01/15/2020 505865701

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5912537

| SUBMISSION TYPE: | NEW ASSIGNMENT |
|-----------------------|----------------|
| NATURE OF CONVEYANCE: | ASSIGNMENT |

CONVEYING PARTY DATA

| Name | Execution Date |
|----------------------------|----------------|
| SAI SRAVAN BHARADWAJ KARRI | 11/20/2019 |
| SWAMINATHAN BALAKRISHNAN | 11/20/2019 |
| JUNSUNG LIM | 11/21/2019 |
| HAITONG SUN | 12/20/2019 |
| JOHNSON O. SEBENI | 11/21/2019 |
| FARAZ FAHEEM | 01/13/2020 |

RECEIVING PARTY DATA

| Name: | APPLE INC. |
|-----------------|--------------------|
| Street Address: | ONE APPLE PARK WAY |
| City: | CUPERTINO |
| State/Country: | CALIFORNIA |
| Postal Code: | 95014 |

PROPERTY NUMBERS Total: 1

| Property Type | Number |
|---------------------|----------|
| Application Number: | 16743459 |

CORRESPONDENCE DATA

Fax Number: (512)853-8801

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.

Phone: (512)853-8800 plitz@intprop.com Email:

KOWERT, HOOD, MUNYON, RANKIN, & G (APP **Correspondent Name:**

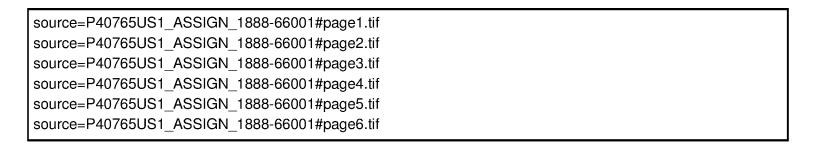
Address Line 1: P.O. BOX 398

Address Line 4: AUSTIN, TEXAS 78767-0398

| ATTORNEY DOCKET NUMBER: | 1888-66001 |
|-------------------------|-------------------|
| NAME OF SUBMITTER: | JEFFREY C. HOOD |
| SIGNATURE: | /Jeffrey C. Hood/ |
| DATE SIGNED: | 01/15/2020 |

Total Attachments: 6

PATENT REEL: 051523 FRAME: 0850



PATENT REEL: 051523 FRAME: 0851

ASSIGNMENT

FOR GOOD AND VALUABLE CONSIDERATION, the receipt, sufficiency and adequacy of which are hereby acknowledged, the undersigned does hereby:

SELL, ASSIGN AND TRANSFER to <u>Apple Inc.</u> (the "Assignee"), a corporation organized and existing under and by virtue of the laws of the State of California, and having its principal place of business at <u>One Apple Park Way, Cupertino, CA 95014</u>, the entire right, title and interest for the United States and all foreign countries, in and to any and all improvements which are disclosed in the application for United States Letters Patent, which has been executed by the undersigned concurrently herewith, and is entitled <u>Feedback Overhead Reduction for Precoders under High Rank Spatial Channels</u>, such application and all divisional, continuing, substitute, renewal, reissue and all other applications for patent which have been or shall be filed in the United States and all foreign countries on any of such improvements; all original and reissued patents which have been or shall be issued in the United States and all foreign countries on such improvements; and specifically including the right to file foreign applications under the provisions of any convention or treaty and claim priority based on such application in the United States;

AUTHORIZE AND REQUEST the issuing authority to issue any and all United States and foreign patents granted on such improvements to the Assignee;

WARRANT AND COVENANT that no assignment, grant, mortgage, license or other agreement affecting the rights and property herein conveyed has been or will be made to others by the undersigned, and that the full right to convey the same as herein expressed is possessed by the undersigned;

COVENANT that, when requested and at the expense of the Assignee, to carry out in good faith the intent and purpose of this assignment, the undersigned will execute all divisional, continuing, substitute, renewal, reissue, and all other patent applications on any and all such improvements; execute all rightful oaths, declarations, assignments, powers of attorney and other papers; communicate to the Assignee all facts known to the undersigned relating to such improvements and the history thereof; and generally do everything possible which the Assignee shall consider desirable for securing, maintaining and enforcing proper patent protection for such improvements and for vesting title to such improvements in the Assignee;

| (Signature)_ | Sai Sravan Bharadwaj Karri | Date: 20 NOV 20 19 |
|---------------|----------------------------|--------------------|
| Name: | Sai Sravan Bharadwaj Karri | |
| (Signature) _ | Swaminathan Balakrishnan | Date: |
| ryame. | Swammathan Dalaki (Siniah | |
| (Signature)_ | Junsung Lim | Date: |
| Name: | Junsung Lim | |
| (Signature)_ | Haitong Sun | Date: |
| | | |
| (Signature) _ | | Date: |
| Name: | Johnson O. Sebeni | |
| (Signature) | Faraz Faheem | Date: |
| Name: | Faraz Faheem | |

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| Name: | Sai Sravan Bharadwaj Karri | |
| (Signature) _ Name: | Swaminathan Balakrishnan | Date: 17/20/2019 |
| (Signature) _ Name: | Junsung Lim | Date: |
| (Signature) _ Name: | Haitong Sun | Date: |
| (Signature) Name: | Johnson O. Sebeni | Date: |
| (Signature) | Faraz Faheem | Date: |

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| Name: | Sai Sravan Bharadwaj Karri | |
| (Signature)_ | | Date: |
| Name: | Swaminathan Balakrishnan | |
| (Signature) _ Name: | Johnsung Lim | Date: NOV 21 2019 |
| (Signature) | Haitong Sun | Date: |
| Name: | Haitong Sun | |
| (Signature) Name: | Johnson O. Sebeni | Date: 11 21 2019 |
| | Faraz Fahcem | Date: |
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| (Signature) Name: | Swaminathan Balakrishnan | Date: |
| (Signature) Name: | Junsung Lim | Date: |
| (Signature) Name: | Hailong Sun | Date: 12/20/201 ⁹) |
| (Signature) Name: | Johnson O. Sebeni | Date: |
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