

PATENT ASSIGNMENT COVER SHEET

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EPAS ID: PAT5613629

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	PARTIAL RELEASE OF SECURITY INTEREST
CONVEYING PARTY DATA	
Name	Execution Date
BARCLAYS BANK PLC	04/03/2017
RECEIVING PARTY DATA	
Name:	MKS INSTRUMENTS, INC.
Street Address:	2 TECH DRIVE
Internal Address:	SUITE 201
City:	ANDOVER
State/Country:	MASSACHUSETTS
Postal Code:	01810
PROPERTY NUMBERS Total: 14	
Property Type	Number
Patent Number:	7151976
Patent Number:	7809450
Patent Number:	8494798
Patent Number:	8271103
Patent Number:	7622308
Patent Number:	8244498
Patent Number:	9069345
Patent Number:	8086327
Patent Number:	8412356
Patent Number:	8577480
Patent Number:	8725469
Patent Number:	9429939
Patent Number:	9541471
Application Number:	14273669
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ATTORNEY DOCKET NUMBER: 0105690-00213

NAME OF SUBMITTER: JAMES F. COUGHLAN

SIGNATURE: /James F. Coughlan/

DATE SIGNED: 07/11/2019

Total Attachments: 5

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PARTIAL RELEASE OF
PATENT SECURITY AGREEMENT

This PARTIAL RELEASE OF PATENT SECURITY AGREEMENT (the "Partial Release"), dated as of April 3, 2017, from BARCLAYS BANK PLC, as administrative and collateral agent (in such capacity, together with its successors in such capacity, the "Agent") for the several banks and other financial institutions or entities that are parties to the Credit Agreement (as hereinafter defined), is entered into in favor of MKS INSTRUMENTS, INC., (the "Borrower" and a "Grantor"). Capitalized terms used herein without definition are used as defined in (i) the Credit Agreement, dated as of April 29, 2016 (as amended, restated, amended and restated, supplemented or otherwise modified to the date hereof, the "Credit Agreement"), by and among MKS Instruments, Inc., as the Borrower, the Lenders from time to time party thereto and the Agent and (ii) the Security Agreement (as hereinafter defined).

WITNESSETH:

WHEREAS, pursuant to that certain Security Agreement, dated as of April 29, 2016 (the "Security Agreement"), among the Borrower, the other grantors from time to time party thereto and the Agent, a security interest was granted by the Grantor to the Agent in certain Patents (as hereinafter defined);

WHEREAS, a Patent Security Agreement (the "Patent Security Agreement"), dated as of April 29, 2016, made by the Grantor in favor of the Agent was recorded in the Assignment Recordation Branch of the United States Patent and Trademark Office on May 4, 2016, pursuant to which a security interest was granted by the Grantor to the Agent in the Patents (as that term is defined in the Patent Security Agreement), including without limitation, the Patents described on Schedule 1 hereto;

WHEREAS, the Agent now desires to terminate and release the entirety of its security interest in the Schedule 1 Patents (as defined below);

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, and upon the terms set forth in this Partial Release, the Agent hereby states as follows:

1. Patents to be Released: The term "Schedule 1 Patents," as used herein, shall mean Borrower's right, title and interest in and to: (a) the patents and patent applications listed on Schedule I, and (b) (i) all continuations, divisionals, continuations-in-part, re-examinations, reissues, and renewals thereof and improvements thereon, (ii) all income, royalties, damages and payments now and hereafter due or payable under and with respect thereto, including payments under all licenses entered into in connection therewith and damages and payments for past, present, or future infringements thereof, (iii) the right to sue for past, present, and future infringements thereof and (iv) all of each Grantor's rights corresponding thereto throughout the world.

2. Release of Security Interest: The Agent hereby irrevocably and unconditionally terminates, releases and discharges its security interest in the Schedule 1 Patents,

and any right, title, interest or lien of the Agent in such Schedule 1 Patents shall hereby cease and become void.

3. Further Assurances: At the request and sole expense of the Grantor, the Agent shall execute and deliver to Grantor such documents as such Grantor shall reasonably request to evidence the release of such Agent's security interest in the Patents.

4. Governing Law. This Partial Release shall be governed by, and construed in accordance with, the laws of the United States, with respect to patent issues and in all other respects including as to validity (except patent validity), interpretation and effect by the laws of the State of New York, without giving effect to the conflict of laws rules thereof.

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IN WITNESS WHEREOF, the undersigned has caused this Partial Release to be duly executed and delivered as of the date first above written.

BARCLAYS BANK PLC, as Administrative Agent
and Collateral Agent

By: 
Name: Marguerite Sutton
Title: Vice President

[Signature Page to Partial Release of Patent Security Agreement]

SCHEDULE I

Docket No.	Ctry	Title	Status	Appl. No.	Filed	Publ. No.	Patent No.	Issued	Owner
ASX-070	US	MULTIVARIATE CONTROL OF SEMICONDUCTOR PROCESSES	GRANTED	11/229153	09/16/2005	US 2006-0111804 A1	7151976	12/19/2006	MKS Instruments, Inc.
ASX-082	US	SELF-CORRECTING MULTIVARIATE ANALYSIS FOR USE IN MONITORING DYNAMIC PARAMETERS IN PROCESS ENVIRONMENTS	Granted	11/481,140	07/05/2006	US 2007-0021859 A1	7,809,450	10/05/2010	MKS Instruments, Inc.
ASX-115	US	AUTOMATED MODEL BUILDING AND BATCH MODEL BUILDING FOR A MANUFACTURING PROCESS, PROCESS MONITORING, AND FAULT DETECTION	Granted	12/202,848	09/02/2008	US 2010-0057237-A1	8494798	07/23/2013	MKS Instruments, Inc.
ASX-119	US	AUTOMATED MODEL BUILDING AND MODEL UPDATING	Granted	12/113,613	05/01/2008	US 2009-0037013 A1	8,271,103	09/18/2012	MKS Instruments, Inc.
ASX-120	US	PROCESS CONTROL USING PROCESS DATA AND YIELD DATA	Granted	12/044,346	03/07/2008	US 20090228247 A1	7,622,308	11/24/2009	MKS Instruments, Inc.
ASX-126	US	HIERARCHICALLY ORGANIZING DATA USING A PARTIAL LEAST SQUARES ANALYSIS (PLS-TREES)	Granted	12/339,595	12/19/2008	US 2009-0164171 A1	8,244,498	08/14/2012	MKS Instruments, Inc.
ASX-144	US	CONTROLLING A MANUFACTURING PROCESS WITH A MULTIVARIATE MODEL	Granted	12/358864	01/23/2009	US 2010-0191361 A1	9069345	06/30/2015	MKS Instruments, Inc.
ASX-152	US	Methods and Apparatus for Automated Predictive Design Space Estimation	Granted	12/466,098	05/14/2009	US 2010-0292812 A1	8,086,327	12/27/2011	MKS Instruments, Inc.
ASX-152	US	Methods and Apparatus for Automated Predictive Design Space	Granted	13/336,623	12/23/2011	US 20120150508 A1	8412356	04/02/2013	MKS Instruments, Inc.

		Estimation							
ASX-152	US	Methods and Apparatus for Automated Predictive Design Space Estimation	Granted	13/775,708	02/25/2013	US 20130218529 A1	8,577,480	11/05/2013	MKS Instruments, Inc.
ASX-164	US	OPTIMIZATION OF DATA PROCESSING PARAMETERS	Granted	13/039,818	03/03/2011	US 2012-0227043 A1	8,725,469	05/13/2014	MKS Instruments, Inc.
ASX-170	US	MULTIVARIATE MONITORING OF A BATCH MANUFACTURING PROCESS	Granted	13/441513	04/06/2012	US 20130268238 A1	9429939	08/30/2016	MKS Instruments, Inc.
ASX-176	US	MULTIVARIATE PREDICTION OF A BATCH MANUFACTURING PROCESS	Granted	14/158,914	01/20/2014	US 2014-0136146 A1	9,541,471	01/10/2017	MKS Instruments, Inc.
ASX-177	US	COMPUTER-IMPLEMENTED SYSTEMS AND METHODS FOR GENERATING GENERALIZED FRACTIONAL DESIGNS	Published	14/273669	05/09/2014	US 2015-0323512 A1			MKS Instruments, Inc.