of the Corporation's previously filed financial statements are incorrect or inaccurate, and Executive has shared all facts and information in his possession with the Board of Directors of the Corporation and its committees relating to the Corporation's preparation of its quarterly and annual financial statements and its internal controls and procedures; and (j) the payments and benefits specified in this Agreement constitute full and final payment in settlement of all waivable claims of any kind, known or unknown, which Executive may have against the Releasees. Executive further acknowledges that he has carefully read and fully understands all of the provisions of this Agreement, that he has had the opportunity to discuss the provisions of this Agreement with an attorney, and that Executive is voluntarily entering into this Agreement.

5. **Consideration Period.** Executive acknowledges and agrees that he has been given a period of up to twenty-one (21) days in which to consider the terms of this Agreement and that this Agreement shall not become effective and binding until seven (7) days following the date of his signature. Executive further acknowledges that the modifications made in this document from the prior version of this Agreement that Executive executed on Friday, October 11, 2013, are not material changes and do not provide for a new twenty-one (21) day consideration period or a new seven (7) day revocation period. Prior to such time (seven (7) days following October 11, 2013), Executive may elect to revoke this Agreement. If Executive chooses to revoke this Agreement, he agrees to notify the Chair of the Board of Directors of the Corporation in writing within the seven day revocation period following his execution of the Agreement. If Executive does not sign and return the Agreement within the specified period, or he attempts to revoke it, Executive will forfeit any payments contingent on the Agreement. The General Release contained herein is intended to comply with the Older Workers Benefit Protection Act of 1990 (the "OWBPA") with regard to Executive's waiver of rights under the ADEA. Unless revoked by the Executive, this Agreement shall become effective eight calendar days after the date that Executive signs this Agreement, as evidenced by the date adjacent to his signature at the end of this Agreement. Payments contingent upon the Executive entering into this Agreement and the Second Release will not be made (or begin) prior to the expiration of the period specified for revoking the Agreement or the Second Release. If the period for signing and returning the Agreement or Second Release extends into a later taxable year, any payments contingent upon the Agreement and the Second Release will be made (or begin) in the later taxable year.

6. **Claims Arising After Signing of this Agreement.** By signing this Agreement, Executive is not waiving any claims against the Releasees for any act or omission that may occur after the signing of this Agreement.

7. **Relinquishment of Roles.** Executive hereby agrees: (a) that his employment relationship with the Corporation will end as of the Termination Date; (b) that he resigns from all boards and committees to which he has been appointed to represent the Corporation's business interests, effective as of the Termination Date; and (c) that he forever waives any right to reinstatement, recall or future employment with the Corporation, unless agreed otherwise in writing by the parties.

8. **Confidentiality.** The Corporation and Executive recognize and acknowledge the parties' mutual interest in the confidentiality of this Agreement and the Second Release. The parties understand and agree that, any and all information concerning the terms and existence of this Agreement and the Second Release, including but not limited to the monetary consideration paid to Executive under this Agreement and the Second Release are and shall be kept completely confidential. This provision is intended to be and is part of the valuable consideration which both parties exchange pursuant to this Agreement. Accordingly, the parties, individually and collectively, specifically agree that they will not discuss, disclose or otherwise reveal any information concerning this Agreement and the Second Release, directly or indirectly, to any person or entity, except as provided herein below or as may be required by law or ordered by a court of competent jurisdiction.

(a) Executive agrees that he will keep the terms of this Agreement and the Second Release completely confidential, except for disclosure by him: (a) to his immediate family members; (b) to his attorney; (c) to his accountant; (d) to his bona fide professional financial adviser; (e) to prospective employers; or (f) as required by law. If Executive discloses the terms of this Agreement to any of the persons or entities listed above, Executive will advise them that they must not disclose the terms of this Agreement to anyone else.

(b) The Corporation likewise agrees to keep the fact of this Agreement and the Second Release and its terms completely confidential and will only share this Agreement and the Second Release with (a) those whose approval is required to enter into the Agreement or whose participation is necessary to administer the Corporation's compliance with the Agreement; (b) with its employees or agents to the extent necessary for legitimate business or tax-related purposes; (c) to any governmental or regulatory entity in the exercise of such entity's authority including, but not limited to, the Securities and Exchange Commission; or (d) as required by law. When the terms of this Agreement are properly disclosed to the Corporation's employees or agents under this paragraph, the Corporation shall inform the person receiving the disclosure that the disclosure is confidential.

9. **No Admission.** Neither this Agreement nor anything contained in this Agreement shall be construed as an admission by the Releasees of any acts of wrongdoing against Executive and the Releasees specifically disclaim any liability to Executive for any discrimination, retaliation or any other unlawful conduct whatsoever. This Agreement shall not be admissible in any proceeding as evidence of an admission by the Releasees of any violation of any federal, state or local statute, regulation, ordinance, order or common law.

10. **Cooperation.**

(a) Executive agrees to cooperate with the Corporation in the communication of his agreed retirement to employees, customers, regulatory agencies and such other parties as deemed necessary by the Corporation, and in the transition of the Executive's responsibilities to his successor.

(b) Executive hereby agrees that he will cooperate in the defense of any claim against the Corporation, in the pursuit of any claim by or on behalf of the Corporation, or in any investigation of wrong-doing relating to the Corporation (whether internal or governmental). The Corporation agrees to reimburse Executive for all reasonable expenses that Executive incurs in connection with providing such cooperation so long as Executive provides the Corporation with receipts of his expenditures. Executive also agrees that if he is required by process of law to testify in any cause of action relating in any way to the Corporation, he will immediately notify the Corporation's General Counsel orally and in writing, and shall use his best efforts not to testify until the Corporation has a reasonable opportunity to oppose such testimony, if the Corporation desires to do so.

11. **Venue.** Executive hereby agrees that venue is in Suffolk County, Massachusetts, where any controversy or claim arising out of or relating to this Agreement shall be resolved.

12. **Dismissal of Claims.** Executive hereby agrees that he will take all steps necessary to dismiss with prejudice any and all pending complaints, charges and grievances against the Releasees, except with respect to any charges that may be pending before the Equal Employment Opportunity Commission. Except as otherwise provided herein, if Executive breaches Section 3 of this Agreement by filing or refusing to dismiss a complaint, charge, grievance, arbitration, or lawsuit based on claims that Executive has released, Executive will pay for all costs, fees and expenses incurred by any person Executive complains against or sues in violation of this Agreement in defending against Executive's claim, including, without limitation, reasonable attorneys' fees.

13. **Surviving Restrictive Covenants.** Executive acknowledges that the following restrictive covenants under his Employment Agreement apply to him through and following December 30, 2013:

(a) Executive will communicate to the Corporation, and will not divulge or communicate to any other person, partnership, corporation or other entity without the prior written consent of the Corporation, any trade secrets of the Corporation or confidential information relating to the business of the Corporation or anyone connected with the Corporation, and that such trade secrets and confidential information shall not be used by the Executive either on his own behalf or for the benefit of others or disclosed by the Executive to any one, except to the Corporation, during or after the term of employment of the Executive under the Employment Agreement.

(b) The Executive agrees that after his employment is terminated he will carry out and perform all of the agreements in Section 8 of the Employment Agreement (relating to Inventions), and will at any time and at all times cooperate with the Corporation in the prosecution and/or defense of any litigation which may arise in connection with the Inventions, provided, however, that the Executive shall be paid reasonable compensation on a per diem basis for any such services rendered after his termination of employment.

(c) During a period of one year after the Executive's termination of employment: (i) the Executive shall not engage, either directly or indirectly, in any manner or capacity, in any business or activity which is competitive with any business or activity conducted by the Corporation; (ii) the Executive shall not work for, directly or indirectly, any person who was an employee, officer or agent of the Corporation or of any of its subsidiaries at any time during a period of 12 months prior to the termination of the employment of the Executive under this Employment Agreement nor shall the Executive form any partnership with, or establish any business venture in cooperation with, any such person which is competitive with any business or activity of the Corporation; (iii) the Executive shall not have any material financial interest, or participate as a director, officer, 1% stockholder, partner, employee, consultant or otherwise, in any corporation, partnership or other entity which is competitive with any business or activity conducted by the Corporation.

(d) For a period of 24 months following the Executive's termination of employment, he shall not, on his own behalf or in the service or on behalf of others, directly or indirectly:

- (i) solicit, entice or induce any Customer (as defined in the Employment Agreement) to become a customer, distributor or supplier of any other person, firm or corporation with respect to products and/or services sold or under development by the Corporation during his employment at the Corporation, or to cease doing business with the Corporation, and the Executive shall not contact or approach any such person, firm or corporation for such purpose or authorize or knowingly approve the taking of such actions by any other person; or
- (ii) solicit, recruit or hire (or attempt to solicit, recruit or hire) any employee, officer or agent of the Corporation or contractor engaged by the Corporation (whether or not such person is a full-time employee or whether or not such employment is pursuant to a written agreement or at-will) to terminate such person's employment or engagement with the Corporation or work for a third party other than the Corporation, or engage in any activity that would cause such employee or contractor to violate any agreement with the Corporation, nor shall the Executive form any partnership with, or establish any business venture in cooperation with, any such person.

(e) Executive agrees that any breach of the covenants in paragraphs (a) through (d) will cause irreparable injury to the Corporation and that damages for any breach are difficult to calculate. Therefore, the Corporation shall, at its election, be entitled to injunctive and other equitable relief from a court in addition to whatever other relief or remedies, including damages, may be available. Executive and the Corporation agree that, in the event a court or arbitrator should decline to enforce the non-competition or non-solicitation provision as written in above, such provisions shall be deemed to be modified to apply to the maximum extent intended in those provisions as the court or arbitrator shall find enforceable.

(f) For 12 months after his termination of employment, Executive will notify the Chair of the Board of Directors of the Corporation of any new employment he obtains. Such notification shall be made in writing within five business days of the date Executive accepts an offer of employment, and no later than the date Executive commences such employment. Upon receipt of such notice, the Corporation may send such employer a letter in substantially the form set forth in Appendix C.

14. **Return of Company Property.** Executive further represents and warrants that Executive will transfer by December 30, 2013, to the Corporation all property and information of the Corporation or its customers which came into Executive's possession or were developed by

Executive in the course of his employment with or service to the Corporation; Executive further represents and warrants that he shall not retain copies of any such materials or other items belonging to the Corporation; and should Executive discover that any such materials or other items, or copies thereof, are in Executive's possession or control, Executive will promptly return them to the Corporation without disclosure to others.

15. **Clawback.** Executive agrees to return all or a portion of any Management Incentive Plan payments for the performance period(s) in which his termination of employment occurs and any performance period ending within the thirty-six (36) month period prior to his termination of employment, if it is later determined that that these awards were calculated on the basis of inaccurate information that results in a restatement of the Corporation's financial statements for the applicable period(s) or for any other reason for which a clawback is required under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. Repayment of any amounts pursuant to this paragraph shall be made, net of applicable taxes Executive paid on those payments, within ten (10) days of written demand by the Corporation. The Corporation will provide Executive with a calculation of the amount that is subject to this paragraph with its demand for repayment.

16. **Arbitration.** Any dispute under this Agreement or the Second Release shall be resolved by final and binding arbitration; provided, however, that the Corporation, in its sole discretion, may enforce the covenants set out above in Section 13 of this Agreement by bringing a proceeding in any court of competent jurisdiction. In addition, any issues pertaining to the ability to arbitrate a dispute under this Agreement or the Second Release shall be determined by a court of competent jurisdiction and not by an arbitrator. The arbitration shall be held in the Commonwealth of Massachusetts and shall be conducted in accordance with the then-prevailing Commercial Arbitration Rules of the American Arbitration Association. The arbitrator shall be acceptable to both the Corporation and the Executive. If the parties cannot agree on an acceptable arbitrator, the dispute shall be heard by a panel of three arbitrators, one appointed by the Corporation and one appointed by the Executive, and the third selected by the other two arbitrators. Under no circumstances may the arbitrator(s) have the authority to require the Executive's reinstatement to employment or continued employment, or award any lost wages or benefits (other than severance benefits as described above) as a result of Executive's termination of employment for any reason. The arbitrator(s) shall also have no authority to award punitive, liquidated or consequential damages or the payment of a prevailing party's costs and/or attorneys' fees. Each party shall bear its own costs and expenses and an equal share of the arbitrators' and administrative fees of arbitration. The Corporation, the Executive and the arbitrator(s) shall treat all aspects of the arbitration proceedings, including without limitation, discovery, testimony and other evidence, briefs and the award, as strictly confidential; provided, however, that any award or order rendered by the arbitrator(s) under this Agreement or the Second Release may be entered as a judgment or order in a court of competent jurisdiction and may be disclosed by the Corporation as necessary to enforce the terms of the restrictive covenants in Section 13 of this Agreement.

17. **Section 409A Compliance.** Payments under this Agreement are deemed to be separate payments for purposes of applying the short-term deferral rule in Treas. Reg. § 1.409A-1(b)(4) and in determining separation pay due to involuntary separation from service under Treas. Reg. § 1.409A-1(b)(9)(iii). Further, to the extent that Executive is entitled to the

reimbursement of expenses incurred during his employment, such reimbursement will be made in accordance with the provisions of the applicable Corporation plan or policy, but in no event later than the last day of his taxable year following the taxable year in which the expense was incurred. The amount of expenses eligible for reimbursement or in-kind benefits provided by the Corporation in any taxable year will not affect the amount of expenses or in-kind benefits to be reimbursed or provided in any other year (except in the case of maximum benefits to be provided under a medical reimbursement arrangement, if applicable). The Executive acknowledges that certain payments will be paid no earlier than the date that is six months after the Executive's termination of employment, as required under Internal Revenue Code Section 409A(a)(2)(B)(i) and the regulations thereunder.

18. **Miscellaneous.** Executive also agrees that: (i) if a tribunal determines a portion of this Agreement to be invalid or unenforceable, the remainder of this Agreement shall not be affected and shall be enforceable to the fullest extent permitted by law; and (ii) Executive may not assign any rights or obligations he has under the Agreement. The Corporation's rights and duties under this Agreement shall be transferred to, and shall be binding upon, any corporation or other entity which succeeds to the rights and obligations of the Corporation by operation of law or otherwise. Any court litigation brought to challenge the enforceability of any of the provisions of this Agreement may be brought only in a court of competent jurisdiction in the Commonwealth of Massachusetts.

19. **Nondisparagement.** Executive hereby agrees that, except under compulsion of law, as permitted under Section 3 or as necessary to enforce this Agreement, Executive will make no oral or written statement about the Corporation or its officers, directors, management or legal staff, that would be negative, derogatory or disparaging to the good name or business reputation of the Corporation or any of its employees, representatives, officers or directors. The Corporation similarly agrees that, except under compulsion of law or as necessary to defend any Releasees in any administrative agency or court action, it will not authorize any of its employees, representatives, officers or directors to make any negative, derogatory or disparaging statements about the Executive, generally, or his job performance while employed by the Corporation.

20. **Reference.** The Corporation agrees that if it receives a request for an employment reference from a third party, that it will direct the inquiry to Chair of the Board of Directors.

21. **Entire Agreement.** This Agreement represents the full and complete understanding of the Corporation and the Executive. This Agreement shall supersede the Employment Agreement except as expressly incorporated herein, and any inconsistent provision in Appendix A. No prior or contemporaneous oral or written agreements may be offered to alter its terms. This Agreement shall be binding upon the Corporation and the Executive and upon their parties' heirs, successors and assigns. This Agreement may not be modified except in a written document signed by the Executive and the Chair of the Board of Directors.

22. **Counterparts.** This Agreement may be executed in one or more counterparts, each of which shall be deemed an original and all of which together shall constitute one instrument.

23. **Governing Law.** This Agreement shall be governed by and interpreted in accordance with the laws of the Commonwealth of Massachusetts, without regard to its conflict of law provisions and except to the extent federal law applies.

[signature page follows]

PLEASE READ CAREFULLY. EMPLOYEE SHOULD CONSULT WITH COUNSEL BEFORE SIGNING THIS DOCUMENT. THIS AGREEMENT INCLUDES A RELEASE OF KNOWN AND UNKNOWN CLAIMS.

WITNESS: /s/ C Langtry 10/18/13 /s/ Leo Berlinghieri 10/18/13
Date Date Leo Berlinghieri Date

MKS INSTRUMENTS, INC.

ATTEST: /s/ C Langtry 10/22/13 By: /s/ John R. Bertucci 10/22/13
Date Date Chair, Board of Directors Date

Whereas, MKS Instruments, Inc. (“ the “Company”) and Leo Berlinghieri (“Employee”) have entered into an employment agreement dated July 1, 2005, Appendix A of which includes deferred compensation benefits, and

Whereas, such deferred compensation benefits are subject to the provisions of Internal Revenue Code Section 409A, and

Whereas Appendix A has been administered in accordance with the provisions of Section 409A as of January 1, 2005, and

Whereas, Appendix A must be formally amended in writing on or before December 31, 2008, to incorporate applicable provisions of Section 409A in order to avoid potentially adverse tax consequences to Employee,

Now, therefore, in accordance with Section 16 of Appendix A, the Company and Employee hereby agree that Appendix A of the Agreement is amended in its entirety to read as follows, effective as of November 10, 2008:

APPENDIX A Supplemental Retirement Benefits

1. Purpose. (a) General: The purpose of this Appendix A is to provide Employee with supplemental retirement benefits to encourage his continued employment with the Corporation. Benefits will be payable only if Employee fully complies with all of the requirements of this Appendix A.

(b) For Benefit of Employee Only: Benefits under this Appendix A are provided for the benefit of Employee only. No other employee shall accrue any rights of any kind as a result of the existence of the arrangement described in this Appendix A. Supplemental retirement benefits may be provided to an employee only as specifically authorized by the Board of Directors of the Corporation.

(c) Internal Revenue Code Section 409A: The provisions of this Appendix A shall be interpreted in a manner consistent with the requirements of Section 409A of the Internal Revenue Code.

2. Definitions. As used in this Appendix A, the following terms have the meanings set forth below, unless a different meaning is required by the context:

2.1. “Actuarially Equivalent” means a benefit of equivalent value to another benefit, determined on the following basis:

Interest Rate: The average annual interest rate on 10-year Treasury securities as published by the Federal Reserve for the calendar quarter immediately preceding the calendar quarter in which the actuarially equivalent benefit is being determined plus 25 basis points; and

Mortality: The most recent “applicable mortality table” prescribed by Section 417(e)(3)(A)(ii) of the Internal Revenue Code (or a successor provision as determined by the Corporation).

2.2. "Base salary." means base salary as defined in the Employment Agreement, before any pre-tax salary reductions for participation in any benefits plan of the Corporation.

2.3. "Beneficiary." means one or more persons, trusts, estates or other entities, designated by Employee to receive death benefits under Section 6.1(b) of this Appendix A upon Employee's death. If Employee fails to designate a Beneficiary or if all designated Beneficiaries predecease Employee, then such death benefits shall be payable to the executor or personal representative of Employee's estate.

Employee shall designate his Beneficiary by completing and signing a beneficiary designation form prescribed by the Corporation, and returning it to the Corporation or its designated agent. Employee shall have the right to change a Beneficiary by completing, signing and otherwise complying with the terms of the beneficiary designation form and the Corporation's rules and procedures, as in effect from time to time. Upon the acceptance by the Corporation of a new beneficiary designation form, all Beneficiary designations previously filed shall be canceled. The Corporation shall be entitled to rely on the last beneficiary designation form filed by Employee and accepted by the Corporation prior to his or her death. No designation or change in designation of a Beneficiary shall be effective until received and acknowledged in writing by the Corporation or its designated agent. If the Corporation has any doubt as to the proper Beneficiary to receive payments pursuant to this Appendix A, the Corporation shall have the right, exercisable in its discretion, to withhold such payments until this matter is resolved to the Corporation's satisfaction.

2.4. "Bonus" means a bonus paid under the Corporation's Management Incentive Program.

2.5. "Change in Control" means the first to occur of any of the following events:

- (a) Any "person" (as that term is used in Section 13 and 14(d)(2) of the Securities Exchange Act of 1934 ("Exchange Act")) becomes the beneficial owner (as that term is used in Section 13(d) of the Exchange Act), directly or indirectly, of fifty percent (50%) or more of the Company's capital stock entitled to vote in the election of directors;
- (b) The shareholders of the Company approve any consolidation or merger of the Company, other than a consolidation or merger of the Company in which the holders of the common stock of the Company immediately prior to the consolidation or merger hold more than fifty percent (50%) of the common stock of the surviving corporation immediately after the consolidation or merger;
- (c) The shareholders of the Company approve any plan or proposal for the liquidation or dissolution of the Company; or
- (d) The shareholders of the Company approve the sale or transfer of all or substantially all of the assets of the Company to parties that are not within a "controlled group of corporations" (as defined in Code Section 1563) in which the Company is a member.

2.6. "Corporation" means MKS Instruments, Inc. (the "Company") and any corporation, trust, association or enterprise which is required to be considered, together with the Corporation, as one employer pursuant to the provisions of Sections 414(b), 414(c), 414(m) or 414(o) of the Code. For purposes of applying Code sections 1563(a)(1), (2), and (3) and regulation section 1.414(c)-2 to the determination of companies under common control for purposes of this Appendix A, 80% shall be used instead of "at least 80%" each place it appears in such sections.

2.7. "Compensation" for any calendar year means the sum of Employee's Base Salary for such year plus any Bonus paid in such year.

2.8. "Early Retirement Benefit" means the Retirement benefit determined under Section 5.2 of this Appendix A upon Employee's Retirement prior to his Normal Retirement Date.

2.9. “Employment Agreement” means the Employment Agreement between Employee and the Corporation that contains this Appendix A.

2.10. “Final Average Pay” means, for purposes of Section 5 the average of Employee’s three (3) highest years of Compensation during the ten (10) calendar year period immediately preceding the calendar year in which Employee Retires, and for purposes of determining death benefits under Section 6 the average of Employee’s three (3) highest years of Compensation during the ten (10) calendar year period immediately preceding the calendar year containing Employee’s date of death. The foregoing notwithstanding, any calendar year in which Employee has no Compensation from the Corporation shall be ignored in determining such ten calendar year period.

2.11. “Normal Retirement Age” means Employee’s 65th birthday or, if earlier, the date Employee is deemed to have Retired in accordance with Section 2.15(b).

2.12. “Normal Retirement Benefit” means the Retirement benefit determined under Section 5.1 of this Appendix A upon Employee’s Retirement on or after his Normal Retirement Date.

2.13. “Normal Retirement Date” means the first day of the month in which Employee attains Normal Retirement Age.

2.14. “Permanent and Total Disability” means (a) Employee is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or can be expected to last for a continuous period of not less than 12 months, or (b) Employee is, by reason of any medically determinable physical or mental impairment that can be expected to result in death or can be expected to last for a continuous period of not less than 12 months, receiving income replacement benefits for a period of not less than three months under an accident and health plan covering employees of the Corporation. Employee shall be conclusively presumed to be Permanently and Totally Disabled upon determination that he is disabled by the Social Security Administration.

2.15. “Retirement” or “Retires” or “Retired” means the earlier of:

- (a) Employee’s Separation from Service with the Corporation upon or after satisfying the vesting requirements of Section 4.1, or
- (b) Employee’s deemed Retirement. Employee shall be deemed to have Retired with a fully vested Normal Retirement Benefit on the earliest of
 - (i) the date he becomes

Permanently and Totally Disabled, (ii) the date of Employee's Separation from Service as a result of the Corporation's termination of Employee's employment with the Corporation for any reason other than Termination for Cause as defined in Section 2.21 of this Appendix A, (iii) the date of Employee's death while employed by the Corporation, or (iv) the date of Employee's qualifying Separation from Service following a Change in Control in accordance with the provisions of Section 7 of this Appendix A.

2.16. "Retirement Date" means the date Employee Retires or is deemed to have Retired in accordance with Section 2.15 of this Appendix A. The term "Retirement Date" shall include Employee's Early Retirement Date as defined in Section 5.2 of this Appendix A.

2.17. "Section 409A" means Section 409A of the Internal Revenue Code, as the same may be amended from time to time, and any successor statute thereto. References in this Appendix A to Section 409A shall be deemed to mean and include any published guidance, regulations, notices, rulings and similar announcements issued by the Internal Revenue Service or by the Secretary of the Treasury under or interpreting Section 409A, decisions by any court of competent jurisdiction involving a Participant or a beneficiary and any closing agreement made under section 7121 of the Code that is approved by the Internal Revenue Service and involves a Participant, all as determined by the Corporation in good faith, which determination may (but shall not be required to) be made in reliance on the advice of such tax counsel or other tax professional(s) with whom the Corporation from time to time may elect to consult with respect to any such matter.

2.18. "Separates from Service" or "Separation from Service" means Employee's separation from service with the Corporation as a result of death retirement, or any other reason, except that for purposes of this section 2.18 the employment relationship is treated as continuing intact while Employee is on military leave, sick leave, or other bona fide leave of absence if the period of such leave does not exceed six months, or if longer, so long as Employee retains a right

to reemployment with the Corporation under an applicable statute or by contract. For purposes of this Section 2.18 a leave of absence constitutes a bona fide leave of absence only if there is a reasonable expectation that the employee will return to perform services for the employer. If the period of leave exceeds six months and the individual does not retain a right to reemployment under an applicable statute or by contract, the employment relationship is deemed to terminate on the first date immediately following such six-month period. Whether an Employee has a Separation from Service shall be determined in accordance with the provisions of Section 409A, and regulations thereunder, and any other applicable guidance.

2.19. "Specified Employee" means, at any time when stock of the Corporation is publicly traded on an established securities market or otherwise (as determined in accordance with Section 409A), an employee who is a "specified employee" within the meaning of Section 409A. The Corporation shall have the discretion to use any alternative permitted under Section 409A to determine whether Employee is a Specified Employee, and to take any action necessary to make such alternative binding.

2.20. "Termination of Employment" means, for purposes of Section 4.6 of this Appendix A, Termination for Cause, or Employee's voluntary severance from employment with the Corporation (within the meaning of the Corporation's normal policies and procedures) for any reason other than Retirement.

2.21. "Termination for Cause" means, solely for purposes of this Appendix A, termination of Employee's employment by the Corporation as a result of Employee's conviction for the commission of a felony, material breach of any employment or other agreements between Employee and the Corporation, or willful failure to perform the material responsibilities of his position with the Corporation.

2.22. "Trust" means a Trust established pursuant to Section 10 of this Appendix A.

3. Eligibility for Retirement Benefits.

3.1. General: Subject to Sections 4.2, 4.3, 4.4, and 4.5 the Corporation shall pay the retirement benefits described in this Appendix A only if Employee Retires from employment with the Corporation upon or after satisfying the vesting requirements set forth in Section 4.1, or upon Employee's deemed Retirement pursuant to Section 2.15(b).

4. Vesting.

4.1 General: Except as provided in Sections 4.2, 4.3, 4.4, and 4.5, and subject to Section 10.1, Employee's benefits under this Appendix A shall be fully vested and nonforfeitable if Employee satisfies both (a) and (b) while employed with the Corporation:

(a) attains age 60, and

(b) has 25 years of service with the Corporation. Employee shall have 25 years of service on the 25th anniversary of Employee's original hire date.

The foregoing notwithstanding, Employee shall be fully vested in his benefit under this Appendix A upon Employee's deemed Retirement pursuant to Section 2.15(b) of this Appendix A.

4.2. Termination for Cause: All benefits shall be forfeited, and no amount shall be payable under this Appendix A, in the event of Employee's Termination for Cause.

4.3. Compliance with Noncompete, Nondisclosure, and Nonsolicitation Agreements. All benefits under this Appendix A are expressly conditioned upon Employee's compliance with the terms of any noncompetition, nondisclosure, or nonsolicitation provisions contained in the Employment Agreement, or in any other agreement between Employee and the Corporation. All benefits payable under this Appendix A shall be forfeited, and no amount shall be payable, in the event Employee violates the terms of any such provisions. If Employee violates the terms of any such provisions, and benefit payments have commenced to Employee, any such payments shall cease, and Employee shall repay all previously paid benefits to the Corporation upon demand. If Employee fails to repay such amounts upon demand, the Corporation shall have the right to take any action necessary to recover such payments from Employee.

4.4. Notice of Intent to Retire. Benefits payable under this Appendix A are specifically conditioned upon Employee providing to the Corporation written notice of Employee's intent to Retire at least six months prior to Employee's Retirement date. In the event Employee fails to satisfy the notice requirements of this Section 4.4, all benefits shall be forfeited, and no amount shall be payable under this Appendix A. The foregoing notwithstanding, the Corporation, in its sole and absolute discretion, may elect to waive the notice requirement of this Section 4.4. The foregoing notwithstanding, this Section 4.4 shall not apply to death benefits payable under Section 6 of this Appendix A, or to Retirement benefits payable under Section 5 as a result of Employee's deemed Retirement pursuant to Section 2.15(b).

4.5. Release. Benefits payable under this Appendix A (other than death benefits payable under Section 6) are specifically conditioned upon and provided in exchange for Employee signing a separation agreement that releases the Corporation from any liabilities that may have arisen as a result of Employee's employment and/or termination of employment with the Corporation. In the event Employee terminates employment with the Corporation for any reason other than death (including Retirement) without satisfying the requirements of this Section 4.5 all benefits shall be forfeited, and no amount shall be payable under this Appendix A.

4.6. Termination of Employment Prior to Satisfying Vesting Requirements. No benefits are payable under this Appendix A upon Employee's Termination of Employment with the Corporation prior to satisfying the vesting requirements set forth in Section 4.1.

5. Retirement Benefits.

5.1. Normal Retirement Benefit. This Section 5.1 describes the Retirement benefit payable by the Corporation in the event Employee Retires on or after his Normal Retirement Date. Employee's Normal Retirement Benefit shall be paid in the form of an Actuarially Equivalent lump sum, as set forth in Section 5.3.

(a) Married on Retirement Date: If Employee is married on his Retirement Date, Employee's Normal Retirement Benefit shall be:

50% times Final Average Pay

payable annually for the life of Employee with 50% of such amount continuing after Employee's death to his spouse for her life, with payments commencing on Employee's Normal Retirement Date, and subsequent payments made as of each anniversary thereof. Solely for purposes of this Section 5.1, "Spouse" shall mean the spouse to whom Employee is married on his Retirement Date (regardless of whether that is the same spouse to whom he is married on his date of death), unless the Corporation is directed by a court of competent jurisdiction to treat someone else as Employee's "spouse."

(b) Not Married on Retirement Date: If Employee is not married on his Retirement Date, Employee's Normal Retirement Benefit shall be:

50% times Final Average Pay

payable annually for the life of Employee with a ten year certain guarantee, with payments commencing on Employee's Normal Retirement Date, and subsequent payments made on each anniversary thereof.

5.2. Early Retirement Benefit. This Section 5.2 describes the Retirement benefit payable by the Corporation in the event Employee Retires prior to his Normal Retirement Date. Employee may Retire from employment with the Corporation prior to his Normal Retirement Date on the first day of any month coincident with or next following the date he satisfies the vesting requirements of section 4.1. The date on which Employee Retires under this Section 5.2 shall be his Early Retirement Date. Employee's Early Retirement Benefit shall be paid in the form of an Actuarially Equivalent lump sum, as set forth in Section 5.3.

(a) Married on Early Retirement Date: If Employee is married on his Early Retirement Date, Employee's Early Retirement Benefit shall be:

50% times Final Average Pay

multiplied by the applicable percentage as set forth in the following schedule:

Age at which Early Retirement Benefits Commence	62	61	60
Applicable Percentage	100%	90	80

payable annually for the life of Employee with 50% of such amount continuing after Employee's death to his spouse for her life, with payments commencing on Employee's Early Retirement Date, and subsequent payments made on each anniversary thereof. Solely for purposes of this Section 5.2, "Spouse" shall mean the spouse to whom Employee is married on his Early Retirement Date (regardless of whether that is the same spouse to whom he is married on his date of death), unless the Corporation is directed by a court of competent jurisdiction to treat someone else as Employee's "spouse"

(b) Not Married on Early Retirement Date: If Employee is not married on his Early Retirement Date, Employee's Early Retirement Benefit shall be:

50% times Final Average Pay

multiplied by the applicable percentage as set forth in the following schedule:

Age at which Early Retirement Benefits Commence	62	61	60
Applicable Percentage	100%	90	80

payable annually for the life of Employee with a ten year certain guarantee, with payments commencing on Employee's Early Retirement Date, and subsequent payments made on each anniversary thereof.

5.3. Form of Payment:

Employee's Normal Retirement Benefit or Early Retirement Benefit, determined in accordance with section 5.1 or 5.2 as applicable, shall be paid in the form of a single lump sum that is Actuarially Equivalent to such Normal Retirement Benefit or Early Retirement Benefit. Such lump sum shall be paid on Employee's Retirement Date (or, if later, the earliest date permitted by Section 409A). No benefits shall be payable in the form of an annuity or in installments.

5.4. Delay of Payment to Specified Employee. Sections 5.1 through 5.3 of this Appendix A notwithstanding, in the event Employee is a Specified Employee on the date Employee Separates from Service, then any amount payable under this Appendix A as a result of such Separation from Service, other than amounts payable as a result of Employee's Permanent and Total Disability, shall not be made earlier than (a) the date that is six months after the date of such Employee's Retirement or, if earlier, (b) the date of the Employee's death. Employee's Retirement benefit shall be actuarially increased, in the manner determined by the Corporation, to account for such delayed commencement date.

5.5. Time of Payment: Where the provisions of this Appendix A require that a payment be made on a designated date, (for example, under Sections 5.1, 5.2, 5.3, and 5.4) such payment shall be deemed to have been made on such date if it is made as soon as administratively practicable following such date. In no event, however, shall payment be made later than the end of the calendar year containing such designated date or, if later, the 15th day of the third calendar month following such designated date. No adjustment shall be made to Employee's Retirement benefit as a result of any delay between the specified payment date and the actual payment date. In no event shall Employee be permitted to designate, directly or indirectly, the taxable year in which payment will be made.

5.6. Death While Employed by the Corporation. In the event Employee dies while employed by the Corporation, any benefits payable under this Appendix A shall be determined in accordance with Section 6.

5.7. Domestic Relations Orders. The payment of all or part of Employee's Retirement benefit may, in the sole discretion of the Corporation, be accelerated and paid to a person other than Employee if Corporation determines that such payment is necessary to fulfill a valid domestic relations order as defined in Section 414(p)(1)(B) of the Internal Revenue Code.

6. Death While Employed by the Corporation.

6.1. General. In the event Employee dies while employed by the Corporation the death benefit payable under this Appendix A shall be as follows:

- (a) if Employee is married on his date of death, 50% of the lump sum that is Actuarially Equivalent to the Normal Retirement Benefit determined under Section 5.1(a) of this Appendix A, such lump sum benefit to be determined as if Employee Retired on his date of death after reaching Normal Retirement Age; or
- (b) if Employee is not married on his date of death, 50% of the lump sum that is Actuarially Equivalent to the Normal Retirement Benefit determined under Section 5.1(b) of this Appendix A, such lump sum benefit to be determined as if Employee Retired on his date of death after reaching Normal Retirement Age.

The death benefit shall be payable in a lump sum as soon as administratively practicable following Employee's date of death.

6.2. Payee. This death benefit shall be payable to Employee's (a) surviving spouse if Employee is married on his date of death, or (b) Beneficiary if Employee is not married on his date of death. "Surviving spouse" for purposes of this Section 6.2 means the spouse to whom Employee is married on his date of death.

7. Effect of a Change in Control of the Corporation. Anything in this Appendix A to the contrary notwithstanding, this Section 7 shall apply in the event of a Change in Control. If, within three years after the date of a Change in Control, Employee voluntarily Separates from Service with the Corporation for Good Reason, and employee is not otherwise eligible for Retirement, then Employee shall be deemed to have Retired with a fully vested Normal Retirement Benefit on the date of such Separation from Service.

Solely for purposes of this Section 7, "Good Reason" shall mean Employee's voluntary Separation from Service within 90 days following (i) a material diminution in Employee's positions, duties and responsibilities from those described in this Employment Agreement (ii) a reduction in Employee's Base Salary (other than a reduction which is part of a general salary reduction program affecting senior executives of the Corporation) (iii) a material reduction in the aggregate value of the pension and welfare benefits provided to Employee from those in effect prior to the Change in Control (other than a reduction which is proportionate to the reductions applicable to other senior executives pursuant to a cost-saving plan that includes all senior executives), (iv) a material breach of any provision of this Employment Agreement by the Corporation, (v) the Corporation's requiring Employee to be based at a location that creates for Employee a one way commute in excess of 60 miles from his primary residence, except for required travel on the Corporation's business to an extent substantially consistent with the business travel obligations of Employee under this Employment Agreement. Notwithstanding the foregoing, a termination shall not be treated as a termination for Good Reason (i) if Employee shall have consented in writing to the occurrence of the event giving rise to the claim of termination for Good Reason or (ii) unless Employee shall have delivered a written notice to the Corporation within 30 days of his having actual knowledge of the occurrence of one of such events stating that he intends to terminate his employment for Good Reason and specifying the factual basis for such termination, and such event, if capable of being cured, shall not have been cured within 30 days of the receipt of such notice.

8. Effect of termination of employment and rehire. Upon Employee's Retirement, the benefit payable under this Appendix A, if any, shall be determined by the Corporation and such

determination shall be conclusive and binding (subject to Section 14). If Employee is subsequently reemployed by the Corporation such reemployment, additional service, and additional compensation shall not result in a re-determination of the benefits due under this Appendix A.

9. Administration.

9.1. Powers of the Corporation: The Board of Directors of the Company (the "Board") shall have the sole authority to act on behalf of the Corporation under this Appendix A (subject to Section 9.3), and shall have all the powers necessary to administer the benefits under this Appendix A, including, without limitation, the power to interpret the provisions of this Appendix A and to establish rules and prescribe any forms required to administer benefits under this Appendix A

9.2. Actions of the Board: All determinations, interpretations, rules, and decisions of the Board shall be conclusive and binding upon all persons having or claiming to have any interest or right under this Appendix A.

9.3. Delegation: The Board shall have the power to delegate specific duties and responsibilities to officers or other employees of the Corporation or other individuals or entities. Any delegation by the Board may allow further delegations by the individual or entity to whom the delegation is made. Any delegation may be rescinded by the Board at any time. Each person or entity to whom a duty or responsibility has been delegated shall be responsible for the exercise of such duty or responsibility and shall not be responsible for any act or failure to act of any other person or entity.

9.4. Reports and Records: The Board and those to whom the Board has delegated duties under Section 9.3 shall keep records of all their proceedings and actions and shall maintain books of account, records, and other data as shall be necessary for the proper administration of this Appendix A and for compliance with applicable law.

9.5. Costs: The costs of providing and administering the benefits under this Appendix A shall be borne by the Corporation.

10. Unfunded Benefits; Establishment of Trust.

10.1. Unfunded Status. This Appendix A shall be unfunded for tax purposes and for purposes of Title 1 of ERISA.

10.2. **Establishment of Trust.** The Corporation shall not be required to set aside any funds to discharge its obligations hereunder, but may set aside such funds to informally fund all or part of its obligations hereunder if it chooses to do so, including without limitation the contribution of assets to a “rabbi trust” (the Trust). Any setting aside of amounts, or acquisition of any insurance policy or any other asset, by the Corporation with which to discharge its obligations hereunder in trust or otherwise, shall not be deemed to create any beneficial ownership interest in Employee, his surviving spouse, or Beneficiary, and legal and equitable title to any funds so set aside shall remain in the Corporation, and any recipient of benefits hereunder shall have no security or other interest in such funds. The rights of Employee and his surviving spouse and Beneficiary(ies) under this Appendix A shall be no greater than the rights of a general unsecured creditor of the Corporation. Any and all funds so set aside by the Corporation shall remain the general assets of the Corporation, and subject to the claims of its general creditors, present and future.

10.3. **Interrelationship of this Appendix A and the Trust.** The provisions of this Appendix A shall govern the rights of Employee to receive distributions pursuant to the provisions of this Appendix A. The provisions of the Trust shall govern the rights of the Corporation, Employee, and creditors of the Corporation to the assets transferred to the Trust. The Corporation shall at all times remain liable to carry out its obligations under this Appendix A.

10.4. **Distributions from the Trust.** The Corporation’s obligations under this Appendix A may be satisfied with Trust assets distributed pursuant to the terms of the Trust, and any such distribution shall reduce the Corporation’s obligation under this Appendix A.

11. Payment of Benefit for Disabled or Incapacitated Person. If the Corporation determines, in its discretion, that Employee or Employee’s Beneficiary or surviving spouse is under a legal disability or is incapacitated in any way so as to be unable to manage his financial affairs, the Corporation may make any payment otherwise due under the terms of this Appendix A to such person or to his legal representative or to a friend or relative of such person as the Corporation considers advisable. Any payment under this Section 11 shall be a complete discharge of any liability for the making of such payment under this Appendix A. Nothing contained in this Section 11, however, should be deemed to impose upon the Corporation any liability for paying a benefit to any person who is under such a legal disability or is so incapacitated unless it has received notice of such disability or incapacity from a competent source.

12. **Nonassignability.** Neither Employee nor any other person shall have any right to commute, sell, assign, transfer, pledge, anticipate, mortgage or otherwise encumber, transfer, hypothecate, alienate or convey in advance of actual receipt, the amounts, if any, payable hereunder, or any part thereof, which are, and all rights to which are expressly declared to be, unassignable and non-transferable. No part of the amounts payable shall, prior to actual payment, be subject to seizure, attachment, garnishment or sequestration for the payment of any debts, judgments, alimony or separate maintenance owed by Employee or any other person, be transferable by operation of law in the event of Employee's or any other person's bankruptcy or insolvency or be transferable to a spouse as a result of a property settlement or otherwise. The Corporation is authorized to make any payments directed by court order.

13. Claim Procedure.

13.1. **Presentation of Claim.** Employee, or the surviving spouse of Employee after Employee's death, or Employee's Beneficiary (such Employee, surviving spouse, or Beneficiary being referred to below as a "Claimant") may deliver to the Corporation a written claim for a determination with respect to the amounts distributable to such Claimant under this Appendix A. If such a claim relates to the contents of a notice received by the Claimant, the claim must be made within sixty (60) days after such notice was received by the Claimant. All other claims must be made within 180 days of the date on which the event that caused the claim to arise occurred. The claim must state with particularity the determination desired by the Claimant.

13.2. **Notification of Decision.**

(a) **Claim for benefits other than Disability benefits.** The Corporation shall consider a Claimant's claim within a reasonable time, but no later than ninety (90) days after receiving the claim. If the Corporation determines that special circumstances require an extension of time for processing the claim, written notice of the extension shall be furnished to the Claimant prior to the termination of the initial ninety (90) day period. In no event shall such extension exceed a period of ninety (90) days from the end of the initial period. The extension notice shall indicate the special circumstances requiring an extension of time and the date by which the Corporation expects to render the benefit determination.

(b) Claim for Disability benefits. If the claim relates to benefits in connection with Disability, the Corporation shall consider a Claimant's claim within a reasonable time, but no later than ninety (90) days after receiving the claim. If the Corporation determines that, due to matters beyond the control of the Plan, the Corporation will not be able to respond to the claim within such 90-day period, the Corporation may extend the response period for one or two additional periods of up to 30 days each by providing the Claimant with notice describing the circumstances that necessitate the extension and the date as of which the Corporation anticipates that it will render its decision. Each such notice must be conveyed to the Claimant prior to the commencement of an extension.

(c) Notification. The Corporation shall notify the Claimant, in writing, within the time periods specified in Section 13.2(a) or (b), as applicable:

- (1) that the Claimant's requested determination has been made, and that the claim has been allowed in full; or
- (2) that the Corporation has reached a conclusion contrary, in whole or in part, to the Claimant's requested determination, and such notice must set forth in a manner calculated to be understood by the Claimant:
 - (A) the specific reason(s) for the denial of the claim, or any part of it;
 - (B) specific reference(s) to pertinent provisions of this Appendix A upon which such denial was based;
 - (C) a description of any additional material or information necessary for the Claimant to perfect the claim, and an explanation of why such material or information is necessary;
- (D) an explanation of the claim review procedure set forth in Section 13.3 below; and
- (E) a statement of the Claimant's right to bring a civil action under ERISA Section 502(a) following an adverse benefit determination on review.

13.3. Review of a Denied Claim.

(a) Claim for benefits other than Disability benefits. On or before sixty (60) days after receiving a notice from the Corporation that a claim has been denied, in whole or in part, a Claimant (or the Claimant's duly authorized representative) may file with the Corporation a written request for a review of the denial of the claim. The Claimant (or the Claimant's duly authorized representative):

(a) may, upon request and free of charge, have reasonable access to, and copies of, all documents, records and other information relevant to the claim for benefits;

(b) may submit written comments or other documents; and/or

(c) may request a hearing, which the Corporation, in its sole discretion, may grant.

The Corporation shall render its decision on review promptly, and no later than sixty (60) days after the Corporation receives the Claimant's written request for a review of the denial of the claim. If the Corporation determines that special circumstances require an extension of time for processing the claim, written notice of the extension shall be furnished to the Claimant prior to the termination of the initial sixty (60) day period. In no event shall such extension exceed a period of sixty (60) days from the end of the initial period. The extension notice shall indicate the special circumstances requiring an extension of time and the date by which the Corporation expects to render the benefit determination. In rendering its decision, the Corporation shall take into account all comments, documents, records and other information submitted by the Claimant relating to the claim, without regard to whether such information was submitted or considered in the initial benefit determination. The decision must be written in a manner calculated to be understood by the Claimant, and it must contain:

(1) specific reasons for the decision;

(2) specific reference(s) to the pertinent provisions of this Appendix A upon which the decision was based;

(3) a statement that the Claimant is entitled to receive, upon request and free of charge, reasonable access to and copies of, all documents, records and other information relevant (as defined in applicable ERISA regulations) to the Claimant's claim for

benefits; and

(4) a statement of the Claimant's right to bring a civil action under ERISA Section 502(a).

(b) Claim for Disability benefits. If the claim relates to benefits in connection with Disability, the procedure described in Section 13.3(a) above shall apply, modified as follows:

- (1) All references to 60 days shall be changed to 45 days, except that a Claimant shall have 180 days to file an appeal.
- (2) The Corporation shall designate an individual to conduct the review who is not the individual who made the initial adverse determination, and is not a subordinate of such individual.
- (3) The notice of extension shall describe the circumstances that require the extension; must include the date as of which the Corporation anticipates that it will render its decision; and must be communicated to the Claimant prior to the commencement of the extension.
- (4) The review shall not afford deference to the initial adverse benefit determination.
- (5) When the appeal is based on a medical judgment, the Corporation shall consult with a health care professional who has appropriate experience and training in the field involved in determining the Claimant's Disability and shall identify all medical and vocational experts whose advice was obtained in connection with the appeal. A health care professional may not be consulted under this Section 7.10(b)(3)(ii)(E) if the health care professional (or a subordinate of such individual) was consulted in connection with the initial claim for benefits.
- (6) If the Corporation makes an adverse benefit determination on review, the Corporation shall provide the Claimant with a statement that the Claimant is entitled to receive or request reasonable access to, and copies of, all information relevant to the claim for benefits, including internal rules, guidelines, and protocols (to the extent relied upon) and a statement regarding voluntary alternative dispute resolution options.

13.4. **Disability Benefits.** For purposes of this Article 13, “Disability benefits” means a benefit payable under this Appendix A that is conditioned upon the Corporation’s determination that Employee is Permanently and Totally Disabled. If the Corporation does not make such determination, but instead relies solely upon the determination of the Social Security Administration’s determination that Employee is disabled, then Sections 13.2(b) and 13.3(b) shall not apply, and any claims by Employee shall instead be reviewed under the provisions of this Article 13 for benefits other than Disability benefits.

13.5. **Legal Action.** A Claimant’s compliance with the foregoing provisions of this Article 13 is a mandatory prerequisite to a Claimant’s right to commence any legal action with respect to any claim for benefits under this Appendix A.

14. Tax Withholding and Reporting; Section 280G Excise Taxes.

(a) **General.** The Corporation shall have the right to deduct any required withholding taxes from any payment made under this Appendix A. Except as provided in Section 14(b), the Corporation shall not be obligated to pay or reimburse Employee, or his surviving spouse or Beneficiary, for any income or other taxes or penalties that may be imposed on such person by the Internal Revenue Service or any state or other taxing authority as a result of benefits paid under this Appendix A.

(b) **Excise Tax Payment.** In the event that any payment or benefit (within the meaning of Section 280G(b)(2) of the Internal Revenue Code of 1986, as amended (the “Code”), to Employee or for his benefit paid or payable or distributed or distributable pursuant to the terms of this Employment Agreement (including this Appendix A) or otherwise in connection with, or arising out of, his employment with the Corporation or a Change in Control of the Corporation (a “Payment” or “Payments”), would be subject to the excise tax imposed by Section 4999 of the Code or any interest or penalties are incurred by the Employee with respect to such excise tax (such excise tax, together with any such interest and penalties, are hereinafter collectively referred to as the “Excise Tax”), then Employee will be entitled to immediately receive an additional payment (a “Gross-Up Payment”) from the Corporation in an amount such that after payment by Employee of all taxes (including any interest or penalties, other than interest and penalties imposed by reason of Employee’s failure to file timely a tax return or pay taxes shown due on his return, imposed with respect to such taxes and the Excise Tax), including any Excise Tax imposed upon the Gross-Up Payment, Employee retains an amount of the Gross-Up Payment equal to the Excise Tax imposed upon the Payments.

15. **Successors.** The provisions of this Appendix A shall bind and inure to the benefit of the Corporation and its successors and assigns and Employee and Employee's surviving spouse and designated beneficiaries.

16. **Amendment.** This Appendix A may be amended only by written agreement between Employee and the Corporation.

Agreed to and executed this 10th day of November, 2008.

MKS Instruments, Inc.

By: /s/ Phil Zucchi

Phil Zucchi, Vice President of Global HR

/s/ Leo Berlinghieri

Leo Berlinghieri

AMENDMENT TO APPENDIX A

Supplemental Retirement Benefits

This Amendment to Appendix A of the Amended Employment Agreement (this "Amendment") is entered into as of December 21, 2012, by and between MKS Instruments, Inc. (the "Corporation"), and Leo Berlinghieri (the "Employee").

WHEREAS, the Corporation and the Employee previously entered into an Appendix A to Employee's Amended Employment Agreement, dated November 10, 2008 (the "Agreement"), which Agreement may be amended by a written instrument executed by both parties; and

WHEREAS, the Corporation and the Employee desire to amend the Agreement to comply with Internal Revenue Service Notice 2010-80, as set forth below.

NOW, THEREFORE, in consideration of the promises and mutual covenants contained herein, and intending to be legally bound hereby, the parties agree to amend Section 4.5 of the Agreement to provide as follows:

"4.5 **Release.** Benefits payable under this Appendix A (other than death benefits payable under Section 6) are specifically conditioned upon and provided in exchange for Employee signing a separation agreement that releases the Corporation from any liabilities that may have arisen as a result of Employee's employment and/or termination of employment with the Corporation. The time period for returning such separation agreement shall be designated by the Corporation and shall not be less than 21 days nor more than 45 days following Employee's Separation from Service. If such time period (including any period for revocation) begins in one taxable year and ends in a subsequent taxable year, any payments conditioned upon such separation agreement shall be made in the later taxable year. Payments of benefits hereunder shall not be made unless and until the separation agreement has been signed and timely returned by Employee and the specified period for revocation of the separation agreement has expired without revocation. In the event Employee terminates employment with the Corporation for any reason other than death (including Retirement) without satisfying the requirements of this Section 4.5 all benefits shall be forfeited, and no amount shall be payable under this Appendix A."

IN WITNESS WHEREOF, the parties have executed this Amendment as of the date and year first above written.

MKS INSTRUMENTS, INC.

/s/ Seth H. Bagshaw

EMPLOYEE

/s/ Leo Berlinghieri

APPENDIX B

SECOND RELEASE

Introduction

Leo Berlinghieri (“Executive”) agreed to accept the request of MKS Instruments, Inc. (the “Corporation”) that he retire from service effective as of December 30, 2013, and Executive and the Corporation entered into a Separation Agreement (the “Agreement”), dated _____, 2013, pursuant to which, among other things, Executive agreed to release the Releasees from all waivable claims which Executive might have against the Releasees in exchange for the receipt of certain payments and benefits set forth therein upon this “Second Release” becoming effective.

Terms

1. As used in this Second Release, the following words shall mean the following:

(a) “Corporation” shall at all times mean MKS Instruments, Inc., its subsidiaries, divisions, successors and assigns, its affiliated and predecessor companies or corporations, and their successors and assigns.

(b) “Executive” means Leo Berlinghieri.

(c) “Releasees” shall mean the Corporation, its present or former directors, officers, shareholders, members, employees, attorneys and agents, whether in their individual or official capacities and the current and former trustees or administrators of any pension or other benefit plan applicable to the employees or former employees of the Corporation in their official and individual capacities.

2. After receiving this signed Second Release from Executive and upon the expiration of the waiting period described in Paragraph 5 (the “Effective Date”), The Corporation will provide Executive with the payments and benefits described in paragraphs (a) through (d) in Section 2 of the Agreement.

3. In exchange for receiving the payments and benefits described in paragraphs (a) and (d) in Section 2 of the Agreement, Executive hereby agrees that Executive is releasing the Releasees from, and waiving, any claim that Executive may have against them for any act, omission, incident or situation which may have occurred at any time up until the Effective Date of this Second Release. This includes RELEASING AND FOREVER DISCHARGING the Releasees from AND WAIVING:

(a) Any claims arising under Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act, the Americans with Disabilities Act, the Rehabilitation Act, the Equal Pay Act, 42 U.S.C. §§ 1981, 1982, 1983 and 1985, the Massachusetts Fair Employment Practices Act, M.G.L. c. 151B; the Fair Labor Standards Act; the Family and Medical Leave Act, 29 U.S.C. § 2601 et seq., the Massachusetts Civil Rights Act; the Massachusetts Equal Rights Law; the Massachusetts Minimum Fair

Wages Statute (M.G.L. c. 151, §§ 1A and 1B); the Massachusetts Payment of Wages Statute (M.G.L. c. 149, § 148, et seq.); the Massachusetts "Blue Laws" (M.G.L. c. 136); and any other claims arising under Chapters 149 through 154 of the Massachusetts General Laws, and any amendments to these statutes;

(b) Any claims arising under the Family and Medical Leave Act, the National Labor Relations Act, the Sarbanes-Oxley Act of 2002, and all other federal, state, and local laws or ordinances relating to employment;

(c) Any claims arising under the Employee Retirement Income Security Act ("ERISA") (but not claims to vested ERISA benefits) or any other federal or state law pertaining to employee retirement or welfare benefits;

(d) Any claims arising under any other federal, state or local statutory or regulatory provision;

(e) Any claims arising under federal common law or under the common law of any state; and

(f) Any claims for attorneys' fees and/or costs.

Notwithstanding the above, this Second Release does not prevent Executive from pursuing any right or claim which cannot be waived by law. This means, among other things, that even if Executive signs this Second Release, Executive retains his right to file a charge of discrimination with the Equal Employment Opportunity Commission and to assist in Commission investigations. By signing this Second Release, however, Executive is waiving any right to recover any relief in federal or state court, in any administrative proceeding or in arbitration, whether such a claim for relief is brought by Executive or through the EEOC (or a comparable state or local agency) or as part of a class action proceeding. This Second Release also does not prevent Executive from pursuing any claim to enforce this Second Release or from asserting any future rights Executive may have to any vested benefits that Executive may be entitled to receive.

4. By signing this Second Release, Executive is hereby acknowledging and agreeing that: (a) Executive is competent to enter into this Second Release and is fully aware of his right to discuss any and all aspects of this Second Release with an attorney of his choice; (b) except for the promises contained in the Agreement, the Corporation has made no other promise of any kind to Executive to cause Executive to sign this Second Release; (c) what Executive is receiving under the Agreement and this Second Release is in addition to anything of value to which he already is entitled; (d) what Executive is receiving is adequate and satisfactory to him; and (e) the payments and benefits specified in the Agreement and this Second Release constitute full and final payment in settlement of all waivable claims of any kind, known or unknown, which Executive may have against the Releasees. Executive further acknowledges that he has carefully read and fully understand all of the provisions of this Second Release, that Executive has had the opportunity to discuss the provisions of this Second Release with an attorney, and that Executive is voluntarily entering into this Second Release.

5. **Executive acknowledges and agrees that he has been given a period of up to twenty-one (21) days in which to consider the terms of this Second Release and that this Second Release shall not become effective until seven (7) days following the date of his signature.** Prior to that time, Executive may elect to revoke this Second Release. If Executive chooses to revoke this Second Release, Executive agrees to notify the Chair of the Board of Directors of the Corporation in writing. If Executive does not sign and return the Second Release within the specified period, or Executive attempts to revoke it, Executive will forfeit any payments contingent on the Second Release. Unless revoked by the Executive, this Second Release shall become effective eight calendar days after the date that Executive signs this Second Release, as evidenced by the date adjacent to his signature at the end of this Second Release (the "Effective Date"). This Second Release shall not be effective and shall be deemed void as if never made if, prior to the Effective Date, Executive revokes his earlier acceptance of this Second Release. Payments contingent upon the Executive entering into the Agreement and this Second Release will not be made (or begin) prior to the expiration of the period specified for revoking the Agreement or the Second Release. If the period for signing and returning the Agreement or Second Release extends into a later taxable year, any payments contingent upon the Agreement and the Second Release will be made (or begin) in the later taxable year.

6. By signing this Second Release, Executive is not waiving any claims against the Releasees for any act or omission that may occur after the signing of this Second Release.

7. By signing this Second Release, Executive is hereby acknowledging and agreeing that Executive has been paid all sums due and owing to him as of the date hereof including, but not limited to, all salary, bonus, business expenses, allowances, vacation pay and other benefits and perquisites as a result of Executive's employment with the Corporation, and has received any leaves (paid or unpaid) to which he was entitled during his employment and the Corporation has not denied or interfered with his ability to request or take such leave.

8. Executive hereby agrees that his employment relationship with the Corporation has been severed and that Executive forever waive any right to reinstatement, recall or future employment with the Corporation, unless waived by mutual agreement.

9. Paragraphs 8 through 23 of the Agreement are incorporated by this reference into this Second Release as if fully and independently set forth below.

10. The Agreement and this Second Release represent the full and complete understanding of the Executive and the Corporation. The Agreement and this Second Release shall supersede any inconsistent provisions in the Employment Agreement or Appendix A. No prior or contemporaneous oral or written agreements may be offered to alter their terms. This Second Release shall be binding upon the Executive and the Corporation and upon their heirs, successors and assigns. This Second Release may not be modified except in a written document signed by both parties.

11. This Second Release shall be governed by and interpreted in accordance with the laws of the Commonwealth of Massachusetts, without regard to its conflict of law provisions and except to the extent federal law applies.

PLEASE READ CAREFULLY. EMPLOYEE SHOULD CONSULT WITH COUNSEL BEFORE SIGNING THIS DOCUMENT. THIS SECOND RELEASE INCLUDES A RELEASE OF KNOWN AND UNKNOWN CLAIMS.

WITNESS: _____
Date

Leo Berlinghieri Date

MKS INSTRUMENTS, INC.

ATTEST: _____
Date

By: _____
Chair, Board of Directors Date

APPENDIX C

LETTER TO NEW EMPLOYER

To Whom It May Concern:

We understand that you have offered employment to Leo Berlinghieri, who previously served as Chief Executive Officer of MKS Instruments, Inc. ("MKS"). We hereby inform you that Mr. Berlinghieri is bound by the following restrictive covenants until December 30, 2015. During this time, Mr. Berlinghieri may not:

- (i) solicit, entice or induce any customer of MKS to become a customer, distributor or supplier of any other person, firm or corporation with respect to products and/or services sold or under development by MKS during his employment at MKS, or to cease doing business with MKS, and he shall not contact or approach any such person, firm or corporation for such purpose or authorize or knowingly approve the taking of such actions by any other person; or
- (ii) solicit, recruit or hire (or attempt to solicit, recruit or hire) any employee, officer or agent of MKS or contractor engaged by MKS (whether or not such person is a full-time employee or whether or not such employment is pursuant to a written agreement or at-will) to terminate such person's employment or engagement with MKS or work for a third party other than MKS, or engage in any activity that would cause such employee or contractor to violate any agreement with MKS, nor shall he form any partnership with, or establish any business venture in cooperation with, any such person.

In addition, Mr. Berlinghieri is subject to the following restriction in perpetuity. Mr. Berlinghieri will not divulge or communicate to any other person, partnership, corporation or other entity without the prior written consent of MKS, any trade secrets of MKS or confidential information relating to the business of MKS or anyone connected with MKS, and that such trade secrets and confidential information shall not be used by Mr. Berlinghieri either on his own behalf or for the benefit of others or disclosed by him to any one, except to MKS.

We advise you of this foregoing only so that you do not inadvertently cause Mr. Berlinghieri to breach his obligations to MKS or knowingly participate in a breach.

Sincerely,

EMPLOYMENT AGREEMENT

EMPLOYMENT AGREEMENT dated as of October 22, 2013, which shall become effective as of January 1, 2014 ("Employment Agreement"), by and between MKS Instruments, Inc., a Massachusetts Corporation (the "Corporation"), and Gerald G. Colella of Seabrook, New Hampshire (the "Executive").

WHEREAS, the Corporation and the Executive entered into an Employment Agreement dated April 25, 2005, as thereafter amended on November 10, 2008 and October 19, 2009 (the "Original Employment Agreement"), which superseded an Amended and Restated Employment Agreement dated July 30, 2004; and

WHEREAS, the Corporation intends to amend and restate the terms of employment with the Executive as more particularly set forth herein; and

WHEREAS, the Corporation and the Executive intend that this Employment Agreement shall supersede the Original Employment Agreement and any other agreements between the parties and that, as of the date hereof, the Original Employment Agreement and any such other agreements shall be of no further force and effect.

NOW, THEREFORE, in consideration of the premises and the mutual promises contained herein, the Corporation and the Executive hereby agree as follows:

1. **Term of Employment:** The Corporation hereby employs the Executive, and the Executive hereby accepts employment with the Corporation, for a period commencing as of January 1, 2014 and continuing from month to month thereafter until terminated as provided in this Section 1. Either the Corporation or the Executive may terminate the employment of the Executive under this Employment Agreement at any time after January 1, 2014 by giving written notice to the other party stating its or his election to terminate the employment of the Executive under this Employment Agreement and an effective date of termination which is at least thirty (30) days after the date of receipt by the other party of such notice; provided, however, that the employment of the Executive under this Employment Agreement is subject to prior termination as hereinafter provided in Section 5. Notwithstanding the above, the Corporation shall be entitled, at its sole discretion, to waive the obligation of the Executive to continue to work during the thirty (30) day notice period.

2. **Capacity:** The Executive shall serve as President and Chief Executive Officer of the Corporation and shall have such authority and will perform such duties as are delegated to him by the Board of Directors of the Corporation consistent with this position. The Executive shall serve without additional compensation as a member of the Board of Directors for the Corporation and also shall serve without additional compensation as chief executive officer and/or member of the board of directors of such affiliate(s) of the Corporation as the Board of Directors of the Corporation shall designate.

3. **Extent of Services:** During the term of employment of the Executive under this Employment Agreement, the Executive shall devote his full time to, and use his best efforts in the furtherance of, the business of the Corporation and shall not engage in any other business activity, whether or not such business activity is pursued for gain or any other pecuniary advantage, without the prior written consent of the Board of Directors, which consent may be

revoked if the Board determines that such other business activity materially interferes with the Executive's performance of his duties hereunder or is otherwise adverse to the interests of the Corporation. Notwithstanding the foregoing, the Executive may manage his personal investments and be involved in charitable and unremunerated professional activities (including serving on charitable and professional boards), so long as such service does not materially interfere with the performance of the Executive's duties hereunder or violate Sections 9 through 11 hereof.

4. Compensation: In consideration of the services to be rendered by the Executive under this Employment Agreement, the Corporation agrees to pay, and the Executive agrees to accept, the following compensation:

(a) Base Salary: A base salary at the rate of Six Hundred Thousand Dollars (\$600,000) per year (the "Base Salary") for the term of employment of the Executive under this Employment Agreement. The Base Salary shall be payable in equal biweekly installments, subject to usual withholding requirements, and will be subject to any changes in pay policies that may be established by the Corporation. The Base Salary will be reviewed regularly according to the practices of the Corporation. No overtime pay will be paid to the Executive by the Corporation.

(b) Incentive: For each calendar year of the Corporation during the term of employment of the Executive under this Employment Agreement, the Executive shall be entitled to participate in a Management Incentive Program pursuant to the terms of which the Executive may receive compensation in addition to his Base Salary if the Corporation attains consolidated financial goals, and if the Executive achieves such financial and other business goals, as shall be established by the Board of Directors or its delegate with respect to such year. The "targeted" additional compensation goal for the Executive shall be One Hundred percent (100%) of his Base Salary (the "Target Bonus"). The Management Incentive Program, including the consolidated financial goals established by the Corporation for the calendar year and the formula to be used to determine the payment of amounts under the Management Incentive Program, will be communicated to the Executive in writing prior to or within the first ninety (90) days of the beginning of the applicable year. If there shall be any disagreement between the Corporation and the Executive as to the calculation of the Management Incentive Bonus for any year, the determination of the Board of Directors of the Corporation shall be conclusive and binding on the Corporation and the Executive. Incentive payments shall be payable to the Executive on or before March 15 after the end of each calendar year during the term of employment of the Executive under this Employment Agreement. The Executive will not receive any payment under the Management Incentive Program attributable to any calendar year in which the Executive is not actively employed on the last day of that calendar year.

(c) Equity Incentive Compensation Plan The Executive shall be eligible to participate in such long-term incentive compensation plan as the Corporation shall maintain for senior executives of the Corporation from time to time. The annual "targeted" long term incentive award for the Executive shall be One Million Four Hundred Thousand Dollars (\$1,400,000).

(d) MKS Instruments, Inc. Profit Sharing and 401(k) Plan: The Executive shall be eligible to participate in the MKS Instruments, Inc. Profit Sharing and 401(k) Plan in accordance with its terms.

(e) Vacation: The Executive shall be entitled to an annual vacation leave of twenty-five (25) days at full rate of Base Salary during each calendar year of this Employment Agreement, subject to the Executive arranging such vacation so as not to affect adversely the ability of the Corporation to transact its necessary business.

(f) Life Insurance: The Corporation shall provide, and pay all of the premiums for, term life insurance for the Executive during the term of employment of the Executive under this Employment Agreement in accordance with the term life insurance plan of the Corporation.

(g) Medical/Dental Insurance: The Corporation shall provide group medical/dental insurance for the Executive under the plans of the Corporation applicable to the Executive during the term of employment of the Executive under this Employment Agreement.

(h) Retirement Benefits: The Executive shall be eligible to participate in supplemental retirement benefits according to, and subject to, the terms and conditions set forth in Appendix A of this Employment Agreement. For purposes of clarity, all of the retirement benefits set forth in Appendix A are the same as those provided to the Executive in the Original Employment Agreement.

(i) Retiree Medical Benefits: The Executive's eligibility to receive the retiree medical benefits set forth hereunder (the "Retiree Medical Benefits") is contingent upon (a) the Executive's compliance with all of the material terms and conditions contained in this Employment Agreement, (b) the Executive's execution, upon termination of employment (except in the case of death), of a Release, as provided in Section 6(a) below, and (c) the occurrence of any of the following:

(1) the Executive retires from the Corporation when Executive is at least 62 years old, provided that, if Executive is under 65 at the time of such retirement, the terms of the benefits shall be subject to subsection 6(e)(iv) hereof; or

(2) the Executive is terminated by the Corporation other than for "cause" or if Executive terminates his employment for Good Reason (as defined in Appendix A of this Employment Agreement within 3 years of a change in control (as defined in Appendix A of this Employment Agreement)); provided that if the Executive is eligible at any time to receive comparable medical benefits from any subsequent employer, then the Executive shall not be eligible to receive the Retiree Medical Benefits during the time that he is eligible to receive such benefits from a subsequent employer, but will be eligible to receive the Retiree Medical Benefits thereafter, or

(3) prior to retirement, the Disability (which shall mean disability as defined in Section 216(i)(1) of the Social Security Act) or death of the Executive.

If the Executive meets the eligibility criteria described above, he shall be considered an "Eligible Executive" hereunder. The Spouse of the Eligible Executive ("Eligible Spouse") shall also receive Retiree Medical Benefits. The Executive shall not be eligible for Retiree Medical Benefits if the Executive is terminated by the Corporation for "cause".

(i) Benefit Period and Types of Coverage. Eligible Executive and Eligible Spouses will each receive Retiree Medical Benefits for their respective lifetimes. During the 18 months immediately following termination of employment from the Corporation, Retiree Medical Benefits will be provided to

the Eligible Executive and Eligible Spouse through the Corporation's COBRA medical plan. Thereafter, the Corporation shall purchase fully insured non-group medical plans for the Eligible Executive and Eligible Spouse. The insurance plans purchased for the Eligible Executive and/or Eligible Spouse who are less than 65 years old shall be a high benefit plan compared to the Corporation's group medical plan selected by the Executive immediately prior to the termination of employment. The insurance plans purchased for the Eligible Executive and/or Eligible Spouse who are 65 or more years old shall be Blue Cross/Blue Shield's Medex Gold or other comparable high benefit medical plan.

(ii) Cost. The Eligible Executive (or surviving Eligible Spouse) will be required to contribute a fixed annual amount of \$1,500 for each year that he (or surviving Eligible Spouse) remains eligible for Retiree Medical Benefits. In addition to such \$1,500, if the Executive became an Eligible Executive pursuant to Section (i)(1) above, then in addition to the \$1,500, the Executive (or surviving Eligible Spouse) shall be required to pay a portion of the expenses of the Retiree Medical Benefit as follows, based upon the age of the Eligible Executive.

Age of Executive	Percentage of Retiree Medical Benefit Costs to be paid by Executive (or surviving spouse) for Such Year
62	30%
63	20%
64	10%
65 or More	0%

(j) Other Benefits: The Corporation shall provide other benefits for the Executive under the plans of the Corporation applicable to the Executive during the term of employment of the Executive under this Employment Agreement.

(k) Expenses: The Corporation shall reimburse the Executive for all reasonable and necessary expenses incurred by the Executive in connection with the performance of the Executive's duties as an employee of the Corporation. Such reimbursement is subject to the timely submission to the Corporation by the Executive of appropriate documentation and/or vouchers in accordance with the customary procedures of the Corporation for expense reimbursement, as such procedures may be revised by the Corporation from time to time and to such caps on reimbursements as the Corporation may from time to time impose.

5. Termination: The employment of the Executive under this Employment Agreement shall terminate:

- (a) On the expiration of the period of employment as provided in Section 1.
- (b) Upon the death or total disability (as determined under the Corporation's long-term disability plan) of the Executive.

(c) At the election of the Corporation: (i) if the Executive shall refuse to perform the services required of him under this Employment Agreement; or (ii) if the Executive shall fail, or refuse, to perform the other covenants and agreements required of him under this Employment Agreement; or (iii) for "cause", which term shall mean: (1) the Executive's willful

or gross neglect of his duties, including the failure to carry out or comply with, in good faith, in any material respect, or the refusal to follow, any lawful and reasonable written directives of the Board of Directors or its delegate; (2) the Executive's material breach of this Agreement or of any of the rules, regulations, policies or procedures of the Corporation, or material violation of the Corporation's statement of corporate policy and/or code of conduct at any time after such statement and code have been adopted by the Board and have been set forth in writing and delivered to the Executive; (3) the Executive's commission of a felony or other act of material dishonesty, including but not limited to any act of fraud, embezzlement, misappropriation of Corporation property, moral turpitude, or breach of fiduciary duty that could possibly have a material adverse effect on the Corporation; (4) the Executive's unlawful use (including being under the influence) of controlled substances on the Company's premises or while performing the Executive's duties and responsibilities or indictment related to the commission of any criminal act; (5) the Executive's failure or refusal to reasonably cooperate with any Corporation investigation or governmental/regulator authority having jurisdiction over the Executive and the Corporation; or (6) the Executive's engaging in willful or gross misconduct which is materially injurious to the Corporation, financially or otherwise, or to the Corporation's reputation; in each case determined in good faith by the Board of Directors of the Corporation.

(d) Upon the resignation of the Executive, other than for Good Reason (as defined in Appendix A) after a Change in Control (as defined in Appendix A).

(e) At the election of the Corporation without "cause" and in the absence of the other events described in subsection (c) above; or at the election of the Executive for Good Reason upon a Change in Control (as such terms are defined for purposes of Appendix A).

(f) Upon the occurrence of any termination of the Executive's employment with the Corporation, the Executive shall and shall be deemed to have immediately resigned from any and all boards, offices, committees and fiduciary positions on or in which he is then serving at the request of the Corporation or any of its subsidiaries or affiliates and, upon demand by the Corporation, shall promptly tender to the Corporation a written resignation letter effectuating the foregoing.

6. Payment Upon Termination. This Agreement shall supersede any severance plan, policy, program or arrangement maintained by the Corporation in which the Executive may otherwise be entitled to participate:

(a) If the employment of the Executive is terminated by the Corporation pursuant to Section 5(e) hereof, and except as provided in Subsections 6(b) through (e) below, the Corporation shall: (i) continue to pay Executive the Base Salary in effect immediately prior to the time of such termination for one (1) year following the last full day Executive works prior to the effective date of the Executive's termination under this Agreement, on its normal payroll payment dates, by direct deposit or regular mail at the Executive's election; (ii) pay any Management Incentive Program bonus earned for the calendar year preceding the Executive's termination but not yet paid, such payment to be made at the same time such payments are normally made for the applicable year to executives who continue in employment; (iii) reimburse Executive for the premiums (if any) he pays for continuation of life insurance should he elect to exercise the conversion feature of the Corporation's group life policy then in effect for twelve (12) months after the last full day Executive works under this Agreement; and (iv) continue to pay for any medical, dental and/or vision insurance that the Executive elects to continue

receiving under COBRA for twelve (12) months after the last full day Executive works prior to the effective date of the Executive's termination under this Agreement, less the Executive premium contribution paid by similarly-situated active Executives who are enrolled in such coverage. Executive agrees that his eligibility for or entitlement to the foregoing payments or benefits (the "Severance Benefits") shall be subject to Executive's execution and delivery of a release agreement (a "Release"), in such form as the Corporation may require, which may include, among other things, in addition to a general release of any and all claims Executive may have, confirmation of the restrictive covenants set forth herein and in any other policies or agreements applicable to the Executive. The form of Release currently used by the Corporation is attached hereto as Appendix B, and the Release shall be in substantially similar form with such changes as the Corporation deems appropriate at the time of the Executive's termination. Executive shall have no rights or remedies in the event of his termination by the Corporation under Section 5(e) except for those expressly set forth in this Agreement. In addition, Executive's right to receive any of the foregoing Severance Benefits shall be expressly conditioned upon Executive's full compliance with the Corporation's standard Confidential Information Agreement, which shall be re-executed by Executive with this Agreement, and Executive's full cooperation with the Corporation in fulfilling all the terms of this Agreement, including compliance with Sections 9 through 11 hereof, and performing such actions as the Corporation may reasonably request in transitioning Executive from his employment with the Corporation. In addition to any rights or remedies the Corporation may otherwise have, upon any breach of any agreements herein by Executive, Executive's rights to any continued payment of Severance Benefits shall immediately cease, and Executive shall be obligated to repay to the Corporation all amounts paid by the Corporation for the Severance Benefits except for the amount of \$1,000, which Executive shall be entitled to retain.

(b) If the Executive's employment is terminated by death or total disability (as determined by the Corporation's long-term disability plan) pursuant to Section 5(b) hereof, the Corporation shall pay: (i) any Base Salary earned through the last day of actual employment; and (ii) any Management Incentive Program bonus earned for the calendar year preceding the Executive's termination but not yet paid. The amounts described in clause (i) above shall be paid as soon as reasonably practicable following the Executive's termination, and the amount described in clause (ii) above shall be paid at the same time such payments are normally made for the applicable year to executives who continue in employment. Any payments to be made upon the death of the Executive shall be made to the Executive's estate.

(c) In the event the employment of the Executive is terminated at the election of the Corporation pursuant to Section 5(c) hereof, the Executive shall only be entitled to his Base Salary through the effective date of termination or the last day of actual employment if earlier.

(d) In the event the Executive voluntarily terminates his employment on the expiration of the period of employment as provided in Section 1, the Executive shall only be entitled to his Base Salary through the effective date of termination or the last day of actual employment if earlier, to be paid as soon as reasonably practicable following termination, and any Management Incentive Program bonus earned for the calendar year preceding the Executive's termination but not yet paid, such payment to be made at the same time such payments are normally made for the applicable year to executives who continue in employment.

(e) In the event the Executive's employment is terminated by the Corporation under Section 5(e), or by the Executive for Good Reason, in either case upon or at any time within two (2) years following a Change in Control (as such capitalized terms are defined for purposes of Appendix A), the Executive shall receive: (i) a lump sum payment equal to thirty-six (36) months' Base Salary, at the rate in effect immediately prior to termination; (ii) a lump sum amount of three (3) times the Target Bonus under the Management Incentive Program in effect as of termination; (iii) any Management Incentive Program bonus earned for the calendar year preceding the Executive's termination but not yet paid; and (iv) the right to continue participation in the Corporation's medical, dental, vision and life insurance plans for a period of thirty-six (36) months, and the Corporation shall pay for the cost of such coverage, less the Executive premium contribution paid by similarly-situated active Executives who then are enrolled in such coverage. The amounts described in clauses (i) and (ii) above shall be paid as soon as reasonably practicable following the Executive's termination, and the amount described in clause (iii) above shall be paid at the same time such payments are normally made for the applicable year to executives who continue in employment. Notwithstanding the foregoing, Executive agrees that his eligibility for or entitlement to the foregoing payments and benefits shall be subject to Executive's execution and delivery of a Release as described in, Section 6(a) above.

In the event amounts payable hereunder are contingent on a Change in Control for the purposes of Internal Revenue Code Section 280G and it is determined by a public accounting firm or legal counsel authorized to practice before the Internal Revenue Service selected by the Corporation that any payment or benefit made or provided to the Executive in connection with this Agreement or otherwise (collectively, a "Payment") would be subject to the excise tax imposed by Internal Revenue Code Section 4999 (the "Parachute Tax"), the Payments under this Agreement shall be payable in full or, if applicable, in such lesser amount which would result in no portion of such Payments being subject to the Parachute Tax, whichever of the foregoing amounts, taking into account the applicable federal, state and local income taxes and the Parachute Tax, results in receipt by the Executive, on an after-tax basis, of the greatest amount of Payments under this Agreement. If Payments are reduced pursuant to this paragraph, severance payments described above payable over time shall first be reduced (beginning with the last such payment), and the other benefits under this Agreement shall thereafter be reduced, to the extent necessary so that no portion of the Payments is subject to the Parachute Tax.

The reporting and payment of any Parachute Tax will be Executive's responsibility and the Corporation will not provide a gross-up or any other payment to compensate Executive for the payment of the Parachute Tax. The Corporation will withhold from the Payments any amounts it reasonably determines is required under Internal Revenue Code Section 4999(c) and the Treasury Regulations thereunder.

(f) The Executive shall have no obligation to mitigate any payments due hereunder. Any amounts earned by the Executive from other employment shall not offset amounts due hereunder, except as provided herein or in Section 17. The Corporation's obligation to pay the Executive the amounts provided hereunder shall not be subject to set-off, counterclaim or recoupment of amounts owed by the Executive to the Corporation or its affiliates, except (i) as provided in this Section and/or (ii) for any specific, stated amounts owed by the Executive to the Corporation, in which case set-off shall be made in a manner consistent with the requirements of Code Section 409A.

(g) Notwithstanding any other provision of this Agreement, no subsidy for medical, dental or vision coverage, or extension of such coverage to the Executive, described in this Section 6, shall be provided to the extent the Corporation reasonably determines that providing such subsidy would expose the Corporation (or any health plan thereof) to additional taxes or penalties with respect to the provision of such benefits on a discriminatory basis, but the Corporation shall make reasonable efforts to provide a comparable payment in lieu of such benefit to the extent reasonably possible.

(h) The Corporation shall be entitled to withhold from any amounts payable under this Agreement any federal, state, local, or foreign withholding or other taxes or charges which the Corporation is required to withhold pursuant to applicable law. The Corporation shall be entitled to rely on an opinion of counsel if any questions as to the amount or requirement of withholding shall arise.

7. Trade Secrets: The Executive covenants and agrees that he will communicate to the Corporation, and will not divulge or communicate to any other person, partnership, corporation or other entity without the prior written consent of the Corporation, any trade secrets of the Corporation or confidential information relating to the business of the Corporation or anyone connected with the Corporation, and that such trade secrets and confidential information shall not be used by the Executive either on his own behalf or for the benefit of others or disclosed by the Executive to any one, except to the Corporation, during or after the term of employment of the Executive under this Employment Agreement.

8. Inventions and Patents:

(a) The Executive shall make prompt full disclosure in writing to the Corporation of all inventions, improvements and discoveries, whether or not patentable, which the Executive conceives, devises, makes, discovers, develops, perfects or first reduces to practice, either alone or jointly with others, during the term of employment of the Executive under this Employment Agreement, which relate in any way to the fields, products or business of the Corporation, including development and research, whether during or out of the usual hours of work or on or off the premises of the Corporation or by use of the facilities of the Corporation or otherwise and whether at the request or suggestion of the Corporation or otherwise (all such inventions, improvements and discoveries being hereinafter called the "Inventions"), including any Inventions, whether or not patentable, conceived, devised, made, discovered, developed, perfected or first reduced to practice by the Executive after the employment of the Executive under this Employment Agreement is terminated if the Inventions were conceived by the Executive during the term of employment of the Executive under this Employment Agreement. Any Inventions, whether or not patentable, conceived, devised, made, discovered, developed, perfected or first reduced to practice by the Executive within six (6) months of the date of termination of the employment of the Executive under this Employment Agreement shall be conclusively presumed to have been conceived during the term of employment of the Executive under this Employment Agreement.

(b) The Executive agrees that the Inventions shall be the sole and exclusive property of the Corporation.

(c) The Executive agrees to assist the Corporation and its nominees in every reasonable way (entirely at its or their expense) to obtain for the benefit of the Corporation letters patent for the Inventions and trademarks, trade names and copyrights relating to the Inventions,

and any renewals, extensions or reissues thereof, in any and all countries, and agrees to make, execute, acknowledge and deliver, at the request of the Corporation, all written applications for letters patent, trademarks, trade names and copyrights relating to the Inventions and any renewals, extensions or reissues thereof, in any and all countries, and all documents with respect thereto, and all powers of attorney relating thereto and, without further compensation, to assign to the Corporation or its nominee all the right, title and interest of the Executive in and to such applications and to any patents, trademarks, trade names or copyrights which shall thereafter issue on any such applications, and to execute, acknowledge and deliver all other documents deemed necessary by the Corporation to transfer to or vest in the Corporation all of the right, title and interest of the Executive in and to the Inventions, and to such trademarks, trade names, patents and copyrights together with exclusive rights to make, use, license and sell them throughout the world. If Employer is unable, after reasonable effort, to secure Executive's signature on any application for patent, copyright, trademark or other analogous registration or other documents regarding any legal protection relating to any Invention, whether because of Executive's physical or mental incapacity or for any other reason whatsoever, Executive hereby irrevocably designates and appoints the Employer and its duly authorized officers and agents as Executive's agent and attorney-in-fact, to act for and on Executive's behalf and stead to execute and file any such application or applications or other documents and to do all other lawfully permitted acts to further the prosecution and issuance of patent, copyright or trademark registrations or any other legal protection thereon with the same legal force and effect as if executed by Executive.

(d) The Executive agrees that even though his employment is terminated under this Employment Agreement he will, at any time after such termination of employment, carry out and perform all of the agreements of Subsections 8(a) and 8(c) above, and will at any time and at all times cooperate with the Corporation in the prosecution and/or defense of any investigation, litigation or legal process which may arise, including in connection with the Inventions, provided, however, that should such services be rendered after termination of employment of the Executive under this Employment Agreement, the Executive shall be paid reasonable compensation on a per diem basis. The Corporation agrees to provide the Executive reasonable notice in the event his assistance is required.

(e) The Executive agrees to make and maintain adequate and current written records of all Inventions in the form of notes, sketches, drawings, or reports relating thereto, which records shall be and remain the property of, and available to, the Corporation at all times.

(f) The Executive agrees that he will, upon leaving the employment of the Corporation, promptly deliver to the Corporation all originals and copies of disclosures, drawings, prints, letters, notes, and reports either typed, handwritten or otherwise memorialized, belonging to the Corporation which are in his possession or under his control and the Executive agrees that he will not retain or give away or make copies of the originals or copies of any such disclosures, drawings, prints, letters, notes or reports.

9. Property of Corporation: All files, records, reports, documents, drawings, specifications, equipment, and similar items relating to the business of the Corporation, whether prepared by the Executive or otherwise coming into his possession, shall remain the exclusive property of the Corporation and shall not be removed by the Executive from the premises of the Corporation under any circumstances whatsoever without the prior written consent of the Corporation.

10. Non-Competition:

(a) During the term of employment of the Executive under this Employment Agreement, and during a period of one (1) year after termination of employment of the Executive under this Employment Agreement if such termination of employment was caused by the Corporation (or by the Executive for Good Reason) pursuant to Section 5(e), or for a period of two (2) years after termination of employment of the Executive under this Employment Agreement if such termination of employment was caused by the Executive (other than for Good Reason) pursuant to Section 5(a), (c) or (d), (i) the Executive shall not engage, either directly or indirectly, in any manner or capacity, in any business or activity which is competitive with any business or activity conducted by the Corporation; (ii) the Executive shall not work for, directly or indirectly, any person who was an Executive, officer or agent of the Corporation or of any of its subsidiaries at any time during a period of twelve (12) months prior to the termination of the employment of the Executive under this Employment Agreement nor shall the Executive form any partnership with, or establish any business venture in cooperation with, any such person which is competitive with any business or activity of the Corporation; (iii) the Executive shall not, directly or indirectly, give, sell or lease any goods or services competitive with the goods or services of the Corporation or its subsidiaries to any person, partnership, corporation or other entity who purchased goods or services from the Corporation or its subsidiaries within one (1) year before the termination of the employment of the Executive under this Employment Agreement; and (iv) the Executive shall not have any material financial interest, or participate as a director, officer, 1% stockholder, partner, Executive, consultant or otherwise, in any corporation, partnership or other entity which is competitive with any business or activity conducted by the Corporation.

(b) The Corporation and the Executive agree that the services of the Executive are of a personal, special, unique and extraordinary character, and cannot be replaced by the Corporation without great difficulty, and that the violation by the Executive of any of his agreements under this Section 10 would damage the goodwill of the Corporation and cause the Corporation irreparable harm which could not reasonably or adequately be compensated in damages in an action at law, and that the agreements of the Executive under this Section 10 may be enforced by the Corporation in equity by an injunction, declaratory judgment or restraining order in addition to being enforced by the Corporation at law.

(c) In the event that this Section 10 shall be determined by any court of competent jurisdiction to be unenforceable by reason of its extending for too long a period of time or over too great a range of activities or geographic scope, it shall be interpreted to extend only over the maximum period of time or range of activities or geographic scope as to which it may be enforceable.

11. Non-Solicitation: The Executive shall not, on his own behalf or in the service or on behalf of others, directly or indirectly:

(a) solicit, entice or induce any Customer (as defined below) to become a customer, distributor or supplier of any other person, firm or corporation with respect to products and/or services sold or under development by the Corporation during his employment at the Corporation, or to cease doing business with the Corporation, and the Executive shall not contact or approach any such person, firm or corporation for such purpose or authorize or knowingly approve the taking of such actions by any other person for a period of twenty-four (24) months from the date of the termination of employment of the Executive under this Employment Agreement; or

(b) solicit, recruit or hire (or attempt to solicit, recruit or hire) any Executive, officer or agent of the Corporation or contractor engaged by the Corporation (whether or not such person is a full-time Executive or whether or not such employment is pursuant to a written agreement or at-will) to terminate such person's employment or engagement with the Corporation or work for a third party other than the Corporation for a period of twenty-four (24) months after the date of the termination of employment of the Executive under this Employment Agreement, or engage in any activity that would cause such Executive or contractor to violate any agreement with the Corporation, nor shall the Executive form any partnership with, or establish any business venture in cooperation with, any such person.

(c) For the purposes of this Section 11, a "Customer" means any person or entity which as of the date of the termination of employment of the Executive under this Employment Agreement was, within two (2) years prior to such time, a customer, distributor or supplier of the Corporation, and references to the Corporation shall be deemed to include any affiliate or subsidiary of the Corporation.

12. Notice: Any and all notices under this Employment Agreement shall be in writing and, if to the Corporation, shall be duly given if sent to the Corporation by registered or certified mail, postage prepaid, return receipt requested, at the address of the Corporation set forth under its name below or at such other address as the Corporation may hereafter designate to the Executive in writing for the purpose, and, if to the Executive, shall be duly given if delivered to the Executive by hand or if sent to the Executive by registered or certified mail, postage prepaid, return receipt requested, at the address of the Executive set forth under his name below or at such other address as the Executive may hereafter designate to the Corporation in writing for the purpose.

13. Nondisparagement: The Executive shall not disparage the Corporation, any of its products or practices, or any of its directors, officers, or employees, whether orally, in writing or otherwise, at any time. The Corporation's Chairman shall instruct the Corporation's Chief Officers in Senior Management not to disparage the Executive, whether orally, in writing or otherwise, at any time. Notwithstanding the foregoing: nothing in this Section shall (i) limit the ability of the Corporation or the Executive, as applicable, to provide truthful testimony as required by law or any judicial or administrative process, or (ii) prevent the Corporation from (A) responding publicly to incorrect, disparaging or derogatory public statements to the extent reasonably necessary to correct or refute such public statement or (B) prevent any Person from making any truthful statement to the extent necessary in any litigation, arbitration, or mediation proceeding involving this Agreement, including, but not limited to, the enforcement of this Agreement. In no event shall any termination of the Executive's employment by the Corporation or the Executive for any reason constitute disparagement for purposes of this Section.

14. Assignment: The rights and obligations of the Corporation under this Employment Agreement shall inure to the benefit of, and shall be binding upon, the successors and assigns of the Corporation. The rights and obligations of the Executive under this Employment Agreement shall inure to the benefit of, and shall be binding upon, the heirs, executors and legal representatives of the Executive. The Executive shall not delegate his employment of obligations under this Agreement to any other person.

15. Code Section 409A Compliance.

(a) Where Section 6 refers to the Executive's termination of employment for purposes of receiving any payment, whether such a termination has occurred will be determined in accordance with Section 409A of the Internal Revenue Code and Treasury Regulation Section 1.409A-1(h) (or any successor provisions).

(b) Where the Employment Agreement requires the following payments to be made to the Executive, the following rules shall apply, and any inconsistent provision is superseded:

(i) To the extent that this Employment Agreement requires that a payment shall be made upon or as soon as reasonably practicable after an event (*e.g.*, termination of employment), such payment shall be made no later than sixty (60) days after the occurrence of such event (or, if earlier, within two-and-a-half (2 ½) months following the end of the Executive's taxable year in which such event occurs). The Executive may not designate the year of such payment.

(ii) To the extent that benefits under Section 6 are contingent upon the Executive providing a Release, the Executive shall sign and return the Release within the reasonable time period designated by the Corporation, which shall be no less than twenty-one (21) days but no more than forty-five (45) days. If such designated time period for review and revocation of the Release crosses calendar years, payments for the period for review and return of the Release shall be made in the later calendar year. Any payments that would otherwise be made during the period for review and revocation of the Release will be made on the first scheduled payment date after such period ends.

(iii) To the extent that the Employment Agreement provides for the reimbursement of specified expenses incurred by the Executive, such reimbursement shall be made in accordance with the provisions of the Employment Agreement, but in no event later than the last day of the Executive's taxable year following the taxable year in which the expense was incurred. The amount of expenses eligible for reimbursement or in-kind benefits provided by the Corporation in any taxable year of the Executive shall not affect the amount of expenses or in-kind benefits to be reimbursed or provided in any other year (except in the case of maximum benefits to be provided under a medical reimbursement arrangement, if applicable).

(iv) Bonus otherwise payable under the Employment Agreement after the end of a bonus plan performance period shall be paid within two-and-a-half (2 ½) months after the end of the fiscal year of the Corporation to which such Bonus relates.

(c) Each payment in respect of the Executive's termination of employment under Section 6 of the Employment Agreement is designated as a separate payment for purposes of the short-term deferral rules under Treasury Regulation Section 1.409A-1(b)(4)(i)(F) and the exemption for involuntary terminations under separation pay plans under Treasury Regulation Section 1.409A-1(b)(9)(iii).

(d) If the Executive is designated as a "specified Executive" within the meaning of Code Section 409A (and the Corporation is publicly traded on any securities market),

any deferred compensation payment subject to Section 409A to be made during the six-month period following Executive's termination of employment shall be withheld and the amount of the payments withheld will be paid in a lump sum, without interest, during the seventh month after Executive's termination; provided, however, that if the Executive dies prior to the expiration of such six month period, payment to the Executive's beneficiary shall be made as soon as reasonably practicable following the Executive's death. The Corporation shall identify in writing delivered to the Executive any payments it reasonably determines are subject to delay under this Section 15(d).

(e) In no event shall the Corporation have any liability or obligation with respect to taxes for which the Executive may become liable as a result of the application of Code Section 409A.

16. Entire Agreement and Severability:

(a) This Employment Agreement (including all appendices hereto), when it becomes effective on January 1, 2014, together with the Confidential Information Agreement from time to time in effect between the parties, shall supersede the Original Employment Agreement (including all appendices thereto) in their entirety. Until January 1, 2014, the Original Employment Agreement (including all appendices thereto) shall remain in full force and effect. Each party to this Employment Agreement acknowledges that no representations, inducements, promises or agreements, oral or otherwise, have been made by any party, or any one acting on behalf of any party, which are not embodied herein, and that no other agreement, statement or promise not contained in this Employment Agreement, the Confidential Information Agreement, and the attached Appendix A, shall be valid and binding. Any modification of this Employment Agreement, the Confidential Information Agreement, and the attached Appendix A, will be effective only if it is in writing signed by both parties to this Employment Agreement.

(b) The parties have participated jointly in the negotiation and drafting of this Agreement. In the event that an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as if drafted jointly by the parties and no presumption or burden of proof shall arise favoring or disfavoring any party by virtue of the authorship of any of the provisions of this Agreement.

(c) The Executive specifically acknowledges and agrees that the purpose of the restrictions contained in this Agreement is to protect the Corporation from unfair competition, including improper use of the Confidential and Proprietary Information as defined in the Confidential Information Agreement, and that the restrictions and covenants contained herein are reasonable with respect to both scope and duration of application. If any provision in this Employment Agreement is held by a court of competent jurisdiction to be invalid, void or unenforceable, the remaining provisions shall nevertheless continue in full force and effect without being impaired or invalidated in any way.

(d) All pronouns used herein shall include the masculine, feminine, and neuter gender as the context requires.

17. Clawback: Executive agrees to return all or a portion of any Management Incentive Plan or Long-Term Incentive Plan, and any severance payments computed by reference thereto, for the performance period(s) in which his termination of employment occurs and any performance period ending within the thirty-six (36) month period prior to his

termination of employment, if it is later determined that that these awards were calculated on the basis of inaccurate information that results in a restatement of the Corporation's financial statements for the applicable period(s) or for any other reason for which a clawback is required under the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010. Repayment of any amounts pursuant to this paragraph shall be made, net of applicable taxes Executive paid on those payments, within ten (10) days of written demand by the Corporation. The Corporation will provide Executive with a calculation of the amount that is subject to this paragraph with its demand for repayment.

18. Arbitration: Any dispute under this Agreement shall be resolved by final and binding arbitration; provided, however, that the Corporation, in its sole discretion, may enforce the covenants set out above in Sections 9 through 11 of this Agreement by bringing a proceeding in any court of competent jurisdiction. In addition, any issues pertaining to the ability to arbitrate a dispute under this Agreement shall be determined by a court of competent jurisdiction and not by an arbitrator. The arbitration shall be held in the Commonwealth of Massachusetts and shall be conducted in accordance with the then-prevailing Commercial Arbitration Rules of the American Arbitration Association. The arbitrator shall be acceptable to both the Corporation and the Executive. If the parties cannot agree on an acceptable arbitrator, the dispute shall be heard by a panel of three arbitrators, one appointed by the Corporation and one appointed by the Executive, and the third selected by the other two arbitrators. Under no circumstances may the arbitrator(s) have the authority to require the Executive's reinstatement to employment or continued employment, or award any lost wages or benefits (other than severance benefits as described above) as a result of Executive's termination of employment for any reason. The arbitrator(s) shall also have no authority to award punitive, liquidated or consequential damages or the payment of a prevailing party's costs and/or attorneys' fees. Each party shall bear its own costs and expenses and an equal share of the arbitrators' and administrative fees of arbitration. The Corporation, the Executive and the arbitrator(s) shall treat all aspects of the arbitration proceedings, including without limitation, discovery, testimony and other evidence, briefs and the award, as strictly confidential; provided, however, that any award or order rendered by the arbitrator(s) under this Agreement may be entered as a judgment or order in a court of competent jurisdiction and may be disclosed by the Corporation as necessary to enforce the terms of the restrictive covenants in Sections 9 through 11 of this Agreement.

19. Governing Law: This Employment Agreement shall be governed by, and construed in accordance with, the laws of The Commonwealth of Massachusetts applicable to contracts made and to be performed entirely within The Commonwealth of Massachusetts without regard to its conflict of laws principles.

[remainder of page intentionally left blank]

IN WITNESS WHEREOF, the parties hereto have executed, in The Commonwealth of Massachusetts, this Employment Agreement as a sealed instrument, all as of the day, month and year first written above.

MKS Instruments, Inc.

By: /s/ John R. Bertucci
Chairman of the Corporation's Board of Directors

2 Tech Drive
Andover, MA 01810

/s/ Gerald G. Colella
Legal Signature

Gerald G. Colella
Seabrook, NH

APPENDIX A

Supplemental Retirement Benefits

1. Purpose. (a) General: The purpose of this Appendix A is to provide Employee with supplemental retirement benefits to encourage his continued employment with the Corporation. Benefits will be payable only if Employee fully complies with all of the requirements of this Appendix A.

(b) For Benefit of Employee Only: Benefits under this Appendix A are provided for the benefit of Employee only. No other employee shall accrue any rights of any kind as a result of the existence of the arrangement described in this Appendix A. Supplemental retirement benefits may be provided to an employee only as specifically authorized by the Board of Directors of the Corporation.

(c) Internal Revenue Code Section 409A: The provisions of this Appendix A shall be interpreted in a manner consistent with the requirements of Section 409A of the Internal Revenue Code.

2. Definitions. As used in this Appendix A, the following terms have the meanings set forth below, unless a different meaning is required by the context:

2.1 “Actuarially Equivalent” means a benefit of equivalent value to another benefit, determined on the following basis:

Interest Rate: The average annual interest rate on 10-year Treasury securities as published by the Federal Reserve for the calendar quarter immediately preceding the calendar quarter in which the actuarially equivalent benefit is being determined plus 25 basis points; and

Mortality: The most recent “applicable mortality table” prescribed by Section 417(e)(3)(A)(ii) of the Internal Revenue Code (or a successor provision as determined by the Corporation).

2.2 “Base salary” means base salary as defined in the Employment Agreement, before any pre-tax salary reductions for participation in any benefits plan of the Corporation.

2.3 “**Beneficiary**” means one or more persons, trusts, estates or other entities, designated by Employee to receive death benefits under Section 6.1(b) of this Appendix A upon Employee’s death. If Employee fails to designate a Beneficiary or if all designated Beneficiaries predecease Employee, then such death benefits shall be payable to the executor or personal representative of Employee’s estate.

Employee shall designate his Beneficiary by completing and signing a beneficiary designation form prescribed by the Corporation, and returning it to the Corporation or its designated agent. Employee shall have the right to change a Beneficiary by completing, signing and otherwise complying with the terms of the beneficiary designation form and the Corporation’s rules and procedures, as in effect from time to time. Upon the acceptance by the Corporation of a new beneficiary designation form, all Beneficiary designations previously filed shall be canceled. The Corporation shall be entitled to rely on the last beneficiary designation form filed by Employee and accepted by the Corporation prior to his or her death. No designation or change in designation of a Beneficiary shall be effective until received and acknowledged in writing by the Corporation or its designated agent. If the Corporation has any doubt as to the proper Beneficiary to receive payments pursuant to this Appendix A, the Corporation shall have the right, exercisable in its discretion, to withhold such payments until this matter is resolved to the Corporation’s satisfaction.

2.4 “**Bonus**” means a bonus paid under the Corporation’s Management Incentive Program.

2.5 “**Change in Control**” means the first to occur of any of the following events:

(a) Any “person” (as that term is used in Section 13 and 14(d)(2) of the Securities Exchange Act of 1934 (“Exchange Act”)) becomes the beneficial owner (as that term is used in Section 13(d) of the Exchange Act), directly or indirectly, of fifty percent (50%) or more of the Company’s capital stock entitled to vote in the election of directors;

(b) The shareholders of the Company approve any consolidation or merger of the Company, other than a consolidation or merger of the Company in which the holders of the common stock of the Company immediately prior to the consolidation or merger hold more than fifty percent (50%) of the common stock of the surviving corporation immediately after the consolidation or merger;

(c) The shareholders of the Company approve any plan or proposal for the liquidation or dissolution of the Company; or

(d) The shareholders of the Company approve the sale or transfer of all or substantially all of the assets of the Company to parties that are not within a "controlled group of corporations" (as defined in Code Section 1563) in which the Company is a member.

2.6 "Corporation" means MKS Instruments, Inc. (the "Company") and any corporation, trust, association or enterprise which is required to be considered, together with the Corporation, as one employer pursuant to the provisions of Sections 414(b), 414(c), 414(m) or 414(o) of the Code. For purposes of applying Code sections 1563(a)(1), (2), and (3) and regulation section 1.414(c)-2 to the determination of companies under common control for purposes of this Appendix A, 80% shall be used instead of "at least 80%" each place it appears in such sections.

2.7 "Compensation" for any calendar year means the sum of Employee's Base Salary for such year plus any Bonus paid in such year.

2.8 "Early Retirement Benefit" means the Retirement benefit determined under Section 5.2 of this Appendix A upon Employee's Retirement prior to his Normal Retirement Date.

2.9 "Employment Agreement" means the Employment Agreement between Employee and the Corporation that contains this Appendix A.

2.10 "Final Average Pay" means, for purposes of Section 5 the average of Employee's three (3) highest years of Compensation during the ten (10) calendar year period immediately preceding the calendar year in which Employee Retires, and for purposes of determining death benefits under Section 6 the average of Employee's three (3) highest years of Compensation during the ten (10) calendar year period immediately preceding the calendar year containing Employee's date of death. The foregoing notwithstanding, any calendar year in which Employee has no Compensation from the Corporation shall be ignored in determining such ten calendar year period.

2.11 "Normal Retirement Age" means Employee's 62nd birthday or, if earlier, the date Employee is deemed to have Retired in accordance with Section 2.15(b).

2.12 "Normal Retirement Benefit" means the Retirement benefit determined under Section 5.1 of this Appendix A upon Employee's Retirement on or after his Normal Retirement Date.

2.13 "Normal Retirement Date" means the first day of the month in which Employee attains Normal Retirement Age.

2.14 "Permanent and Total Disability" means (a) Employee is unable to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or can be expected to last for a continuous period of not less than 12 months, or (b) Employee is, by reason of any medically determinable physical or mental impairment that can be expected to result in death or can be expected to last for a continuous period of not less than 12 months, receiving income replacement benefits for a period of not less than three months under an accident and health plan covering employees of the Corporation. Employee shall be conclusively presumed to be Permanently and Totally Disabled upon determination that he is disabled by the Social Security Administration.

2.15 "Retirement" or "Retires" or "Retired" means the earlier of:

(a) Employee's Separation from Service with the Corporation upon or after satisfying the vesting requirements of Section 4.1, or

(b) Employee's deemed Retirement. Employee shall be deemed to have Retired with a fully vested Normal Retirement Benefit on the earliest of (i) the date he becomes Permanently and Totally Disabled, (ii) the date of Employee's Separation from Service as a result of the Corporation's termination of Employee's employment with the Corporation for any reason other than Termination for Cause as defined in Section 2.21 of this Appendix A, (iii) the date of Employee's death while employed by the Corporation, or (iv) the date of Employee's qualifying Separation from Service following a Change in Control in accordance with the provisions of Section 7 of this Appendix A.

2.16 “Retirement Date” means the date Employee Retires or is deemed to have Retired in accordance with Section 2.15 of this Appendix A. The term “Retirement Date” shall include Employee’s Early Retirement Date as defined in Section 5.2 of this Appendix A.

2.17 “Section 409A” means Section 409A of the Internal Revenue Code, as the same may be amended from time to time, and any successor statute thereto. References in this Appendix A to Section 409A shall be deemed to mean and include any published guidance, regulations, notices, rulings and similar announcements issued by the Internal Revenue Service or by the Secretary of the Treasury under or interpreting Section 409A, decisions by any court of competent jurisdiction involving a Participant or a beneficiary and any closing agreement made under section 7121 of the Code that is approved by the Internal Revenue Service and involves a Participant, all as determined by the Corporation in good faith, which determination may (but shall not be required to) be made in reliance on the advice of such tax counsel or other tax professional(s) with whom the Corporation from time to time may elect to consult with respect to any such matter.

2.18 “Separates from Service” or “Separation from Service” means Employee’s separation from service with the Corporation as a result of death retirement, or any other reason, except that for purposes of this section 2.18 the employment relationship is treated as continuing intact while Employee is on military leave, sick leave, or other bona fide leave of absence if the period of such leave does not exceed six months, or if longer, so long as Employee retains a right to reemployment with the Corporation under an applicable statute or by contract. For purposes of this Section 2.18 a leave of absence constitutes a bona fide leave of absence only if there is a reasonable expectation that the employee will return to perform services for the employer. If the period of leave exceeds six months and the individual does not retain a right to reemployment under an applicable statute or by contract, the employment relationship is deemed to terminate on the first date immediately following such six-month period. Whether an Employee has a Separation from Service shall be determined in accordance with the provisions of Section 409A, and regulations thereunder, and any other applicable guidance.

2.19 “Specified Employee” means, at any time when stock of the Corporation is publicly traded on an established securities market or otherwise (as determined in accordance with Section 409A), an employee who is a “specified employee” within the meaning of Section

409A. The Corporation shall have the discretion to use any alternative permitted under Section 409A to determine whether Employee is a Specified Employee, and to take any action necessary to make such alternative binding.

2.20 "Termination of Employment" means, for purposes of Section 4.6 of this Appendix A, Termination for Cause, or Employee's voluntary severance from employment with the Corporation (within the meaning of the Corporation's normal policies and procedures) for any reason other than Retirement.

2.21 "Termination for Cause" means, solely for purposes of this Appendix A, termination of Employee's employment by the Corporation as a result of Employee's conviction for the commission of a felony, material breach of any employment or other agreements between Employee and the Corporation, or willful failure to perform the material responsibilities of his position with the Corporation.

2.22 "Trust" means a Trust established pursuant to Section 10 of this Appendix A. 3.

3. Eligibility for Retirement Benefits.

3.1 General: Subject to Sections 4.2, 4.3, 4.4, and 4.5 the Corporation shall pay the retirement benefits described in this Appendix A only if Employee Retires from employment with the Corporation upon or after satisfying the vesting requirements set forth in Section 4.1, or upon Employee's deemed Retirement pursuant to Section 2.15(b)

4. Vesting.

4.1 General: Except as provided in Sections 4.2, 4.3, 4.4, and 4.5, and subject to Section 10.1, Employee's benefits under this Appendix A shall be fully vested and nonforfeitable if Employee satisfies both (a) and (b) while employed with the Corporation:

(a) attains age 60, and

(b) has 25 years of service with the Corporation. Employee shall have 25 years of service on the 25th anniversary of Employee's original hire date.

The foregoing notwithstanding, Employee shall be fully vested in his benefit under this Appendix A upon Employee's deemed Retirement pursuant to Section 2.15(b) of this Appendix A.

4.2 Termination for Cause: All benefits shall be forfeited, and no amount shall be payable under this Appendix A, in the event of Employee's Termination for Cause.

4.3 Compliance with Noncompete, Nondisclosure, and Nonsolicitation Agreements. All benefits under this Appendix A are expressly conditioned upon Employee's compliance with the terms of any noncompetition, nondisclosure, or nonsolicitation provisions contained in the Employment Agreement, or in any other agreement between Employee and the Corporation. All benefits payable under this Appendix A shall be forfeited, and no amount shall be payable, in the event Employee violates the terms of any such provisions. If Employee violates the terms of any such provisions, and benefit payments have commenced to Employee, any such payments shall cease, and Employee shall repay all previously paid benefits to the Corporation upon demand. If Employee fails to repay such amounts upon demand, the Corporation shall have the right to take any action necessary to recover such payments from Employee.

4.4 Notice of Intent to Retire. Benefits payable under this Appendix A are specifically conditioned upon Employee providing to the Corporation written notice of Employee's intent to Retire at least six months prior to Employee's Retirement date. In the event Employee fails to satisfy the notice requirements of this Section 4.4, all benefits shall be forfeited, and no amount shall be payable under this Appendix A. The foregoing notwithstanding, the Corporation, in its sole and absolute discretion, may elect to waive the notice requirement of this Section 4.4. The foregoing notwithstanding, this Section 4.4 shall not apply to death benefits payable under Section 6 of this Appendix A, or to Retirement benefits payable under Section 5 as a result of Employee's deemed Retirement pursuant to Section 2.15(b).

4.5 Release. Benefits payable under this Appendix A (other than death benefits payable under Section 6) are specifically conditioned upon and provided in exchange for Employee signing a separation agreement that releases the Corporation from any liabilities that may have arisen as a result of Employee's employment and/or termination of employment with the Corporation. The time period for returning such separation agreement shall be designated by the Corporation and shall not be less than 21 days nor more than 45 days following Employee's Separation from Service. If such time period (including any period for revocation) begins in one taxable year and ends in a subsequent taxable year, any payments conditioned upon such separation agreement shall be made in the later taxable year. Payments of benefits hereunder

shall not be made unless and until the separation agreement has been signed and timely returned by Employee and the specified period for revocation of the separation agreement has expired without revocation. In the event Employee terminates employment with the Corporation for any reason other than death (including Retirement) without satisfying the requirements of this Section 4.5 all benefits shall be forfeited, and no amount shall be payable under this Appendix A.

4.6 Termination of Employment Prior to Satisfying Vesting Requirements. No benefits are payable under this Appendix A upon Employee's Termination of Employment with the Corporation prior to satisfying the vesting requirements set forth in Section 4.1.

5. Retirement Benefits.

5.1 Normal Retirement Benefit. This Section 5.1 describes the Retirement benefit payable by the Corporation in the event Employee Retires on or after his Normal Retirement Date. Employee's Normal Retirement Benefit shall be paid in the form of an Actuarially Equivalent lump sum, as set forth in Section 5.3.

(a) Married on Retirement Date: If Employee is married on his Retirement Date, Employee's Normal Retirement Benefit shall be:

50% times Final Average Pay

payable annually for the life of Employee with 50% of such amount continuing after Employee's death to his spouse for her life, with payments commencing on Employee's Normal Retirement Date, and subsequent payments made as of each anniversary thereof. Solely for purposes of this Section 5.1, "Spouse" shall mean the spouse to whom Employee is married on his Retirement Date (regardless of whether that is the same spouse to whom he is married on his date of death), unless the Corporation is directed by a court of competent jurisdiction to treat someone else as Employee's "spouse."

(b) Not Married on Retirement Date: If Employee is not married on his Retirement Date, Employee's Normal Retirement Benefit shall be:

50% times Final Average Pay

payable annually for the life of Employee with a ten year certain guarantee, with payments commencing on Employee's Normal Retirement Date, and subsequent payments made on each anniversary thereof.

5.2 Early Retirement Benefit. This Section 5.2 describes the Retirement benefit payable by the Corporation in the event Employee Retires prior to his Normal Retirement Date. Employee may Retire from employment with the Corporation prior to his Normal Retirement Date on the first day of any month coincident with or next following the date he satisfies the vesting requirements of section 4.1. The date on which Employee Retires under this Section 5.2 shall be his Early Retirement Date. Employee's Early Retirement Benefit shall be paid in the form of an Actuarially Equivalent lump sum, as set forth in Section 5.3.

(a) Married on Early Retirement Date: If Employee is married on his Early Retirement Date, Employee's Early Retirement Benefit shall be:

50% times Final Average Pay

multiplied by the applicable percentage as set forth in the following schedule:

Age at which Early Retirement Benefits Commence	62	61	60
Applicable Percentage	100%	90	80

payable annually for the life of Employee with 50% of such amount continuing after Employee's death to his spouse for her life, with payments commencing on Employee's Early Retirement Date, and subsequent payments made on each anniversary thereof. Solely for purposes of this Section 5.2, "Spouse" shall mean the spouse to whom Employee is married on his Early Retirement Date (regardless of whether that is the same spouse to whom he is married on his date of death), unless the Corporation is directed by a court of competent jurisdiction to treat someone else as Employee's "spouse".

(b) Not Married on Early Retirement Date: If Employee is not married on his Early Retirement Date, Employee's Early Retirement Benefit shall be:

50% times Final Average Pay

multiplied by the applicable percentage as set forth in the following schedule:

Age at which Early Retirement Benefits Commence	62	61	60
Applicable Percentage	100%	90	80

payable annually for the life of Employee with a ten year certain guarantee, with payments commencing on Employee's Early Retirement Date, and subsequent payments made on each anniversary thereof.

5.3 Form of Payment: Employee's Normal Retirement Benefit or Early Retirement Benefit, determined in accordance with section 5.1 or 5.2 as applicable, shall be paid in the form of a single lump sum that is Actuarially Equivalent to such Normal Retirement Benefit or Early Retirement Benefit. Such lump sum shall be paid on Employee's Retirement Date (or, if later, the earliest date permitted by Section 409A). No benefits shall be payable in the form of an annuity or in installments.

5.4 Delay of Payment to Specified Employee. Sections 5.1 through 5.3 of this Appendix A notwithstanding, in the event Employee is a Specified Employee on the date Employee Separates from Service, then any amount payable under this Appendix A as a result of such Separation from Service, other than amounts payable as a result of Employee's Permanent and Total Disability, shall not be made earlier than (a) the date that is six months after the date of such Employee's Retirement or, if earlier, (b) the date of the Employee's death. Employee's Retirement benefit shall be actuarially increased, in the manner determined by the Corporation, to account for such delayed commencement date.

5.5 Time of Payment: Where the provisions of this Appendix A require that a payment be made on a designated date, (for example, under Sections 5.1, 5.2, 5.3, and 5.4) such payment shall be deemed to have been made on such date if it is made as soon as administratively practicable following such date. In no event, however, shall payment be made later than the end of the calendar year containing such designated date or, if later, the 15th day of the third calendar month following such designated date. No adjustment shall be made to Employee's Retirement benefit as a result of any delay between the specified payment date and the actual payment date. In no event shall Employee be permitted to designate, directly or indirectly, the taxable year in which payment will be made.

5.6 Death While Employed by the Corporation. In the event Employee dies while employed by the Corporation, any benefits payable under this Appendix A shall be determined in accordance with Section 6.

5.7 Domestic Relations Orders. The payment of all or part of Employee's Retirement benefit may, in the sole discretion of the Corporation, be accelerated and paid to a person other than Employee if Corporation determines that such payment is necessary to fulfill a valid domestic relations order as defined in Section 414(p)(1)(B) of the Internal Revenue Code.

6. Death While Employed by the Corporation.

6.1 General. In the event Employee dies while employed by the Corporation the death benefit payable under this Appendix A shall be as follows:

(a) if Employee is married on his date of death, 50% of the lump sum that is Actuarially Equivalent to the Normal Retirement Benefit determined under Section 5.1(a) of this Appendix A, such lump sum benefit to be determined as if Employee Retired on his date of death after reaching Normal Retirement Age; or

(b) if Employee is not married on his date of death, 50% of the lump sum that is Actuarially Equivalent to the Normal Retirement Benefit determined under Section 5.1(b) of this Appendix A, such lump sum benefit to be determined as if Employee Retired on his date of death after reaching Normal Retirement Age.

The death benefit shall be payable in a lump sum as soon as administratively practicable following Employee's date of death.

6.2 Payee. This death benefit shall be payable to Employee's (a) surviving spouse if Employee is married on his date of death, or (b) Beneficiary if Employee is not married on his date of death. "Surviving spouse" for purposes of this Section 6.2 means the spouse to whom Employee is married on his date of death.

7. Effect of a Change in Control of the Corporation. Anything in this Appendix A to the contrary notwithstanding, this Section 7 shall apply in the event of a Change in Control. If, within three years after the date of a Change in Control, Employee voluntarily Separates from Service with the Corporation for Good Reason, and employee is not otherwise eligible for Retirement, then Employee shall be deemed to have Retired with a fully vested Normal Retirement Benefit on the date of such Separation from Service.

Solely for purposes of this Section 7, "Good Reason" shall mean Employee's voluntary Separation from Service within 90 days following (i) a material diminution in Employee's positions, duties and responsibilities from those described in this Employment Agreement (ii) a reduction in Employee's Base Salary (other than a reduction which is part of a general salary reduction program affecting senior executives of the Corporation) (iii) a material reduction in the aggregate value of the pension and welfare benefits provided to Employee from those in effect prior to the Change in Control (other than a reduction which is proportionate to the reductions applicable to other senior executives pursuant to a cost-saving plan that includes all senior executives), (iv) a material breach of any provision of this Employment Agreement by the Corporation, (v) the Corporation's requiring Employee to be based at a location that creates for Employee a one way commute in excess of 60 miles from his primary residence, except for required travel on the Corporation's business to an extent substantially consistent with the business travel obligations of Employee under this Employment Agreement. Notwithstanding the foregoing, a termination shall not be treated as a termination for Good Reason (i) if Employee shall have consented in writing to the occurrence of the event giving rise to the claim of termination for Good Reason or (ii) unless Employee shall have delivered a written notice to the Corporation within 30 days of his having actual knowledge of the occurrence of one of such events stating that he intends to terminate his employment for Good Reason and specifying the factual basis for such termination, and such event, if capable of being cured, shall not have been cured within 30 days of the receipt of such notice.

8. Effect of termination of employment and rehire. Upon Employee's Retirement, the benefit payable under this Appendix A, if any, shall be determined by the Corporation and such determination shall be conclusive and binding (subject to Section 14). If Employee is subsequently reemployed by the Corporation such reemployment, additional service, and additional compensation shall not result in a re-determination of the benefits due under this Appendix A.

9. Administration.

9.1 Powers of the Corporation: The Board of Directors of the Company (the "Board") shall have the sole authority to act on behalf of the Corporation under this Appendix A (subject to Section 9.3), and shall have all the powers necessary to administer the benefits under this Appendix A, including, without limitation, the power to interpret the provisions of this Appendix A and to establish rules and prescribe any forms required to administer benefits under this Appendix A

9.2 Actions of the Board: All determinations, interpretations, rules, and decisions of the Board shall be conclusive and binding upon all persons having or claiming to have any interest or right under this Appendix A.

9.3 Delegation: The Board shall have the power to delegate specific duties and responsibilities to officers or other employees of the Corporation or other individuals or entities. Any delegation by the Board may allow further delegations by the individual or entity to whom the delegation is made. Any delegation may be rescinded by the Board at any time. Each person or entity to whom a duty or responsibility has been delegated shall be responsible for the exercise of such duty or responsibility and shall not be responsible for any act or failure to act of any other person or entity.

9.4 Reports and Records: The Board and those to whom the Board has delegated duties under Section 9.3 shall keep records of all their proceedings and actions and shall maintain books of account, records, and other data as shall be necessary for the proper administration of this Appendix A and for compliance with applicable law.

9.5 Costs: The costs of providing and administering the benefits under this Appendix A shall be borne by the Corporation.

10. Unfunded Benefits; Establishment of Trust.

10.1 Unfunded Status. This Appendix A shall be unfunded for tax purposes and for purposes of Title 1 of ERISA.

10.2 Establishment of Trust. The Corporation shall not be required to set aside any funds to discharge its obligations hereunder, but may set aside such funds to informally fund all or part of its obligations hereunder if it chooses to do so, including without limitation the contribution of assets to a “rabbi trust” (the Trust). Any setting aside of amounts, or acquisition of any insurance policy or any other asset, by the Corporation with which to discharge its obligations hereunder in trust or otherwise, shall not be deemed to create any beneficial ownership interest in Employee, his surviving spouse, or Beneficiary, and legal and equitable title to any funds so set aside shall remain in the Corporation, and any recipient of benefits hereunder shall have no security or other interest in such funds. The rights of Employee and his surviving spouse and Beneficiary(ies) under this Appendix A shall be no greater than the rights of a general unsecured creditor of the Corporation. Any and all funds so set aside by the Corporation shall remain the general assets of the Corporation, and subject to the claims of its general creditors, present and future.

10.3 Interrelationship of this Appendix A and the Trust. The provisions of this Appendix A shall govern the rights of Employee to receive distributions pursuant to the provisions of this Appendix A. The provisions of the Trust shall govern the rights of the Corporation,

10.4 Employee, and creditors of the Corporation to the assets transferred to the Trust. The Corporation shall at all times remain liable to carry out its obligations under this Appendix A.

10.5 Distributions from the Trust. The Corporation’s obligations under this Appendix A may be satisfied with Trust assets distributed pursuant to the terms of the Trust, and any such distribution shall reduce the Corporation’s obligation under this Appendix A.

11. Payment of Benefit for Disabled or Incapacitated Person. If the Corporation determines, in its discretion, that Employee or Employee’s Beneficiary or surviving spouse is under a legal disability or is incapacitated in any way so as to be unable to manage his financial affairs, the

Corporation may make any payment otherwise due under the terms of this Appendix A to such person or to his legal representative or to a friend or relative of such person as the Corporation considers advisable. Any payment under this Section 11 shall be a complete discharge of any liability for the making of such payment under this Appendix A. Nothing contained in this Section 11, however, should be deemed to impose upon the Corporation any liability for paying a benefit to any person who is under such a legal disability or is so incapacitated unless it has received notice of such disability or incapacity from a competent source.

12. Nonassignability. Neither Employee nor any other person shall have any right to commute, sell, assign, transfer, pledge, anticipate, mortgage or otherwise encumber, transfer, hypothecate, alienate or convey in advance of actual receipt, the amounts, if any, payable hereunder, or any part thereof, which are, and all rights to which are expressly declared to be, unassignable and non-transferable. No part of the amounts payable shall, prior to actual payment, be subject to seizure, attachment, garnishment or sequestration for the payment of any debts, judgments, alimony or separate maintenance owed by Employee or any other person, be transferable by operation of law in the event of Employee's or any other person's bankruptcy or insolvency or be transferable to a spouse as a result of a property settlement or otherwise. The Corporation is authorized to make any payments directed by court order.

13. Claim Procedure.

13.1 Presentation of Claim. Employee, or the surviving spouse of Employee after Employee's death, or Employee's Beneficiary (such Employee, surviving spouse, or Beneficiary being referred to below as a "Claimant") may deliver to the Corporation a written claim for a determination with respect to the amounts distributable to such Claimant under this Appendix A. If such a claim relates to the contents of a notice received by the Claimant, the claim must be made within sixty (60) days after such notice was received by the Claimant. All other claims must be made within 180 days of the date on which the event that caused the claim to arise occurred. The claim must state with particularity the determination desired by the Claimant.

13.2 Notification of Decision.

(a) Claim for benefits other than Disability benefits. The Corporation shall consider a Claimant's claim within a reasonable time, but no later than ninety (90) days after receiving the claim. If the Corporation determines that special circumstances require an extension of time for

processing the claim, written notice of the extension shall be furnished to the Claimant prior to the termination of the initial ninety (90) day period. In no event shall such extension exceed a period of ninety (90) days from the end of the initial period. The extension notice shall indicate the special circumstances requiring an extension of time and the date by which the Corporation expects to render the benefit determination.

(b) Claim for Disability benefits. If the claim relates to benefits in connection with Disability, the Corporation shall consider a Claimant's claim within a reasonable time, but no later than forty-five (45) days after receiving the claim. If the Corporation determines that, due to matters beyond the control of the Plan, the Corporation will not be able to respond to the claim within such 45-day period, the Corporation may extend the response period for one or two additional periods of up to 30 days each by providing the Claimant with notice describing the circumstances that necessitate the extension and the date as of which the Corporation anticipates that it will render its decision. Each such notice must be conveyed to the Claimant prior to the commencement of an extension.

(c) Notification. The Corporation shall notify the Claimant, in writing, within the time periods specified in Section 13.2(a) or (b), as applicable:

- (1) that the Claimant's requested determination has been made, and that the claim has been allowed in full; or
- (2) that the Corporation has reached a conclusion contrary, in whole or in part, to the Claimant's requested determination, and such notice must set forth in a manner calculated to be understood by the Claimant
 - (A) the specific reason(s) for the denial of the claim, or any part of it;
 - (B) specific reference(s) to pertinent provisions of this Appendix A upon which such denial was based;
 - (C) a description of any additional material or information necessary for the Claimant to perfect the claim, and an explanation of why such material or information is necessary;
 - (D) an explanation of the claim review procedure set forth in Section 13.3 below; and
 - (E) a statement of the Claimant's right to bring a civil action under ERISA Section 502(a) following an adverse benefit determination on review.

13.3 Review of a Denied Claim.

(a) Claim for benefits other than Disability benefits. On or before sixty (60) days after receiving a notice from the Corporation that a claim has been denied, in whole or in part, a Claimant (or the Claimant's duly authorized representative) may file with the Corporation a written request for a review of the denial of the claim. The Claimant (or the Claimant's duly authorized representative):

- (1) may, upon request and free of charge, have reasonable access to, and copies of, all documents, records and other information relevant to the claim for benefits;
- (2) may submit written comments or other documents; and/or
- (3) may request a hearing, which the Corporation, in its sole discretion, may grant.

The Corporation shall render its decision on review promptly, and no later than sixty (60) days after the Corporation receives the Claimant's written request for a review of the denial of the claim. If the Corporation determines that special circumstances require an extension of time for processing the claim, written notice of the extension shall be furnished to the Claimant prior to the termination of the initial sixty (60) day period. In no event shall such extension exceed a period of sixty (60) days from the end of the initial period. The extension notice shall indicate the special circumstances requiring an extension of time and the date by which the Corporation expects to render the benefit determination. In rendering its decision, the Corporation shall take into account all comments, documents, records and other information submitted by the Claimant relating to the claim, without regard to whether such information was submitted or considered in the initial benefit determination. The decision must be written in a manner calculated to be understood by the Claimant, and it must contain:

- (1) specific reasons for the decision;
- (2) specific reference(s) to the pertinent provisions of this Appendix A upon which the decision was based;

(3) a statement that the Claimant is entitled to receive, upon request and free of charge, reasonable access to and copies of, all documents, records and other information relevant (as defined in applicable ERISA regulations) to the Claimant's claim for benefits; and

(4) a statement of the Claimant's right to bring a civil action under ERISA Section 502(a).

(b) Claim for Disability benefits. If the claim relates to benefits in connection with Disability, the procedure described in Section 13.3(a) above shall apply, modified as follows:

(1) All references to 60 days shall be changed to 45 days, except that a Claimant shall have 180 days to file an appeal.

(2) The Corporation shall designate an individual to conduct the review who is not the individual who made the initial adverse determination, and is not a subordinate of such individual.

(3) The notice of extension shall describe the circumstances that require the extension; must include the date as of which the Corporation anticipates that it will render its decision; and must be communicated to the Claimant prior to the commencement of the extension.

(4) The review shall not afford deference to the initial adverse benefit determination.

(5) When the appeal is based on a medical judgment, the Corporation shall consult with a health care professional who has appropriate experience and training in the field involved in determining the Claimant's Disability and shall identify all medical and vocational experts whose advice was obtained in connection with the appeal. A health care professional may not be consulted under this Section 7.10(b)(3)(ii)(E) if the health care professional (or a subordinate of such individual) was consulted in connection with the initial claim for benefits.

(6) If the Corporation makes an adverse benefit determination on review, the Corporation shall provide the Claimant with a statement that the Claimant is entitled to receive or request reasonable access to, and copies of, all information relevant to the claim for benefits, including internal rules, guidelines, and protocols (to the extent relied upon) and a statement regarding voluntary alternative dispute resolution options.

13.4 Disability Benefits. For purposes of this Article 13, “Disability benefits” means a benefit payable under this Appendix A that is conditioned upon the Corporation’s determination that Employee is Permanently and Totally Disabled. If the Corporation does not make such determination, but instead relies solely upon the determination of the Social Security Administration’s determination that Employee is disabled, then Sections 13.2(b) and 13.3(b) shall not apply, and any claims by Employee shall instead be reviewed under the provisions of this Article 13 for benefits other than Disability benefits.

13.5 Legal Action. A Claimant’s compliance with the foregoing provisions of this Article 13 is a mandatory prerequisite to a Claimant’s right to commence any legal action with respect to any claim for benefits under this Appendix A.

14. Tax Withholding and Reporting; Section 280G Excise Taxes.

(a) General. The Corporation shall have the right to deduct any required withholding taxes from any payment made under this Appendix A. Except as provided in Section 14(b), the Corporation shall not be obligated to pay or reimburse Employee, or his surviving spouse or Beneficiary, for any income or other taxes or penalties that may be imposed on such person by the Internal Revenue Service or any state or other taxing authority as a result of benefits paid under this Appendix A.

(b) Excise Tax Payment. In the event that any payment or benefit (within the meaning of Section 280G(b)(2) of the Internal Revenue Code of 1986, as amended (the “Code”)), to Employee or for his benefit paid or payable or distributed or distributable pursuant to the terms of this Employment Agreement (including this Appendix A) or otherwise in connection with, or arising out of, his employment with the Corporation or a Change in Control of the Corporation (a “Payment” or “Payments”), would be subject to the excise tax imposed by Section 4999 of the Code or any interest or penalties are incurred by the Employee with respect to such excise tax (such excise tax, together with any such interest and penalties, are hereinafter collectively referred to as the “Excise Tax”), then Employee will be entitled to immediately receive an additional payment (a “Gross-Up Payment”) from the Corporation in an amount such that after payment by Employee of all taxes (including any interest or penalties, other than interest and

penalties imposed by reason of Employee's failure to file timely a tax return or pay taxes shown due on his return, imposed with respect to such taxes and the Excise Tax), including any Excise Tax imposed upon the Gross-Up Payment, Employee retains an amount of the Gross-Up Payment equal to the Excise Tax imposed upon the Payments.

15. Successors. The provisions of this Appendix A shall bind and inure to the benefit of the Corporation and its successors and assigns and Employee and Employee's surviving spouse and designated beneficiaries.

16. Amendment. This Appendix A may be amended only by written agreement between Employee and the Corporation.

APPENDIX B
FORM RELEASE

Introduction

(“Executive”) separated from MKS Instruments, Inc. (the “Corporation”) as of _____, and Executive and the Corporation entered into a Separation Agreement (the “Agreement”), dated _____, pursuant to which, among other things, Executive agreed to release the Releasees from all waivable claims which Executive might have against the Releasees in exchange for the receipt of certain payments and benefits set forth therein upon this Release becoming effective.

Terms

1. As used in this Release, the following words shall mean the following:

(a) “Corporation” shall at all times mean MKS Instruments, Inc., its subsidiaries, divisions, successors and assigns, its affiliated and predecessor companies or corporations, and their successors and assigns.

(b) “Executive” means _____.

(c) “Releasees” shall mean the Corporation, its present or former directors, officers, shareholders, members, employees, attorneys and agents, whether in their individual or official capacities and the current and former trustees or administrators of any pension or other benefit plan applicable to the employees or former employees of the Corporation in their official and individual capacities.

2. After receiving this signed Release from Executive and upon the expiration of the waiting period described in Paragraph 5 (the “Effective Date”), The Corporation will provide Executive with the payments and benefits described in paragraphs _ through _ in Section _ of the Agreement.

3. In exchange for receiving the payments and benefits described in paragraphs _ and _ in Section _ of the Agreement, Executive hereby agrees that Executive is releasing the Releasees from, and waiving, any claim that Executive may have against them for any act, omission, incident or situation which may have occurred at any time up until the Effective Date of this Release. This includes RELEASING AND FOREVER DISCHARGING the Releasees from AND WAIVING:

(a) Any claims arising under Title VII of the Civil Rights Act of 1964, the Age Discrimination in Employment Act, the Americans with Disabilities Act, the Rehabilitation Act, the Equal Pay Act, 42 U.S.C. §§ 1981, 1982, 1983 and 1985, the Massachusetts Fair Employment Practices Act, M.G.L. c. 151B; the Fair Labor Standards Act; the Family and Medical Leave Act, 29 U.S.C. § 2601 et seq., the Massachusetts Civil Rights Act; the Massachusetts Equal Rights Law; the Massachusetts Minimum Fair Wages Statute (M.G.L. c. 151, §§ 1A and 1B); the Massachusetts Payment of Wages

Statute (M.G.L. c. 149, § 148, et seq.); the Massachusetts “Blue Laws” (M.G.L. c. 136); and any other claims arising under Chapters 149 through 154 of the Massachusetts General Laws, and any amendments to these statutes;

(b) Any claims arising under the Family and Medical Leave Act, the National Labor Relations Act, the Sarbanes-Oxley Act of 2002, and all other federal, state, and local laws or ordinances relating to employment;

(c) Any claims arising under the Employee Retirement Income Security Act (“ERISA”) (but not claims to vested ERISA benefits) or any other federal or state law pertaining to employee retirement or welfare benefits;

(d) Any claims arising under any other federal, state or local statutory or regulatory provision;

(e) Any claims arising under federal common law or under the common law of any state; and

(f) Any claims for attorneys’ fees and/or costs.

Notwithstanding the above, this Release does not prevent Executive from pursuing any right or claim which cannot be waived by law. This means, among other things, that even if Executive signs this Release, Executive retains his right to file a charge of discrimination with the Equal Employment Opportunity Commission and to assist in Commission investigations. By signing this Release, however, Executive is waiving any right to recover any relief in federal or state court, in any administrative proceeding or in arbitration, whether such a claim for relief is brought by Executive or through the EEOC (or a comparable state or local agency) or as part of a class action proceeding. This Release also does not prevent Executive from pursuing any claim to enforce this Release or from asserting any future rights Executive may have to any vested benefits that Executive may be entitled to receive.

4. By signing this Release, Executive is hereby acknowledging and agreeing that: (a) Executive is competent to enter into this Release and is fully aware of his right to discuss any and all aspects of this Release with an attorney of his choice; (b) except for the promises contained in the Agreement, the Corporation has made no other promise of any kind to Executive to cause Executive to sign this Release; (c) what Executive is receiving under the Agreement and this Release is in addition to anything of value to which he already is entitled; (d) what Executive is receiving is adequate and satisfactory to him; and (e) the payments and benefits specified in the Agreement and this Release constitute full and final payment in settlement of all waivable claims of any kind, known or unknown, which Executive may have against the Releasees. Executive further acknowledges that he has carefully read and fully understand all of the provisions of this Release, that Executive has had the opportunity to discuss the provisions of this Release with an attorney, and that Executive is voluntarily entering into this Release.

5. Executive acknowledges and agrees that he has been given a period of up to twenty-one (21) days in which to consider the terms of this Release and that this Release shall not become effective until seven (7) days following the date of his signature. Prior to that time, Executive may elect to revoke this Release. If Executive chooses to revoke this Release, Executive agrees to notify the Chair of the Board of Directors of the Corporation in

writing. **If Executive does not sign and return the Release within the specified period, or Executive revokes it, Executive will forfeit any payments contingent on the Release.** Unless revoked by the Executive, this Release shall become effective eight calendar days after the date that Executive signs this Release, as evidenced by the date adjacent to his signature at the end of this Release (the "Effective Date"). This Release shall not be effective and shall be deemed void as if never made if, prior to the Effective Date, Executive revokes his earlier acceptance of this Release. Payments contingent upon the Executive entering into the Agreement and this Release will not be made (or begin) prior to the expiration of the period specified for revoking this Release. If the period for signing and returning the Agreement or Release extends into a later taxable year, any payments contingent upon the Agreement and Release will be made (or begin) in the later taxable year.

6. By signing this Release, Executive is not waiving any claims against the Releasees for any act or omission that may occur after the signing of this Release.

7. By signing this Release, Executive is hereby acknowledging and agreeing that Executive has been paid all sums due and owing to him as of the date hereof including, but not limited to, all salary, bonus, business expenses, allowances, vacation pay and other benefits and perquisites as a result of Executive's employment with the Corporation, and has received any leaves (paid or unpaid) to which he was entitled during his employment and the Corporation has not denied or interfered with his ability to request or take such leave.

8. Executive hereby agrees that his employment relationship with the Corporation has been severed and that Executive forever waive any right to reinstatement, recall or future employment with the Corporation, unless waived by mutual agreement.

9. Paragraphs _through _ of the Agreement are incorporated by this reference into this Release as if fully and independently set forth below.

10. The Agreement and this Release represent the full and complete understanding of the Executive and the Corporation. The Agreement and this Release shall supersede any inconsistent provisions in the . No prior or contemporaneous oral or written agreements may be offered to alter their terms. This Release shall be binding upon the Executive and the Corporation and upon their heirs, successors and assigns. This Release may not be modified except in a written document signed by both parties.

11. This Release shall be governed by and interpreted in accordance with the laws of the Commonwealth of Massachusetts, without regard to its conflict of law provisions and except to the extent federal law applies.

PLEASE READ CAREFULLY. EMPLOYEE SHOULD CONSULT WITH COUNSEL BEFORE SIGNING THIS DOCUMENT. THIS RELEASE INCLUDES A RELEASE OF KNOWN AND UNKNOWN CLAIMS.

WITNESS: _____ Date _____ Date

MKS INSTRUMENTS, INC.

ATTEST: _____

Chair, Board of Directors Date

By: _____
Date

Contact: Seth H. Bagshaw
Vice President, Chief Financial Officer & Treasurer
Telephone: 978.645.5578

**MKS Instruments Announces Gerald G. Colella to Succeed
Leo Berlinghieri as CEO, Effective January 1, 2014**

Andover, Mass., October 23, 2013 — MKS Instruments, Inc. (NASDAQ:MKSI), a global provider of technologies that enable advanced processes and improve productivity, today announced that Leo Berlinghieri will retire as Chief Executive Officer and a Director of MKS at year-end 2013. The Board of Directors has elected Gerald G. Colella, who currently serves as President and Chief Operating Officer, to succeed Mr. Berlinghieri as Chief Executive Officer effective January 1, 2014, at which time Mr. Colella will also become a member of the Board of Directors. Mr. Colella had previously succeeded Mr. Berlinghieri as President in February of this year, and has served as Chief Operating Officer since 2010.

Remarking on Mr. Colella's promotion, Mr. Berlinghieri said, "Since becoming CEO eight years ago, aside from achieving our growth and financial performance objectives one of my primary goals has been to build the strongest possible executive team to lead the company after I retire. Jerry and I have worked together at MKS for nearly 31 years, and he has been a key contributor in our combined efforts to cultivate a company culture centered on success and delivering results. I have had a great 33 years at MKS, and will enjoy watching the company's growth and future successes with Jerry at the helm."

Commenting on the CEO transition, John R. Bertucci, Chairman of the Board, said, "We thank Leo for over thirty years of dedicated service to MKS and his successes building a world-class organization known for technology leadership and operational excellence. With nearly as many years at MKS under his belt, Jerry's transition to CEO will be seamless. Together, I believe Leo and Jerry have built a management team for today and the future. In Jerry's new role, he will have increased responsibility in leading and shaping our strategic direction, building upon the company's success in the years ahead."

"I have never been more confident in our company's ability to deliver results, whether they be technological, operational, financial or strategic, and am excited to be succeeding Leo as CEO at year end," commented Mr. Colella. "I thank Leo, John and our other directors for their confidence and trust in me to lead the company through this next chapter for MKS."

Mr. Colella joined MKS in 1983. He has served as MKS' President and Chief Operating Officer since February 2013, after serving as our Vice President and Chief Operating Officer from January 2010 to February 2013, and as our Vice President and Chief Business Officer from April 2005 to January 2010. He previously served in various capacities, including Acting Vice President, PRG Products; Vice President, Global Business and Service Operations; and in a number of roles within materials planning and logistics.

About MKS Instruments

MKS Instruments, Inc. is a global provider of instruments, subsystems and process control solutions that measure, control, power, monitor and analyze critical parameters of advanced manufacturing processes to improve process performance and productivity. Our products are derived from our core competencies in pressure measurement and control, materials delivery, gas composition analysis, control and information technology, power and reactive gas generation, and vacuum technology. Our primary served markets are manufacturers of capital equipment for semiconductor devices, and for other thin film applications including flat panel displays, solar cells, light emitting diodes, data storage media, and other advanced coatings. We also leverage our technology in other markets with advanced manufacturing applications including medical equipment, pharmaceutical manufacturing, energy generation and environmental monitoring.

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