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| PATENT ASSIGNMENT COVER SHEET |
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EPAS ID: PAT5835887

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| SUBMISSION TYPE: | NEW ASSIGNMENT |
| NATURE OF CONVEYANCE: | ASSIGNMENT |
| CONVEYING PARTY DATA | |
| Name | Execution Date |
| HAO CHEN | 11/21/2019 |
| VISHNU RATNAM | 11/21/2019 |
| YOUNG-HAN NAM | 11/22/2019 |
| JOONYOUNG CHO | 11/22/2019 |
| JIANZHONG ZHANG | 11/21/2019 |
| RECEIVING PARTY DATA | |
| 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 Total: 1 | |
| Property Type | Number |
| Application Number: | 16693074 |
| CORRESPONDENCE DATA | |
| Fax Number: | (972)628-3616 |
| <i>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.</i> | |
| Phone: | 9726283600 |
| Email: | patents@munckwilson.com |
| Correspondent Name: | DOCKET CLERK - SAMS |
| Address Line 1: | P.O. DRAWER 800889 |
| Address Line 4: | DALLAS, TEXAS 75380 |
| ATTORNEY DOCKET NUMBER: | 2018.11.012.SR0 |
| NAME OF SUBMITTER: | JACOB L. LACOMBE |
| SIGNATURE: | /Jacob L. LaCombe/ |
| DATE SIGNED: | 11/22/2019 |
| Total Attachments: 5 | |
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**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET
(37 CFR 1.76) AND ASSIGNMENT**

| | |
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| Title of Invention | METHODS AND APPARATUS FOR COVERAGE PREDICTION AND NETWORK OPTIMIZATION IN 5G NEW RADIO NETWORKS |
|-----------------------|--|

As the undersigned inventor, I hereby declare that:

This combined declaration and assignment is directed to: The attached application, or
 United States application or PCT International application number _____
 filed on _____.

The above-identified application was made or 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 including the claims, for which this combined declaration and assignment is being submitted.

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

WHEREAS, Samsung Electronics Co., Ltd., a Korean corporation, having a place of business at 129, Samsung-ro, Yeongtong-gu Suwon-si, Gyeonggi-do, Korea (hereinafter referred to as "ASSIGNEE"), desires to acquire the entire right, title and interest in said invention and to any patent that may be granted thereon in the United States and foreign countries:

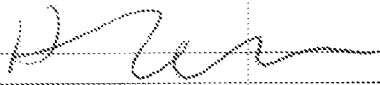
NOW, THEREFORE, for good and valuable consideration, the receipt whereof is hereby acknowledged, We, the below named inventors, hereby sell, assign and transfer to said ASSIGNEE, its successors and assigns, the entire right, title and interest in the above-identified application and the invention disclosed therein in all countries, including all divisional applications, continuation applications, and corresponding priority applications including those to which priority is claimed under the International Convention of Paris including under 35 U.S.C. 119, substitutions, and renewals thereof, and to all patents that may be granted thereon, and all reissues thereof.

We hereby authorize and request the Patent Office Officials in the United States and all foreign countries to issue patents, when granted, to said ASSIGNEE, its successors and assigns. Further, We agree that said ASSIGNEE, its successors and assigns, may apply for patents for the invention in foreign countries without further authorization from us. Also, We agree to execute all papers and generally to do everything possible to aid said ASSIGNEE, its successors and assigns, in obtaining and enforcing patents for the invention in all countries.

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

LEGAL NAME OF FIRST INVENTOR (e.g., full first name, middle initial, last name)

Inventor: Hao Chen Date: 21/11/2018

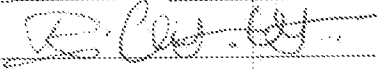
Signature: 

2018.11.012.SR0
SAMS10-01502

LEGAL NAME OF SECOND INVENTOR (e.g., full first name, middle initial, last name)

Inventor: Vishnu Ratnam

Date: 11/21/2019

Signature: 

2018.11.012.SR0
SAMS10-01502

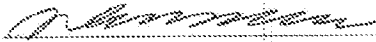
LEGAL NAME OF THIRD INVENTOR (e.g., full first name, middle initial, last name)

Inventor: Young-Han Nam

Date:

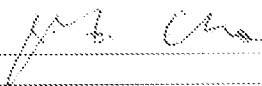
11/22/2019

Signature:



LEGAL NAME OF FOURTH INVENTOR (e.g., full first name, middle initial, last name)

Inventor: Joonyeung Cho Date: 11/22 / 2019

Signature: 

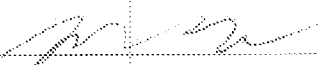
2018.11.012.SR0
SAMS10-01502

LEGAL NAME OF FIFTH INVENTOR (e.g., full first name, middle initial, last name)

Inventor: Jianzhong Zhang

Date: 1/21/19

Signature: _____



2018.11.012.SR0
SAMS10-01502

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