

## PATENT ASSIGNMENT COVER SHEET

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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
NEC EUROPE LTD.	12/20/2017
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	NEC LABORATORIES EUROPE GMBH
<b>Street Address:</b>	KURFUERSTEN-ANLAGE 36
<b>City:</b>	HEIDELBERG
<b>State/Country:</b>	GERMANY
<b>Postal Code:</b>	69115
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16049862
<b>CORRESPONDENCE DATA</b>	
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<b>ATTORNEY DOCKET NUMBER:</b>	816546
<b>NAME OF SUBMITTER:</b>	ERIK R. SWANSON
<b>SIGNATURE:</b>	/Erik R. Swanson/
<b>DATE SIGNED:</b>	08/07/2018
<b>Total Attachments: 9</b>	
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**ASSIGNMENT**

**WHEREAS**, NEC Europe Ltd., having an address at Kurfuersten-Anlage 36; 69115 Heidelberg; GERMANY,

hereinafter referred to as Assignor, owns certain inventions:

described in

U.S. Patent Application Serial No. 15/822,251, filed on November 27, 2017,

U.S. Patent Application Serial No. 15/576,729, filed on November 24, 2017,

U.S. Patent Application Serial No. 15/577,350, filed on November 28, 2017,

U.S. Patent Application Serial No. 15/575,398, filed on November 20, 2017,

U.S. Patent Application Serial No. 15/835,477, filed on December 08, 2017,

U.S. Patent Application Serial No. 15/570,172, filed on October 27, 2017,

U.S. Patent Application Serial No. 15/844,674, filed on December 18, 2017,

U.S. Patent Application Serial No. 15/550,373, filed on August 11, 2017,

U.S. Patent Application Serial No. 15/310,801, filed on November 14, 2016,

U.S. Patent Application Serial No. 15/640,604, filed on July 03, 2017,

U.S. Patent Application Serial No. 15/550,795, filed on August 14, 2017,

U.S. Patent Application Serial No. 15/572,795, filed on November 09, 2017,

U.S. Patent Application Serial No. 15/737,333, filed on December 18, 2017,

U.S. Patent Application Serial No. 62/491,299, filed on April 28, 2017,

U.S. Patent Application Serial No. 62/578,581, filed on October 30, 2017,

U.S. Patent Application Serial No. 62/586,243, filed on November 15, 2017,

U.S. Patent Application Serial No. 15/838,381, filed on December 12, 2017,

U.S. Patent Application Serial No. 14/387,965, filed on September 25, 2014,  
U.S. Patent Application Serial No. 15/158,605, filed on May 19, 2016,  
U.S. Patent Application Serial No. 15/796,894, filed on October 30, 2017,  
U.S. Patent Application Serial No. 14/402,176, filed on November 19, 2014,  
U.S. Patent Application Serial No. 14/416,309, filed on January 22, 2015,  
U.S. Patent Application Serial No. 14/419,488, filed on February 04, 2015,  
U.S. Patent Application Serial No. 14/418,207, filed on January 29, 2015,  
U.S. Patent Application Serial No. 14/419,700, filed on February 05, 2015,  
U.S. Patent Application Serial No. 14/423,158, filed on February 23, 2015,  
U.S. Patent Application Serial No. 14/704,998, filed on May 06, 2015,  
U.S. Patent Application Serial No. 14/795,977, filed on July 10, 2015,  
U.S. Patent Application Serial No. 14/788,855, filed on July 01, 2015,  
U.S. Patent Application Serial No. 14/758,591, filed on June 30, 2015,  
U.S. Patent Application Serial No. 14/761,331, filed on July 16, 2015,  
U.S. Patent Application Serial No. 14/765,835, filed on August 05, 2015,  
U.S. Patent Application Serial No. 14/772,790, filed on September 04, 2015,  
U.S. Patent Application Serial No. 14/767,917, filed on August 14, 2015,  
U.S. Patent Application Serial No. 14/767,596, filed on August 13, 2015,  
U.S. Patent Application Serial No. 14/781,042, filed on September 29, 2015,  
U.S. Patent Application Serial No. 14/775,731, filed on September 14, 2015,  
U.S. Patent Application Serial No. 14/890,912, filed on November 13, 2015,  
U.S. Patent Application Serial No. 14/894,372, filed on November 27, 2015,

U.S. Patent Application Serial No. 14/893,530, filed on November 24, 2015,  
U.S. Patent Application Serial No. 14/890,165, filed on November 10, 2015,  
U.S. Patent Application Serial No. 14/891,702, filed on November 17, 2015,  
U.S. Patent Application Serial No. 14/895,930, filed on December 04, 2015,  
U.S. Patent Application Serial No. 14/902,043, filed on December 30, 2015,  
U.S. Patent Application Serial No. 14/905,830, filed on January 18, 2016,  
U.S. Patent Application Serial No. 14/911,737, filed on February 12, 2016,  
U.S. Patent Application Serial No. 15/070,119, filed on March 15, 2016,  
U.S. Patent Application Serial No. 14/913,387, filed on February 22, 2016,  
U.S. Patent Application Serial No. 15/230,517, filed on August 08, 2016,  
U.S. Patent Application Serial No. 14/917,579, filed on March 09, 2016,  
U.S. Patent Application Serial No. 14/916,582, filed on March 04, 2016,  
U.S. Patent Application Serial No. 15/157,511, filed on May 18, 2016,  
U.S. Patent Application Serial No. 15/032,646, filed on April 28, 2016,  
U.S. Patent Application Serial No. 15/110,409, filed on July 08, 2016,  
U.S. Patent Application Serial No. 15/101,491, filed on June 03, 2016,  
U.S. Patent Application Serial No. 15/102,536, filed on June 08, 2016,  
U.S. Patent Application Serial No. 15/109,646, filed on July 04, 2016,  
U.S. Patent Application Serial No. 15/216,709, filed on July 22, 2016,  
U.S. Patent Application Serial No. 15/486,318, filed on April 13, 2017,  
U.S. Patent Application Serial No. 15/281,142, filed on September 30, 2016,  
U.S. Patent Application Serial No. 15/128,433, filed on September 23, 2016,

U.S. Patent Application Serial No. 15/304,074, filed on October 14, 2016,  
U.S. Patent Application Serial No. 15/281,236, filed on September 30, 2016,  
U.S. Patent Application Serial No. 15/320,789, filed on December 21, 2016,  
U.S. Patent Application Serial No. 15/318,363, filed on December 13, 2016,  
U.S. Patent Application Serial No. 15/310,801, filed on November 14, 2016,  
U.S. Patent Application Serial No. 15/303,529, filed on October 12, 2016,  
U.S. Patent Application Serial No. 15/324,755, filed on January 09, 2017,  
U.S. Patent Application Serial No. 15/313,976, filed on November 25, 2016,  
U.S. Patent Application Serial No. 15/325,721, filed on January 12, 2017,  
U.S. Patent Application Serial No. 15/325,723, filed on January 12, 2017,  
U.S. Patent Application Serial No. 15/429,201, filed on February 10, 2017,  
U.S. Patent Application Serial No. 15/514,851, filed on March 28, 2017,  
U.S. Patent Application Serial No. 15/439,979, filed on February 23, 2017,  
U.S. Patent Application Serial No. 15/500,124, filed on January 30, 2017,  
U.S. Patent Application Serial No. 15/327,038, filed on January 18, 2017,  
U.S. Patent Application Serial No. 15/501,178, filed on February 02, 2017,  
U.S. Patent Application Serial No. 15/515,166, filed on March 29, 2017,  
U.S. Patent Application Serial No. 15/509,869, filed on March 09, 2017,  
U.S. Patent Application Serial No. 15/521,897, filed on April 26, 2017,  
U.S. Patent Application Serial No. 15/503,723, filed on February 14, 2017,  
U.S. Patent Application Serial No. 15/442,733, filed on February 27, 2017,  
U.S. Patent Application Serial No. 15/453,932, filed on March 09, 2017,

U.S. Patent Application Serial No. 15/455,166, filed on March 10, 2017,  
U.S. Patent Application Serial No. 15/525,300, filed on May 09, 2017,  
U.S. Patent Application Serial No. 15/506,792, filed on February 27, 2017,  
U.S. Patent Application Serial No. 15/468,416, filed on March 24, 2017,  
U.S. Patent Application Serial No. 15/470,957, filed on March 28, 2017,  
U.S. Patent Application Serial No. 15/527,712, filed on May 18, 2017,  
U.S. Patent Application Serial No. 15/514,858, filed on March 28, 2017,  
U.S. Patent Application Serial No. 62/471,474, filed on March 15, 2017,  
U.S. Patent Application Serial No. 15/486,319, filed on April 13, 2017,  
U.S. Patent Application Serial No. 15/513,222, filed on March 22, 2017,  
U.S. Patent Application Serial No. 15/593,353, filed on May 12, 2017,  
U.S. Patent Application Serial No. 15/522,295, filed on April 27, 2017,  
U.S. Patent Application Serial No. 15/536,669, filed June 16, 2017,  
U.S. Patent Application Serial No. 62/507,247, filed May 17, 2017,  
U.S. Patent Application Serial No. 15/640,604, filed July 03, 2017,  
U.S. Patent Application Serial No. 15/533,664, filed June 07, 2017,  
U.S. Patent Application Serial No. 15/542,686, filed July 11, 2017,  
U.S. Patent Application Serial No. 15/544,892, filed July 20, 2017,  
U.S. Patent Application Serial No. 15/705,282, filed September 15, 2017,  
U.S. Patent Application Serial No. 15/546,668, filed July 27, 2017,  
U.S. Patent Application Serial No. 15/549,683, filed August 09, 2017,  
U.S. Patent Application Serial No. 15/548,773, filed August 04, 2017,

U.S. Patent Application Serial No. 15/560,166, filed September 21, 2017,  
U.S. Patent Application Serial No. 62/535,259, filed July 21, 2017,  
U.S. Patent Application Serial No. 15/564,739, filed October 06, 2017,  
U.S. Patent Application Serial No. 15/548,771, filed August 04, 2017,  
U.S. Patent Application Serial No. 15/549,173, filed August 07, 2017,  
U.S. Patent Application Serial No. 15/549,387, filed August 08, 2017,  
U.S. Patent Application Serial No. 15/554,431, filed August 30, 2017,  
U.S. Patent Application Serial No. 15/704,028, filed September 14, 2017,  
U.S. Patent Application Serial No. 15/549,386, filed August 08, 2017,  
U.S. Patent Application Serial No. 15/550,372, filed August 11, 2017,  
U.S. Patent Application Serial No. 15/550,373, filed August 11, 2017,  
U.S. Patent Application Serial No. 15/561,986, filed September 27, 2017,  
U.S. Patent Application Serial No. 15/788,880, filed October 20, 2017,  
U.S. Patent Application Serial No. 15/562,429, filed September 28, 2017,  
U.S. Patent Application Serial No. 15/565,693, filed October 11, 2017,  
U.S. Patent Application Serial No. 15/698,684, filed September 08, 2017,  
U.S. Patent Application Serial No. 15/698,703, filed September 08, 2017,  
U.S. Patent Application Serial No. 15/724,281, filed October 04, 2017,  
U.S. Patent Application Serial No. 62/555,670, filed September 08, 2017,  
U.S. Patent Application Serial No. 15/814,437, filed November 16, 2017,  
U.S. Patent Application Serial No. 62/565,168, filed September 29, 2017,  
U.S. Patent Application Serial No. 62/561,726, filed September 22, 2017,



U.S. Patent Application Serial No. 15/562,900 filed September 29, 2017,

U.S. Patent Application Serial No. 15/562,904 filed September 29, 2017,

U.S. Patent Application Serial No. 15/574,172 filed November 15, 2017,

U.S. Patent Application Serial No. 15/730,750 filed October 12, 2017,

U.S. Patent Application Serial No. 62/565,152 filed September 29, 2017,

U.S. Patent Application Serial No. 15/807,606 filed November 09, 2017,

and

U.S. Patent Application Serial No. 15/807,603 filed November 09, 2017,

in the United States and

**WHEREAS**, NEC Laboratories Europe GmbH, having an address at Kurfuersten-Anlage 36; 69115 Heidelberg; GERMANY,

hereinafter referred to as Assignee, is desirous of acquiring the entire domestic and foreign right, title, and interest in and under the inventions described in the above patent applications.

**NOW, THEREFORE**, for the sum of one dollar (\$1.00) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor assigns and transfers to the Assignee and the Assignee's legal representatives, successors and assigns the full and exclusive rights in and to the inventions in the U.S. and every foreign country and the entire right, title, and interest in and to the respective patent application and other such applications (e.g., provisional applications, non-provisional applications, continuations, continuations-in-part, divisionals, reissues, reexaminations, National phase applications, including petty patent applications, and utility model applications) that may be filed in the United States and every foreign country on the inventions, and the patents, extensions, or derivations thereof, both foreign and domestic, that may issue thereon, including and Assignor does hereby authorize and request the Commissioner of Patents to issue U.S. patents to the above-mentioned Assignee agreeably with the terms of this assignment document.

UPON SAID CONSIDERATION, Assignor conveys to the Assignee the right to make application in its own behalf for protection of the inventions in the U.S. and countries foreign to the U.S. and to claim under the Patent Cooperation Treaty, the International Convention and/or other international arrangement for any such application the date of the U.S. application (or any other application on the respective invention) to gain priority with respect to other applications.

ASSIGNOR DOES HEREBY COVENANT and agree with the Assignee that Assignor will not execute any writing or do any act whatsoever conflicting with the terms of this assignment document set forth herein, and that Assignor will at any time upon request, without further or additional consideration, but at the expense of the Assignee, execute such additional assignments and other writings and do such additional acts as the Assignee may deem necessary or desirable to perfect the Assignee's enjoyment of this assignment, and render all necessary assistance in making application for and obtaining original, continuation, continuation-in-part, divisional, reissued, reexamined, and National phase patents of the U.S. or of any and all foreign countries on the inventions, and in enforcing any rights or choses in action accruing as a result of such applications or patents, and by executing statements and other affidavits, it being understood that the foregoing covenant and agreement shall bind, and inure to the benefit of, the assigns and legal representatives of all parties hereto.

By signing below, the named individuals are making a declaration that they are officers or authorized representatives of their respective organizations and have full authority to act on their behalf, and that the above statements are true.

For Assignor NEC Europe Ltd.:

Date December 20, 2017

By \_\_\_\_\_

Name:

Title:

*J. Quittka*

*Dr. Jürgen Quittka*

*Vice President*

Acknowledged by Assignee NEC Laboratories Europe GmbH:

Date December 20, 2017

By J. Quittel

Name: Dr. Jürgen Quittel

Title: Managing Director