

<b>PATENT ASSIGNMENT COVER SHEET</b>
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Electronic Version v1.1  
 Stylesheet Version v1.2

EPAS ID: PAT4934965

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	TERM LOAN PATENT SECURITY AGREEMENT
<b>SEQUENCE:</b>	1

**CONVEYING PARTY DATA**

Name	Execution Date
MKS INSTRUMENTS, INC.	04/15/2018
NEWPORT CORPORATION	04/15/2018

**RECEIVING PARTY DATA**

<b>Name:</b>	DEUTSCHE BANK AG NEW YORK BRANCH, AS COLLATERAL
<b>Street Address:</b>	60 WALL STREET
<b>City:</b>	NEW YORK
<b>State/Country:</b>	NEW YORK
<b>Postal Code:</b>	10005

**PROPERTY NUMBERS Total: 10**

Property Type	Number
Application Number:	15880127
Application Number:	15880842
Application Number:	62637368
Application Number:	62637380
Application Number:	15940920
Application Number:	15940924
Application Number:	62646867
Application Number:	15876189
Application Number:	15887447
Application Number:	62647155

**CORRESPONDENCE DATA**

Fax Number:

*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.*

Phone: 212-318-6532

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Correspondent Name: ALANA GRAMER

Address Line 1: C/O PAUL HASTINGS LLP

Address Line 2: 200 PARK AVENUE, 28TH FLOOR

**PATENT**

**Address Line 4:** NEW YORK, NEW YORK 10166

**NAME OF SUBMITTER:** ALANA GRAMER

**SIGNATURE:** /s/ AG

**DATE SIGNED:** 04/26/2018

**Total Attachments: 6**

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PATENT SECURITY AGREEMENT

**Patent Security Agreement**, dated as of April 15, 2018 (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 DEUTSCHE BANK AG NEW YORK BRANCH, in its capacity as collateral agent pursuant to the Credit Agreement (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 to induce 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.**

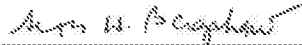
SECTION 6. Waivers; Amendments; Modifications. Neither this Patent Security Agreement nor any provision hereof may be waived, amended or modified except pursuant to an agreement or agreements in writing entered into by the Collateral Agent and the Grantor or Grantors with respect to which such waiver, 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: Seth H. Bagshaw  
Title: Senior VP and CFO

NEWPORT CORPORATION,  
as a Grantor

By:   
Name: Kathleen F. Burke  
Title: Secretary

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

**Patents:**

OWNER	PATENT NUMBER	TITLE	ISSUE DATE

**Patent Applications:**

Ref.	Case	Owner	Title	Status	Appl. No.	Filed	Patent No.	Issued
0189-100IRV-17UT		Newport Corporation	Diffraction Grating Gimbal Mount	Pending	15/880,127	1/25/18		
0178-600BOZ-18D1		Newport Corporation	High Power Laser Diode Test System	Pending	15/880,842	1/26/18		
0198-300SAN-18P		Newport Corporation	Hybrid Nano-Textured Anti-Reflective Coatings and Devices	Pending	62/637,368	3/1/18		
0199-300SAN-18P		Newport Corporation	Nano-Textured Dielectric Coatings for Dispersion Control	Pending	62/637,380	3/1/18		
0163-100IRV-14D1		Newport Corporation	System and Method for Mounting and Aligning Optical Components Using Single Rail Mounting	Pending	15/940,920	3/29/18		
0163-100IRV-14D2		Newport Corporation	System and Method for Mounting and Aligning Optical Components Using Single Rail Mounting	Pending	15/940,924	3/29/18		
0195-800WIL-18P2		MKS Instruments, Inc.	Multi-Sensor Gas Sampling Detection System for Radical Gases and Short-Lived Molecules and Method of Use	Pending	62/646,867	3/22/18		
3197-P00127		MKS Instruments, Inc.	ADAPTIVE COUNTER MEASURE CONTROL TWARTING IMD JAMMING IMPAIRMENTS FOR RF PLASMA SYSTEMS	Pending	15/876,189	1/21/18		
5089.3019-000		MKS Instruments,	METHODS AND APPARATUS FOR PULSE	Pending	15/887,447	2/2/18		

		Inc.	GAS DELIVERY WITH ISOLATION VALVES					
ASX-186		MKS Instruments, Inc.	METHODS FOR IDENTIFYING AND QUANTIFYING VOLATILE ORGANIC CARBON SPECIES IN A SAMPLE	Pending	62/647,155	3/23/18		