

EX 9

"FEE ADDRESS" INDICATION FORM

Address to:
Mail Stop M Correspondence
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Fax to:
571-273-6500

- OR -

INSTRUCTIONS: The issue fee must have been paid for application(s) listed on this form. In addition, only an address represented by a Customer Number can be established as the fee address for maintenance fee purposes (hereafter, fee address). A fee address should be established when correspondence related to maintenance fees should be mailed to a different address than the correspondence address for the application. **When to check the first box below:** If you have a Customer Number to represent the fee address. **When to check the second box below:** If you have no Customer Number representing the desired fee address, in which case a completed Request for Customer Number (PTO/SB/125) must be attached to this form. For more information on Customer Numbers, see the Manual of Patent Examining Procedure (MPEP) § 403.

For the following listed application(s), please recognize as the "Fee Address" under the provisions of 37 CFR 1.363 the address associated with:

☒ Customer Number: 96879

OR

☐ The attached Request for Customer Number (PTO/SB/125) form.

PATENT NUMBER (if known)	APPLICATION NUMBER
9,450,579	14/833,076

Completed by (check one):

☐ Applicant/Inventor

/James W. Chang/

Signature

☒ Attorney or Agent of record 52,718
(Reg. No.)

James W. Chang

Typed or printed name

☐ Assignee of record of the entire interest. See 37 CFR 3.71.
Statement under 37 CFR 3.73(b) is enclosed.
(Form PTO/SB/96)

(949) 336-1454

Requester's telephone number

☐ Assignee recorded at Reel Frame

July 16, 2018

Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required, see below*.

☐ * Total of forms are submitted.

This collection of information is required by 37 CFR 1.363. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 5 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND COMPLETE D FORMS TO THIS ADDRESS. SEND TO: Mail Stop M Correspondence, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Electronic Acknowledgement Receipt	
EFS ID:	33189034
Application Number:	14833076
International Application Number:	
Confirmation Number:	3042
Title of Invention:	RADIO FREQUENCY DEVICES HAVING REDUCED INTERMODULATION DISTORTION
First Named Inventor/Applicant Name:	Anuj Madan
Customer Number:	115870
Filer:	James W. Chang
Filer Authorized By:	
Attorney Docket Number:	75900-50031D1
Receipt Date:	16-JUL-2018
Filing Date:	22-AUG-2015
Time Stamp:	15:59:14
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment		no			
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Change of Address	2018-07-16_Fee-Address_75900-50031D1.pdf	133095	no	2
			db0a0e0e6da3f1a32d279b1c162c13b25fd2b5827		
Warnings:					

Information:	
Total Files Size (in bytes):	133095
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.	



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	ISSUE DATE	PATENT NO.	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/833,076	09/20/2016	9450579	75900-50031D1	3042
115870	7590	08/31/2016		
Chang & Hale LLP 4199 Campus Drive Suite 550, #115 Irvine, CA 92612				

ISSUE NOTIFICATION

The projected patent number and issue date are specified above.

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 0 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Data Management (ODM) at (571)-272-4200.

APPLICANT(s) (Please see PAIR WEB site <http://pair.uspto.gov> for additional applicants):

Anuj Madan, Cambridge, MA;
SKYWORKS SOLUTIONS, INC., Woburn, MA
Filaret Altunkilic, North Andover, MA;
Guillaume Alexandre Blin, Carlisle, MA;

The United States represents the largest, most dynamic marketplace in the world and is an unparalleled location for business investment, innovation, and commercialization of new technologies. The USA offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to encourage and facilitate business investment. To learn more about why the USA is the best country in the world to develop technology, manufacture products, and grow your business, visit SelectUSA.gov.

IR103 (Rev. 10/09)

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
or Fax (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

115870 7590 05/27/2016
Fernando Hale & Chang LLP
4199 Campus Drive
Suite 550, #115
Irvine, CA 92612

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/833,076	08/22/2015	Anuj Madan	75900-50031D1	3042

TITLE OF INVENTION: RADIO FREQUENCY DEVICES HAVING REDUCED INTERMODULATION DISTORTION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	08/29/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
NGUYEN, TUAN HOANG	2647	455-083000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Chang & Hale LLP

2

3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Skyworks Solutions, Inc.

Woburn, MA

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☒ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☒ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☒ Payment by credit card. Form PTO-2038 is attached.
☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
☐ Applicant asserting small entity status. See 37 CFR 1.27
☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Alan T. Hale/

Date 2016-08-24

Typed or printed name Alan T. Hale

Registration No. 68,226

Electronic Patent Application Fee Transmittal				
Application Number:		14833076		
Filing Date:		22-Aug-2015		
Title of Invention:		RADIO FREQUENCY DEVICES HAVING REDUCED INTERMODULATION DISTORTION		
First Named Inventor/Applicant Name:		Anuj Madan		
Filer:		Alan Troy Hale		
Attorney Docket Number:		75900-50031D1		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				
Post-Allowance-and-Post-Issuance:				
Utility Appl Issue Fee	1501	1	960	960

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				960

Electronic Acknowledgement Receipt	
EFS ID:	26735661
Application Number:	14833076
International Application Number:	
Confirmation Number:	3042
Title of Invention:	RADIO FREQUENCY DEVICES HAVING REDUCED INTERMODULATION DISTORTION
First Named Inventor/Applicant Name:	Anuj Madan
Customer Number:	115870
Filer:	Alan Troy Hale
Filer Authorized By:	
Attorney Docket Number:	75900-50031D1
Receipt Date:	24-AUG-2016
Filing Date:	22-AUG-2015
Time Stamp:	14:55:58
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	CARD
Payment was successfully received in RAM	\$960
RAM confirmation Number	082516INTEFSW14564700
Deposit Account	0585
Authorized User	Alan Hale
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows:	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Issue Fee Payment (PTO-85B)	2016-08-24_IssueFeePaid.pdf	161932	no	1
			5d5174e4147c4351f8eab99555b296cd90 090e		
Warnings:					
Information:					
2	Fee Worksheet (S806)	fee-info.pdf	30467	no	2
			27a24e59b8c0d4ec65d11fc6788eb7c5a3b b259b		
Warnings:					
Information:					
Total Files Size (in bytes):			192399		
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. New Applications Under 35 U.S.C. 111 If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. National Stage of an International Application under 35 U.S.C. 371 If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. New International Application Filed with the USPTO as a Receiving Office If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.					



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
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P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

NOTICE OF ALLOWANCE AND FEE(S) DUE

115870 7590 05/27/2016
Fernando Hale & Chang LLP
4199 Campus Drive
Suite 550, #115
Irvine, CA 92612

EXAMINER

NGUYEN, TUAN HOANG

ART UNIT PAPER NUMBER

2647

DATE MAILED: 05/27/2016

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/833,076	08/22/2015	Anuj Madan	75900-50031D1	3042

TITLE OF INVENTION: RADIO FREQUENCY DEVICES HAVING REDUCED INTERMODULATION DISTORTION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	08/29/2016

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 1/2 the amount of undiscounted fees, and micro entity fees are 1/2 the amount of small entity fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), to: **Mail Stop ISSUE FEE**
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450
 or **Fax (571)-273-2885**

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

115870 7590 05/27/2016
Fernando Hale & Chang LLP
4199 Campus Drive
Suite 550, #115
Irvine, CA 92612

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

Certificate of Mailing or Transmission

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/833,076	08/22/2015	Anuj Madan	75900-50031D1	3042

TITLE OF INVENTION: RADIO FREQUENCY DEVICES HAVING REDUCED INTERMODULATION DISTORTION

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$960	\$0	\$0	\$960	08/29/2016

EXAMINER	ART UNIT	CLASS-SUBCLASS
NGUYEN, TUAN HOANG	2647	455-083000

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

2. For printing on the patent front page, list

(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,

(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent): ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s): (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The director is hereby authorized to charge the required fee(s), any deficiency, or credits any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. Change in Entity Status (from status indicated above)

- ☐ Applicant certifying micro entity status. See 37 CFR 1.29
☐ Applicant asserting small entity status. See 37 CFR 1.27
☐ Applicant changing to regular undiscounted fee status.

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____
 Typed or printed name _____ Registration No. _____



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/833,076	08/22/2015	Anuj Madan	75900-50031D1	3042
115870 7590 05/27/2016 Fernando Hale & Chang LLP 4199 Campus Drive Suite 550, #115 Irvine, CA 92612				
EXAMINER NGUYEN, TUAN HOANG				
ART UNIT PAPER NUMBER 2647				

DATE MAILED: 05/27/2016

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Notice of Allowability	Application No. 14/833,076	Applicant(s) MADAN ET AL.	
	Examiner TUAN H. NGUYEN	Art Unit 2647	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 04/04/2016.
☐ A declaration(s)/affidavit(s) under 37 CFR 1.130(b) was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☒ The allowed claim(s) is/are 1-6 and 9-20. As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
Certified copies:
a) ☐ All b) ☐ Some *c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)	5. ☒ Examiner's Amendment/Comment
2. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____	6. ☐ Examiner's Statement of Reasons for Allowance
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material	7. ☐ Other _____
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____	

	/Tuan H. Nguyen/ Primary Examiner Art Unit 2647
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The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

1. The applicant's remarks, filed on 04/04/2016, have been carefully reviewed with updated search. Claims 1-6 and 9-20 are allowed over the prior art record. Claims 7 and 8 are canceled.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

2. Any response to this action should be mailed to:

Mail Stop _____ (Explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

Facsimile responses should be faxed to:

(571) 273-8300

Hand-delivered responses should be brought to:

Customer Service Window

Application/Control Number: 14/833,076
Art Unit: 2647

Page 3

Randolph Building
401 Dulany Street
Alexandria, VA 22313

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Nguyen whose telephone number is (571) 272-8329. The examiner can normally be reached on 8:00Am - 5:00Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Maung Nay A. can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Tuan H. Nguyen/
Primary Examiner
Art Unit 2647

Application/Control Number: 14/833,076
Art Unit: 2647

Page 4

<i>Index of Claims</i> 	Application/Control No. 14833076	Applicant(s)/Patent Under Reexamination MADAN ET AL.
	Examiner TUAN H NGUYEN	Art Unit 2647

✓	Rejected	-	Cancelled	N	Non-Elected	A	Appeal
=	Allowed	÷	Restricted	I	Interference	O	Objected

☐ Claims renumbered in the same order as presented by applicant				☐ CPA				☐ T.D.				☐ R.1.47			
CLAIM		DATE													
Final	Original	12/28/2015	05/16/2016												
1	1	✓	=												
2	2	✓	=												
3	3	✓	=												
4	4	✓	=												
5	5	✓	=												
6	6	✓	=												
	7	✓	-												
	8	✓	-												
7	9	✓	=												
8	10	✓	=												
9	11	✓	=												
10	12	✓	=												
11	13	✓	=												
12	14	✓	=												
13	15	✓	=												
14	16	✓	=												
15	17	✓	=												
16	18	✓	=												
17	19	✓	=												
18	20	✓	=												

Issue Classification 	Application/Control No. 14833076	Applicant(s)/Patent Under Reexamination MADAN ET AL.	
	Examiner TUAN H NGUYEN	Art Unit 2647	

CPC					
Symbol				Type	Version
H03K	17	/	687	F	2013-01-01
H04B	1	/	44	I	2013-01-01
H04B	1	/	48	I	2013-01-01
H03K	17	/	693	I	2013-01-01
H03K	2217	/	0018	A	2013-01-01
H03K	2217	/	0054	A	2013-01-01
H01L	21	/	84	I	2013-01-01
H01L	27	/	0629	I	2013-01-01
H01L	27	/	1203	I	2013-01-01
		/			
		/			
		/			
		/			
		/			
		/			

CPC Combination Sets					
Symbol	Type	Set	Ranking	Version	

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	18	
/TUAN H NGUYEN/ Primary Examiner. Art Unit 2647	05/16/2016	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No. 20160516

Issue Classification 	Application/Control No. 14833076	Applicant(s)/Patent Under Reexamination MADAN ET AL.
	Examiner TUAN H NGUYEN	Art Unit 2647

☐ Claims renumbered in the same order as presented by applicant				☐ CPA				☐ T.D.				☐ R.1.47			
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original
1	1	15	17												
2	2	16	18												
3	3	17	19												
4	4	18	20												
5	5														
6	6														
	7														
	8														
7	9														
8	10														
9	11														
10	12														
11	13														
12	14														
13	15														
14	16														

NONE (Assistant Examiner) _____ (Date) _____		Total Claims Allowed: 18	
/TUAN H NGUYEN/ Primary Examiner. Art Unit 2647 (Primary Examiner) _____ (Date) _____		O.G. Print Claim(s) 1	O.G. Print Figure 1

U.S. Patent and Trademark Office

Part of Paper No. 20160516

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	62969	semiconductor\$1 near3 die	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16:14:07
L2	593168	semiconductor\$1 near3 substrate	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16:14:08
L3	27463	1 and L2	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16:14:08
L4	6464	(stack\$3 near3 (field adj2 effect\$3 adj2 transistor\$1) FET) near3 (connect\$3 coupl\$3) near3 ser\$3	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16:14:24
L5	5843	capacitor\$1 near3 form\$3 near3 semiconductor\$1 near3 substrate	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16:14:45
L6	1587	switch\$3 near3 form\$3 near3 semiconductor\$1 near3 substrate	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16:14:45
L7	100	L5 and L6	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16:14:45
L8	9	4 and L7	US-PGPUB; USPAT	OR	ON	2016/05/16:14:45
L9	96	2 and L7	US-PGPUB; USPAT	OR	ON	2016/05/16:14:46
L10	23297	(H04B1/44 OR H04B1/48 OR H04B15/005 OR H04B15/00 OR H04B15/02 OR H04B1/10 OR H04B1/04 OR H04B7/0602 OR H03H19/004 OR H03H2210/025).CPC.	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16:14:46
L11	3	9 and L10	US-PGPUB; USPAT	OR	ON	2016/05/16:14:46

EAST Search History

L12	3	(shunt adj2 arm) same (semiconductor\$1 near3 substrate)	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16 14:47
L13	1687	(shunt adj2 arm)	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16 14:48
L14	7	7 and 13	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16 14:48
L15	33	Anuj near3 Madan.in.	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16 14:48
L16	35	Fikret near3 Altunkilic.in.	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16 14:49
L17	37	Guillaume near3 Alexandre near3 Blin.in.	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16 14:49
L18	10	3 and 7	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16 14:51
L19	6	15 and 18	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16 14:51
L20	7	16 and 18	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16 14:51
L21	6	17 and 18	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16 14:51
L22	4	(capacitor\$1 near3 form\$3 near3 semiconductor\$1 near3 substrate) same ((connect\$3 coupl\$3) near3 ser\$3) same (switch\$3 near3 circuit\$3)	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2016/05/16 15:10
S2	5745	capacitor\$1 near3 form\$3 near3 semiconductor\$1 near3 substrate	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 10:21

EASTSearchHistory.14833076_AccessibleVersion.htm[5/16/2016 3:31:18 PM]

EAST Search History

S3	1538	switch\$3 near3 form\$3 near3 semiconductor\$1 near3 substrate	US-PGPUB; USPAT; USOCR; FFRS	OR	ON	2015/12/22 10:21
S4	97	S2 and S3	US-PGPUB; USPAT; USOCR; FFRS	OR	ON	2015/12/22 10:21
S6	22620	(H04B1/44 OR H04B1/48 OR H04B15/005 OR H04B15/00 OR H04B15/02 OR H04B1/10 OR H04B1/04 OR H04B7/0602 OR H03H19/004 OR H03H2210/025).CPC.	US-PGPUB; USPAT; USOCR; FFRS	OR	ON	2015/12/22 10:47
S7	3	S4 and S6	US-PGPUB; USPAT; USOCR; FFRS	OR	ON	2015/12/22 10:47
S14	26464	((radio adj2 frequenc\$3) RF) adj3 switch\$3	US-PGPUB; USPAT; USOCR; FFRS	OR	ON	2015/12/22 10:48
S15	8	S4 and S14	US-PGPUB; USPAT; USOCR; FFRS	OR	ON	2015/12/22 10:48
S16	29	Anuj near3 Madan.in.	US-PGPUB; USPAT; USOCR; FFRS	OR	ON	2015/12/22 10:48
S17	5	S4 and S16	US-PGPUB; USPAT; USOCR; FFRS	OR	ON	2015/12/22 10:48
S18	28	Fikret near3 Altunkilic.in.	US-PGPUB; USPAT; USOCR; FFRS	OR	ON	2015/12/22 10:48
S19	6	S4 and S18	US-PGPUB; USPAT; USOCR; FFRS	OR	ON	2015/12/22 10:48
S20	31	Guillaume near3 Alexandre near3 Blin.in.	US-PGPUB; USPAT; USOCR; FFRS	OR	ON	2015/12/22 10:48
S21	5	S4 and S20	US-PGPUB; USPAT; USOCR; FFRS	OR	ON	2015/12/22 10:48

EASTSearchHistory.14833076_AccessibleVersion.htm[5/16/2016 3:31:18 PM]

EAST Search History

S22	1342	(reduc\$3 decreas\$3 lower) near3 intermodulat\$3 near3 distort\$3	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 13:19
S23	5745	capacitor\$1 near3 form\$3 near3 semiconductor\$1 near3 substrate	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 13:19
S24	1538	switch\$3 near3 form\$3 near3 semiconductor\$1 near3 substrate	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 13:19
S25	97	S23 and S24	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 13:19
S26	1	S22 and S25	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 13:19
S27	4	S22 and S24	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 13:20
S28	6292	((stack\$3 near3 field adj2 effect\$3 adj2 transistor\$1) FET) near3 (connect\$3 coupl\$3) near3 ser\$3	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 13:42
S29	8	S25 and S28	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 13:42
S30	17	S23 and S28	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 13:51
S31	41	S24 and S28	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 13:51
S32	7756	capacit\$4 near3 (connect\$3 coupl\$3) near3 antenna\$3	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 13:53
S33	2	S31 and S32	US-PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 13:53

EASTSearchHistory.14833076_AccessibleVersion.htm[5/16/2016 3:31:18 PM]

EAST Search History

S34	24	S31 and ((transmi\$6 receiv\$3 transceiv\$3) near3 (device\$1 unit\$1 module\$1 apparatus))	US-PGPUB; USPAT; USOOR; FPRS	OR	ON	2015/12/22 14:45
S35	333011	((radio adj2 frequenc\$3) R near3 signal\$1	US-PGPUB; USPAT; USOOR; FPRS	OR	ON	2015/12/22 14:47
S36	19	S34 and S35	US-PGPUB; USPAT; USOOR; FPRS	OR	ON	2015/12/22 14:47
S37	3450708	((transmi\$6 receiv\$3 transceiv\$3) near3 (device\$1 unit\$1 module\$1 apparatus))	US-PGPUB; USPAT; USOOR; FPRS	OR	ON	2015/12/22 15:16
S38	202701	S35 and S37	US-PGPUB; USPAT; USOOR; FPRS	OR	ON	2015/12/22 15:16
S39	6	S25 and S38	US-PGPUB; USPAT; USOOR; FPRS	OR	ON	2015/12/22 15:17
S40	64	S24 and S38	US-PGPUB; USPAT; USOOR; FPRS	OR	ON	2015/12/22 15:18
S41	35	S23 and S38	US-PGPUB; USPAT; USOOR; FPRS	OR	ON	2015/12/22 15:18
S42	4	S22 and S40	US-PGPUB; USPAT; USOOR; FPRS	OR	ON	2015/12/22 15:18
S43	19	S28 and S40	US-PGPUB; USPAT; USOOR; FPRS	OR	ON	2015/12/22 16:26
S44	576222	semiconductor\$1 near3 substrate	US-PGPUB; USPAT; USOOR; FPRS	OR	ON	2015/12/22 16:32
S45	218001	(silicon near3 insulat\$3)	US-PGPUB; USPAT; USOOR; FPRS	OR	ON	2015/12/22 16:33

EASTSearchHistory.14833076_AccessibleVersion.htm[5/16/2016 3:31:18 PM]

EAST Search History

S46	13	S31 and S45	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 16:34
S47	78209	((field adj2 effect\$3 adj2 transistor\$1) FET) same insulat\$3	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 16:47
S48	18	S40 and S47	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 16:47
S49	18	S38 and S48	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 16:48
S50	279250	(silicon near3 insulat\$3) SOI	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 17:41
S51	592	S28 and S50	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 17:41
S52	175	S37 and S51	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 17:42
S53	10	S24 and S52	US- PGPUB; USPAT; USOCR; FPRS	OR	ON	2015/12/22 17:42

5/16/2016 3:31:13 PM

C:\Users\nguyen90\Documents\EAST\Workspaces\14833076.wsp

Search Notes 	Application/Control No. 14833076	Applicant(s)/Patent Under Reexamination MADAN ET AL.
	Examiner TUAN H NGUYEN	Art Unit 2647

CPC- SEARCHED		
Symbol	Date	Examiner
H04B1/44.	5/16/2016	T.N

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner
H04B1/48,H04B15/005.	5/16/2016	T.N

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner

SEARCH NOTES		
Search Notes	Date	Examiner
All searches are on EAST data base.	5/16/2016	T.N
Updated search above.	5/16/2016	T.N

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner
	See search above.	5/16/2016	T.N

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75900-50031D1

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Skyworks Solutions, Inc.
App. No.	: 14/833,076
Filed	: August 22, 2015
Title	: <i>RADIO FREQUENCY DEVICES HAVING REDUCED INTERMODULATION DISTORTION</i>
Examiner	: Tuan H. Nguyen
Art Unit	: 2647
Conf No.	: 3042

RESPONSE TO FINAL OFFICE ACTION DATED JANUARY 4, 2016

Mail Stop Amendment

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the pending Office Action, the Applicant requests that the above-identified application be considered in view of the following amendments and remarks:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks begin on page 7 of this paper.

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions thereof. Changes are shown below in highlighted form, where insertions appear as underlined text (e.g., insertions) while deletions appear as strikethrough text (e.g., ~~deletions~~) or double brackets (e.g., ~~[[deletions]]~~).

1. (Currently amended) A semiconductor die comprising:
 - a semiconductor substrate;
 - a first switch circuit formed on the semiconductor substrate ~~and including a stack of field-effect transistors (FETs) connected in series~~ connected between an antenna node and a transmit node; [[and]]
 - a second switch circuit formed on the semiconductor substrate and connected between the antenna node and a receive node;
 - a first capacitor formed on the semiconductor substrate and connected in series with the first switch circuit between the first switch circuit and the antenna node;
 - a second, ~~the~~ capacitor formed on the semiconductor substrate and connected in series with the second switch circuit between the second switch circuit and the antenna node; and configured to inhibit a low-frequency blocker signal from mixing with a fundamental-frequency signal in the switch
 - a first shunt arm formed on the semiconductor substrate and connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground.
2. (Currently amended) The semiconductor die of claim 1 further comprising an insulator layer disposed between the first and second switch circuits ~~stack of FETs~~ and the semiconductor substrate.

Application No.: 14/833,076
Filing Date: August 22, 2015

3. (Currently amended) The semiconductor die of claim 2 wherein the semiconductor die is a silicon-on-insulator (SOI) die.

4. (Currently amended) The semiconductor die of claim 1 wherein the ~~stack of FETs~~ first shunt arm includes a third capacitor connected in series with the first switch circuit between the first switch circuit and the transmit node ~~silicon-on-insulator (SOI) FETs~~.

5. (Currently amended) The semiconductor die of claim [[1]] 4 further comprising a second shunt arm connected to the second switch circuit and the receive node, the second shunt arm including a fourth switch circuit connected to ground ~~wherein the capacitor is connected to an antenna node~~.

6. (Currently amended) The semiconductor die of claim 5 wherein the second shunt arm includes a fourth capacitor connected in series with the second switch circuit ~~is disposed~~ between the second switch circuit and the receive antenna node.

7. (Cancelled)

8. (Cancelled)

9. (Currently amended) A method for operating a radio-frequency (RF) device, the method comprising:

providing an RF device including a first switch circuit connected between an antenna node and a transmit node, a second switch circuit connected between the antenna node and a receiver node, a first capacitor connected in series with the first switch circuit between the first switch circuit and the antenna node, a second capacitor connected in series with the second switch circuit between the second switch circuit and the antenna node, and a first shunt arm

Application No.: 14/833,076
Filing Date: August 22, 2015

connected to the first switch circuit and the transmit node, the first shunt arm including a third switch circuit connected to ground;

controlling an RF switch of the RF device by placing the first switch circuit including a plurality of field-effect transistors (FETs) connected in series between first and second nodes so that the FETs are collectively in an ON state [[or]] and placing the third switch circuit in an OFF state; and

inhibiting a low-frequency blocker signal from mixing with a fundamental-frequency signal in the RF switch using [[a]] the first capacitor connected in series with the switch between the switch and the first node.

10. (Currently amended) The method of claim 9 wherein the first switch circuit is plurality of FETs is formed on an insulator layer disposed between the first switch circuit FETs and a semiconductor substrate.

11. (Currently amended) The method of claim 9 wherein the RF switch is a silicon-on-insulator (SOI) switch.

12. (Currently amended) The method of claim 9 wherein the first shunt arm includes a third capacitor connected in series with the first switch circuit between the first switch circuit and the transmit node first node is an antenna node.

13. (Currently amended) The method of claim [[9]] 12 wherein the RF device further includes a second shunt arm connected to the second switch circuit and the receive node, the second shunt arm including a fourth switch circuit connected to ground the switch is part of a receive path such that the second node of the switch is an output node for an RF signal received from the antenna.

14. (Currently amended) The method of claim [[9]] 13 wherein the second shunt arm includes a fourth capacitor connected in series with the second switch circuit

Application No.: 14/833,076
Filing Date: August 22, 2015

~~between the second switch circuit and the receive node switch is part of a transmit path such that the second node of the switch is an input node for an amplified RF signal.~~

15. (Currently amended) A wireless device comprising:
a transceiver configured to process RF signals;
an antenna in communication with the transceiver; and
a switch module interconnected to the antenna and the transceiver and configured to selectively route RF signals to and from the antenna, the switch module including a first switch ~~including a stack of field-effect transistors (FETs)~~ connected ~~between the antenna and a transmit node, a second switch connected between the antenna and a receive node, a first in-series, the switch module further including a capacitor connected in series with the first switch between the first switch and the antenna, a second capacitor connected in series with the second switch between the second switch and the antenna, and a first shunt arm connected to the first switch and the transmit node, the first shunt arm including a third switch connected to ground, the capacitor configured to inhibit a low-frequency blocker signal from mixing with a fundamental frequency signal in the switch.~~

16. (Currently amended) The wireless device of claim 15 wherein the first switch is formed on a silicon-on-insulator (SOI) die of the wireless device.

17. (Currently amended) The wireless device of claim 15 wherein the first capacitor is part of the same semiconductor die as the first switch ~~stack of FETs~~.

18. (Currently amended) The wireless device of claim 15 wherein the first shunt arm includes a third capacitor connected in series with the first switch between the first switch and the transmit node ~~capacitor is disposed between the switch and the antenna.~~

75900-50031D1

-5-

Application No.: 14/833,076
Filing Date: August 22, 2015

19. (Currently amended) The wireless device of claim [[15]] 18 wherein the switch module further includes a second shunt arm connected to the second switch and the receive node, the second shunt arm including a fourth switch connected to ground ~~switch is part of a receive path, the switch being connected to an output node for an RF signal received from the antenna.~~

20. (Currently amended) The wireless device of claim [[15]] 19 wherein the second shunt arm includes a fourth capacitor connected in series with the second switch between the second switch and the receive node ~~switch is part of a transmit path, the switch being connected to an input node for an amplified RF signal.~~

Application No.: 14/833,076
Filing Date: August 22, 2015

REMARKS

By way of summary, claims 1-20 were pending in this application. In the present amendment, the Applicant has amended claims 1-6 and 9-20 without prejudice or disclaimer to previously pending versions thereof and cancelled claims 7 and 8. Accordingly, claims 1-6 and 9-20 remain pending for consideration.

Rejection of Claims Under 35 U.S.C. § 101

The Office Action rejected claims 1-20 under 35 U.S.C. § 101 as allegedly being directed to non-statutory subject matter. The Office Action asserts that the claims “are not significantly more than an abstract idea.” Office Action at pp. 2-3. However, the Office Action does not present a *prima facie* case of patent ineligibility. The Applicant references the USPTO’s “July 2015 Update: Interim Eligibility Guidance Quick Reference Sheet” (Alice Update), which states that:

a *prima facie* case of eligibility requires the examiner to explain why a claim or claims are unpatentable clearly and specifically, so that applicant has sufficient notice and is able to effectively respond. For subject matter eligibility, the examiner’s burden is met by clearly articulating the reason(s) why the claimed invention is not eligible, for example by **providing a reasoned rationale that identifies the judicial exception recited in the claim and why it is considered an exception**, and that **identifies the additional elements in the claim (if any) and explains why they do not amount to significantly more than the exception**.

(emphasis added). The Office Action fails to identify what the abstract idea is (see Alice Update at p. 2, identifying four categories of abstract ideas: (1) “fundamental economic practices,” (2) “methods of organizing human activity,” (3) “mathematical relationships/formulas,” (4) “ideas ‘of themselves’ that can be performed in the human mind”). The Applicant asserts that the claimed “semiconductor dies,” methods for operating radio-frequency devices,” and “wireless devices” are not directed to any of the recognized categories of abstract ideas.

75900-50031D1

-7-

Application No.: 14/833,076
Filing Date: August 22, 2015

Furthermore, the Office Action fails to identify the remaining elements of the claims and explain why they do not amount to significantly more than the abstract idea, whatever it may be. The claims recited switches, transistors, and capacitors in various configurations. The Applicant submits that such elements amount to significantly more than any abstract idea. In addition, the Applicant has amended the claims herein to include additional elements that further clarify the subject matter eligibility of the claims. Therefore, the Applicant asserts that the claims satisfy the requirements of § 101, and requests that the rejection of the claims under § 101 be withdrawn.

Rejection of Claims Under 35 U.S.C. § 103

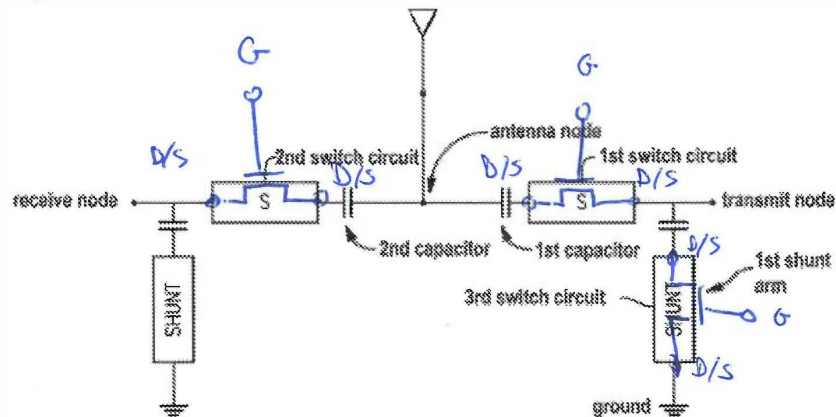
The Office Action rejected claims 1-6, 9-12 and 15-18 as allegedly being unpatentable over U.S. Pat. No. 7,265,604 (Yasuda) in view of U.S. Pub. No. 2011/0260773 (Granger-Jones). The Applicant respectfully traverse the rejections of the claims for the reasons set forth below.

Independent Claim 1

The Applicant has amended claim 1 herein to recite, among other things:

- a **first switch circuit** formed on the semiconductor substrate **connected between an antenna node and a transmit node**;
- a **second switch circuit** formed on the semiconductor substrate and **connected between the antenna node and a receive node**;
- a **first capacitor** formed on the semiconductor substrate and connected in series with the first switch circuit **between the first switch circuit and the antenna node**;
- a **second capacitor** formed on the semiconductor substrate and connected in series with the second switch circuit **between the second switch circuit and the antenna node**; and
- a **first shunt arm** formed on the semiconductor substrate and connected to the first switch circuit and the transmit node, the first shunt arm including a **third switch circuit connected to ground**.

(emphasis added). The features of amended claim 1 can be understood with reference to Figure 9, which is provided in annotated form below:



The Applicant submits that the cited references fail to disclose or render obvious the particular configuration claimed in amended claim 1, particularly with respect to the positioning of the first and second capacitors with respect to the antenna node, and further with respect to the shunt arm. Therefore, the Applicant respectfully requests that the rejection of claim 1 be withdrawn.

Independent Claim 9

The Applicant has amended claim 9 to recite, among other things:

providing an RF device including a **first switch circuit** connected between an antenna node and a transmit node, a **second switch circuit** connected between the antenna node and a receiver node, a **first capacitor** connected in series with the first switch circuit between the first switch circuit and the antenna node, a **second capacitor** connected in series with the second switch circuit between the second switch circuit and the antenna node, and a **first shunt arm** connected to the first switch circuit and the transmit node, the first shunt arm including a **third switch circuit** connected to ground;

controlling an RF switch of the RF device by placing the first switch circuit in an ON state and placing the third switch circuit in an OFF state; and

inhibiting a low-frequency blocker signal from mixing with a fundamental-frequency signal in the RF switch using the first capacitor.

Application No.: 14/833,076
Filing Date: August 22, 2015

(emphasis added). For at least reasons similar to those discussed above with respect to claim 1, the Applicant submits that the cited references fail to disclose or render obvious the features of independent claim 9. Therefore, the Applicant respectfully requests that the rejection of independent claim 9 be withdrawn.

Independent Claim 15

The Applicant has amended claim 15 to recite, among other things, one or more processors configured to:

a switch module interconnected to the antenna and the transceiver and configured to selectively route RF signals to and from the antenna, the switch module including a **first switch** connected between the antenna and a transmit node, a **second switch** connected between the antenna and a receive node, a **first capacitor** connected in series with the first switch between the first switch and the antenna, a **second capacitor** connected in series with the second switch between the second switch and the antenna, and a **first shunt arm** connected to the first switch and the transmit node, the first shunt arm including a **third switch** connected to ground.

(emphasis added). For at least reasons similar to those discussed above with respect to claim 1, the Applicant submits that the cited references fail to disclose or render obvious the features of independent claim 15. Therefore, the Applicant respectfully requests that the rejection of independent claim 15 be withdrawn.

Dependent Claims

Claims 2-6, which depend from claim 1; claim 10-14, which depend from claim 9; and claims 16-20, which depend from claim 20, are believed to be patentable for the same reasons articulated above with respect to claims 1, 9 and 15, respectively, and because of the additional features recited therein.

No Disclaimers or Disavowals

Although the present communication may include alterations to the application or claims, or characterizations of claim scope or referenced art, the Applicant is not

Application No.: 14/833,076
Filing Date: August 22, 2015

conceding in this application that previously pending claims are not patentable over the cited references. Rather, any alterations or characterizations are being made to facilitate expeditious prosecution of this application. The Applicant reserves the right to pursue at a later date any previously pending or other broader or narrower claims that capture any subject matter supported by the present disclosure, including subject matter found to be specifically disclaimed herein or by any prior prosecution. Accordingly, reviewers of this or any parent, child or related prosecution history shall not reasonably infer that the Applicant has made any disclaimers or disavowals of any subject matter supported by the present application.

Respectfully submitted,
FERNANDO HALE & CHANG LLP

Dated: April 4, 2016

By: /Alan T. Hale/
Alan T. Hale
Registration No. 68,226
Attorney of Record
Customer No. 115870
(949) 229-8045

75900-50031D1

-11-

Electronic Acknowledgement Receipt	
EFS ID:	25386509
Application Number:	14833076
International Application Number:	
Confirmation Number:	3042
Title of Invention:	RADIO FREQUENCY DEVICES HAVING REDUCED INTERMODULATION DISTORTION
First Named Inventor/Applicant Name:	Anuj Madan
Customer Number:	115870
Filer:	Alan Troy Hale
Filer Authorized By:	
Attorney Docket Number:	75900-50031D1
Receipt Date:	04-APR-2016
Filing Date:	22-AUG-2015
Time Stamp:	13:56:59
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment		no			
File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1		2016-04-04_Amendment.pdf	90366 80c474e02078483d514e7f825104152e0bb 6768	yes	11

	Multipart Description/PDF files in .zip description		
	Document Description	Start	End
	Amendment/Req. Reconsideration-After Non-Final Reject	1	1
	Claims	2	6
	Applicant Arguments/Remarks Made in an Amendment	7	11
Warnings:			
Information:			
Total Files Size (in bytes):		90366	
This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503. <u>New Applications Under 35 U.S.C. 111</u> If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application. <u>National Stage of an International Application under 35 U.S.C. 371</u> If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course. <u>New International Application Filed with the USPTO as a Receiving Office</u> If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.			

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PATENT APPLICATION FEE DETERMINATION RECORD				Application or Docket Number		Filing Date	
Substitute for Form PTO-875				14/833,076		08/22/2015	
						☐ To be Mailed	
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO							
APPLICATION AS FILED – PART I							
(Column 1)		(Column 2)					
FOR	NUMBER FILED	NUMBER EXTRA		RATE (\$)	FEE (\$)		
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A		N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A			
TOTAL CLAIMS (37 CFR 1.16(j))	minus 20 =	*		X \$ =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 =	*		X \$ =			
☐ APPLICATION SIZE FEE (37 CFR 1.16(s))	If the specification and drawings exceed 100 sheets of paper, the application size fee due is \$310 (\$155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s).						
☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL			
APPLICATION AS AMENDED – PART II							
(Column 1)		(Column 2)		(Column 3)			
AMENDMENT	04/04/2016	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(o))	* 18	Minus	** 20	= 0	X \$80 =	0
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0	X \$420 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE						0	
(Column 1)		(Column 2)		(Column 3)			
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(o))	*	Minus	**	=	X \$ =	
	Independent (37 CFR 1.16(h))	*	Minus	***	=	X \$ =	
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
TOTAL ADD'L FEE							
* If the entry in column 1 is less than the entry in column 2, write "0" in column 3. ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1.							

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
14/833,076	08/22/2015	Anuj Madan	75900-50031D1	3042
115870	7590	01/04/2016		
Fernando Hale & Chang LLP 4199 Campus Drive Suite 550, #115 Irvine, CA 92612			EXAMINER NGUYEN, TUAN HOANG	
			ART UNIT 2647	PAPER NUMBER
			NOTIFICATION DATE 01/04/2016	DELIVERY MODE ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mail@fhcip.com

Office Action Summary	Application No. 14/833,076	Applicant(s) MADAN ET AL.	
	Examiner TUAN H. NGUYEN	Art Unit 2647	AIA (First Inventor to File) Status No

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on 08/22/2015.
☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on ____.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims*

5) ☒ Claim(s) 1-20 is/are pending in the application.
5a) Of the above claim(s) ____ is/are withdrawn from consideration.

6) ☐ Claim(s) ____ is/are allowed.

7) ☒ Claim(s) 1-20 is/are rejected.

8) ☐ Claim(s) ____ is/are objected to.

9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to PPHfeedback@uspto.gov.

Application Papers

10) ☐ The specification is objected to by the Examiner.

11) ☒ The drawing(s) filed on 08/22/2015 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

Certified copies:

a) ☐ All b) ☐ Some** c) ☐ None of the:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☒ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)
Paper No(s)/Mail Date ____.

3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.

4) ☐ Other: ____.

The present application is being examined under the pre-AIA first to invent provisions.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 08/22/2015 has been considered by Examiner and made of record in the application file.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows: Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. The claimed invention is directed to a judicial exception (i.e., a law of nature, a natural phenomenon, or an abstract idea) without significantly more. Claims 1-20 are directed to a semiconductor die comprising: a semiconductor substrate; a switch formed on the semiconductor substrate and including a stack of field-effect transistors (FETs) connected in series; and a capacitor formed on the semiconductor substrate and connected in series with the switch, the capacitor configured to inhibit a low- frequency blocker signal from mixing with a fundamental-frequency signal in the switch. The claims do not include additional elements that are sufficient to amount to significantly

more than the judicial exception because the claims 1-20 are not significantly more than the abstract idea.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-6, 9-12 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda et al. (US PAT. 7,265,604 hereinafter, "Yasuda") in view of Granger-Jones et al. (U.S PUB. 2011/0260773 hereinafter, "Fu").

Consider claim 1, Yasuda teaches a semiconductor die comprising: a semiconductor substrate (col. 5 line 55 through col. 6 line 7); a switch formed on the semiconductor substrate and including a stack of field-effect transistors (FETs) connected in series (Abstract, col. 13 lines 16-41).

Yasuda does not explicitly show that a capacitor formed on the semiconductor substrate and connected in series with the switch, the capacitor configured to inhibit a low-frequency blocker signal from mixing with a fundamental-frequency signal in the switch.

In the same field of endeavor, Granger-Jones teaches a capacitor formed on the semiconductor substrate and connected in series with the switch, the capacitor

configured to inhibit a low- frequency blocker signal from mixing with a fundamental- frequency signal in the switch (page 3 [0033]).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, a capacitor formed on the semiconductor substrate and connected in series with the switch, the capacitor configured to inhibit a low- frequency blocker signal from mixing with a fundamental-frequency signal in the switch, as taught by Granger-Jones, in order to provide a stacked field effect transistor (FET) switch having a plurality of FET devices coupled in series to form an FET device stack. The FET device stack is configured to operate in an open state and in closed state. During the closed state, the plurality of FET devices is turned on and thus a time-variant input signal can be transmitted through the FET device stack. On the other hand, in the closed state, the plurality of FET devices is turned off and the time-variant input signal is blocked from being transmitted through the FET device stack.

Consider claim 2, Yasuda further teaches an insulator layer disposed between the stack of FETs and the semiconductor substrate (col. 5 line 55 through col. 6 line 7).

Consider claim 3, Granger-Jones further teaches wherein the die is a silicon-on-insulator (SOI) die (page 3 [0030]).

Consider claim 4, Granger-Jones further teaches wherein the stack of FETs includes silicon-on-insulator (SOI) FETs (page 3 [0030]).

Consider claim 5, Granger-Jones further teaches wherein the capacitor is connected to an antenna node (page 8 [0063]).

Consider claim 6, Granger-Jones further teaches wherein the capacitor is disposed between the switch and the antenna node (page 8 [0063]).

Consider claim 9, Yasuda teaches a method for operating a radio-frequency (RF) device, the method comprising: controlling an RF switch including a plurality of field-effect transistors (FETs) connected in series between first and second nodes so that the FETs are collectively in an ON state or an OFF state (Abstract, col. 10 lines 25-46 and col. 13 lines 16-41).

Yasuda does not explicitly show that inhibiting a low-frequency blocker signal from mixing with a fundamental-frequency signal in the switch using a capacitor connected in series with the switch between the switch and the first node.

In the same field of endeavor, Granger-Jones teaches inhibiting a low-frequency blocker signal from mixing with a fundamental-frequency signal in the switch using a capacitor connected in series with the switch between the switch and the first node (col. 2 lines 32-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, inhibiting a low-frequency blocker signal from mixing with a fundamental-frequency signal in the switch using a capacitor connected in series with the switch between the switch and the first node, as taught by Granger-Jones, in order to provide a stacked field effect transistor (FET) switch having a plurality

of FET devices coupled in series to form an FET device stack. The FET device stack is configured to operate in an open state and in closed state. During the closed state, the plurality of FET devices is turned on and thus a time-variant input signal can be transmitted through the FET device stack. On the other hand, in the closed state, the plurality of FET devices is turned off and the time-variant input signal is blocked from being transmitted through the FET device stack.

Consider claim 10, the previous rejections of claim 2 apply *mutatis mutandis* to corresponding claim 10.

Consider claim 11, Granger-Jones further teaches wherein the switch is a silicon-on-insulator (SOI) switch (page 3 [0030]).

Consider claim 12, Granger-Jones further teaches wherein the first node is an antenna node (page 8 [0063]).

Consider claim 15, Yasuda teaches a wireless device comprising: a transceiver configured to process RF signals (col. 1 lines 12-17); an antenna in communication with the transceiver (col. 1 lines 12-17); and a switch module interconnected to the antenna (col. 1 lines 12-17) and the transceiver and configured to selectively route RF signals to and from the antenna, the switch module including a switch including a stack of field-effect transistors (FETs) connected in series (Abstract, col. 1 lines 12-17 and col. 13 lines 16-41).

Yasuda does not explicitly show that the switch module further including a capacitor connected in series with the switch, the capacitor configured to inhibit a low-frequency blocker signal from mixing with a fundamental- frequency signal in the switch.

In the same field of endeavor, Granger-Jones teaches the switch module further including a capacitor connected in series with the switch, the capacitor configured to inhibit a low-frequency blocker signal from mixing with a fundamental- frequency signal in the switch (col. 2 lines 32-45).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use, the switch module further including a capacitor connected in series with the switch, the capacitor configured to inhibit a low-frequency blocker signal from mixing with a fundamental- frequency signal in the switch, as taught by Granger-Jones, in order to provide a stacked field effect transistor (FET) switch having a plurality of FET devices coupled in series to form an FET device stack. The FET device stack is configured to operate in an open state and in closed state. During the closed state, the plurality of FET devices is turned on and thus a time-variant input signal can be transmitted through the FET device stack. On the other hand, in the closed state, the plurality of FET devices is turned off and the time-variant input signal is blocked from being transmitted through the FET device stack.

Consider claim 16, Granger-Jones further teaches wherein the switch is formed on a silicon-on-insulator (SOI) die of the wireless device (page 3 [0030]).

Consider claim 17, Granger-Jones further teaches wherein the capacitor is part of the same semiconductor die as the stack of FETs (page 3 [0030]).

Consider claim 18, the previous rejections of claim 6 apply mutatis mutandis to corresponding claim 18.

6. Claims 7, 8, 13, 14, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yasuda in view of Granger-Jones and further in view of Brindle et al. (U.S. PAT. 8,129,787 hereinafter, "Brindle").

Consider claim 7, Yasuda and Granger-Jones in combination fail to teach wherein the switch is part of a receive path, the switch being connected to an output node for an RF signal received from the antenna.

However, Brindle teaches wherein the switch is part of a receive path, the switch being connected to an output node for an RF signal received from the antenna (col. 11 lines 48-59).

Therefore, it is obvious to one of ordinary skill in the art at the time the invention was made to incorporate the disclosing of Brindle into view of Yasuda and Granger-Jones, in order to control accumulated charge in SOI MOSFETs, thereby improving nonlinear responses and harmonic and intermodulation distortion effects in the operation of the SOI MOSFETs.

Consider claim 8, Brindle further teaches wherein the switch is part of a transmit path, the switch being connected to an input node for an amplified RF signal (col. 17 line 57 through col. 18 line 8).

Consider claim 13, the previous rejections of claim 7 apply *mutatis mutandis* to corresponding claim 13.

Consider claim 14, the previous rejections of claim 8 apply *mutatis mutandis* to corresponding claim 14.

Consider claim 19, the previous rejections of claim 7 apply *mutatis mutandis* to corresponding claim 19.

Consider claim 20, the previous rejections of claim 8 apply *mutatis mutandis* to corresponding claim 20.

Conclusion

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan H. Nguyen whose telephone number is (571)272-8329. The examiner can normally be reached on 8:00Am - 5:00Pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Maung Nay A. can be reached on (571)272-7882. The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

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/Tuan H. Nguyen/
Primary Examiner
Art Unit 2647

Notice of References Cited	Application/Control No. 14/833,076	Applicant(s)/Patent Under Reexamination MADAN ET AL.	
	Examiner TUAN H. NGUYEN	Art Unit 2647	Page 1 of 1

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*	A	US-7,265,604 B2	09-2007	Yasuda; Eiji	H03K17/693	327/427
*	B	US-8,129,787 B2	03-2012	Brindle; Christopher N.	H01L29/78609	257/347
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NON-PATENT DOCUMENTS

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