505460354 05/03/2019

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5507157

		NEW ASSIGNMENT			
NATURE OF CONVEYANCE:		ASSIGNMENT	ASSIGNMENT		
CONVEYING PARTY D	ΑΤΑ				
		Name	Execution Date		
CHEN QIAN			04/01/2019		
BIN YU			04/01/2019		
DI SU	04/01/2019				
QI XIONG	04/01/2019				
YINGJIE ZHANG	04/01/2019				
JINGXING FU			04/01/2019		
RECEIVING PARTY DA					
Name:		SAMSUNG ELECTRONICS CO., LTD.			
Street Address:		129, SAMSUNG-RO, YEONGTONG-GU			
City:	,	SUWON-SI, GYEONGGI-DO			
State/Country:		KOREA, REPUBLIC OF			
Postal Code:	16677				
PROPERTY NUMBERS	5 Total: 1				
PROPERTY NUMBERS Property Type	Total: 1	Number			
Property Type	S Total: 1				
Application Number: CORRESPONDENCE D Fax Number: Correspondence will b	DATA De sent to	Number 16347495 o the e-mail address first; if that is unsuccessful, it will be sent v 202-293-0804 usdocketing@jeffersonip.com JEFFERSON IP LAW, LLP 1130 CONNECTICUT AVE., NW, SUITE 4	ia US Mail.		
Property Type Application Number: CORRESPONDENCE D Fax Number: Correspondence will b using a fax number, if Phone: Email: Correspondent Name: Address Line 1: Address Line 4:	DATA De sent to provideo	Number 16347495 o the e-mail address first; if that is unsuccessful, it will be sent v d; if that is unsuccessful, it will be sent v 202-293-0804 usdocketing@jeffersonip.com JEFFERSON IP LAW, LLP 1130 CONNECTICUT AVE., NW, SUITE 4 WASHINGTON, D.C. 20036	ia US Mail.		
Property Type Application Number: CORRESPONDENCE D Fax Number: Correspondence will b using a fax number, if Phone: Email: Correspondent Name: Address Line 1: Address Line 4:	DATA De sent to provideo	Number 16347495 o the e-mail address first; if that is unsuccessful, it will be sent v d; if that is unsuccessful, it will be sent v 202-293-0804 usdocketing@jeffersonip.com JEFFERSON IP LAW, LLP 1130 CONNECTICUT AVE., NW, SUITE 4. WASHINGTON, D.C. 20036 0202-1515	ia US Mail.		
Property Type Application Number: CORRESPONDENCE D Fax Number: Correspondence will b using a fax number, if Phone: Email: Correspondent Name: Address Line 1: Address Line 4: ATTORNEY DOCKET NUNAME OF SUBMITTER:	DATA De sent to provideo	Number 16347495 o the e-mail address first; if that is unsuccessful, it will be sent v 202-293-0804 usdocketing@jeffersonip.com JEFFERSON IP LAW, LLP 1130 CONNECTICUT AVE., NW, SUITE 4 WASHINGTON, D.C. 20036 20202-1515 RAYMOND B. PERSINO	ia US Mail.		
Property Type Application Number: CORRESPONDENCE D Fax Number: Correspondence will b using a fax number, if Phone: Email: Correspondent Name: Address Line 1: Address Line 4:	DATA De sent to provideo	Number 16347495 o the e-mail address first; if that is unsuccessful, it will be sent v d; if that is unsuccessful, it will be sent v 202-293-0804 usdocketing@jeffersonip.com JEFFERSON IP LAW, LLP 1130 CONNECTICUT AVE., NW, SUITE 4. WASHINGTON, D.C. 20036 0202-1515	ia US Mail.		

505460354

source=0202-1515 Assignment As Filed#page1.tif source=0202-1515 Assignment As Filed#page2.tif source=0202-1515 Assignment As Filed#page3.tif source=0202-1515 Assignment As Filed#page4.tif

RECORDATION FORM COVER SHEET PATENTS ONLY					
To the Director of the U.S. Patent and Trademark Office: Pleas	se record the attached documents or the new address(es) below.				
1. Name of conveying party(ies)	2. Name and address of receiving party(ies)				
1) Chen QIAN, 2) Bin YU, 3) Di SU, 4) Qi XIONG,	Name: Samsung Electronics Co., Ltd.				
5) Yingjie ZHANG, and 6) Jingxing FU	Internal Address:				
Additional name(s) of conveying party(ies) attached? Yes 🗹 No					
3. Nature of conveyance/Execution Date(s):	Street Address: <u>129, Samsung-ro, Yeongtong-gu</u>				
Execution Date(s) <u>April 1, 2019</u>					
Assignment Merger	City: <u>Suwon-si, Gyeonggi-do</u>				
Security Agreement Change of Name					
Joint Research Agreement	State:				
Government Interest Assignment	Country: Republic of Korea Zip: 16677				
Executive Order 9424, Confirmatory License					
Other	Additional name(s) & address(es) attached? Yes 🔽 No				
	document is being filed together with a new application.				
A. Patent Application No.(s) 16/347,495	B. Patent No.(s)				
16/347,495					
Additional numbers at	l ached? Yes VNo				
5. Name and address to whom correspondence	6. Total number of applications and patents				
concerning document should be mailed:	involved: One				
Name: Jefferson IP Law, LLP	7. Total fee (37 CFR 1.21(h) & 3.41) \$				
Internal Address: Raymond B. Persino	Authorized to be charged by credit card				
	Authorized to be charged to deposit account				
Street Address: 1130 Connecticut Ave., NW, Suite 420	Enclosed				
	None required (government interest not affecting title)				
City: Washington	8. Payment Information				
	a. Credit Card Last 4 Numbers				
State: District of Columbia Zip:20036	Expiration Date				
Phone Number: 202-293-0804	b. Deposit Account Number				
Fax Number: 202-403-3587	Authorized User Name				
Email Address: usdocketing@jeffersonip.com					
9. Signature: /Raymond B. PERSINO/ Reg.	#58,082 May 3, 2019				
Signature	<u>"38,062</u> <u>May 5, 2019</u> Date				
Raymond B. Persino	Total number of pages including cover \checkmark				
Name of Person Signing	Total number of pages including cover				

PATENT REEL: 049076 FRAME: 0772

DOCKET NO.: 0202-1515 CLIENT REF.: SP17261-PCT/US_DMC SAMSUNG REF.: WC-201610-016-1-US0

<u>Assignment</u>

WHEREAS, the following inventors, namely 1) Chen QIAN, 2) Bin YU, 3) Di SU, 4) Qi XIONG, 5) Yingjie ZHANG, and 6) Jingxing FU (hereinafter called "Assignors"), having made or discovered certain new, useful and non-obvious improvements in an invention having a working title of:

METHOD AND APPARATUS FOR GRANT-FREE DATA TRANSMISSION IN WIRELESS COMMUNICATION SYSTEM,

for which a United States Patent Application is being filed concurrently herewith or, if not being concurrently filed, was filed on <u>May 3, 2019</u>, and assigned Serial No. 16/347,495 and.

WHEREAS, Samsung Electronics Co., Ltd., a corporation duly organized under the laws of the Republic of Korea, located and doing business at 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyconggi-do, Republic of Korea, 16677 (hereinafter called "Assignce"), is desirous of acquiring the entire right, title and interest therein;

NOW, THEREFORE, BE IT KNOWN that for and in good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignors do hereby sell, assign and transfer unto said Assignce the entire and exclusive worldwide right, title and interest in and to all said inventions and discoveries disclosed in said application, and in and to said application, any and all substitutions, divisions, provisionals, conversions of provisionals and continuations thereof, and in and to all Letters Patent, United States and all other foreign countries, that may be granted for said inventions and discoveries, and in and to all extensions, renewals and reissues thereof; and the right to file any other foreign country application and/or claim priority under the provisions of any international treaty or convention arising from this application or any divisional, continuing, substitute or reissue application therefrom. The aforesaid assignment includes the right in and to all income, royalties, damages and payments, now or hereafter due or payable with respect to any Letters Patent which may be granted, and in and to all causes of action (either in law or in equity), and the right to sue, counterclaim, and recover for past, present and future infringement of the rights assigned or to be assigned under this Assignment, as fully and entirely as the same would have been held and enjoyed by Assignors if this sale, assignment and transfer had not been made.

Assignors covenent and agree, without further compensation to said Assignors but at Assignee's expense:

a. to execute: i. all na

all papers to be used in connection with this application and any divisional, continuing, substitute or reissue application thereof, as the Assignce may deem necessary or expedient, and

all papers in connection with any interference, litigation, mediation, arbitration or other proceeding relating to this application or any divisional, continuing, substitute or reissue application thereof, as may be necessary or expedient;

PATENT REEL: 049076 FRAME: 0773

DOCKET NO.: 0202-1515 CLIENT REF.: SP17261-PCT/US_DMC SAMSUNG REF.: WC-201610-016-1-US0

- b. to cooperate with the Assignee in every way possible in obtaining evidence and going forward in any interference, litigation, mediation, arbitration or other proceeding relating to said invention, said application and any divisional, continuing, substitute or reissue application thereof;
- c. to communicate to the Assignce any facts relating to said invention, said application and any divisional, continuing, substitute or reissue application thereof, iscluding evidence for any interference, litigation, mediation, arbitration or other proceeding relating to said invention, whenever requested;
- d. to testify in any interference, litigation, mediation, arbitration or other proceeding relating to said invention, said application and any divisional, continuing, substitute or reissue application thereof whenever requested; and
- e. to perform all other affirmative acts which may be necessary or desirable to secure full and complete protection of the inventions and discoveries or that may be necessary or desirable to vest in Assignee the complete title to the inventions and discoveries and Letters Patent hereby conveyed and to enable Assignee to record title.

Assignors hereby authorize and request the United States Patent and Trademark Office or any other issuing authority to issue any and all Letters Patent that may be granted upon this invention and/or this application or any divisional, continuing, substitute or reissue application thereof to the Assignee, its legal representatives, successors and assigns.

Assignors each hereby represents, covenants and warrants that he or she has the full right to convey the entire right, title and interest by this instrument, free of any encumbrances and that no other agreement has been or will be executed in conflict herewith.

The provisions of this Assignment are binding upon Assignors' heirs, legal representatives and/or administrators and assigns.

Assignors hereby grant to the law firm of Jefferson IP Law, LLP of Washington, DC and its attorneys and agents as associated with Customer No. 68103 the authority and power to insert on this instrument any further identification which may be necessary or desirable for purposes of recordation in the United States Patent and Trademark Office or a Patent Office of any foreign country.

2

PATENT REEL: 049076 FRAME: 0774

DOCKET NO.: 0202-1515 CLIENT REF.: SP17261-PCT/US_DMC SAMSUNG REF.: WC-201610-016-1-US0

	Signature of Inventor:	Chon Qian Chen QIAN	<u> 2019.4.1</u> Date
	Signature of Inventor:	Bin YU	- <u> Aprilip 2019</u> *
	Signature of Inventor:	Di Su	2019.04.01
¥	Signature of Inventor:	Dign/L	<u>2.7.4.1</u> Date/
	Signature of Inventor:	Vingjie Zhang Vingjie Zhang	2019.04.01 Date
	Signature of Inventor:	Jing Kiky Fu Jingxing FU	2019.04.01 Date

, e

3