

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4277416

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	SECURITY INTEREST
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
MKS INSTRUMENTS, INC.	02/15/2017
NEWPORT CORPORATION	02/15/2017
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	BARCLAYS BANK PLC, AS THE COLLATERAL AGENT
<b>Street Address:</b>	745 7TH AVENUE
<b>City:</b>	NEW YORK
<b>State/Country:</b>	NEW YORK
<b>Postal Code:</b>	10019
<b>PROPERTY NUMBERS Total: 15</b>	
<b>Property Type</b>	<b>Number</b>
Application Number:	15343975
Application Number:	15380682
Application Number:	62433320
Application Number:	62420953
Application Number:	15297661
Application Number:	15290684
Application Number:	15008396
Application Number:	15338383
Application Number:	62430862
Application Number:	62429830
Application Number:	15353742
Application Number:	15353744
Application Number:	15353770
Application Number:	15280894
Application Number:	15280904
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(212)303-7064
Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.	

PATENT

**Phone:** 212.318.6824  
**Email:** christinedionne@paulhastings.com  
**Correspondent Name:** CHRISTINE DIONNE C/O PAUL HASTINGS LLP  
**Address Line 1:** 200 PARK AVENUE, 28TH FLOOR  
**Address Line 4:** NEW YORK, NEW YORK 10166

<b>ATTORNEY DOCKET NUMBER:</b>	91825.00063 (TERM LOAN)
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<b>NAME OF SUBMITTER:</b>	CHRISTINE DIONNE
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<b>SIGNATURE:</b>	/CHRISTINE DIONNE/
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<b>DATE SIGNED:</b>	02/16/2017
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**Total Attachments: 6**

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source=MKS Patent Security Agreement 2017-02-15 (TL)#page3.tif  
source=MKS Patent Security Agreement 2017-02-15 (TL)#page4.tif  
source=MKS Patent Security Agreement 2017-02-15 (TL)#page5.tif  
source=MKS Patent Security Agreement 2017-02-15 (TL)#page6.tif

PATENT SECURITY AGREEMENT

**Patent Security Agreement**, dated as of February 15, 2017 (as amended, amended and restated, supplemented or otherwise modified from time to time, the "Patent Security Agreement"), by MKS INSTRUMENTS, INC. and NEWPORT CORPORATION (each, a "Grantor"), in favor of BARCLAYS BANK PLC, in its capacity as collateral agent pursuant to the Credit Agreement (as defined in the Security Agreement defined below) (in such capacity, the "Collateral Agent").

WITNESSETH:

WHEREAS, the Grantors are party to that certain (i) Security Agreement dated as of April 29, 2016 (as amended, amended and restated, supplemented or otherwise modified from time to time, the "Security Agreement"), by and among the Borrower, the other Grantors party thereto and the Collateral Agent, in favor of the Collateral Agent, pursuant to which the Grantors are required to execute and deliver to the Collateral Agent this Patent Security Agreement and (ii) Patent Security Agreement dated as of April 29, 2016 among the Grantors party thereto in favor of the Collateral Agent (the "Existing Patent Security Agreement");

NOW, THEREFORE, in consideration of the premises and having previously induced the Collateral Agent, for the benefit of the Secured Parties, to enter into the Credit Agreement, and for other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and with the intent to be legally bound hereby, the Grantors hereby agree with the Collateral Agent as follows:

SECTION 1. Defined Terms. Unless otherwise defined herein, terms defined in the Credit Agreement or the Security Agreement and used herein have the respective meanings assigned thereto in the Credit Agreement or the Security Agreement, in each case, as applicable.

SECTION 2. Grant of Security Interest in Patent Collateral. As security for the payment or performance, as the case may be, in full of the Secured Obligations, including the Guarantees, each Grantor hereby pledges to the Collateral Agent, its successors and assigns, for the benefit of the Secured Parties, and hereby grants to the Collateral Agent, its successors and assigns, for the benefit of the Secured Parties, a security interest in, all right, title or interest in or to any and all of the following assets and properties now owned or at any time hereafter acquired by such Grantor or in which such Grantor now has or at any time in the future may acquire any right, title or interest (in addition to the pledges and security interests granted by the Existing Patent Security Agreement):

- (a) all Patents of the Grantors listed on Schedule I attached hereto; and
- (b) all products and Proceeds of any of the foregoing (together with clause (a), collectively, the "Patents").

SECTION 3. The Security Agreement. The security interests granted pursuant to this Patent Security Agreement are granted in conjunction with the security interests granted to the Collateral Agent pursuant to the Security Agreement, and the Grantors hereby acknowledge and affirms that the rights and remedies of the Collateral Agent with respect to the security interests in the Patents made and granted hereby are more fully set forth in the Security Agreement. In the event that any provision of this Patent Security Agreement is deemed to conflict with the Security Agreement, the provisions of the Security Agreement shall control.

SECTION 4. Termination. Upon the termination of the Security Agreement in accordance with, or as otherwise required pursuant to, Section 6.11 thereof, the Collateral Agent shall, at

the expense of the Grantors, execute, acknowledge, and deliver to the Grantors an instrument in writing in recordable form releasing the liens on and security interests in the applicable Patents under this Patent Security Agreement and any other documents required to evidence the termination of the Collateral Agent's interests in the applicable Patents.

**SECTION 5. GOVERNING LAW; JURISDICTION; VENUE; WAIVER OF JURY TRIAL; CONSENT TO SERVICE OF PROCESS.**

(A) THE TERMS OF SECTION 10.13 OF THE CREDIT AGREEMENT WITH RESPECT TO GOVERNING LAW, SUBMISSION OF JURISDICTION, VENUE AND WAIVER OF JURY TRIAL ARE INCORPORATED HEREIN BY REFERENCE, *MUTATIS MUTANDIS*, AND THE PARTIES HERETO AGREE TO SUCH TERMS.

(B) EACH PARTY TO THIS PATENT SECURITY AGREEMENT IRREVOCABLY CONSENTS TO SERVICE OF PROCESS IN THE MANNER PROVIDED FOR NOTICES IN SECTION 6.01 OF THE SECURITY AGREEMENT. NOTHING IN THIS PATENT SECURITY AGREEMENT WILL AFFECT THE RIGHT OF ANY PARTY TO THIS PATENT SECURITY AGREEMENT TO SERVE PROCESS IN ANY OTHER MANNER PERMITTED BY LAW.

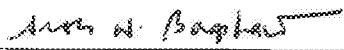
SECTION 6. Waivers; Amendments; Modifications. Neither this Patent Security Agreement nor any provision hereof may be waived, amended or modified except pursuant to an agreement or agreements in writing entered into by the Collateral Agent and the Grantor or Grantors with respect to which such waiver, amendment or modification is to apply, subject to any consent required in accordance with Section 10.01 of the Credit Agreement and subject to Section 6.02 of the Security Agreement.

SECTION 7. Notices; Communications. All communications and notices under this Patent Security Agreement shall be in writing and given as provided in Section 6.01 of the Security Agreement.

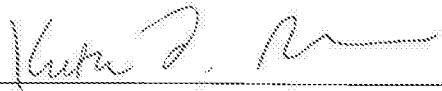
SECTION 8. Counterparts; Effectiveness. This Patent Security Agreement may be executed in any number of counterparts, all of which shall constitute one and the same instrument, and any party hereto may execute this Patent Security Agreement by signing and delivering to the other party hereto one or more counterparts. Delivery by facsimile or other electronic communication of an executed counterpart (including portable document format (PDF)) of a signature page to this Patent Security Agreement shall be effective as delivery of an original executed counterpart of this Patent Security Agreement. This Patent Security Agreement shall become effective as to the Grantors when a counterpart hereof executed on behalf of the Grantors shall have been delivered to the Collateral Agent and a counterpart hereof shall have been executed on behalf of the Collateral Agent, and thereafter shall be binding upon the Grantors and the Collateral Agent and their respective permitted successors and assigns, and shall inure to the benefit of the Grantors, the Collateral Agent and the other Secured Parties and their respective permitted successors and assigns, except that the Grantors shall not have the right to assign or transfer its rights or obligations hereunder or any interest herein or in the Collateral (and any such assignment or transfer shall be void) except as expressly contemplated by the Security Agreement or the Credit Agreement.

[Signature Pages Follow]

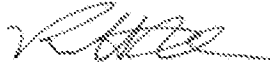
MKS INSTRUMENTS, INC.,  
as a Grantor

By:   
Name:  
Title: Vice President and Chief Financial Officer

NEWPORT CORPORATION,  
as a Grantor

By:   
Name:  
Title: Secretary

**BARCLAYS BANK PLC,**  
as the Collateral Agent



By: \_\_\_\_\_

Name: Robert Chen

Title: Managing Director

Schedule I  
to  
**PATENT SECURITY AGREEMENT**  
**UNITED STATES PATENTS AND PATENT APPLICATIONS**

**Patents:**

OWNER	PATENT NUMBER	TITLE	ISSUE DATE

**Patent Applications:**

OWNER	APPLICATION NUMBER	TITLE	FILE DATE
MKS Instruments, Inc.	15/343975	PRESSURE SENSOR WITH REAL TIME HEALTH MONITORING AND COMPENSATION	11/04/2016
MKS Instruments, Inc.	15/380682	METHODS AND APPARATUS FOR WIDE RANGE MASS FLOW VERIFICATION	12/15/2016
MKS Instruments, Inc.	62/433320	ANODE ELECTRODE SHIELD FOR INVERTED MAGNETRON COLD CATHODE IONIZATION GAUGE	12/13/2016
MKS Instruments, Inc.	62/420953	SYSTEM TO DELIVER HIGHLY DILUTE NH <sub>4</sub> -OH FOR WAFER RINSING IN SEMICONDUCTOR MANUFACTURING	11/11/2016
MKS Instruments, Inc.	15/297661	STRESS RELIEF STRUCTURES FOR SENSORS AND THEIR PACKAGING	10/19/2016
MKS Instruments, Inc.	15/290684	SYSTEMS AND METHODS FOR PRESSURE DIFFERENTIAL MOLECULAR SPECTROSCOPY OF COMPRESSIBLE FLUIDS	11/11/2016
Newport Corporation	15/008,396	Integrated Picomotor Mount	1/27/16

Newport Corporation	15/338,383	High Power Laser Diode Test System	10/29/16
Newport Corporation	62/430,862	Laser System Having Novel Multi- Stage Amplifier and Methods of Use	12/6/16
Newport Corporation	62/429,830	High-Power Ytterbium Doped Calcium Fluoride Mode-Locked Laser and Methods of Use	12/4/16
Newport Corporation	15/353,742	Homogeneous Laser Light Source for Area Processing Applications	11/17/16
Newport Corporation	15/353,744	Homogeneous Laser Light Source Having Temporally Variable Seed Source for Area Processing Applications	11/17/16
Newport Corporation	15/353,770	Homogeneous Laser Light Source for Area Processing Applications	11/17/16
Newport Corporation	15/280,894	Tunable Vibration Dampers and Methods of Manufacture and Tuning	9/29/16
Newport Corporation	15/280,904	Tunable Vibration Dampers and Methods of Manufacture and Tuning	9/29/16