#### 504771704 02/09/2018

# PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT4818432

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

#### **CONVEYING PARTY DATA**

Name	Execution Date
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ADRIAN PERRIG	10/26/2017
SRDJAN CAPKUN	10/26/2017
CLAUDIO SORIENTE	10/08/2017
RAMYA JAYARAM MASTI	10/27/2017
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### **RECEIVING PARTY DATA**

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### **PROPERTY NUMBERS Total: 1**

Property Type	Number
Application Number:	15572871

### **CORRESPONDENCE DATA**

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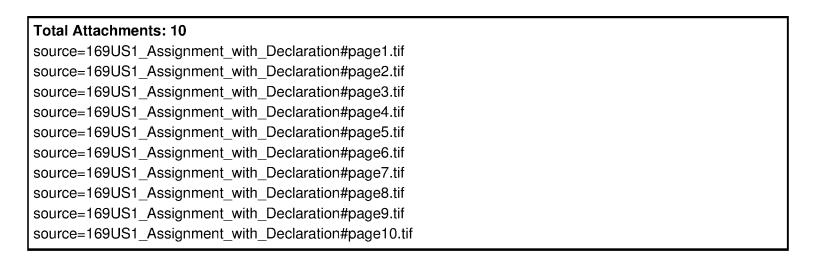
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NAME OF SUBMITTER:	RAQUEL GARCIA
SIGNATURE:	/RAQUEL GARCIA/
DATE SIGNED:	02/09/2018
	This document serves as an Oath/Declaration (37 CFR 1.63).

**PATENT** REEL: 044881 FRAME: 0802

504771704



### ASSIGNMENT WITH DECLARATION FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)

Whereas, I/we, the undersigned inventor(s) hereinafter called assignor(s), have invented certain improvements described in the application identified below; (the "invention") and

Whereas, NEC CORPORATION of 7-1, Shiba 5-chome, Minato-ku, Tokyo 108-8001, Japan, (assignee), desires to acquire the entire and exclusive right, title, and interest in the application and invention, and to any patents that may be obtained therefor in the United States, in any U.S. territorial possessions, and in any and all foreign countries;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

I/we, the above named assignor(s), hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire and exclusive right, title and interest in the application and the invention disclosed therein for the United States, U.S. territorial possessions, and in any and all foreign countries, including all divisions, and continuations, and continuations-in-part thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues and reexaminations, renewals, and substitutions thereof, and including the right to claim priority under 35 U.S.C. §119, and all rights for past infringement, under the International Convention, and under any other relevant International Treaties and Arrangements, and I/we request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; I/we will execute without further consideration all papers deemed necessary by the assignee, and generally perform all necessary acts to aid the assignee, its successors and assigns, to obtain and enforce proper protection for the invention in connection with the United States and foreign applications, including but not limited to all divisional, continuation, reissue and other applications for Letters Patent on the invention and execute all assignments thereof to the above named assignee its successors and assigns, when called upon to do so by the assignee; and I/we will communicate to the above named assignee or its representatives all facts known to the undersigned respecting the invention, whenever requested, testify in any legal proceedings in which any of the applications or patents may become involved, and do generally everything necessary to assist the above named assignee its successors or assigns to obtain patent protection for the invention in the United States and foreign countries.

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. §261)

As the below named inventor, I hereby declare that:			
This assignment with declaration is directed to:		The attached application, or	
The application is entitled:	X	United States Application or PCT International Application Number PCT/JP2015/002385 filed on May 11, 2015 (Confirmation No).	

COMMUNICATION APPARATUS, SYSTEM, METHOD, AND PROGRAM

The above identified application was made or was authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I have reviewed and understand the contents of the application for which this assignment with declaration is being submitted, including the

I am aware of the duty to disclose to the U.S Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR 1.56.

I hereby acknowledge that any willful false statement made in this assignment with declaration is punishable under 18 USC 1001 by fine or imprisonment of not more than five (5) years, or both.

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NAME OF SOLE OR FIRST INVEN	TOR:		
Given Name			,
(first and middle [if any])	Takayuki	Family Name or Surname SA	NSAKI
Inventor's signature	Tabayki Sasak	Date 2	9. Sept. 2017
Residence: Tokyo, Japan			
Mailing Address: c/o NEC CORPOR	ATION, 7-1, Shiba 5-chome, Min	ato-ku, Tokyo 108-8001, Japan	Wikingangangangangangangangangangangangangan
NAME OF SECOND INVENTOR:	***************************************		Managamananan ang ang ang ang ang ang ang ang a
Given Name (first and middle [if any])	Adrian	Family Name or Surname PE	RRIG
Inventor's signature		Date	
Residence: Zurich, Switzerland			~~~
Mailing Address: c/o Eidgenoessisch	e Technische Hochschule Zuerich	Universitaetsstrasse 6, Zurich 8092, 5	Switzerland
NAME OF THIRD INVENTOR:			
Given Name (first and middle [if any])	Srdjan	Family Name or Surname CA	APKUN
Inventor's signature		Date	
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Mailing Address: c/o Eidgenoessisch	e Technische Hochschule Zuerich	Universitaetsstrasse 6, Zurich 8092, 5	Switzerland
NAME OF FOURTH INVENTOR:	**************************************		
Given Name (first and middle [if any])	Claudio	Family Name or Surname SOR	RIENTE
Inventor's signature		Date	
Residence: Zurich, Switzerland			
Mailing Address: c/o Eidgenoessische Technische Hochschule Zuerich, Universitaetsstrasse 6, Zurich 8092, Switzerland			
NAME OF FIFTH INVENTOR:	***************************************		
Given Name (first and middle [if any])	Ramya	Family Name or Surname JAY	ARAM MASTI
Inventor's signature		Date	
Residence: Zurich, Switzerland			
Mailing Address: c/o Eidgenoessische	Technische Hochschule Zuerich,	Universitaetsstrasse 6, Zurich 8092, So	witzerland

m....

Docket No.: Only After Sept. 16, 2012

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Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

I/we, the above named assignor(s), hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire and exclusive right, title and interest in the application and the invention disclosed therein for the United States, U.S. territorial possessions, and in any and all foreign countries, including all divisions, and continuations, and continuations-in-part thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues and reexaminations, renewals, and substitutions thereof, and including the right to claim priority under 35 U.S.C. §119, and all reissues and reexaminations, renewals, and substitutions thereof, and including the right to claim priority under 35 U.S.C. §119, and all reissues and reexamination, under the International Convention, and under any other relevant International Treaties and Arrangements, and I/we request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; I/we will execute without further consideration all papers deemed necessary by the assignee, and generally perform all necessary acts to aid the assignee, its successors and assigns, to obtain and enforce proper protection for the invention in connection with the United States and foreign applications, including but not limited to all divisional, continuation, reissue and other applications for Letters Patent on the invention and execute all assignments thereof to the above named assignee its successors and assigns, when called upon to do so by the assignee; and I/we will communicate to the above named assignee or its representatives all facts known to the undersigned respecting the invention, whenever requested, testify in any legal proceedings in which any of the applications or patents may become involved, and do generally everything necessary to assist the above named assignee its successors or assigns to obtain patent protection for the

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NAME OF SOLE OR FIRST INVENTOR:	
Given Name	
(first and middle [if any]) Takayuki	Family Name or Surname SASAKI
Inventor's signature	Date
Residence: Tokyo, Japan	
Mailing Address: c/o NEC CORPORATION, 7-1. Shiba 5-chome, M	inato-ku, Tokyo 108-8001, Japan
NAME OF SECOND INVENTOR:	
Given Name (first and middle [if any]) Adrian	Family Name or Surname PERRIG
Inventor's signature	Date 26.10-2017
Residence: Zurich, Switzerland	
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NAME OF THIRD INVENTOR:	
Given Name (first and middle [if any]) Srdjan	Family Name or Surname CAPKUN
Inventor's signature	Date 26. 10. 2017.
Residence: \Zugech, Switzerland	
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NAME OF FOURTH INVENTOR:	
Given Name (first and aniddle [if any]) Claudio	Family Name or Surname SORIENTE
Inventor's signature	Date
Residence: Zurich, Switzerland	
Mailing Address: c/o Eidgenoessische Technische Hochschule Zuerich.	Universitaetsstrasse 6, Zurich 8092, Switzerland
NAME OF FIFTH INVENTOR:	
Given Name (first and middle [if any]) Ramya	Family Name or Surname JAYARAM MASTI
Inventor's signature	Date
Residence: Zurich, Switzerland	·
Mailing Address: c/o Eidgenoessische Technische Hochschule Zuerich	. Universitaetsstrasse 6. Zurich 8092. Switzerland

Docket No.: Only After Sept. 16, 2012

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NAME OF SOLE OR FIRST INVENTOR:	
Given Name	
(first and middle [if any]) Takayuki	Family Name or Surname SASAKI
Inventor's signature	Date
Residence: Tokyo, Japan	
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Mailing Address: c/o NEC CORPORATION, 7-1, Shiba 5-chome, Min	nato-ku Tokyo 108-2001 Janan
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NAME OF SECOND INVENTOR:	
Given Name	
(first and middle [if any]) Adrian	Family Name or Surname PERRIG
Inventor's signature	Date
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NAME OF THIRD INVENTOR:	
Given Name (first and middle [if any]) Srdjan	Family Name or Sumame CAPKUN
(mst and madrie (it any)) Sidjan	Family Name or Surname CAPKUN
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Inventor's signature	Date
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Residence: Zurich, Switzerland	
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NAME OF FOURTH INVENTOR:	
Given Name	
(first and middle [if any]) Claudio	Family Name or Surname SORIENTE
/ a	, ,
Inventor's signature	Date 1/0/1/
	1 (2) 1
Residence: Zurich, Switzerland	
:	***************************************
Mailing Address: c/o Eidgenoessische Technische Hochschule Zuerich,	Linguageith atout mana 6 Translate 2007 Sanit market d
	Othverstaeesstrasse o, Zamen 3092, Switzenand
NAME OF FIFTH INVENTOR:	
Given Name	
(first and middle [if any]) Ramya	Family Name or Surname JAYARAM MASTI
Inventor's signature	Date
Residence: Zurich, Switzerland	
Mailing	
Address: c/o Eidgenoessische Technische Hochschule Zuerich,	Universitaetsstrasse 6, Zurich 8092. Switzerland
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NAME OF SOLE OR FIRST INVENTOR:					
Given Name		re-penalty			
(first and middle [if any])	Takayuki	Family Name or Surname SAS	BAKI		
Inventor's signature		Date			
Residence: Tokyo, Japan					
Mailing Address: c/o NEC CORPORATION, 7-1, Shiba 5-chome, Minato-ku, Tokyo 108-8001, Japan					
NAME OF SECOND INVENTOR:					
Given Name (first and middle [if any])	Adrian	Family Name or Surname PER	RIG		
Inventor's signature		Date			
Residence: Zurich, Switzerland					
Mailing Address: c/o Eidgenoessische Technische Hochschule Zuerich, Universitaetsstrasse 6, Zurich 8092, Switzerland					
NAME OF THIRD INVENTOR:	TYPOPPYYTYPYNYN TONONOONOONOONOONOONOONOONOONOONOONOONOO	yevrvenkenkenkendanigeseskeskerpengskrakkrakkaddaddaddaddadda			
Given Name (first and middle [if any])	Srdjan	Family Name or Surname CAF	PKUN		
Inventor's signature		Date			
Residence: Zurich, Switzerland					
Mailing Address: c/o Eidgenoessische Technische Hochschule Zuerich, Universitaetsstrasse 6, Zurich 8092, Switzerland					
NAME OF FOURTH INVENTOR:					
Given Name (first and middle [if any]) C	laudio	Family Name or Surname SORIENTE			
Inventor's signature		Date			
Residence: Zurich, Switzerland					
Mailing Address: c/o Eidgenoessische Technische Hochschule Zuerich, Universitaetsstrasse 6, Zurich 8092, Switzerland					
NAME OF FIFTH INVENTOR:					
Given Name (first and middle [if any]) R	amya	Family Name or Surname JAYA	.RAM MASTI		
Inventor's signature Ranja Jaywas	_ M	Date 27 <sup>th</sup>	Oct, 2017		
Residence: Zurich, Switzerland					
Mailing Address: c/o Eidgenoessische Technische Hochschule Zuerich, Universitaetsstrasse 6, Zurich 8092, Switzerland					

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Whereas, NEC CORPORATION of 7-1, Shiba 5-chome, Minato-ku, Tokyo 108-8001, Japan, (assignee), desires to acquire the entire and exclusive right, title, and interest in the application and invention, and to any patents that may be obtained therefor in the United States, in any U.S. territorial possessions, and in any and all foreign countries;

Now therefore, for valuable consideration, receipt whereof is hereby acknowledged,

I/we, the above named assignor(s), hereby sell, assign and transfer to the above named assignee, its successors and assigns, the entire and exclusive right, title and interest in the application and the invention disclosed therein for the United States, U.S. territorial possessions, and in any and all foreign countries, including all divisions, and continuations-in-part thereof, and all Letters Patent of the United States that may be granted thereon, and all reissues and reexaminations, renewals, and substitutions thereof, and including the right to claim priority under 35 U.S.C. §119, and all rights for past infringement, under the International Convention, and under any other relevant International Treaties and Arrangements, and I/we request the Director of the U.S. Patent and Trademark Office to issue any Letters Patent granted upon the invention set forth in the application to the assignee, its successors and assigns; I/we will execute without further consideration all papers deemed necessary by the assignee, and generally perform all necessary acts to aid the assignee, its successors and assigns, to obtain and enforce proper protection for the invention in connection with the United States and foreign applications, including but not limited to all divisional, continuation, reissue and other applications for Letters Patent on the invention and execute all assignments thereof to the above named assignee its successors and assigns, when called upon to do so by the assignee; and I/we will communicate to the above named assignee or its representatives all facts known to the undersigned respecting the invention, whenever requested, testify in any legal proceedings in which any of the applications or patents may become involved, and do generally everything necessary to assist the above named assignee its successors or assigns to obtain patent protection for the invention in the United States and foreign countries.

(Legalization not required for recording but is prima facie evidence of execution under 35 U.S.C. §261)

As the below named inventor, I hereby declare that:				
This assignment with declaration is directed to:		The attached application, or		
	X	United States Application or PCT International Application Number <u>PCT/JP2015/002385</u> filed on <u>May 11, 2015</u> (Confirmation No).		
The application is entitled:				

#### COMMUNICATION APPARATUS, SYSTEM, METHOD, AND PROGRAM

The above identified application was made or was authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I have reviewed and understand the contents of the application for which this assignment with declaration is being submitted, including the

I am aware of the duty to disclose to the U.S Patent and Trademark Office all information known to me to be material to patentability as defined in 37 CFR 1.56.

I hereby acknowledge that any willful false statement made in this assignment with declaration is punishable under 18 USC 1001 by fine or imprisonment of not more than five (5) years, or both.

### Authorization To Permit Access To Application by Participating Office

☐ If checked, the undersigned hereby grants the USPTO authority to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the World Intellectual Property Office (WIPO), and any other intellectual property offices in which a foreign application claiming priority to the above-identified application is filed access to the above-identified patent application. See 37 CFR 1.14(c) and (h). This box should not be checked if the applicant does not wish the EPO, JPO, KIPO, or other intellectual property office in which a foreign application claiming priority to the above-identified application is filed to have access to the application.

In accordance with 37 CFR 1.14(h)(3), access will be provided to a copy of the application-as-filed with respect to: 1) the above-identified patent application-as-filed, 2) any foreign application to which the above-identified application claims priority under 35 USC 119(a)-(d) if a copy of the foreign application that satisfies the certified copy requirement of 37 CFR 1.55 has been filed in the above-identified patent application, and 3) any U.S. application-as-filed from which benefit is sought in the above-identified patent application.

In accordance with 37 CFR 1.14(c), access may be provided to information concerning the date of filing the Authorization to Permit Access to Application by Participating Office.

NAME OF SIXTH INVENTOR:				
Given Name (first and middle [if any]) Jason	Family Name or Surname LEE			
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NAME OF TENTH INVENTOR:	***************************************			
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