



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.
15/622,839	10/22/2019	10452968	H0055604	8972

113760 7590 10/02/2019
HONEYWELL/OLIFF PLC
115 Tabor Road
P.O. Box 377
MORRIS PLAINS, NJ 07950

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 51 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):

Pavel NIKITIN, Seattle, WA;
INTERMEC, INC., Lynnwood, WA;
Stephen J. KELLY, Seattle, WA;
Rene MARTINEZ, Seattle, WA;

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)

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of

Pavel NIKITIN et al.

Group Art Unit: 2876

Application No.: 15/622,839

Examiner: D. TARDIF

Filed: June 14, 2017

Docket No.: H005604

For: METHOD TO INCREASE RFID TAG SENSITIVITY

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

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

As a comment on the Examiner's reasons for allowance, Applicants state that each of the independent claims defines different aspects of the present invention. The independent claims recite different combinations of elements or methods steps, and are believed to be distinguishable over the prior art in their specific combinations. The dependent claims further limit and define the subject matter in the claim(s) from which they depend and are also believed to be fully patentable in their respective combinations.

Respectfully submitted,

/R. Brian Drozd/

R. Brian Drozd
Registration No. 55,130

RBD/kzh

Date: September 11, 2019

OLIFF, PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry of this filing; Charge any fee due to our Deposit Account No. 15-0461

Electronic Patent Application Fee Transmittal				
Application Number:		15622839		
Filing Date:		14-Jun-2017		
Title of Invention:		METHOD TO INCREASE RFID TAG SENSITIVITY		
First Named Inventor/Applicant Name:		Pavel NIKITIN		
Filer:		Joel S. Armstrong/Katie Hernandez		
Attorney Docket Number:		H0055604		
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	1000	1000

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1000

Electronic Acknowledgement Receipt	
EFS ID:	37135634
Application Number:	15622839
International Application Number:	
Confirmation Number:	8972
Title of Invention:	METHOD TO INCREASE RFID TAG SENSITIVITY
First Named Inventor/Applicant Name:	Pavel NIKITIN
Customer Number:	113760
Filer:	Joel S. Armstrong/Katie Hernandez
Filer Authorized By:	Joel S. Armstrong
Attorney Docket Number:	H0055604
Receipt Date:	11-SEP-2019
Filing Date:	14-JUN-2017
Time Stamp:	16:13:12
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$1000
RAM confirmation Number	E20199AG13418703
Deposit Account	150461
Authorized User	Katie Hernandez
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.20 (Post Issuance fees) 37 CFR 1.21 (Miscellaneous fees and charges)	

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)	Issue_Fee_Transmittal.pdf	36830	no	1
			a8b781cb9521c6a916d4d43e7bb17bc07946ca46		
Warnings:					
Information:					
2	Miscellaneous Incoming Letter	Comments_on_Statement_of_Reasons_for_Allowance.pdf	36807	no	1
			ad2e7f742bdc0ed0bf8917465e7d8db50c31e3f7		
Warnings:					
Information:					
3	Fee Worksheet (SB06)	fee-info.pdf	30396	no	2
			7d1604f2db9888a471a35e1d3cad6dcf184f6f72		
Warnings:					
Information:					
Total Files Size (in bytes):			104033		
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.					

PART B-FEE(S) TRANSMITTAL

Complete and send this form, together with the applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

By fax, send to: (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)

OLIFF PLC
P.O. Box 320850
Alexandria, Virginia 22320

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
15/622,839	06/14/2017	Pavel NIKITIN	H0055604	8972

TITLE OF INVENTION: METHOD TO INCREASE RFID TAG SENSITIVITY

APPLN: TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1,000.00	0.00	0.00	\$1,000.00	09/12/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
D. P. Tardif	2876	235-487

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 03-09 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. Oliff PLC 2. R. Brian Drozd 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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE
INTERMEC, INC.

(B) RESIDENCE: (CITY and STATE or COUNTRY)
Lynnwood, Washington

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

4a. Fees Submitted: ☒ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

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

☒ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 15-0461

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

☐ Applicant certifying micro entity status. See 37 CFR 1.29. 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.

☐ Applicant asserting small entity status. See 37 CFR 1.27. NOTE: If the application was previously under micro entity status, checking this box will be taken as a notification of loss of entitlement to micro entity status.

☐ Applicant changing to regular undiscounted fee status. NOTE: Checking this box will be taken as 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	/R. Brian Drozd/	Date	September 11, 2019
Typed or printed name	R. Brian Drozd	Registration No.	55,130



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

NOTICE OF ALLOWANCE AND FEE(S) DUE

113760 7590 06/12/2019
HONEYWELL/OLIFF PLC
115 Tabor Road
P.O. Box 377
MORRIS PLAINS, NJ 07950

EXAMINER

TARDIF, DAVID P

ART UNIT

PAPER NUMBER

2876

DATE MAILED: 06/12/2019

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/622,839	06/14/2017	Pavel NIKITIN	H0055604	8972

TITLE OF INVENTION: METHOD TO INCREASE RFID TAG SENSITIVITY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	09/12/2019

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: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.

PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (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)

113760 7590 06/12/2019
HONEYWELL/OLIFF PLC
115 Tabor Road
P.O. Box 377
MORRIS PLAINS, NJ 07950

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 transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

(Typed or printed name)
(Signature)
(Date)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/622,839	06/14/2017	Pavel NIKITIN	H0055604	8972

TITLE OF INVENTION: METHOD TO INCREASE RFID TAG SENSITIVITY

APPLN. TYPE	ENTITY STATUS	ISSUE FEE DUE	PUBLICATION FEE DUE	PREV. PAID ISSUE FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	UNDISCOUNTED	\$1000	\$0.00	\$0.00	\$1000	09/12/2019

EXAMINER	ART UNIT	CLASS-SUBCLASS
TARDIF, DAVID P	2876	235-487000

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 03-09 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 _____
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 must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). 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. Fees submitted: ☐ Issue Fee ☐ Publication Fee (if required) ☐ Advance Order - # of Copies _____

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

☐ Electronic Payment via EFS-Web ☐ Enclosed check ☐ Non-electronic payment by credit card (Attach form PTO-2038)

☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

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.
15/622,839	06/14/2017	Pavel NIKITIN	H0055604	8972
113760 7590 06/12/2019 HONEYWELL/OLIFF PLC 115 Tabor Road P.O. Box 377 MORRIS PLAINS, NJ 07950			EXAMINER TARDIF, DAVID P	
			ART UNIT	PAPER NUMBER
			2876	

DATE MAILED: 06/12/2019

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 30 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. 15/622,839	Applicant(s) NIKITIN et al.	
	Examiner DAVID P TARDIF	Art Unit 2876	AIA (FITF) Status Yes

-- 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 05/21/2019.
☐ 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 1-20 . 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 areply 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. _____.	

/DAVID TARDIF/ Examiner, Art Unit 2876	/MICHAEL G LEE/ Supervisory Patent Examiner, Art Unit 2876
---	---

DETAILED ACTION

This action is responsive to amendments filed 05/21/2019.

Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Allowable Subject Matter

Claims 1-20 are allowed.

The following is an examiner's statement of reasons for allowance:

The prior art of record does not fairly teach or suggest the limitations of **claim 1**, specifically that the reflectance of the main antenna is reduced due to controlled switching during high reflectance periods without shorting the main antenna, in view of all other limitations present in the claims.

Korva teaches an RFID tag with a switch, a circuit, varying a reflection coefficient of the main antenna, and operating the main antenna sensitive to reflectance periods that are anticipated. Wang teaches that this switching the main antenna is done through a parasitic element on a first resonance location through shorting the circuit to a ground plane, which explicitly cannot accomplish that the reflectance of the main antenna is reduced due to controlled switching during high reflectance periods without shorting the main antenna.

Wang teaches an RFID system with multiple antennas of different lengths, wherein the antennas are switched between by a physical switch when a particular condition based upon reflectance is matched by the antenna. Wang is silent as to that the main antenna is not shorted during these periods, as the antenna is switched between different physical antennas.

Duan teaches an RF transponder with multiple antennas which are linearly polarized, but is silent as to switching the main antenna during times of higher and lower reflectance.

Claims 6 and 11 are allowed for the same reasons as discussed above. **Claims 2-5, 7-10 and 12-20** depend upon claims 1, 6 and 11, and are therefore also allowed.

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

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID P TARDIF whose telephone number is (571)270-7810. The examiner can normally be reached on M-F 9:30-6:30. If the examiner cannot be reached by telephone, he can be reached through the following email address: david.tardif@uspto.gov

If attempts to reach the examiner by telephone and email are unsuccessful, the examiner's supervisor, Michael G Lee can be reached on (571)272-2398. 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). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DAVID TARDIF
Examiner
Art Unit 2876

/DAVID TARDIF/
Examiner, Art Unit 2876
david.tardif@uspto.gov

/MICHAEL G LEE/
Supervisory Patent Examiner, Art Unit 2876

<i>Notice of References Cited</i>	Application/Control No. 15/622,839		Applicant(s)/Patent Under Reexamination NIKITIN et al.	
	Examiner DAVID P TARDIF		Art Unit 2876	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20130181815-A1	07-2013	Wang; Ynjiun Paul	G06K19/07773	340/10.1
*	B	US-20130241779-A1	09-2013	Korva; Heikki	H01Q1/243	343/700MS
*	C	US-6243013-B1	06-2001	Duan; Dah Weih	G06K19/0701	340/572.7
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 20190606

Issue Classification 	Application/Control No. 15/622,839	Applicant(s)/Patent Under Reexamination NIKITIN et al.
	Examiner DAVID P TARDIF	Art Unit 2876

CPC						
Symbol					Type	Version
G06K	/	19	/	07773	F	2013-01-01
G06K	/	7	/	0008	I	2013-01-01
G06K	/	19	/	0723	I	2013-01-01
G06K	/	7	/	10158	I	2013-01-01
H01Q	/	1	/	2225	I	2013-01-01
H01Q	/	1	/	248	I	2013-01-01
H01Q	/	15	/	0006	I	2013-01-01

CPC Combination Sets					
Symbol				Type	Set
	/		/		

/DAVID TARDIF/ Examiner, Art Unit 2876 (Assistant Examiner)	06 June 2019 (Date)	Total Claims Allowed: 20	
/MICHAEL G LEE/ Supervisory Patent Examiner, Art Unit 2876 (Primary Examiner)	07 June 2019 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 6

U.S. Patent and Trademark Office

Part of Paper No.: 20190606

Issue Classification 	Application/Control No. 15/622,839	Applicant(s)/Patent Under Reexamination NIKITIN et al.
	Examiner DAVID P TARDIF	Art Unit 2876

INTERNATIONAL CLASSIFICATION			
CLAIMED			
G06K19/077		19	077
G06K7/00		7	00
NON-CLAIMED			

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
235	487

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

/DAVID TARDIF/ Examiner, Art Unit 2876 (Assistant Examiner)	06 June 2019 (Date)	Total Claims Allowed: 20	
/MICHAEL G LEE/ Supervisory Patent Examiner, Art Unit 2876 (Primary Examiner)	07 June 2019 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 6

Issue Classification 	Application/Control No. 15/622,839	Applicant(s)/Patent Under Reexamination NIKITIN et al.
	Examiner DAVID P TARDIF	Art Unit 2876

☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47															
CLAIMS															
Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original	Final	Original

/DAVID TARDIF/ Examiner, Art Unit 2876 (Assistant Examiner)	06 June 2019 (Date)	Total Claims Allowed: 20	
/MICHAEL G LEE/ Supervisory Patent Examiner, Art Unit 2876 (Primary Examiner)	07 June 2019 (Date)	O.G. Print Claim(s) 1	O.G. Print Figure 6

<i>Search Notes</i> 	Application/Control No. 15/622,839	Applicant(s)/Patent Under Reexamination NIKITIN et al.
	Examiner DAVID P TARDIF	Art Unit 2876

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
235	487	09/28/18	DT

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Consulted SPE Michael Lee	09/28/18	DT
Performed Inventor Name Search	09/28/18	DT
Attached EAST Search History	09/28/18	DT

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner
235	487	06/06/2019	DT

/DAVID TARDIF/ Examiner, Art Unit 2876	
---	--

<i>Index of Claims</i> 	Application/Control No. 15/622,839	Applicant(s)/Patent Under Reexamination NIKITIN et al.
	Examiner DAVID P TARDIF	Art Unit 2876

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

CLAIMS										
☒ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	09/28/2018	03/17/2019	06/06/2019						
	1	✓	✓	=						
	2	✓	✓	=						
	3	✓	✓	=						
	4	✓	✓	=						
	5	✓	✓	=						
	6	✓	✓	=						
	7	✓	✓	=						
	8	✓	✓	=						
	9	✓	✓	=						
	10	✓	✓	=						
	11	✓	✓	=						
	12	✓	✓	=						
	13	✓	✓	=						
	14	✓	✓	=						
	15	✓	✓	=						
	16	✓	✓	=						
	17	✓	✓	=						
	18	✓	✓	=						
	19	✓	✓	=						
	20	✓	✓	=						

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	0	"15622839"	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 17:19
S2	34	("20050237198" "20070194914" "20100123581" "20120211560" "20150379459" "20080303633" "20160364642" "20060133175" "20110205026" "20140001876" "20140016719" "20140045425" "9514402" "20040263319" "20050052279" "20060163370" "20140176307" "5649295" "6243013" "6265962" "6456668" "6802659" "7304579" "7525438" "7952464" "8207828" "8253539" "8258920" "8416079" "8564412" "9055798" "9082057" "9165170" "9317729").PN.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 17:19
S3	10	S2 and reflection	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 17:22
S4	34	("20050237198" "20070194914" "20100123581" "20120211560" "20150379459" "20080303633" "20160364642" "20060133175" "20110205026" "20140001876" "20140016719" "20140045425" "9514402" "20040263319" "20050052279" "20060163370" "20140176307" "5649295" "6243013" "6265962" "6456668" "6802659" "7304579" "7525438" "7952464" "8207828" "8253539" "8258920" "8416079" "8564412" "9055798" "9082057" "9165170" "9317729").PN.	US-PGPUB; USPAT	OR	OFF	2018/09/28 19:34
S5	10	S4 and reflection	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 19:35
S6	3	S4 and reflection and length	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 19:36
S7	273	antenna same reflection same length same induct\$4	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 19:36
S8	17	antenna same reflection same length same induct\$4 same switch	US-PGPUB;	OR	OFF	2018/09/28 19:36

			USPAT; USOCR			
S9	0	antenna same reflection same length same induct\$4 same switch and rfid	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 19:37
S10	32	antenna same (reflection and length same induct\$4 and switch) and rfid	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 19:37
S11	19	antenna same (reflection and length same induct\$4 and switch) and rfid and coefficient	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 21:14
S12	19	antenna same (reflection and length same induct\$4 and switch) and rfid and coefficient near1 reflection	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 21:14
S13	3	antenna same (reflection and length same induct\$4 and switch) and rfid and coefficient near1 reflection and (high\$3 low\$4) near2 reflect\$5	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 21:19
S14	1	"20130241779".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 21:28
S15	34	("20050237198" "20070194914" "20100123581" "20120211560" "20150379459" "20080303633" "20160364642" "20060133175" "20110205026" "20140001876" "20140016719" "20140045425" "9514402" "20040263319" "20050052279" "20060163370" "20140176307" "5649295" "6243013" "6265962" "6456668" "6802659" "7304579" "7525438" "7952464" "8207828" "8253539" "8258920" "8416079" "8564412" "9055798" "9082057" "9165170" "9317729").PN.	US-PGPUB; USPAT	OR	OFF	2018/09/28 21:54
S16	1	S15 and reflection and linear\$2 with polariz\$5	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 21:54
S17	209	banking with cassette	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 22:10
S18	164	storage with box same battery same door	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 22:12

6/ 6/ 2019 11:01:25 PM

C:\Users\dtardif\Documents\EAST\Workspaces\15622839.wsp

Doc code: RCEX

Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (02-18)

Approved for use through 11/30/2020. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL **(Submitted Only via EFS-Web)**

Application Number	15/622,839	Filing Date	2017-06-14	Docket Number (if applicable)	H0055604	Art Unit	2876
First Named Inventor	Pavel NIKITIN			Examiner Name	David P. Tardif		

This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application.

Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV

SUBMISSION REQUIRED UNDER 37 CFR 1.114

Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).

☐ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked.

☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____

☐ Other _____

☒ Enclosed

☒ Amendment/Reply

☐ Information Disclosure Statement (IDS)

☐ Affidavit(s)/ Declaration(s)

☐ Other _____

MISCELLANEOUS

☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____
 (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required)

☐ Other _____

FEES

The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed.

☒ The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to
 Deposit Account No 011125

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED

☒ Patent Practitioner Signature

Applicant Signature

Doc code: RCEX

Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (02-18)

Approved for use through 11/30/2020. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Signature of Registered U.S. Patent Practitioner			
Signature	Philip G. Ammar/	Date (YYYY-MM-DD)	2019-05-21
Name	Philip G. Ammar	Registration Number	66411

This collection of information is required by 37 CFR 1.114. 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 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.

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of : Pavel NIKITIN	
Application. No.: 15/622,839	Confirmation No.: 8972
Filed: June 14, 2017	Group Art Unit: 2876
Title: METHOD TO INCREASE RFID TAG SENSITIVITY	Examiner: TARDIF, DAVID P
Docket No.: H0055604	<i>Electronically Filed on <u>May 21, 2019</u></i>

RESPONSE UNDER 37 C.F.R. § 1.114

Mail RCE
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In response to the Final Office Action mailed March 21, 2019 ("Office Action"), the Applicant respectfully submits the following amendment and remarks and respectfully requests the Examiner to reconsider the rejections made in the Office Action and to allow the claims to issue. A Request For Continued Examination is concurrently filed herewith.

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

Remarks/Arguments begin on page 7 of this paper.

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the application.

Listing of claims:

1. (Currently Amended) A radio-frequency identification (RFID) tag comprising:
 - a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal;
 - a switch connected to a first portion of the main antenna and a separate length of antenna; and
 - a circuit connected to a second different portion of the main antenna, wherein the second portion of the main antenna is different than the first portion of the main antenna than the switch, the circuit being configured to:
 - vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having high reflectance periods when an amount of reflectance by the main antenna of the RF signal is greater than a predetermined amount, and low reflectance periods when an amount of reflectance by the main antenna of the RF signal is lower than the predetermined amount;
 - control the switch to intermittently connect the separate length of antenna to the main antenna;
 - change a resonant frequency of the main antenna, based on the controlled switching, to generate a high reflectance period and a low reflectance period;
 - and
 - reduce a reflectance of the main antenna below a predefined amount during the high reflectance period without shorting the main antenna to enable the main antenna for continuous wireless power harvesting while transmitting the reflected signal to the RFID reader, wherein the reflectance of the main antenna during the high reflectance period is reduced based on the change in the resonant frequency of the main antenna

~~reduce the reflectance of the main antenna below a predefined amount during the high reflectance periods to enable wireless power harvesting during the high reflectance periods by changing a resonant frequency of the main antenna to generate the high reflectance periods and low reflectance periods; and~~
~~change the resonant frequency by controlling the switch to intermittently connect the separate length of antenna to the main antenna.~~

2. (Currently Amended) The RFID tag of claim 1, wherein the predetermined amount is a reflection coefficient magnitude of between 0 and 0.5.
3. (Currently Amended) The RFID tag of claim 1, wherein the predefined amount is a reflection coefficient magnitude of 0.5.
4. (Currently Amended) The RFID tag of claim 1, wherein the circuit is an application-specific integrated circuit (ASIC).
5. (Currently Amended) The RFID tag of claim 1, wherein the main antenna is a linearly polarized antenna.
6. (Currently Amended) A radio-frequency identification (RFID) tag comprising:
a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal; and
a circuit that is configured to vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having a high reflectance period[[s]] when an amount of reflectance by the main antenna of the RF signal is greater than a predetermined amount, and a low reflectance period[[s]] when an amount of reflectance by the main antenna of the RF signal is lower than the predetermined amount,

wherein a reflectance of the main antenna is reduced below a predefined amount during the high reflectance period without shorting the main antenna to enable the main antenna for continuous wireless power harvesting while transmitting the reflected signal to the RFID reader, wherein the reflectance of the main antenna during the high reflectance period is reduced based on a change in a resonant frequency of the main antenna.

wherein the circuit increases a duty cycle of the low reflectance periods and decreases a duty cycle of the high reflectance periods to increase a time period of wireless power transmission.

7. (Currently Amended) The RFID tag of claim 6, wherein the predetermined amount is a reflection coefficient magnitude of between 0 and 1.
8. (Currently Amended) The RFID tag of claim 6, wherein the circuit increases the duty cycle of the low reflectance periods to greater than 50%.
9. (Currently Amended) The RFID tag of claim 6, wherein the circuit is an application-specific integrated circuit (ASIC).
10. (Currently Amended) The RFID tag of claim 6, wherein the main antenna is a linearly polarized antenna.
11. (Currently Amended) A radio-frequency identification (RFID) tag comprising:
 - a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal; and
 - a circuit that is configured to vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having a first reflectance period[[s,]] and a second reflectance period[[s]] when an amount of

reflectance by the main antenna of the RF signal is different than during the first reflectance period[[s]],

wherein a reflectance of the main antenna is reduced below a predefined amount during the first reflectance period without shorting the main antenna to enable the main antenna to continuously harvest[[s]] power while transmitting the reflected signal to the RFID reader, wherein the reflectance of the main antenna is reduced based on a change in a resonant frequency of the main antenna.

12. (Currently Amended) The RFID tag of claim 11, wherein the circuit changes [[a]]the resonant frequency of the main antenna to generate the first and second reflectance period[[s]].

13. (Currently Amended) The RFID tag of claim 12, wherein the circuit adds a separate length of antenna to the main antenna during the first reflectance period[[s]].

14. (Currently Amended) The RFID tag of claim 13, further comprising:
a switch that adds the separate length of antenna by connecting the separate length of antenna to the main antenna during the first reflectance period[[s]], the switch being located on a different first portion of the main antenna than and the circuit being located on a second portion of the main antenna, wherein the first portion of the main antenna is different than the second portion of the main antenna.

15. (Currently Amended) The RFID tag of claim 11,
wherein the main antenna includes a first antenna for receiving the RF signal, and a second antenna for receiving power, and
the second antenna continues to absorb a portion of the RF signal during the first reflectance period and the second reflectance period[[s]] to generate a sufficiently-low reflectance to enable wireless power harvesting during both the first reflectance period and the second reflectance period[[s]].

16. (Currently Amended) The RFID tag of claim 11, further comprising:
a switch controlled by the circuit that connects an RF impedance to the main antenna during the first reflectance period[[s]].
17. (Currently Amended) The RFID tag of claim 11, wherein
the amount of reflectance by the main antenna of the RF signal is greater than
[[a]]~~the~~ predetermined amount during the first reflectance period[[s]], and
the amount of reflectance by the main antenna of the RF signal is lower than the
predetermined amount during the second reflectance period[[s]], ~~and~~
~~the circuit reduces the reflectance of the main antenna below a predefined~~
~~amount during the first reflectance periods to enable wireless power reception during~~
~~the first reflectance periods.~~
18. (Currently Amended) The RFID tag of claim 11, wherein the amount of
reflectance of ~~by~~ the main antenna of the RF signal during the first reflectance
period[[s]] is of greater magnitude to the amount of reflectance of ~~by~~ the main antenna
of the RF signal during the second reflectance period[[s]].
19. (Currently Amended) The RFID tag of claim 11, wherein the circuit is an
application-specific integrated circuit (ASIC).
20. (Currently Amended) The RFID tag of claim 11, wherein the main antenna is a
linearly polarized antenna.

REMARKS / ARGUMENTS

Claims 1-20 are amended herein. Support for the amendments can be found at least at ¶¶ [0020], [0026], and [0027] of the *Specification* as originally filed. Thus, claims 1-20 are pending in the present application. Reconsideration of the application and allowance of the claims are respectfully requested.

Claims 1-4, 6-9, 11-17, and 19 stand rejected as being unpatentable over U.S. 2013/0241779 (hereinafter, "Korva") and U.S. 2013/0181815 (hereinafter, "Wang"). Claims 5, 10 and 20 stand rejected as being unpatentable over Korva, Wang, and U.S. 6,243,013 (hereinafter, "Duan").

The Applicant respectfully traverses the above rejections at least for the reasons previously set forth during prosecution and at least based on the following remarks.

Rejection to claims 1-4, 6-9, 11-17, and 19 under 35 U.S.C. § 103

Claims 1-4, 6-9, 11-17, and 19 stand rejected under 35 U.S.C. 103 over Korva and Wang. Withdrawal of the rejection to claims 1-4, 6-9, 11-17, and 19 is respectfully requested to be withdrawn for at least the following reasons.

Amended independent claim 1 recites in parts features: “**reduce a reflectance of the main antenna below a predefined amount during the high reflectance period without shorting the main antenna** to enable the main antenna for continuous wireless power harvesting while transmitting the reflected signal to the RFID reader, wherein the reflectance of the main antenna during the high reflectance period is reduced based on the change in the resonant frequency of the main antenna,” as recited in independent claim 1. (Emphasis added).

The Applicant submits that Korva and Wang, alone or in combination, fail to teach or suggest at least the recited elements of independent claim 1.

The Office Action, at page 2 and 3, states that “Korva teaches...reduce the reflectance of the main antenna below a predefined amount during the high reflectance periods to enable wireless power harvesting during the high reflectance periods by changing a resonant frequency of the main antenna to generate the high reflectance periods and low reflectance periods; and change the resonant frequency by controlling the switch to intermittently connect the separate length of antenna to the main antenna (paragraph 0049 defining the high resonance period, paragraphs 0053-0054 explaining the length of the antennas corresponds to the resonance periods, which corresponds to reflectance periods, thus the resonant frequency of the antenna alternates depending on the resonant frequency of the incoming signal).”

Korva discloses, at paragraph [0053], that “In the antenna arrangement 1A according to the invention the location of the connecting point 5 in relation to the location of the supply points 3 and/or 4 on the level defined by the circuit board 10 and the length and width (i.e. inductance) of the conductive strip 12 of the parasite element

14 short-circuiting to the ground plane define the first resonance location generated by the parasite element 14 on the lower frequency range.”

Clearly, Korva describes that length and width (i.e. inductance) of the conductive strip 12 of the parasite element 14 defines the first resonance location generated by the parasite element 14 on the lower frequency range by short-circuiting to the ground plane. This in contrast with “**reduce a reflectance of the main antenna below a predefined amount during the high reflectance period without shorting the main antenna** to enable the main antenna for continuous wireless power harvesting while transmitting the reflected signal to the RFID reader, wherein the reflectance of the main antenna during the high reflectance period is reduced based on the change in the resonant frequency of the main antenna,” as recited in amended independent claim 1.

Wang fails to remedy the deficiency of Korva.

Thus, Korva and Wang, alone or in combination, fail to teach or suggest at least the recited elements of amended independent claim 1.

Amended independent claim 6 recites in part a new feature: “**wherein a reflectance of the main antenna is reduced below a predefined amount during the high reflectance period without shorting the main antenna to enable the main antenna for continuous wireless power harvesting while transmitting the reflected signal to the RFID reader, wherein the reflectance of the main antenna during the high reflectance period is reduced based on a change in a resonant frequency of the main antenna**”. (Emphasis added). Korva and Wang, alone or in combination, fail to teach or suggest at least the recited elements of amended independent claim 6 for at least the same reasons as described above with regard to amended independent claim 1.

Amended independent claim 11 recites in part a new feature: “**wherein a reflectance of the main antenna is reduced below a predefined amount during the**

first reflectance period without shorting the main antenna to enable the main antenna to continuously harvest power while transmitting the reflected signal to the RFID reader, wherein the reflectance of the main antenna is reduced based on a change in resonant frequency of the main antenna". (Emphasis added). Korva and Wang, alone or in combination, fail to teach or suggest at least the recited elements of amended independent claim 11 for at least the same reasons as described above with regard to amended independent claim 1.

Rejection to claims 5, 10 and 20 under 35 U.S.C. § 103

Claims 5, 10 and 20 stand rejected under 35 U.S.C. 103 as being unpatentable over Korva, Wang, and Duan. Withdrawal of the rejection to claims 5, 10 and 20 is respectfully requested to be withdrawn for at least the following reasons. Claims 5, 10 and 20 are dependent on independent claims 1, 6, and 11, respectively, which are in position for allowance.

Application No. 15/622,839
Reply to Office Action of March 21, 2019

CONCLUSION

Based on at least the foregoing, the Applicant believes that claims 1-20 are in condition for allowance. A Notice of Allowability is courteously solicited.

The Applicant authorizes the USPTO to charge any additional fees or credit any overpayment to the deposit account **011125**. Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned attorney of record below to conduct an interview in an effort to expedite prosecution in connection with the present application.

Date: May 21, 2019

Respectfully submitted,
/Philip G. Ammar/
Philip G. Ammar
Registration No. 66411
Attorney for Applicant

Electronic Acknowledgement Receipt	
EFS ID:	36067621
Application Number:	15622839
International Application Number:	
Confirmation Number:	8972
Title of Invention:	METHOD TO INCREASE RFID TAG SENSITIVITY
First Named Inventor/Applicant Name:	Pavel NIKITIN
Customer Number:	113760
Filer:	Philip Ammar/Laura Tremont
Filer Authorized By:	Philip Ammar
Attorney Docket Number:	H0055604
Receipt Date:	21-MAY-2019
Filing Date:	14-JUN-2017
Time Stamp:	11:32:47
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	Request for Continued Examination (RCE)	H0055604_RCE.pdf	1353585	no	3
			6da07b4699147c79dc05ae717b1a3cb367d2ed00		

Warnings:

Information:					
2		H0055604-Response_to_Final_Office_Acti on.pdf	110944	yes	11
			cf1d1280353c842f9fb99de67023cd3580eae a5ad		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Amendment Submitted/Entered with Filing of CPA/RCE		1	1	
	Claims		2	6	
	Applicant Arguments/Remarks Made in an Amendment		7	11	
Warnings:					
Information:					
Total Files Size (in bytes):			1464529		
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.					

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 15/622,839		Filing Date 06/14/2017		☐ 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 \$80 =						
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =	*	x \$420 =						
☐ 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	05/21/2019	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	x \$100 =		0		
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0	x \$460 =		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			
AMENDMENT		(Column 1)	(Column 2)	(Column 3)						
		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(i))	*	Minus	**	=	x \$0 =				
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x \$0 =				
	☐ 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.					LIE					
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".					/VIKKI GRAY/					
*** 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.**

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



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.
15/622,839	06/14/2017	Pavel NIKITIN	H0055604	8972
113760 7590 03/21/2019 HONEYWELL/OLIFF PLC 115 Tabor Road P.O. Box 377 MORRIS PLAINS, NJ 07950			EXAMINER TARDIF, DAVID P	
			ART UNIT 2876	PAPER NUMBER
			NOTIFICATION DATE 03/21/2019	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):

OfficeAction113760@oliff.com
SPSIP@honeywell.com
patentservices-us@honeywell.com

DETAILED ACTION

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA. This action is responsive to arguments filed 01/04/2019.

Information Disclosure Statement

The information disclosure statements (IDS) submitted 11/20/2018 and 11/20/2018 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Claim Rejections - 35 USC § 103

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

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

1. **Claims 1-4, 6-9, 11-17 and 19** are rejected under 35 U.S.C. 103 as being unpatentable over Korva (2013/0241779) as modified by Wang (2013/0181815).

As to **claims 1, 6, 11-17**: Korva teaches a radio-frequency identification (RFID) tag comprising (abstract, small radio device):

a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal (paragraph 0004, passive parasitic antenna);

a switch connected to the main antenna and a separate length of antenna ; and
a circuit connected to a different portion of the main antenna than the switch, the circuit being configured to (paragraph 0044):

vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having high reflectance periods when an amount of reflectance by the main antenna of the RF signal is greater than a predetermined amount, and low reflectance periods when an amount of reflectance by the main antenna of the RF signal is lower than the predetermined amount;

reduce the reflectance of the main antenna below a predefined amount during the high reflectance periods to enable wireless power harvesting during the high reflectance periods by changing a resonant frequency of the main antenna to generate the high reflectance periods and low reflectance periods; and

change the resonant frequency by controlling the switch to intermittently connect the separate length of antenna to the main antenna (paragraph 0049 defining the high resonance period, paragraphs 0053-0054 explaining the length of the antennas corresponds to the resonance periods, which corresponds to reflectance periods, thus the resonant frequency of the antenna alternates depending on the resonant frequency of the incoming signal).

Korva is silent as to a physical switch that changes between antennas based upon an incoming signal frequency.

Wang teaches an RFID system with multiple antennas of different lengths, wherein the antennas are switched between by a physical switch when a particular condition which is related to the reflectance of the signal as being matched by the antenna (paragraphs 0019 explaining selecting a different antenna, 0029 explaining altering the antenna selection through the reflection coefficient, switch explained in paragraph 0019).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Korva with the teachings of Wang so that the proper antenna length is selected for the task, thereby offering a greater overall RF strength (Wang, paragraph 0019) in the situation with multiple antennas to provide power to the circuit (paragraph 0003).

As to **claims 2, 3, 7 and 8**: Korva teaches that the predetermined amount is a reflection coefficient magnitude of between 0 and 0.5 (paragraph 0053).

As to **claim 18**: Korva teaches that the amount of reflectance by the main antenna of the RF signal during the first reflectance periods is of greater magnitude to the amount of reflectance by the main antenna of the RF signal during the second reflectance periods (paragraph 0049)

As to **claims 4, 9 and 19**: Wang teaches that the circuit is ASIC (paragraph 0015).

2. **Claims 5, 10 and 20** are rejected under 35 U.S.C. 103 as being unpatentable over Korva (2013/0241779) as modified by Wang (2013/0181815), and further in view of Duan (6,243,013). The teachings of Korva as modified by Wang are discussed above.

As to **claims 5, 10 and 20**: Korva as modified by Wang teaches the limitations of claims 1, 6 and 11.

Korva as modified by Wang is silent as to that the antenna is linearly polarized.

Duan teaches that an RF transponder with multiple antennas which are linearly polarized (abstract, column 4, lines 17-29).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Korva as modified by Wang with the teachings of Duan so that the antenna propagates in a specific direction, thereby reducing the necessary power emit and size of the apparatus.

Response to Arguments

Applicant's arguments filed 01/04/2019 have been fully considered but they are not persuasive.

Applicant argues that Korva does not disclose the feature of reducing the reflectance of the main antenna during high reflectance periods because when reflector 8 is active, its reflectance is not reduced. Examiner disagrees with applicant's assessment of Korva. Korva's antenna package reduces reflectance during anticipated high reflectance periods by switching to a different length antenna which features reduced reflectance. Examiner is interpreting Korva's antenna package to be equivalent to "the antenna" as described in the claims, and not to be simply antenna element 8 in Korva. In this way, Korva teaches the limitations of claim 1.

Applicant also argues that Korva does not teach duty cycles, but the method that Korva describes, which is operation during pertinent active time periods, is a duty cycle in all but name. Therefore, examiner disagrees.

Applicant further argues that Korva generally does not teach other limitations due to this interpretation, but examiner does not find these arguments persuasive as explained above.

As is such, examiner is maintaining rejections

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID P TARDIF whose telephone number is (571)270-

7810. The examiner can normally be reached on M-F 9:30-6:30. If the examiner cannot be reached by telephone, he can be reached through the following email address: david.tardif@uspto.gov

If attempts to reach the examiner by telephone and email are unsuccessful, the examiner's supervisor, Michael G Lee can be reached on (571)272-2398. 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). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DAVID TARDIF
Examiner
Art Unit 2876

/DAVID TARDIF/
Examiner, Art Unit 2876
david.tardif@uspto.gov

/MICHAEL G LEE/
Supervisory Patent Examiner, Art Unit 2876

<i>Notice of References Cited</i>	Application/Control No. 15/622,839		Applicant(s)/Patent Under Reexamination NIKITIN et al.	
	Examiner DAVID P TARDIF		Art Unit 2876	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-20130181815-A1	07-2013	Wang; Ynjiun Paul	G06K19/07773	340/10.1
*	B	US-20130241779-A1	09-2013	Korva; Heikki	H01Q1/243	343/700MS
*	C	US-6243013-B1	06-2001	Duan; Dah Weih	G06K19/0701	340/572.7
	D					
	E					
	F					
	G					
	H					
	I					
	J					
	K					
	L					
	M					

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

U.S. Patent and Trademark Office
PTO-892 (Rev. 01-2001)

Notice of References Cited

Part of Paper No. 20190317

<i>Index of Claims</i> 	Application/Control No. 15/622,839	Applicant(s)/Patent Under Reexamination NIKITIN et al.
	Examiner DAVID P TARDIF	Art Unit 2876

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

CLAIMS										
☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47										
CLAIM		DATE								
Final	Original	09/28/2018	03/17/2019							
	1	✓	✓							
	2	✓	✓							
	3	✓	✓							
	4	✓	✓							
	5	✓	✓							
	6	✓	✓							
	7	✓	✓							
	8	✓	✓							
	9	✓	✓							
	10	✓	✓							
	11	✓	✓							
	12	✓	✓							
	13	✓	✓							
	14	✓	✓							
	15	✓	✓							
	16	✓	✓							
	17	✓	✓							
	18	✓	✓							
	19	✓	✓							
	20	✓	✓							

<i>Search Notes</i> 	Application/Control No. 15/622,839	Applicant(s)/Patent Under Reexamination NIKITIN et al.
	Examiner DAVID P TARDIF	Art Unit 2876

CPC - Searched*		
Symbol	Date	Examiner

CPC Combination Sets - Searched*		
Symbol	Date	Examiner

US Classification - Searched*			
Class	Subclass	Date	Examiner
235	487	09/28/18	DT

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

Search Notes		
Search Notes	Date	Examiner
Consulted SPE Michael Lee	09/28/18	DT
Performed Inventor Name Search	09/28/18	DT
Attached EAST Search History	09/28/18	DT

Interference Search			
US Class/CPC Symbol	US Subclass/CPC Group	Date	Examiner

--	--

Receipt date: 11/20/2018

15/622,839 - GAU: 2876

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)

Approved for use through 11/30/2020. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2876
	Examiner Name	D. P. Tardif
	Attorney Docket Number	H0055604

U.S. PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1	7232069	B1	2007-06-19	White			
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S. PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1	20120083205	A1	2012-04-05	Marcu et al.			
	2	20090094410	A1	2009-04-09	Kari et al.			
	3	20090015407	A1	2009-01-15	Tuttle			
	4	20110140537	A1	2011-06-16	Takei			
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15622839
Filing Date	2017-06-14
First Named Inventor	Pavel NIKITIN
Art Unit	2876
Examiner Name	D. P. Tardif
Attorney Docket Number	H0055604

1						
---	--	--	--	--	--	--

If you wish to add additional Foreign Patent Document citation information please click the Add button

Add

NON-PATENT LITERATURE DOCUMENTS

Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
1		October 25, 2018 Search Report issued in European Patent Application No. 18177629.5.	

If you wish to add additional non-patent literature document citation information please click the Add button

Add

EXAMINER SIGNATURE

Examiner Signature	/DAVID TARDIF/	Date Considered	03/17/2019
--------------------	----------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15622839
Filing Date	2017-06-14
First Named Inventor	Pavel NIKITIN
Art Unit	2876
Examiner Name	D. P. Tardif
Attorney Docket Number	H0055604

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

- ☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

- ☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

- ☒ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/R. Brian Drozd/	Date (YYYY-MM-DD)	2018-11-20
Name/Print	R. Brian Drozd	Registration Number	55,130

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

/DAVID TARDIF/

03/17/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T./

Receipt date: 11/20/2018

15/622,839 - GAU: 2876

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)

Approved for use through 11/30/2020. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2876
	Examiner Name	D. P. Tardif
	Attorney Docket Number	H0055604

U.S.PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
	1	8610539		2013-12-17	Solomon			
	2	8947214		2015-02-03	Solomon			
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S.PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
	1	20070200681	A1	2007-08-30	Colby			
	2	20130201000	A1	2013-08-08	Solomon			
	3	20140033289	A1	2014-01-30	Solomon			
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T ⁵

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15622839
Filing Date	2017-06-14
First Named Inventor	Pavel NIKITIN
Art Unit	2876
Examiner Name	D. P. Tardif
Attorney Docket Number	H0055604

1						
---	--	--	--	--	--	--

If you wish to add additional Foreign Patent Document citation information please click the Add button

Add

NON-PATENT LITERATURE DOCUMENTS

Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
1		November 1, 2018 Office Action issued in U.S. Patent Application No. 15/637,520.	

If you wish to add additional non-patent literature document citation information please click the Add button

Add

EXAMINER SIGNATURE

Examiner Signature	/DAVID TARDIF/	Date Considered	03/17/2019
--------------------	----------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15622839
Filing Date	2017-06-14
First Named Inventor	Pavel NIKITIN
Art Unit	2876
Examiner Name	D. P. Tardif
Attorney Docket Number	H0055604

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).



✕ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/R. Brian Drozd/	Date (YYYY-MM-DD)	2018-11-20
Name/Print	R. Brian Drozd	Registration Number	55,130

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

/DAVID TARDIF/

03/17/2019

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /D.T./

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 15/622,839		Filing Date 06/14/2017		☐ 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 \$80 =						
INDEPENDENT CLAIMS (37 CFR 1.16(h))		minus 3 =	*	x \$420 =						
☐ 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	01/04/2019	CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(i))	* 20	Minus	** 20	= 0	x \$100 =		0		
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0	x \$460 =		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			
AMENDMENT		(Column 1)	(Column 2)	(Column 3)						
		CLAIMS REMAINING AFTER AMENDMENT	HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)		ADDITIONAL FEE (\$)			
	Total (37 CFR 1.16(i))	*	Minus	**	=	x \$0 =				
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x \$0 =				
	☐ 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.					LIE					
** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20".					/JERMAINE D MINOR/					
*** 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.**

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

UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of : Pavel NIKITIN Application. No.: 15/622,839 Filed: June 14, 2017 Title: METHOD TO INCREASE RFID TAG SENSITIVITY Docket No.: H0055604	Confirmation No.: 8972 Group Art Unit: 2876 Examiner: TARDIF, DAVID P <i>Electronically Filed on <u>January 4,</u></i> <i><u>2019</u></i>
--	---

RESPONSE UNDER 37 C.F.R. § 1.111

Mail Stop Amendment
Commissioner For Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Commissioner:

In response to the Non-Final Office Action mailed October 4, 2018 ("Office Action"), the Applicant respectfully submits the following amendment and remarks and respectfully requests the Examiner to reconsider the rejections made in the Office Action and to allow the claims to issue.

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

Remarks/Arguments begin on page 7 of this paper.

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the application.

Listing of claims:

1. (Original) A radio-frequency identification (RFID) tag comprising:
 - a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal;
 - a switch connected to the main antenna and a separate length of antenna; and
 - a circuit connected to a different portion of the main antenna than the switch, the circuit being configured to:
 - vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having high reflectance periods when an amount of reflectance by the main antenna of the RF signal is greater than a predetermined amount, and low reflectance periods when an amount of reflectance by the main antenna of the RF signal is lower than the predetermined amount;
 - reduce the reflectance of the main antenna below a predefined amount during the high reflectance periods to enable wireless power harvesting during the high reflectance periods by changing a resonant frequency of the main antenna to generate the high reflectance periods and low reflectance periods; and

change the resonant frequency by controlling the switch to intermittently connect the separate length of antenna to the main antenna.

2. (Original) The tag of claim 1, wherein the predetermined amount is a reflection coefficient magnitude of between 0 and 0.5.
3. (Original) The tag of claim 1, wherein the predefined amount is a reflection coefficient magnitude of 0.5.
4. (Original) The tag of claim 1, wherein the circuit is an application-specific integrated circuit (ASIC).
5. (Original) The tag of claim 1, wherein the main antenna is a linearly polarized antenna.
6. (Original) A radio-frequency identification (RFID) tag comprising:
 - a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal; and
 - a circuit that is configured to vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having high reflectance periods when an amount of reflectance by the main antenna of the RF signal is greater than a predetermined amount, and low reflectance periods when an amount of reflectance by the main antenna of the RF signal is lower than the predetermined amount,
 - wherein the circuit increases a duty cycle of the low reflectance periods and decreases a duty cycle of the high reflectance periods to increase a time period of wireless power transmission.

7. (Original) The tag of claim 6, wherein the predetermined amount is a reflection coefficient magnitude of between 0 and 1.
8. (Original) The tag of claim 6, wherein the circuit increases the duty cycle of the low reflectance periods to greater than 50%.
9. (Original) The tag of claim 6, wherein the circuit is an application-specific integrated circuit (ASIC).
10. (Original) The tag of claim 6, wherein the main antenna is a linearly polarized antenna.
11. (Original) A radio-frequency identification (RFID) tag comprising:
 - a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal; and
 - a circuit that is configured to vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having first reflectance periods, and second reflectance periods when an amount of reflectance by the main antenna of the RF signal is different than during the first reflectance periods, wherein the main antenna continuously harvests power while transmitting the reflected signal to the RFID reader.
12. (Original) The RFID tag of claim 11, wherein the circuit changes a resonant frequency of the main antenna to generate the first and second reflectance periods.
13. (Original) The RFID tag of claim 12, wherein the circuit adds a separate length of antenna to the main antenna during the first reflectance periods.
14. (Original) The RFID tag of claim 13, further comprising:

a switch that adds the separate length of antenna by connecting the separate length of antenna to the main antenna during the first reflectance periods, the switch being located on a different portion of the main antenna than the circuit.

15. (Original) The RFID tag of claim 11,

wherein the main antenna includes a first antenna for receiving the RF signal, and a second antenna for receiving power, and

the second antenna continues to absorb a portion of the RF signal during the first and second reflectance periods to generate a sufficiently low reflectance to enable wireless power harvesting during both the first and second reflectance periods.

16. (Original) The RFID tag of claim 11, further comprising:

a switch controlled by the circuit that connects an RF impedance to the main antenna during the first reflectance periods.

17. (Original) The RFID tag of claim 11, wherein

the amount of reflectance by the main antenna of the RF signal is greater than a predetermined amount during the first reflectance periods,

the amount of reflectance by the main antenna of the RF signal is lower than the predetermined amount during the second reflectance periods, and

the circuit reduces the reflectance of the main antenna below a predefined amount during the first reflectance periods to enable wireless power reception during the first reflectance periods.

Application No. 15/622,839
Reply to Office Action of October 4, 2018

18. (Currently Amended) The tag of claim 11, wherein the amount of reflectance of by the main antenna of the RF signal during the first reflectance periods is of ~~[[equal]]~~greater magnitude ~~but opposite polarity~~ to the amount of reflectance of by the main antenna of the RF signal during the second reflectance periods.
19. (Original) The tag of claim 11, wherein the circuit is an application-specific integrated circuit (ASIC).
20. (Original) The tag of claim 11, wherein the main antenna is a linearly polarized antenna.

REMARKS / ARGUMENTS

Claim 18 is amended herein. Thus, claims 1-20 are pending in the present application. Reconsideration of the application and allowance of the claims are respectfully requested.

Claim 18 is rejected under 35 U.S.C. 112(b) as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor. Claims 1-4, 6-9, 11-17 and 19 are rejected under 35 U.S.C. 103 as being unpatentable over U.S.2013/0241779 (hereinafter "Korva") as modified by U.S.2013/0181815 (hereinafter "Wang"). Claims 5, 10 and 20 are rejected under 35 U.S.C. 103 as being unpatentable over Korva as modified by Wang, and further in view of U.S. 6,243,013 (hereinafter "Duan").

The Applicant respectfully traverses the above rejections at least for the reasons previously set forth during prosecution and at least based on the following remarks.

REJECTION UNDER 35 U.S.C. § 112 second paragraph

In the present Office Action, on page 2, it is indicated that claim 18 was rejected under 35 U.S.C. 112(b) as being indefinite for failing to particularly point out and distinctly claim the subject matter.

By this amendment, claim 18 has been suitably amended to address the rejection. Thus, the Applicant respectfully requests that the rejection under 35 U.S.C. §112(b) be withdrawn.

REJECTION UNDER 35 U.S.C. § 103(a)

A. Rejection of Independent Claims 1, 9, and 18

The Applicant submits that the combination of Korva and Wang does not teach, suggest, or render obvious, for example, the feature of “reduce the reflectance of the main antenna below a predefined amount during the high reflectance periods to enable wireless power harvesting during the high reflectance periods by changing a resonant frequency of the main antenna to generate the high reflectance periods and low reflectance periods” as recited in amended independent claim 1.

The Examiner asserts

“...the length of the antennas corresponds to the resonance periods, which corresponds to reflectance periods, thus the resonant frequency of the antenna alternates depending on the resonant frequency of the incoming signal”

See Office Action Page 4.

The Applicant respectfully disagrees and traverses the rejection, as below.

Korva describes that “[t]he total length of the radiator 7 and the coil 6 affecting the electric length of the radiator 7 generate a $\lambda/4$ resonance at the lower frequency range. This natural resonance location is hereafter called the upper resonance location of the lower frequency band.” See Korva ¶0051. Further Korva describes “[t]he total length of the radiator 8 generates a $\lambda/4$ resonance on the upper frequency range used by the data processing device. This natural resonance location is hereafter called the upper resonance location of the upper frequency band.” See Korva ¶0052. Further, FIG. 2 of Korva illustrates reflection attenuation value with respect to incoming signal.

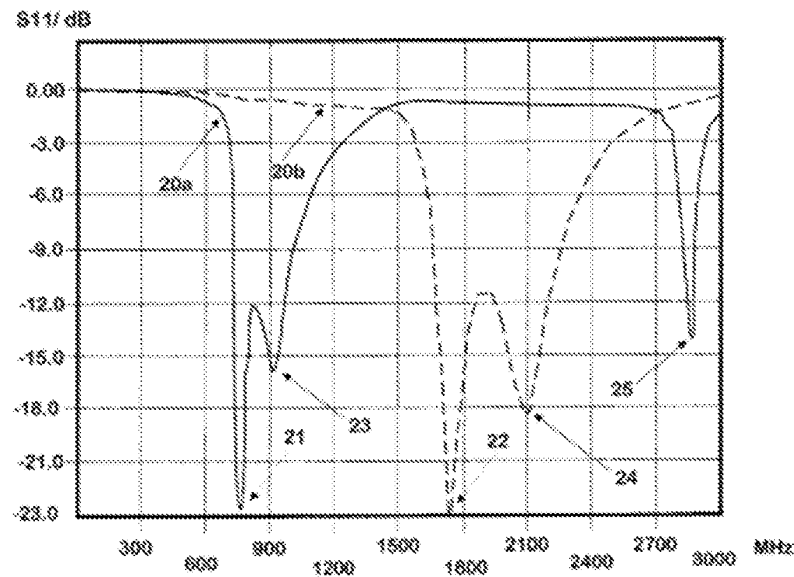


Fig. 2

Korva further describes “FIG. 2 shows with a continuous line 20a the reflection coefficient S11 measured from the supply point/antenna port 3 of the lower frequency band radiator 7 as decibels as a function of the frequency in the range 0-3 000 MHz. The same figure shows with a dotted line 20 b the reflection coefficient S11 measured from the supply point 4 of the upper frequency band radiator 8 as decibels as a function of the frequency in the range 0-3 000.” See Korva ¶0065.

Korva teaches that the radiator 7 generates $\lambda/4$ resonance on a lower frequency range. Further, Korva teaches radiator 8 generates $\lambda/4$ resonance on an upper frequency range. When a signal in the upper frequency range is received, the radiator 8 may receive the signal, while the radiator 7 is inactive. To this end, the continuous line in FIG. 2 depicts that when the signal in the upper frequency range is received, the reflection attenuation of the radiator 7 is low in comparison to the reflection attenuation of the radiator 8. Therefore, when the signal of the upper frequency range is received, the radiator 7 has high reflectance. However, nowhere does Korva teach that the reflectance of the radiator 7 is reduced (i.e., the reflection attenuation is increased) when the signal of the upper frequency range is received (i.e., when the radiator 7 has high reflectance).

Similarly, in Korva, when the signal in the lower frequency range is received, the radiator 8 has high reflectance while radiator 7 has low reflectance (refer FIG. 2). Nowhere does Korva teach that the reflectance of the radiator 8 is reduced, while the

Application No. 15/622,839
Reply to Office Action of October 4, 2018

radiator 8 has high reflectance (i.e., when the signal in the low frequency band is received).

Therefore, Korva does not disclose, for example, the feature of “reduce the reflectance of the main antenna below a predefined amount during the high reflectance periods to enable wireless power harvesting during the high reflectance periods by changing a resonant frequency of the main antenna to generate the high reflectance periods and low reflectance periods,” as recited in amended independent claim 1.

Wang does not remedy the deficiencies of Korva.

Wang describes that “The RFID tag can respond by modulating the reflection coefficient of its antenna, thus backscattering an information signal to the EIR system 100. In one embodiment, the RFID tag can modulate the reflection coefficient of its antenna only responsive to receiving an RFID signal from the EIR system 100,” See Wang at ¶0029

Wang merely teaches that a reflection coefficient of the antenna is modulated only in response to the receiving the RFID signal. Nowhere does Wang teach that the reflection coefficient is reduced during a high reflectance period.

Therefore, Wang does not disclose, for example, the feature of “reduce the reflectance of the main antenna below a predefined amount during the high reflectance periods to enable wireless power harvesting during the high reflectance periods by

changing a resonant frequency of the main antenna to generate the high reflectance periods and low reflectance periods,” as recited in amended independent claim 1.

Therefore, amended independent claim 1 is not taught, suggested, or rendered obvious over the combination of Korva and Wang.

The Applicant submits that the combination of Korva and Wang does not teach, suggest, or render obvious, for example, the feature of “wherein the circuit increases a duty cycle of the low reflectance periods and decreases a duty cycle of the high reflectance periods to increase a time period of wireless power transmission” as recited in amended independent claim 6.

As discussed above, Korva merely teaches that either radiator 7 or radiator 8 operates based on a frequency band of the received signal. Nowhere does Korva teach to increase duty cycle of low reflectance periods and decrease duty cycle of high reflectance periods. In fact, Korva is completely silent about duty cycle, as is recited in the independent claim 6.

Therefore, Korva does not disclose, for example, the feature of “wherein the circuit increases a duty cycle of the low reflectance periods and decreases a duty cycle of the high reflectance periods to increase a time period of wireless power transmission,” as recited in amended independent claim 6.

Wang does not remedy the deficiencies of Korva.

As discussed, Wang at best teaches to modulate the reflectance coefficient of the antenna. Nowhere does Wang teach to increase duty cycle of low reflectance periods and the decrease duty cycle of high reflectance period, as required by the independent claim 6.

Therefore, independent claim 6 is not taught, suggested, or rendered obvious over the combination of Korva and Wang.

The Applicant submits that the combination of Korva and Wang does not teach, suggest, or render obvious, for example, the feature of “wherein the main antenna continuously harvests power while transmitting the reflected signal to the RFID reader.” as recited in amended independent claim 11.

As discussed, Korva merely teaches either radiator 7 or radiator 8 operates based on a frequency band of the received signal. Nowhere does Korva teach that the radiator 7 or radiator 8 harvest power while transmitting reflected signal, as recited by the independent claim 11.

Wang does not overcome the deficiencies of Korva.

As discussed, Wang merely teaches to modulate the reflection coefficient of the antenna to backscatter an information signal. Nowhere does Wang teach to harvest power while backscattering the information signal.

Therefore, independent claim 11 is not taught, suggested, or rendered obvious over the combination of Korva and Wang.

B. Rejection of Dependent Claims 2-5, 7-10, and 12-20

The Applicant submits that claims 2-5 are also not taught, suggested, or rendered obvious by the references cited in the Office Action based at least on the dependence on amended independent claim 1. The Applicant submits that claims 7-10 are also not taught, suggested, or rendered obvious by the references cited in the Office Action based at least on the dependence on amended independent claim 6. The Applicant submits that claims 12-20 are also not taught, suggested, or rendered obvious by the references cited in the Office Action based at least on the dependence on amended independent claim 11. Further, each of dependent claims 2-5, 7-10, and 12-20 separately recites subject matter not disclosed or suggested by any of the cited references, whether taken individually or in combination.

Application No. 15/622,839
Reply to Office Action of October 4, 2018

CONCLUSION

Based on at least the foregoing, the Applicant believes that claims 1-20 are in condition for allowance. A Notice of Allowability is courteously solicited.

The Applicant authorizes the USPTO to charge any additional fees or credit any overpayment to the deposit account **15-0461**. Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact the undersigned attorney of record below to conduct an interview in an effort to expedite prosecution in connection with the present application.

Date: January 4, 2019

Respectfully submitted,

/R. Brian Drozd/
R. Brian Drozd
Registration No. 55,130
Attorney for Applicant

Electronic Acknowledgement Receipt	
EFS ID:	34767992
Application Number:	15622839
International Application Number:	
Confirmation Number:	8972
Title of Invention:	METHOD TO INCREASE RFID TAG SENSITIVITY
First Named Inventor/Applicant Name:	Pavel NIKITIN
Customer Number:	113760
Filer:	Joel S. Armstrong/Carrie Smith
Filer Authorized By:	Joel S. Armstrong
Attorney Docket Number:	H0055604
Receipt Date:	04-JAN-2019
Filing Date:	14-JUN-2017
Time Stamp:	16:50:25
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		Amendment.pdf	336676	yes	15
			df610257d81ae3cb681ed58e8b264afdd08dab07		

	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	15
Warnings:			
Information:			
Total Files Size (in bytes):		336676	
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 NUMBER	FILING OR 371(C) DATE	FIRST NAMED APPLICANT	ATTY. DOCKET NO./TITLE
15/622,839	06/14/2017	Pavel NIKITIN	H0055604

CONFIRMATION NO. 8972

PUBLICATION NOTICE

113760
HONEYWELL/OLIFF PLC
115 Tabor Road
P.O. Box 377
MORRIS PLAINS, NJ 07950



Title:METHOD TO INCREASE RFID TAG SENSITIVITY

Publication No.US-2018-0365549-A1

Publication Date:12/20/2018

NOTICE OF PUBLICATION OF APPLICATION

The above-identified application will be electronically published as a patent application publication pursuant to 37 CFR 1.211, et seq. The patent application publication number and publication date are set forth above.

The publication may be accessed through the USPTO's publically available Searchable Databases via the Internet at www.uspto.gov. The direct link to access the publication is currently <http://www.uspto.gov/patft/>.

The publication process established by the Office does not provide for mailing a copy of the publication to applicant. A copy of the publication may be obtained from the Office upon payment of the appropriate fee set forth in 37 CFR 1.19(a)(1). Orders for copies of patent application publications are handled by the USPTO's Public Records Division. The Public Records Division can be reached by telephone at (571) 272-3150 or (800) 972-6382, by facsimile at (571) 273-3250, by mail addressed to the United States Patent and Trademark Office, Public Records Division, Alexandria, VA 22313-1450 or via the Internet.

In addition, information on the status of the application, including the mailing date of Office actions and the dates of receipt of correspondence filed in the Office, may also be accessed via the Internet through the Patent Electronic Business Center at www.uspto.gov using the public side of the Patent Application Information and Retrieval (PAIR) system. The direct link to access this status information is currently <https://portal.uspto.gov/pair/PublicPair>. Prior to publication, such status information is confidential and may only be obtained by applicant using the private side of PAIR.

Further assistance in electronically accessing the publication, or about PAIR, is available by calling the Patent Electronic Business Center at 1-866-217-9197.

Office of Data Management, Application Assistance Unit (571) 272-4000, or (571) 272-4200, or 1-888-786-0101

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)

Approved for use through 11/30/2020. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2876
	Examiner Name	D. P. Tardif
	Attorney Docket Number	H0055604

U.S.PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
	1	8610539		2013-12-17	Solomon			
	2	8947214		2015-02-03	Solomon			
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S.PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear		
	1	20070200681	A1	2007-08-30	Colby			
	2	20130201000	A1	2013-08-08	Solomon			
	3	20140033289	A1	2014-01-30	Solomon			
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T ⁵

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2876
	Examiner Name	D. P. Tardif
	Attorney Docket Number	H0055604

	1						
--	---	--	--	--	--	--	--

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	November 1, 2018 Office Action issued in U.S. Patent Application No. 15/637,520.	

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2876
	Examiner Name	D. P. Tardif
	Attorney Docket Number	H0055604

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).



✕ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/R. Brian Drozd/	Date (YYYY-MM-DD)	2018-11-20
Name/Print	R. Brian Drozd	Registration Number	55,130

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Pavel NIKITIN et al.

Attorney Docket No.: H0055604

Application No.: 15/622,839

Confirmation No.: 8972

Filed: June 14, 2017

Art Unit: 2876

For: METHOD TO INCREASE RFID TAG
SENSITIVITY

Examiner: D. P. Tardif

INFORMATION DISCLOSURE STATEMENT WITH 30-DAY CERTIFICATION

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

Pursuant to 37 CFR §1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO/SB/08 Form. Unless otherwise indicated herein, one copy of each item(s) is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

- ☒ 1. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, Notice of Allowance or other action that closes prosecution (e.g., Quayle Action).
- ☒ a. I hereby certify that no item of information in this Information Disclosure Statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to my knowledge after making reasonable inquiry, no item of information in this Information Disclosure Statement was known to any individual designated in 37 CFR §1.56(c) more than three months prior to the filing of this Information Disclosure Statement. 37 CFR §1.97(e)(2).

- ☒ 2. Each item of information contained in this Information Disclosure Statement:
- (i) Was first cited in any communication from a patent office in a counterpart foreign or international application or from the Office, and this communication was not received by an individual designated in § 1.56(c) more than thirty days prior to the filing of this Information Disclosure Statement; or
 - (ii) Is a communication that was issued by a patent office in a counterpart foreign or international application or by the Office, and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.

Respectfully submitted,

Electronic signature: /R. Brian Drozd/
R. Brian Drozd
Registration No.: 55,130

RBD/chs

Date: November 20, 2018

OLIFF PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry of this filing; Charge any fee due to our Deposit Account No. 15-0461

Electronic Acknowledgement Receipt	
EFS ID:	34361814
Application Number:	15622839
International Application Number:	
Confirmation Number:	8972
Title of Invention:	METHOD TO INCREASE RFID TAG SENSITIVITY
First Named Inventor/Applicant Name:	Pavel NIKITIN
Customer Number:	113760
Filer:	Robert Brian Drozd/Carrie Smith
Filer Authorized By:	Robert Brian Drozd
Attorney Docket Number:	H0055604
Receipt Date:	20-NOV-2018
Filing Date:	14-JUN-2017
Time Stamp:	14:22:25
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	Non Patent Literature	OA.PDF	376900	no	10
			5caacd7ec0dc4884b44ed6782737dd8727364d09		

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	20181113_-_Information_Disclosure_Statement_Fillable_PDF.pdf	1034682 ee85be4d7671c47834e10ccb7e88fdbb7bf b9a2d	no	4
Warnings:					
Information:					
3	Transmittal Letter	Information_Disclosure_Statement.pdf	23022 e9fe967568cb3b578036c55eeb71c676480 9afa0	no	2
Warnings:					
Information:					
Total Files Size (in bytes):			1434604		
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.					

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2876
	Examiner Name	D. P. Tardif
	Attorney Docket Number	H0055604

U.S. PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1	7232069	B1	2007-06-19	White			
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S. PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1	20120083205	A1	2012-04-05	Marcu et al.			
	2	20090094410	A1	2009-04-09	Kari et al.			
	3	20090015407	A1	2009-01-15	Tuttle			
	4	20110140537	A1	2011-06-16	Takei			
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2876
	Examiner Name	D. P. Tardif
	Attorney Docket Number	H0055604

	1						
--	---	--	--	--	--	--	--

If you wish to add additional Foreign Patent Document citation information please click the Add button

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	October 25, 2018 Search Report issued in European Patent Application No. 18177629.5.	

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2876
	Examiner Name	D. P. Tardif
	Attorney Docket Number	H0055604

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

☒ That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☒ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/R. Brian Drozd/	Date (YYYY-MM-DD)	2018-11-20
Name/Print	R. Brian Drozd	Registration Number	55,130

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Pavel NIKITIN et al.

Attorney Docket No.: H0055604

Application No.: 15/622,839

Confirmation No.: 8972

Filed: June 14, 2017

Art Unit: 2876

For: METHOD TO INCREASE RFID TAG
SENSITIVITY

Examiner: D. P. Tardif

INFORMATION DISCLOSURE STATEMENT WITH 30-DAY CERTIFICATION

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

Pursuant to 37 CFR §1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO/SB/08 Form. Unless otherwise indicated herein, one copy of each item(s) is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

- ☒ 1. This Information Disclosure Statement is being filed more than three months after the U.S. filing date AND after the mailing date of the first Office Action on the merits, but before the mailing date of a Final Rejection, Notice of Allowance or other action that closes prosecution (e.g., Quayle Action).
- ☒ a. I hereby certify that each item of information contained in this Information Disclosure Statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.
37 CFR §1.97(e)(1).

- ☒ 2. Each item of information contained in this Information Disclosure Statement:
- (i) Was first cited in any communication from a patent office in a counterpart foreign or international application or from the Office, and this communication was not received by an individual designated in § 1.56(c) more than thirty days prior to the filing of this Information Disclosure Statement; or
 - (ii) Is a communication that was issued by a patent office in a counterpart foreign or international application or by the Office, and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.

Respectfully submitted,

Electronic signature: /R. Brian Drozd/
R. Brian Drozd
Registration No.: 55,130

RBD/chs

Date: November 20, 2018

OLIFF PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry of this filing; Charge any fee due to our Deposit Account No. 15-0461

Electronic Acknowledgement Receipt	
EFS ID:	34365091
Application Number:	15622839
International Application Number:	
Confirmation Number:	8972
Title of Invention:	METHOD TO INCREASE RFID TAG SENSITIVITY
First Named Inventor/Applicant Name:	Pavel NIKITIN
Customer Number:	113760
Filer:	Robert Brian Drozd/Carrie Smith
Filer Authorized By:	Robert Brian Drozd
Attorney Docket Number:	H0055604
Receipt Date:	20-NOV-2018
Filing Date:	14-JUN-2017
Time Stamp:	16:19:52
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	Non Patent Literature	EPSR.PDF	391969	no	8
			513eb813d26ff3ed997ce1bf2f3890d9f22a7866		

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	20181120_-_Information_Disclosure_Statement_Fillable_PDF.pdf	1034647	no	4
			cae7419d23a85c8924b2f764a7fc955e89552cf5		
Warnings:					
Information:					
3	Transmittal Letter	IDS_Transmittal_2.pdf	22814	no	2
			06b6265f72c52d3cc5588c7ead05f54e9f0dec32		
Warnings:					
Information:					
Total Files Size (in bytes):			1449430		
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.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
15/622,839	06/14/2017	Pavel NIKITIN	H0055604	8972
113760 7590 10/04/2018 HONEYWELL/OLIFF PLC 115 Tabor Road P.O. Box 377 MORRIS PLAINS, NJ 07950			EXAMINER TARDIF, DAVID P	
			ART UNIT 2876	PAPER NUMBER
			NOTIFICATION DATE 10/04/2018	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):

patentservices-us@honeywell.com
OfficeAction113760@oliff.com
SPSIP@honeywell.com

Office Action Summary	Application No. 15/622,839	Applicant(s) NIKITIN ET AL.	
	Examiner DAVID TARDIF	Art Unit 2876	AIA (First Inventor to File) Status Yes

-- 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 _____.
☐ 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 06/14/2017 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 20180424, 20180126, 20170713, 20170614.
- 3) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 4) ☐ Other: _____.

DETAILED ACTION

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

Information Disclosure Statement

The information disclosure statements (IDS) submitted 04/24/2018, 01/26/2018, 07/13/2017 and 06/14/2017 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

Claim Rejections - 35 USC § 112

The following is a quotation of 35 U.S.C. 112(b):

(b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. **Claim 18** is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor, or for pre-AIA the applicant regards as the invention.

Claim 18 recites "the amount of reflectance of by the main antenna of the RF signal", which is unclear. More unclear is that if this is assumed to be the reflectance of the main antenna during harvesting power from the RF signal, it is unclear how the main antenna can have equal magnitude but opposite polarity to *itself* during the second reflectance period.

Claim Rejections - 35 USC § 103

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

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

2. **Claims 1-4, 6-9, 11-17 and 19** are rejected under 35 U.S.C. 103 as being unpatentable over Korva (2013/0241779) as modified by Wang (2013/0181815).

As to **claims 1, 6, 11-17**: Korva teaches a radio-frequency identification (RFID) tag comprising (abstract, small radio device):

a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal (paragraph 0004, passive parasitic antenna);

a switch connected to the main antenna and a separate length of antenna ; and

a circuit connected to a different portion of the main antenna than the switch, the circuit being configured to (paragraph 0044):

vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having high reflectance periods when an amount of reflectance by the main antenna of the RF signal is greater than a predetermined amount, and low reflectance periods when an amount of reflectance by the main antenna of the RF signal is lower than the predetermined amount;

reduce the reflectance of the main antenna below a predefined amount during the high reflectance periods to enable wireless power harvesting during the high reflectance periods by changing a resonant frequency of the main antenna to generate the high reflectance periods and low reflectance periods; and

change the resonant frequency by controlling the switch to intermittently connect the separate length of antenna to the main antenna (paragraph 0049 defining the high resonance period, paragraphs 0053-0054 explaining the length of the antennas corresponds to the resonance periods, which corresponds to reflectance periods, thus the resonant frequency of the antenna alternates depending on the resonant frequency of the incoming signal).

Korva is silent as to a physical switch that changes between antennas based upon an incoming signal frequency.

Wang teaches an RFID system with multiple antennas of different lengths, wherein the antennas are switched between by a physical switch when a particular condition which is related to the reflectance of the signal as being matched by the

antenna (paragraphs 0019 explaining selecting a different antenna, 0029 explaining altering the antenna selection through the reflection coefficient, switch explained in paragraph 0019).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Korva with the teachings of Wang so that the proper antenna length is selected for the task, thereby offering a greater overall RF strength (Wang, paragraph 0019) in the situation with multiple antennas to provide power to the circuit (paragraph 0003).

As to **claims 2, 3, 7 and 8**: Korva teaches that the predetermined amount is a reflection coefficient magnitude of between 0 and 0.5 (paragraph 0053).

As to **claims 4, 9 and 19**: Wang teaches that the circuit is ASIC (paragraph 0015).

3. **Claims 5, 10 and 20** are rejected under 35 U.S.C. 103 as being unpatentable over Korva (2013/0241779) as modified by Wang (2013/0181815), and further in view of Duan (6,243,013). The teachings of Korva as modified by Wang are discussed above.

As to **claims 5, 10 and 20**: Korva as modified by Wang teaches the limitations of claims 1, 6 and 11.

Korva as modified by Wang is silent as to that the antenna is linearly polarized.

Duan teaches that an RF transponder with multiple antennas which are linearly polarized (abstract, column 4, lines 17-29).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of Korva as modified by Wang with the teachings of Duan so that the antenna propagates in a specific direction, thereby reducing the necessary power emit and size of the apparatus.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID TARDIF whose telephone number is (571)270-7810. The examiner can normally be reached on Monday through Friday, 9:00 AM - 5:00 PM. If the examiner cannot be reached by telephone, he can be reached through the following email address: david.tardif@uspto.gov

If attempts to reach the examiner by telephone and email are unsuccessful, the examiner's supervisor, Michael Lee can be reached on (571)272-2398. 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). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DAVID TARDIF/
Examiner, Art Unit 2876
david.tardif@uspto.gov

/MICHAEL G LEE/
Supervisory Patent Examiner, Art Unit 2876

Notice of References Cited	Application/Control No. 15/622,839	Applicant(s)/Patent Under Reexamination NIKITIN ET AL.	
	Examiner DAVID TARDIF	Art Unit 2876	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A	US-6,243,013 B1	06-2001	Duan; Dah Weih	G06K19/0701	340/572.4
*	B	US-2013/0181815 A1	07-2013	Wang; Ynjiun Paul	G06K7/10356	340/10.1
*	C	US-2013/0241779 A1	09-2013	Korva; Heikki	H01Q1/243	343/700MS
	D	US-				
	E	US-				
	F	US-				
	G	US-				
	H	US-				
	I	US-				
	J	US-				
	K	US-				
	L	US-				
	M	US-				

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	CPC Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

EAST Search History

EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
L1	19	antenna same (reflection and length same induct\$4 and switch) and rfid and coefficient	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 21:14
L2	19	antenna same (reflection and length same induct\$4 and switch) and rfid and coefficient near1 reflection	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 21:14
L3	3	antenna same (reflection and length same induct\$4 and switch) and rfid and coefficient near1 reflection and (high\$3 low\$4) near2 reflect\$5	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 21:19
L4	1	"20130241779".pn.	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 21:28
L5	34	("20050237198" "20070194914" "20100123581" "20120211560" "20150379459" "20080303633" "20160364642" "20060133175" "20110205026" "20140001876" "20140016719" "20140045425" "9514402" "20040263319" "20050052279" "20060163370" "20140176307" "5649295" "6243013" "6265962" "6456668" "6802659" "7304579" "7525438" "7952464" "8207828" "8253539" "8258920" "8416079" "8564412" "9055798" "9082057" "9165170" "9317729").PN.	US-PGPUB; USPAT	OR	OFF	2018/09/28 21:54
L6	1	L5 and reflection and linear\$2 with polariz\$5	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 21:54
S1	0	"15622839"	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 17:19
S2	34	("20050237198" "20070194914" "20100123581" "20120211560" "20150379459" "20080303633" "20160364642" "20060133175" "20110205026" "20140001876" "20140016719" "20140045425" "9514402" "20040263319" "20050052279" "20060163370" "20140176307" "5649295" "6243013" "6265962" "6456668" "6802659" "7304579" "7525438" "7952464" "8207828" "8253539" "8258920" "8416079" "8564412"	US-PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 17:19

		"9055798" "9082057" "9165170" "9317729").PN.				
S3	10	S2 and reflection	US- PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 17:22
S4	34	("20050237198" "20070194914" "20100123581" "20120211560" "20150379459" "20080303633" "20160364642" "20060133175" "20110205026" "20140001876" "20140016719" "20140045425" "9514402" "20040263319" "20050052279" "20060163370" "20140176307" "5649295" "6243013" "6265962" "6456668" "6802659" "7304579" "7525438" "7952464" "8207828" "8253539" "8258920" "8416079" "8564412" "9055798" "9082057" "9165170" "9317729").PN.	US- PGPUB; USPAT	OR	OFF	2018/09/28 19:34
S5	10	S4 and reflection	US- PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 19:35
S6	3	S4 and reflection and length	US- PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 19:36
S7	273	antenna same reflection same length same induct\$4	US- PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 19:36
S8	17	antenna same reflection same length same induct\$4 same switch	US- PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 19:36
S9	0	antenna same reflection same length same induct\$4 same switch and rfid	US- PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 19:37
S10	32	antenna same (reflection and length same induct\$4 and switch) and rfid	US- PGPUB; USPAT; USOCR	OR	OFF	2018/09/28 19:37

9/ 28/ 2018 10:05:52 PM

C:\Users\dtardif\Documents\EAST\Workspaces\15622839.wsp

<i>Index of Claims</i> 	Application/Control No. 15622839	Applicant(s)/Patent Under Reexamination NIKITIN ET AL.
	Examiner DAVID TARDIF	Art Unit 2876

✓	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	09/28/2018									
	1	✓									
	2	✓									
	3	✓									
	4	✓									
	5	✓									
	6	✓									
	7	✓									
	8	✓									
	9	✓									
	10	✓									
	11	✓									
	12	✓									
	13	✓									
	14	✓									
	15	✓									
	16	✓									
	17	✓									
	18	✓									
	19	✓									
	20	✓									

Search Notes 	Application/Control No. 15622839	Applicant(s)/Patent Under Reexamination NIKITIN ET AL.
	Examiner DAVID TARDIF	Art Unit 2876

CPC- SEARCHED		
Symbol	Date	Examiner

CPC COMBINATION SETS - SEARCHED		
Symbol	Date	Examiner

US CLASSIFICATION SEARCHED			
Class	Subclass	Date	Examiner
235	487	09/28/18	DT

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

SEARCH NOTES		
Search Notes	Date	Examiner
Consulted SPE Michael Lee	09/28/18	DT
Performed Inventor Name Search	09/28/18	DT
Attached EAST Search History	09/28/18	DT

INTERFERENCE SEARCH			
US Class/ CPC Symbol	US Subclass / CPC Group	Date	Examiner

--	--

Receipt date: 06/14/2017

15/622,839 - GAU: 2876

Doc code: IDS

PTO/SB/08a (03-15)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 07/31/2016. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	
	Filing Date	
	First Named Inventor	Pavel NIKITIN
	Art Unit	N/A
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	H0055604

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
	1	9165170		2015-10-20	Gutnik et al.	
	2	8564412		2013-10-22	Nikitin et al.	
	3	6456668		2002-09-24	MacLellan et al.	
	4	6265962		2001-07-24	Black et al.	
	5	6243013		2001-06-05	Duan et al.	
	6	7525438		2009-04-28	Hyde et al.	
	7	8253539		2012-08-28	Scaramozzino	
	8	5649295		1997-07-15	Shober et al.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	Pavel NIKITIN	
Art Unit	N/A	
Examiner Name	Not Yet Assigned	
Attorney Docket Number	H0055604	

9	7304579		2007-12-04	Diorio et al.	
10	8207828		2012-06-26	Hanebeck	
11	9317729		2016-04-19	Krusor et al.	
12	9082057		2015-07-14	McGregor	
13	7952464		2011-05-31	Nikitin et al.	
14	8416079		2013-04-09	Roesner	
15	9055798		2015-06-16	Scicluna	
16	8258920		2012-09-04	Crucs	
17	6802659		2004-10-12	Cremon et al.	

If you wish to add additional U.S. Patent citation information please click the Add button.

Add

U.S.PATENT APPLICATION PUBLICATIONS

Remove

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
-------------------	---------	--------------------	------------------------	------------------	---	--

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	Pavel NIKITIN	
Art Unit	N/A	
Examiner Name	Not Yet Assigned	
Attorney Docket Number	H0055604	

1	20050052279	A1	2005-03-10	Bridgelall
2	20060163370	A1	2006-07-27	Diorio et al.
3	20040263319	A1	2004-12-30	Huomo
4	20140176307	A1	2014-06-26	FORSTER

If you wish to add additional U.S. Published Application citation information please click the Add button.

Add

FOREIGN PATENT DOCUMENTS

Remove

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button.

Add

NON-PATENT LITERATURE DOCUMENTS

Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	NIKITIN et al; "UHF RFID Tag Characterization: Overview and State-of-the-Art," AMTA Conference, Seattle, Washington; October 2012; 6 pp.	
	2	NIKITIN et al; "Effect of Gen2 Protocol Parameters on RFID Tag Performance;" IEEE RFID Conference, Orlando, Florida; April 2009; 6 pp.	

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number		
Filing Date		
First Named Inventor	Pavel NIKITIN	
Art Unit	N/A	
Examiner Name	Not Yet Assigned	
Attorney Docket Number	H0055604	

3	PILLAI et al; "A Technique for Simultaneous Multiple Tag Identification;" IEEE Workshop on Automatic Identification Advanced Technologies; October 2005; pp. 35-38.
4	NIKITIN et al; "Differential RCS of RFID tag;" Electronics Letters; 12 April 2007; Vol. 43; No. 8; 2 pp.
5	NIKITIN et al; "Power Reflection Coefficient Analysis for Complex Impedances in RFID Tag Design;" IEEE Transactions on Microwave Theory and Techniques; 9 September 2005; Vol. 53; No. 9; pp. 2721-2725.
6	D'ORAZIO; "Pitt researchers' NFC and RFID cards feature a touch-sensitive on/off switch;" The Verge; February 19, 2012; retrieved from http://www.theverge.com/2012/2/19/2809205/nfc-rfid-credit-card-on-off-switch .
7	"UCODE;" May 21, 2015; retrieved from http://www.nxp.com/products/identification-and-security/smart-label-and-tag-cs/ucode:MC_50483 .
8	U.S. Patent Application No. 15/343,553 filed November 4, 2016 in the name of NIKITIN et al.

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/DAVID TARDIF/	Date Considered	09/28/2018
--------------------	----------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	
Filing Date	
First Named Inventor	Pavel NIKITIN
Art Unit	N/A
Examiner Name	Not Yet Assigned
Attorney Docket Number	H0055604

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).



☒ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/R. Brian Drozd/	Date (YYYY-MM-DD)	2017-06-14
Name/Print	R. Brian Drozd	Registration Number	55,130

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

/DAVID TARDIF/

09/28/2018

Receipt date: 07/13/2017

15/622,839 - GAU: 2876

Doc code: IDS

PTO/SB/08a (03-15)

Doc description: Information Disclosure Statement (IDS) Filed

Approved for use through 07/31/2016. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2685
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	H0055604

U.S.PATENTS							Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	
	1	9514402		2016-12-06	Kim et al.		
If you wish to add additional U.S. Patent citation information please click the Add button.							Add
U.S.PATENT APPLICATION PUBLICATIONS							Remove
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	
	1	20060133175	A1	2006-06-22	Gutnik et al.		
	2	20110205026	A1	2011-08-25	Bateman		
	3	20140001876	A1	2014-01-02	Fujiwara et al.		
	4	20140016719	A1	2014-01-16	MANKU		
	5	20140045425	A1	2014-02-13	ROH et al.		
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add
FOREIGN PATENT DOCUMENTS							Remove

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15622839
Filing Date	2017-06-14
First Named Inventor	Pavel NIKITIN
Art Unit	2685
Examiner Name	Not Yet Assigned
Attorney Docket Number	H0055604

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button

Add

NON-PATENT LITERATURE DOCUMENTS

Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	June 15, 2017 Office Action issued in U.S. Patent Application No. 15/343,553.	
	2	U.S. Patent Application No. 15/637,520 filed June 29, 2017 in the name of NIKITIN et al.	

If you wish to add additional non-patent literature document citation information please click the Add button

Add

EXAMINER SIGNATURE

Examiner Signature	/DAVID TARDIF/	Date Considered	09/28/2018
--------------------	----------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15622839
Filing Date	2017-06-14
First Named Inventor	Pavel NIKITIN
Art Unit	2685
Examiner Name	Not Yet Assigned
Attorney Docket Number	H0055604

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).



☒ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Brian L. Repper/	Date (YYYY-MM-DD)	2017-07-13
Name/Print	Brian L. Repper	Registration Number	68,517

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

/DAVID TARDIF/

09/28/2018

Receipt date: 01/26/2018

15/622,839 - GAU: 2876

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)

Approved for use through 07/31/2016. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2685
	Examiner Name	D. Tardif
	Attorney Docket Number	H0055604

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1					

If you wish to add additional U.S. Patent citation information please click the Add button.

Add

U.S.PATENT APPLICATION PUBLICATIONS						Remove
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	20080303633	A1	2008-12-11	Cheng et al.	
	2	20160364642	A1	2016-12-15	VIALA et al.	

If you wish to add additional U.S. Published Application citation information please click the Add button.

Add

FOREIGN PATENT DOCUMENTS								Remove
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button

Add

NON-PATENT LITERATURE DOCUMENTS								Remove
---------------------------------	--	--	--	--	--	--	--	--------

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15622839
Filing Date	2017-06-14
First Named Inventor	Pavel NIKITIN
Art Unit	2685
Examiner Name	D. Tardif
Attorney Docket Number	H0055604

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	January 8, 2018 Notice of Allowance issued in U.S. Patent Application No. 15/343,553.	

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature	/DAVID TARDIF/	Date Considered	09/28/2018
--------------------	----------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15622839
Filing Date	2017-06-14
First Named Inventor	Pavel NIKITIN
Art Unit	2685
Examiner Name	D. Tardif
Attorney Docket Number	H0055604

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).



☒ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Brian L. Repper/	Date (YYYY-MM-DD)	2018-01-26
Name/Print	Brian L. Repper	Registration Number	68,517

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

/DAVID TARDIF/

09/28/2018

Receipt date: 04/24/2018

15/622,839 - GAU: 2876

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)

Approved for use through 11/30/2020. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2685
	Examiner Name	D. Tardif
	Attorney Docket Number	H0055604

U.S. PATENTS							Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	
	1						
If you wish to add additional U.S. Patent citation information please click the Add button.							Add
U.S. PATENT APPLICATION PUBLICATIONS							Remove
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	
	1	20050237198	A1	2005-10-27	Waldner et al.		
	2	20070194914	A1	2007-08-23	Gates		
	3	20100123581	A1	2010-05-20	Hatfield et al.		
	4	20120211560	A1	2012-08-23	Su et al.		
	5	20150379459	A1	2015-12-31	Russell et al.		
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add
FOREIGN PATENT DOCUMENTS							Remove

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15622839
Filing Date	2017-06-14
First Named Inventor	Pavel NIKITIN
Art Unit	2685
Examiner Name	D. Tardif
Attorney Docket Number	H0055604

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button

Add

NON-PATENT LITERATURE DOCUMENTS

Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	March 27, 2018 Office Action issued in U.S. Patent Application No. 15/637,520.	

If you wish to add additional non-patent literature document citation information please click the Add button

Add

EXAMINER SIGNATURE

Examiner Signature	/DAVID TARDIF/	Date Considered	09/28/2018
--------------------	----------------	-----------------	------------

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

**INFORMATION DISCLOSURE
STATEMENT BY APPLICANT**
(Not for submission under 37 CFR 1.99)

Application Number	15622839
Filing Date	2017-06-14
First Named Inventor	Pavel NIKITIN
Art Unit	2685
Examiner Name	D. Tardif
Attorney Docket Number	H0055604

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).



☒ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Brian L. Repper/	Date (YYYY-MM-DD)	2018-04-24
Name/Print	Brian L. Repper	Registration Number	68,517

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

/DAVID TARDIF/

09/28/2018



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

BIB DATA SHEET

CONFIRMATION NO. 8972

SERIAL NUMBER 15/622,839	FILING or 371(c) DATE 06/14/2017 RULE	CLASS 235	GROUP ART UNIT 2876	ATTORNEY DOCKET NO. H0055604		
APPLICANTS INTERMEC, INC., Lynnwood, WA; INVENTORS Pavel NIKITIN, Seattle, WA; Stephen J. KELLY, Seattle, WA; Rene MARTINEZ, Seattle, WA; /DT/ ** CONTINUING DATA ***** NONE /DT/ ** FOREIGN APPLICATIONS ***** ** IF REQUIRED, FOREIGN FILING LICENSE GRANTED ** NONE /DT/ 06/21/2017						
Foreign Priority claimed ☐ Yes ☒ No 35 USC 119(a-d) conditions met ☐ Yes ☒ No Verified and /DAVID TARDIF/ Acknowledged Examiner's Signature		☐ Met after Allowance Initials	STATE OR COUNTRY WA	SHEETS DRAWINGS 3	TOTAL CLAIMS 20	INDEPENDENT CLAIMS 3
ADDRESS HONEYWELL/OLIFF PLC 115 Tabor Road P.O. Box 377 MORRIS PLAINS, NJ 07950 UNITED STATES						
TITLE METHOD TO INCREASE RFID TAG SENSITIVITY						
FILING FEE RECEIVED 1600	FEES: Authority has been given in Paper No. _____ to charge/credit DEPOSIT ACCOUNT No. _____ for following:		☐ All Fees ☐ 1.16 Fees (Filing) ☐ 1.17 Fees (Processing Ext. of time) ☐ 1.18 Fees (Issue) ☐ Other _____ ☐ Credit			

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2685
	Examiner Name	D. Tardif
	Attorney Docket Number	H0055604

U.S.PATENTS							Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	
	1						
If you wish to add additional U.S. Patent citation information please click the Add button.							Add
U.S.PATENT APPLICATION PUBLICATIONS							Remove
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	
	1	20050237198	A1	2005-10-27	Waldner et al.		
	2	20070194914	A1	2007-08-23	Gates		
	3	20100123581	A1	2010-05-20	Hatfield et al.		
	4	20120211560	A1	2012-08-23	Su et al.		
	5	20150379459	A1	2015-12-31	Russell et al.		
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add
FOREIGN PATENT DOCUMENTS							Remove

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		15622839
	Filing Date		2017-06-14
	First Named Inventor	Pavel NIKITIN	
	Art Unit	2685	
	Examiner Name	D. Tardif	
	Attorney Docket Number	H0055604	

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button

Add

NON-PATENT LITERATURE DOCUMENTS

Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	March 27, 2018 Office Action issued in U.S. Patent Application No. 15/637,520.	

If you wish to add additional non-patent literature document citation information please click the Add button

Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2685
	Examiner Name	D. Tardif
	Attorney Docket Number	H0055604

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☒ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Brian L. Repper/	Date (YYYY-MM-DD)	2018-04-24
Name/Print	Brian L. Repper	Registration Number	68,517

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Pavel NIKITIN et al.

Attorney Docket No.: H0055604

Application No.: 15/622,839

Confirmation No.: 8972

Filed: June 14, 2017

Art Unit: 2685

For: METHOD TO INCREASE RFID TAG
SENSITIVITY

Examiner: D. Tardif

INFORMATION DISCLOSURE STATEMENT WITH 30-DAY CERTIFICATION

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

Pursuant to 37 CFR §1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO/SB/08 Form. Unless otherwise indicated herein, one copy of each item(s) is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

- ☒ 1. This Information Disclosure Statement is being filed (a) within three months of the U.S. filing date of this non-CPA application, OR (b) before the mailing date of a first Office Action on the merits in the present application. No certification or fee is required.

- ☒ 2. Each item of information contained in this Information Disclosure Statement:
- (i) Was first cited in any communication from a patent office in a counterpart foreign or international application or from the Office, and this communication was not received by an individual designated in § 1.56(c) more than thirty days prior to the filing of this Information Disclosure Statement; or
 - (ii) Is a communication that was issued by a patent office in a counterpart foreign or international application or by the Office, and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.

Respectfully submitted,

Electronic signature: /Brian L. Repper/
R. Brian Drozd
Registration No.: 55,130
Brian L. Repper
Registration No.: 68,517

RBD:BLR/jla

Date: April 24, 2018

OLIFF PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry of this filing; Charge any fee due to our Deposit Account No. 15-0461

Electronic Acknowledgement Receipt	
EFS ID:	32427839
Application Number:	15622839
International Application Number:	
Confirmation Number:	8972
Title of Invention:	METHOD TO INCREASE RFID TAG SENSITIVITY
First Named Inventor/Applicant Name:	Pavel NIKITIN
Customer Number:	113760
Filer:	James Albert Oliff/Joy Aiken
Filer Authorized By:	James Albert Oliff
Attorney Docket Number:	H0055604
Receipt Date:	24-APR-2018
Filing Date:	14-JUN-2017
Time Stamp:	14:16:59
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	Information Disclosure Statement (IDS) Form (SB08)	Information_Disclosure_Statement_Fillable_PDF.pdf	1034429 fcc455d4527e79324923d66f773cb4c9c3addc6b	no	4

Warnings:

Information:					
2	Transmittal Letter	Information_Disclosure_State ment.pdf	22575	no	2
			08cc0b5f0c46fc57bfe8f362152ca259dd3d48c		
Warnings:					
Information:					
3	Non Patent Literature	OAI15637520.PDF	971919	no	19
			cedc98734d09281a73c5c62f39cact7845d2b88c		
Warnings:					
Information:					
Total Files Size (in bytes):			2028923		
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.					

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2685
	Examiner Name	D. Tardif
	Attorney Docket Number	H0055604

U.S. PATENTS							Remove	
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1							
If you wish to add additional U.S. Patent citation information please click the Add button.							Add	
U.S. PATENT APPLICATION PUBLICATIONS							Remove	
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear		
	1	20080303633	A1	2008-12-11	Cheng et al.			
	2	20160364642	A1	2016-12-15	VIALA et al.			
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add	
FOREIGN PATENT DOCUMENTS							Remove	
Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²ⁱ	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							
If you wish to add additional Foreign Patent Document citation information please click the Add button.							Add	
NON-PATENT LITERATURE DOCUMENTS							Remove	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		15622839
	Filing Date		2017-06-14
	First Named Inventor	Pavel NIKITIN	
	Art Unit	2685	
	Examiner Name	D. Tardif	
	Attorney Docket Number	H0055604	

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	January 8, 2018 Notice of Allowance issued in U.S. Patent Application No. 15/343,553.	

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2685
	Examiner Name	D. Tardif
	Attorney Docket Number	H0055604

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).



✕ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Brian L. Repper/	Date (YYYY-MM-DD)	2018-01-26
Name/Print	Brian L. Repper	Registration Number	68,517

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Pavel NIKITIN et al.

Attorney Docket No.: H0055604

Application No.: 15/622,839

Confirmation No.: 8972

Filed: June 14, 2017

Art Unit: 2685

For: METHOD TO INCREASE RFID TAG
SENSITIVITY

Examiner: D. Tardif

INFORMATION DISCLOSURE STATEMENT WITH 30-DAY CERTIFICATION

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

Pursuant to 37 CFR §1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO/SB/08 Form. Unless otherwise indicated herein, one copy of each item(s) is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

- ☒ 1. This Information Disclosure Statement is being filed (a) within three months of the U.S. filing date of this non-CPA application, OR (b) before the mailing date of a first Office Action on the merits in the present application. No certification or fee is required.

- ☒ 2. Each item of information contained in this Information Disclosure Statement:
- (i) Was first cited in any communication from a patent office in a counterpart foreign or international application or from the Office, and this communication was not received by an individual designated in § 1.56(c) more than thirty days prior to the filing of this Information Disclosure Statement; or
 - (ii) Is a communication that was issued by a patent office in a counterpart foreign or international application or by the Office, and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.

Respectfully submitted,

Electronic signature: /Brian L. Repper/
R. Brian Drozd
Registration No.: 55,130
Brian L. Repper
Registration No.: 68,517

RBD:BLR/jla

Date: January 26, 2018

OLIFF PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry of this filing; Charge any fee due to our Deposit Account No. 15-0461

Electronic Acknowledgement Receipt	
EFS ID:	31620952
Application Number:	15622839
International Application Number:	
Confirmation Number:	8972
Title of Invention:	METHOD TO INCREASE RFID TAG SENSITIVITY
First Named Inventor/Applicant Name:	Pavel NIKITIN
Customer Number:	113760
Filer:	James Albert Oliff/Joy Aiken
Filer Authorized By:	James Albert Oliff
Attorney Docket Number:	H0055604
Receipt Date:	26-JAN-2018
Filing Date:	14-JUN-2017
Time Stamp:	16:20:12
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	Non Patent Literature	1-8-18_NOA_US15343553.PDF	719818	no	13
			322c1fdb5d2b12e5167b7d093d6045fd8ff0d09		

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	Information_Disclosure_State ment_Fillable_PDF.pdf	1034973	no	4
			a9b6382ca7aa115d0b2748096f7b7d81720 9dd79		
Warnings:					
Information:					
3	Transmittal Letter	Information_Disclosure_State ment.pdf	22559	no	2
			9c765c61061129ec557804fb94ff9eba7c29 383f		
Warnings:					
Information:					
Total Files Size (in bytes):			1777350		
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.					

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2685
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	H0055604

U.S. PATENTS							Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	
	1	9514402		2016-12-06	Kim et al.		
If you wish to add additional U.S. Patent citation information please click the Add button.							Add
U.S. PATENT APPLICATION PUBLICATIONS							Remove
Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	
	1	20060133175	A1	2006-06-22	Gutnik et al.		
	2	20110205026	A1	2011-08-25	Bateman		
	3	20140001876	A1	2014-01-02	Fujiwara et al.		
	4	20140016719	A1	2014-01-16	MANKU		
	5	20140045425	A1	2014-02-13	ROH et al.		
If you wish to add additional U.S. Published Application citation information please click the Add button.							Add
FOREIGN PATENT DOCUMENTS							Remove

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		15622839
	Filing Date		2017-06-14
	First Named Inventor	Pavel NIKITIN	
	Art Unit	2685	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	H0055604	

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ² i	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button

Add

NON-PATENT LITERATURE DOCUMENTS

Remove

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	June 15, 2017 Office Action issued in U.S. Patent Application No. 15/343,553.	
	2	U.S. Patent Application No. 15/637,520 filed June 29, 2017 in the name of NIKITIN et al.	

If you wish to add additional non-patent literature document citation information please click the Add button

Add

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number	15622839
	Filing Date	2017-06-14
	First Named Inventor	Pavel NIKITIN
	Art Unit	2685
	Examiner Name	Not Yet Assigned
	Attorney Docket Number	H0055604

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☒ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Brian L. Repper/	Date (YYYY-MM-DD)	2017-07-13
Name/Print	Brian L. Repper	Registration Number	68,517

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Pavel NIKITIN et al.

Attorney Docket No.: H0055604

Application No.: 15/622,839

Confirmation No.: 8972

Filed: June 14, 2017

Art Unit: 2685

For: METHOD TO INCREASE RFID TAG
SENSITIVITY

Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT WITH 30-DAY CERTIFICATION

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

Pursuant to 37 CFR §1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO/SB/08 Form. Unless otherwise indicated herein, one copy of each item(s) is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

- ☒ 1. This Information Disclosure Statement is being filed (a) within three months of the U.S. filing date of this non-CPA application, OR (b) before the mailing date of a first Office Action on the merits in the present application. No certification or fee is required.
- ☒ 2. Each item of information contained in this Information Disclosure Statement:
- (i) Was first cited in any communication from a patent office in a counterpart foreign or international application or from the Office, and this communication was not received by an individual designated in § 1.56(c) more than thirty days prior to the filing of this Information Disclosure Statement; or
 - (ii) Is a communication that was issued by a patent office in a counterpart foreign or international application or by the Office, and this communication was not received by any individual designated in § 1.56(c) more than thirty days prior to the filing of this information disclosure statement.

Respectfully submitted,
Electronic signature: /Brian L. Repper/
R. Brian Drozd
Registration No.: 55,130
Brian L. Repper
Registration No.: 68,517

RBD:BLR/ssh
Date: July 13, 2017

OLIFF PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry of this filing; Charge any fee due to our Deposit Account No. 15-0461
--

Electronic Acknowledgement Receipt	
EFS ID:	29773134
Application Number:	15622839
International Application Number:	
Confirmation Number:	8972
Title of Invention:	METHOD TO INCREASE RFID TAG SENSITIVITY
First Named Inventor/Applicant Name:	Pavel NIKITIN
Customer Number:	113760
Filer:	James Albert Oliff/Sandradee Harris
Filer Authorized By:	James Albert Oliff
Attorney Docket Number:	H0055604
Receipt Date:	13-JUL-2017
Filing Date:	14-JUN-2017
Time Stamp:	13:42:27
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	Non Patent Literature	20170615OAIUS15343553.PDF	3450530	no	22
			930b5494b194c3c6026d9d02f41fc917bbd797de		

Warnings:

Information:					
2	Information Disclosure Statement (IDS) Form (SB08)	Information_Disclosure_Statement_Fillable_PDF.pdf	1035153	no	4
			037e56678b86de92ddcac4b038ba8b9cd39fb748		
Warnings:					
Information:					
3	Transmittal Letter	Information_Disclosure_Statement.pdf	20383	no	1
			e2597141ea9b88da6aad7154e41fdb3a4aa962ad		
Warnings:					
Information:					
Total Files Size (in bytes):			4506066		
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 NUMBER	FILING or 371(c) DATE	GRP ART UNIT	FIL FEE REC'D	ATTY. DOCKET NO.	TOT CLAIMS	IND CLAIMS
15/622,839	06/14/2017	2685	1600	H0055604	20	3

CONFIRMATION NO. 8972

FILING RECEIPT



000000092234705

113760
HONEYWELL/OLIFF PLC
115 Tabor Road
P.O. Box 377
MORRIS PLAINS, NJ 07950

Date Mailed: 06/26/2017

Receipt is acknowledged of this non-provisional patent application. The application will be taken up for examination in due course. Applicant will be notified as to the results of the examination. Any correspondence concerning the application must include the following identification information: the U.S. APPLICATION NUMBER, FILING DATE, NAME OF APPLICANT, and TITLE OF INVENTION. Fees transmitted by check or draft are subject to collection. Please verify the accuracy of the data presented on this receipt. **If an error is noted on this Filing Receipt, please submit a written request for a Filing Receipt Correction. Please provide a copy of this Filing Receipt with the changes noted thereon. If you received a "Notice to File Missing Parts" for this application, please submit any corrections to this Filing Receipt with your reply to the Notice. When the USPTO processes the reply to the Notice, the USPTO will generate another Filing Receipt incorporating the requested corrections**

Inventor(s)

Pavel NIKITIN, Seattle, WA;
Stephen J. KELLY, Seattle, WA;
Rene MARTINEZ, Seattle, WA;

Applicant(s)

INTERMEC, INC., Lynnwood, WA;

Assignment For Published Patent Application

INTERMEC, INC., Lynnwood, WA

Power of Attorney: The patent practitioners associated with Customer Number 113760

Domestic Applications for which benefit is claimed - None.

A proper domestic benefit claim must be provided in an Application Data Sheet in order to constitute a claim for domestic benefit. See 37 CFR 1.76 and 1.78.

Foreign Applications for which priority is claimed (You may be eligible to benefit from the **Patent Prosecution Highway** program at the USPTO. Please see <http://www.uspto.gov> for more information.) - None.

Foreign application information must be provided in an Application Data Sheet in order to constitute a claim to foreign priority. See 37 CFR 1.55 and 1.76.

Permission to Access Application via Priority Document Exchange: Yes

Permission to Access Search Results: Yes

Applicant may provide or rescind an authorization for access using Form PTO/SB/39 or Form PTO/SB/69 as appropriate.

If Required, Foreign Filing License Granted: 06/21/2017

The country code and number of your priority application, to be used for filing abroad under the Paris Convention, is **US 15/622,839**

Projected Publication Date: 12/20/2018

Non-Publication Request: No

Early Publication Request: No

Title

METHOD TO INCREASE RFID TAG SENSITIVITY

Preliminary Class

340

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications: No

PROTECTING YOUR INVENTION OUTSIDE THE UNITED STATES

Since the rights granted by a U.S. patent extend only throughout the territory of the United States and have no effect in a foreign country, an inventor who wishes patent protection in another country must apply for a patent in a specific country or in regional patent offices. Applicants may wish to consider the filing of an international application under the Patent Cooperation Treaty (PCT). An international (PCT) application generally has the same effect as a regular national patent application in each PCT-member country. The PCT process **simplifies** the filing of patent applications on the same invention in member countries, but **does not result** in a grant of "an international patent" and does not eliminate the need of applicants to file additional documents and fees in countries where patent protection is desired.

Almost every country has its own patent law, and a person desiring a patent in a particular country must make an application for patent in that country in accordance with its particular laws. Since the laws of many countries differ in various respects from the patent law of the United States, applicants are advised to seek guidance from specific foreign countries to ensure that patent rights are not lost prematurely.

Applicants also are advised that in the case of inventions made in the United States, the Director of the USPTO must issue a license before applicants can apply for a patent in a foreign country. The filing of a U.S. patent application serves as a request for a foreign filing license. The application's filing receipt contains further information and guidance as to the status of applicant's license for foreign filing.

Applicants may wish to consult the USPTO booklet, "General Information Concerning Patents" (specifically, the section entitled "Treaties and Foreign Patents") for more information on timeframes and deadlines for filing foreign patent applications. The guide is available either by contacting the USPTO Contact Center at 800-786-9199, or it can be viewed on the USPTO website at <http://www.uspto.gov/web/offices/pac/doc/general/index.html>.

For information on preventing theft of your intellectual property (patents, trademarks and copyrights), you may wish to consult the U.S. Government website, <http://www.stopfakes.gov>. Part of a Department of Commerce initiative, this website includes self-help "toolkits" giving innovators guidance on how to protect intellectual property in specific countries such as China, Korea and Mexico. For questions regarding patent enforcement issues, applicants may call the U.S. Government hotline at 1-866-999-HALT (1-866-999-4258).

LICENSE FOR FOREIGN FILING UNDER
Title 35, United States Code, Section 184
Title 37, Code of Federal Regulations, 5.11 & 5.15

GRANTED

The applicant has been granted a license under 35 U.S.C. 184, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" followed by a date appears on this form. Such licenses are issued in all applications where the conditions for issuance of a license have been met, regardless of whether or not a license may be required as set forth in 37 CFR 5.15. The scope and limitations of this license are set forth in 37 CFR 5.15(a) unless an earlier license has been issued under 37 CFR 5.15(b). The license is subject to revocation upon written notification. The date indicated is the effective date of the license, unless an earlier license of similar scope has been granted under 37 CFR 5.13 or 5.14.

This license is to be retained by the licensee and may be used at any time on or after the effective date thereof unless it is revoked. This license is automatically transferred to any related applications(s) filed under 37 CFR 1.53(d). This license is not retroactive.

The grant of a license does not in any way lessen the responsibility of a licensee for the security of the subject matter as imposed by any Government contract or the provisions of existing laws relating to espionage and the national security or the export of technical data. Licensees should apprise themselves of current regulations especially with respect to certain countries, of other agencies, particularly the Office of Defense Trade Controls, Department of State (with respect to Arms, Munitions and Implements of War (22 CFR 121-128)); the Bureau of Industry and Security, Department of Commerce (15 CFR parts 730-774); the Office of Foreign Assets Control, Department of Treasury (31 CFR Parts 500+) and the Department of Energy.

NOT GRANTED

No license under 35 U.S.C. 184 has been granted at this time, if the phrase "IF REQUIRED, FOREIGN FILING LICENSE GRANTED" DOES NOT appear on this form. Applicant may still petition for a license under 37 CFR 5.12, if a license is desired before the expiration of 6 months from the filing date of the application. If 6 months has lapsed from the filing date of this application and the licensee has not received any indication of a secrecy order under 35 U.S.C. 181, the licensee may foreign file the application pursuant to 37 CFR 5.15(b).

SelectUSA

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 U.S. offers tremendous resources and advantages for those who invest and manufacture goods here. Through SelectUSA, our nation works to promote and facilitate business investment. SelectUSA provides information assistance to the international investor community; serves as an ombudsman for existing and potential investors; advocates on behalf of U.S. cities, states, and regions competing for global investment; and counsels U.S. economic development organizations on investment attraction best practices. To learn more about why the United States is the best country in the world to develop technology, manufacture products, deliver services, and grow your business, visit <http://www.SelectUSA.gov> or call +1-202-482-6800.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875						Application or Docket Number 15/622,839				
APPLICATION AS FILED - PART I										
(Column 1)		(Column 2)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY				
FOR	NUMBER FILED	NUMBER EXTRA	RATE(\$)	FEE(\$)		RATE(\$)	FEE(\$)			
BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A	N/A			N/A	280			
SEARCH FEE (37 CFR 1.16(k), (l), or (m))	N/A	N/A	N/A			N/A	600			
EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A	N/A			N/A	720			
TOTAL CLAIMS (37 CFR 1.16(i))	20	minus 20 = *			OR	x 80 =	0.00			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	3	minus 3 = *				x 420 =	0.00			
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).						0.00			
MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j))							0.00			
* If the difference in column 1 is less than zero, enter "0" in column 2.				TOTAL		TOTAL	1600			
APPLICATION AS AMENDED - PART II										
(Column 1)		(Column 2)		(Column 3)		SMALL ENTITY		OR OTHER THAN SMALL ENTITY		
AMENDMENT A		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
TOTAL ADD'L FEE								OR	TOTAL ADD'L FEE	
AMENDMENT B		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE(\$)	ADDITIONAL FEE(\$)		RATE(\$)	ADDITIONAL FEE(\$)
	Total (37 CFR 1.16(i))	*	Minus	**	=	x	=	OR	x	=
	Independent (37 CFR 1.16(h))	*	Minus	***	=	x	=	OR	x	=
	Application Size Fee (37 CFR 1.16(s))							OR		
	FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))							OR		
TOTAL ADD'L FEE								OR	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 found in the appropriate box in column 1.										

POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

☒

Practitioners associated with Customer Number:

113760

OR

☐

Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

Name	Registration Number

Name	Registration Number

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignments documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

☒

The address associated with Customer Number:

113760

OR

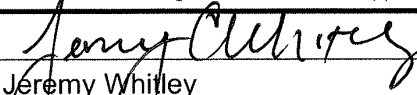
☐	Firm or Individual Name			
	Address			
	City	State	Zip	
	Country			
	Telephone	Email		

Assignee Name and Address: INTERMEC, INC.
16201 25th Ave W
Lynnwood, WA 98087

A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be Filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of The practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.

SIGNATURE of Assignee of Record

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee

Signature		Date	12/14/15
Name	Jeremy Whitley	Telephone	803 - 835- 8193
Title	Chief Intellectual Property Counsel		

This collection of information is required by 37 CFR 1.31, 1.32 and 1.33. 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 3 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.**

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

Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (03-15)

Approved for use through 07/31/2016. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Pavel NIKITIN	
	Art Unit	N/A	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	H0055604	

U.S.PATENTS						Remove
Examiner Initial*	Cite No	Patent Number	Kind Code ¹	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear
	1	9165170		2015-10-20	Gutnik et al.	
	2	8564412		2013-10-22	Nikitin et al.	
	3	6456668		2002-09-24	MacLellan et al.	
	4	6265962		2001-07-24	Black et al.	
	5	6243013		2001-06-05	Duan et al.	
	6	7525438		2009-04-28	Hyde et al.	
	7	8253539		2012-08-28	Scaramozzino	
	8	5649295		1997-07-15	Shober et al.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Pavel NIKITIN	
	Art Unit	N/A	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	H0055604	

9	7304579		2007-12-04	Diorio et al.	
10	8207828		2012-06-26	Hanebeck	
11	9317729		2016-04-19	Krusor et al.	
12	9082057		2015-07-14	McGregor	
13	7952464		2011-05-31	Nikitin et al.	
14	8416079		2013-04-09	Roesner	
15	9055798		2015-06-16	Scicluna	
16	8258920		2012-09-04	Crucs	
17	6802659		2004-10-12	Cremon et al.	

If you wish to add additional U.S. Patent citation information please click the Add button.

Add

U.S.PATENT APPLICATION PUBLICATIONS

Remove

Examiner Initial*	Cite No	Publication Number	Kind Code ¹	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear
-------------------	---------	--------------------	------------------------	------------------	---	--

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Pavel NIKITIN	
	Art Unit	N/A	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	H0055604	

	1	20050052279	A1	2005-03-10	Bridgelall	
	2	20060163370	A1	2006-07-27	Diorio et al.	
	3	20040263319	A1	2004-12-30	Huomo	
	4	20140176307	A1	2014-06-26	FORSTER	

If you wish to add additional U.S. Published Application citation information please click the Add button.

FOREIGN PATENT DOCUMENTS

Examiner Initial*	Cite No	Foreign Document Number ³	Country Code ²	Kind Code ⁴	Publication Date	Name of Patentee or Applicant of cited Document	Pages, Columns, Lines where Relevant Passages or Relevant Figures Appear	T ⁵
	1							

If you wish to add additional Foreign Patent Document citation information please click the Add button.

NON-PATENT LITERATURE DOCUMENTS

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T ⁵
	1	NIKITIN et al; "UHF RFID Tag Characterization: Overview and State-of-the-Art;" AMTA Conference, Seattle, Washington; October 2012; 6 pp.	
	2	NIKITIN et al; "Effect of Gen2 Protocol Parameters on RFID Tag Performance;" IEEE RFID Conference, Orlando, Florida; April 2009; 6 pp.	

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Pavel NIKITIN	
	Art Unit	N/A	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	H0055604	

3	PILLAI et al; "A Technique for Simultaneous Multiple Tag Identification;" IEEE Workshop on Automatic Identification Advanced Technologies; October 2005; pp. 35-38.
4	NIKITIN et al; "Differential RCS of RFID tag;" Electronics Letters; 12 April 2007; Vol. 43; No. 8; 2 pp.
5	NIKITIN et al; "Power Reflection Coefficient Analysis for Complex Impedances in RFID Tag Design;" IEEE Transactions on Microwave Theory and Techniques; 9 September 2005; Vol. 53; No. 9; pp. 2721-2725.
6	D'ORAZIO; "Pitt researchers' NFC and RFID cards feature a touch-sensitive on/off switch;" The Verge; February 19, 2012; retrieved from http://www.theverge.com/2012/2/19/2809205/nfc-rfid-credit-card-on-off-switch .
7	"UCODE;" May 21, 2015; retrieved from http://www.nxp.com/products/identification-and-security/smart-label-and-tag-cs/ucode:MC_50483 .
8	U.S. Patent Application No. 15/343,553 filed November 4, 2016 in the name of NIKITIN et al.

If you wish to add additional non-patent literature document citation information please click the Add button

EXAMINER SIGNATURE

Examiner Signature		Date Considered	
--------------------	--	-----------------	--

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

¹ See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. ² Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). ³ For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁴ Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. ⁵ Applicant is to place a check mark here if English language translation is attached.

INFORMATION DISCLOSURE STATEMENT BY APPLICANT (Not for submission under 37 CFR 1.99)	Application Number		
	Filing Date		
	First Named Inventor	Pavel NIKITIN	
	Art Unit	N/A	
	Examiner Name	Not Yet Assigned	
	Attorney Docket Number	H0055604	

CERTIFICATION STATEMENT

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

OR

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

☒ See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

SIGNATURE

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/R. Brian Drozd/	Date (YYYY-MM-DD)	2017-06-14
Name/Print	R. Brian Drozd	Registration Number	55,130

This collection of information is required by 37 CFR 1.97 and 1.98. 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 1 hour 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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.

PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Pavel NIKITIN et al.

Attorney Docket No.: H0055604

Application No.: Not Yet Assigned

Confirmation No.: N/A

Filed: Concurrently Herewith

Art Unit: N/A

For: METHOD TO INCREASE RFID TAG
SENSITIVITY

Examiner: Not Yet Assigned

INFORMATION DISCLOSURE STATEMENT

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

Pursuant to 37 CFR §1.56, the attention of the Patent and Trademark Office is hereby directed to the reference(s) listed on the attached PTO/SB/08 Form. Unless otherwise indicated herein, one copy of each item(s) is attached. It is respectfully requested that the information be expressly considered during the prosecution of this application, and that the reference(s) be made of record therein and appear among the "References Cited" on any patent to issue therefrom.

- ☒ 1. This Information Disclosure Statement is being filed (a) within three months of the U.S. filing date of this non-CPA application, OR (b) before the mailing date of a first Office Action on the merits in the present application. No certification or fee is required.
- ☒ 2. One or more co-pending U.S. patent application is identified on the attached PTO/SB/08 Form. The Examiner is respectfully requested to consider each cited application and the art cited therein during examination of the present application. See NPL cite 8.

Respectfully submitted,

Electronic signature: /R. Brian Drozd/
R. Brian Drozd
Registration No.: 55,130

RBD/cmv

Date: June 14, 2017

OLIFF PLC
P.O. Box 320850
Alexandria, Virginia 22320-4850
Telephone: (703) 836-6400

DEPOSIT ACCOUNT USE AUTHORIZATION Please grant any extension necessary for entry of this filing; Charge any fee due to our Deposit Account No. 15-0461
--

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	H0055604
		Application Number	
Title of Invention	METHOD TO INCREASE RFID TAG SENSITIVITY		
The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76. This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.			

Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

Inventor Information:

Inventor	1				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Pavel		NIKITIN		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Seattle	State/Province	WA	Country of Residence	US
Mailing Address of Inventor:					
Address 1	Honeywell Intl. Inc., Patent Services M/S AB/2B				
Address 2	101 Columbia Road, P.O. Box 2245				
City	Morristown	State/Province	NJ		
Postal Code	07962-2245	Country	US		
Inventor	2				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Stephen	J.	KELLY		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					
City	Seattle	State/Province	WA	Country of Residence	US
Mailing Address of Inventor:					
Address 1	Honeywell Intl. Inc., Patent Services M/S AB/2B				
Address 2	101 Columbia Road, P.O. Box 2245				
City	Morristown	State/Province	NJ		
Postal Code	07962-2245	Country	US		
Inventor	3				Remove
Legal Name					
Prefix	Given Name	Middle Name	Family Name	Suffix	
	Rene		MARTINEZ		
Residence Information (Select One) ☒ US Residency ☐ Non US Residency ☐ Active US Military Service					

Application Data Sheet 37 CFR 1.76		Attorney Docket Number		H0055604	
		Application Number			
Title of Invention	METHOD TO INCREASE RFID TAG SENSITIVITY				
City	Seattle	State/Province	WA	Country of Residence	US
Mailing Address of Inventor:					
Address 1	Honeywell Intl. Inc., Patent Services M/S AB/2B				
Address 2	101 Columbia Road, P.O. Box 2245				
City	Morristown	State/Province	NJ		
Postal Code	07962-2245	Country i	US		
All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the Add button.					Add

Correspondence Information:

Enter either Customer Number or complete the Correspondence Information section below. For further information see 37 CFR 1.33(a).	
☐ An Address is being provided for the correspondence Information of this application.	
Customer Number	113760
Email Address	PatentServices-US@honeywell.com Add Email Remove Email

Application Information:

Title of the Invention	METHOD TO INCREASE RFID TAG SENSITIVITY		
Attorney Docket Number	H0055604	Small Entity Status Claimed	☐
Application Type	Nonprovisional		
Subject Matter	Utility		
Total Number of Drawing Sheets (if any)	3	Suggested Figure for Publication (if any)	

Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

Application number of the previously filed application	Filing date (YYYY-MM-DD)	Intellectual Property Authority or Country

Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)
☐ Request Not to Publish. I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application has not and will not be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	H0055604
		Application Number	
Title of Invention	METHOD TO INCREASE RFID TAG SENSITIVITY		

Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32). Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

Please Select One:	☒ Customer Number	☐ US Patent Practitioner	☐ Limited Recognition (37 CFR 11.9)
Customer Number	113760		

Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.

When referring to the current application, please leave the "Application Number" field blank.

Prior Application Status		Remove
Application Number	Continuity Type	Prior Application Number
Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the Add button.		Add

Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)ⁱ the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Application Number	Country ⁱ	Filing Date (YYYY-MM-DD)	Remove
Additional Foreign Priority Data may be generated within this form by selecting the Add button.			Add

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	H0055604
		Application Number	
Title of Invention	METHOD TO INCREASE RFID TAG SENSITIVITY		

Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013. NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	H0055604
		Application Number	
Title of Invention	METHOD TO INCREASE RFID TAG SENSITIVITY		

Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

NOTE: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)

A. Priority Document Exchange (PDX) - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

B. Search Results from U.S. Application to EPO - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

NOTE: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	H0055604
		Application Number	
Title of Invention	METHOD TO INCREASE RFID TAG SENSITIVITY		

Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.			
Applicant	1		Remove
If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.			
		Clear	
☐ Assignee	Legal Representative under 35 U.S.C. 117		Joint Inventor
Person to whom the inventor is obligated to assign.		Person who shows sufficient proprietary interest	
If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:			
Name of the Deceased or Legally Incapacitated Inventor:			
If the Applicant is an Organization check here. ☒			
Organization Name	INTERMEC, INC.		
Mailing Address Information For Applicant:			
Address 1	16201 25th Ave W		
Address 2			
City	Lynnwood	State/Province	WA
Country	US	Postal Code	98087
Phone Number		Fax Number	
Email Address			
Additional Applicant Data may be generated within this form by selecting the Add button. Add			

Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	H0055604
		Application Number	
Title of Invention	METHOD TO INCREASE RFID TAG SENSITIVITY		

Assignee 1			
Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.			
			Remove
If the Assignee or Non-Applicant Assignee is an Organization check here. ☒			
Organization Name	INTERMEC, INC.		
Mailing Address Information For Assignee including Non-Applicant Assignee:			
Address 1	16201 25th Ave W		
Address 2			
City	Lynnwood	State/Province	WA
Country i	US	Postal Code	98087
Phone Number		Fax Number	
Email Address			
Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button.			Add

Signature:

NOTE: This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

Signature	/R. Brian Drozd/		Date (YYYY-MM-DD)	2017-06-14	
First Name	R. Brian	Last Name	Drozd	Registration Number	55,130
Additional Signature may be generated within this form by selecting the Add button.				Add	

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Application Data Sheet 37 CFR 1.76		Attorney Docket Number	H0055604
		Application Number	
Title of Invention	METHOD TO INCREASE RFID TAG SENSITIVITY		

This collection of information is required by 37 CFR 1.76. 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 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet 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.**

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 the Freedom of Information Act requires disclosure of these records.
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 inspections 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 Patent Application Fee Transmittal				
Application Number:				
Filing Date:				
Title of Invention:		METHOD TO INCREASE RFID TAG SENSITIVITY		
First Named Inventor/Applicant Name:		Pavel NIKITIN		
Filer:		Robert Brian Drozd/Chandel Van Laere		
Attorney Docket Number:		H0055604		
Filed as Large Entity				
Filing Fees for Utility under 35 USC 111(a)				
Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Basic Filing:				
UTILITY APPLICATION FILING	1011	1	280	280
UTILITY SEARCH FEE	1111	1	600	600
UTILITY EXAMINATION FEE	1311	1	720	720
Pages:				
Claims:				
Miscellaneous-Filing:				
Petition:				
Patent-Appeals-and-Interference:				

Description	Fee Code	Quantity	Amount	Sub-Total in USD(\$)
Post-Allowance-and-Post-Issuance:				
Extension-of-Time:				
Miscellaneous:				
Total in USD (\$)				1600

Electronic Acknowledgement Receipt	
EFS ID:	29498650
Application Number:	15622839
International Application Number:	
Confirmation Number:	8972
Title of Invention:	METHOD TO INCREASE RFID TAG SENSITIVITY
First Named Inventor/Applicant Name:	Pavel NIKITIN
Customer Number:	113760
Filer:	Robert Brian Drozd/Chandel Van Laere
Filer Authorized By:	Robert Brian Drozd
Attorney Docket Number:	H0055604
Receipt Date:	14-JUN-2017
Filing Date:	
Time Stamp:	16:10:37
Application Type:	Utility under 35 USC 111(a)

Payment information:

Submitted with Payment	yes
Payment Type	DA
Payment was successfully received in RAM	\$1600
RAM confirmation Number	061517INTEFSW00003074150461
Deposit Account	150461
Authorized User	Chandel Van Laere
The Director of the USPTO is hereby authorized to charge indicated fees and credit any overpayment as follows: 37 CFR 1.17 (Patent application and reexamination processing fees) 37 CFR 1.21 (Miscellaneous fees and charges)	

File Listing:					
Document Number	Document Description	File Name	File Size(Bytes)/ Message Digest	Multi Part /.zip	Pages (if appl.)
1	Oath or Declaration filed	DECLARATION.PDF	595109	no	3
			13a7e810d2eb7b2dd236dd1d55e06ff3664789e4		
Warnings:					
The page size in the PDF is too large. The pages should be 8.5 x 11 or A4. If this PDF is submitted, the pages will be resized upon entry into the Image File Wrapper and may affect subsequent processing					
Information:					
2	Drawings-only black and white line drawings	DRAWINGS.PDF	72411	no	3
			2ea9ffcfa3b3f19ace66c1976ab43536e63a5804		
Warnings:					
Information:					
3		SPECIFICATION.pdf	57031	yes	11
			1adc94ef9c418411fd61afcce92f9f2384464b0a		
	Multipart Description/PDF files in .zip description				
	Document Description		Start	End	
	Specification		1	7	
	Claims		8	10	
	Abstract		11	11	
Warnings:					
Information:					
4	Power of Attorney	INTERMEC_INC.PDF	82719	no	1
			26f3048b8a04d66f6537eec8ee6dd88a783309cf		
Warnings:					
Information:					

5	Non Patent Literature	NIKITIN_et_al_UHF_RFID_Tag_Characterization.PDF	1002474	no	6
			deaece11577ab3258ff71f2d432a2c099f9378d73		
Warnings:					
Information:					
6	Non Patent Literature	NIKITIN_et_al_Effect_of_Gen2_Protocol_Parameters_on_RFID_Tag_Performance.PDF	1087758	no	6
			f6e7f5430e43f9f3e8d2a4a6a91358836464e1de		
Warnings:					
Information:					
7	Non Patent Literature	PILLAI_et_al_A_Technique_for_Simultaneous_Multiple_Tag_Identification.PDF	249520	no	4
			892a3a43b469874245c9933c4d374266397b9627		
Warnings:					
Information:					
8	Non Patent Literature	NIKITIN_et_al_Differential_RCS_of_RFID_tag.PDF	130814	no	2
			96fa4bd0734a1b9ad6c8d2f1f70d3cd2dcad88c0		
Warnings:					
Information:					
9	Non Patent Literature	NIKITIN_et_al_Power_Reflection_Coefficient_Analysis_for_Complex_Impedances_in_RFID_Tag_De.PDF	776960	no	5
			ab3fe99806d2efff8fcad0a713893bc0846afd30		
Warnings:					
Information:					
10	Non Patent Literature	DORAZIO_Pitt_researchers_NFC_and_RFOD_cards_feature_a_touch-sensitive_on_off_switch.PDF	769889	no	2
			b8f447876eb7ad8a43cf1dfc5ae135951060e973		
Warnings:					
Information:					
11	Non Patent Literature	UCODE.PDF	188918	no	5
			ec863f4768361643cd5d058ae1a0f3db1807661d		
Warnings:					
Information:					

12	Information Disclosure Statement (IDS) Form (SB08)	Information_Disclosure_Statement_Fillable_PDF.pdf	1036623	no	6
			1c8bb3756c9ff89e2304b8b0ab4661aea661c169		
Warnings:					
Information:					
13	Transmittal Letter	Information_Disclosure_Statement.pdf	19702	no	1
			0131e5b266d0047fb71becc47cb840df10c087ab		
Warnings:					
Information:					
14	Application Data Sheet	Application_Data_Sheet_Fillable_PDF.pdf	1822974	no	9
			72fd6df6cdfce32f50a85dd303cd5c1098c7dba8		
Warnings:					
Information:					
15	Fee Worksheet (SB06)	fee-info.pdf	35024	no	2
			5824f82e8a6a567a326de7770da10e63d00f27fd		
Warnings:					
Information:					
Total Files Size (in bytes):			7927926		
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.					

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION
USING AN APPLICATION DATA SHEET (37 CFR 1.76)
(Based on PTO/AIA/01)**

Title of Invention:

Method to Increase RFID Tag Sensitivity

As the below named inventor, I hereby declare that:

This declaration is directed to the attached application (the "Application").

The Application was made or authorized to be made by me.

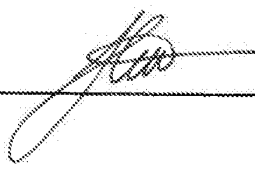
I believe that I am the original inventor or an original joint inventor of a claimed invention in the Application.

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

I have reviewed and understand the contents of the Application, including the claims, and am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

LEGAL NAME OF INVENTOR

Inventor: Pavel Nikitin Date: 4-24-17

Signature:  _____

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION
USING AN APPLICATION DATA SHEET (37 CFR 1.76)
(Based on PTO/AIA/01)**

Title of Invention:

Method to Increase RFID Tag Sensitivity

As the below named inventor, I hereby declare that:

This declaration is directed to the attached application (the "Application").

The Application was made or authorized to be made by me.

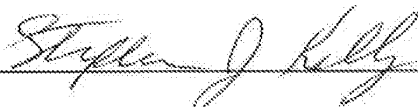
I believe that I am the original inventor or an original joint inventor of a claimed invention in the Application.

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

I have reviewed and understand the contents of the Application, including the claims, and am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

LEGAL NAME OF INVENTOR

Inventor: Stephen J. Kelly Date: 4/25/17

Signature: 

**DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION
USING AN APPLICATION DATA SHEET (37 CFR 1.76)
(Based on PTO/AIA/01)**

Title of Invention:

Method to Increase RFID Tag Sensitivity

As the below named inventor, I hereby declare that:

This declaration is directed to the attached application (the "Application").

The Application was made or authorized to be made by me.

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

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

I have reviewed and understand the contents of the Application, including the claims, and am aware of the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in 37 C.F.R. § 1.56.

LEGAL NAME OF INVENTOR

Inventor: Rene Martinez

Date: 6/5/17

Signature: 

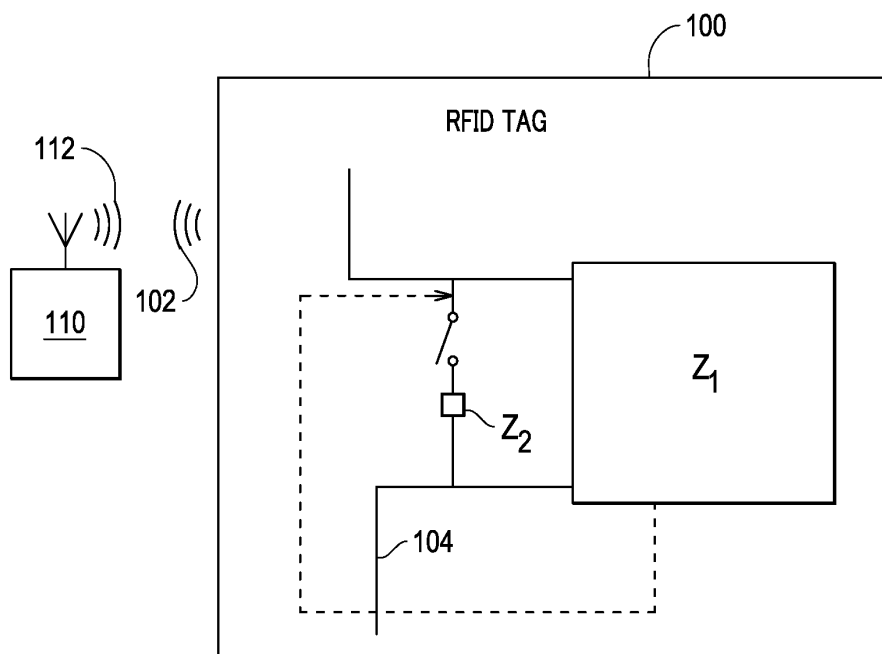


FIG. 1

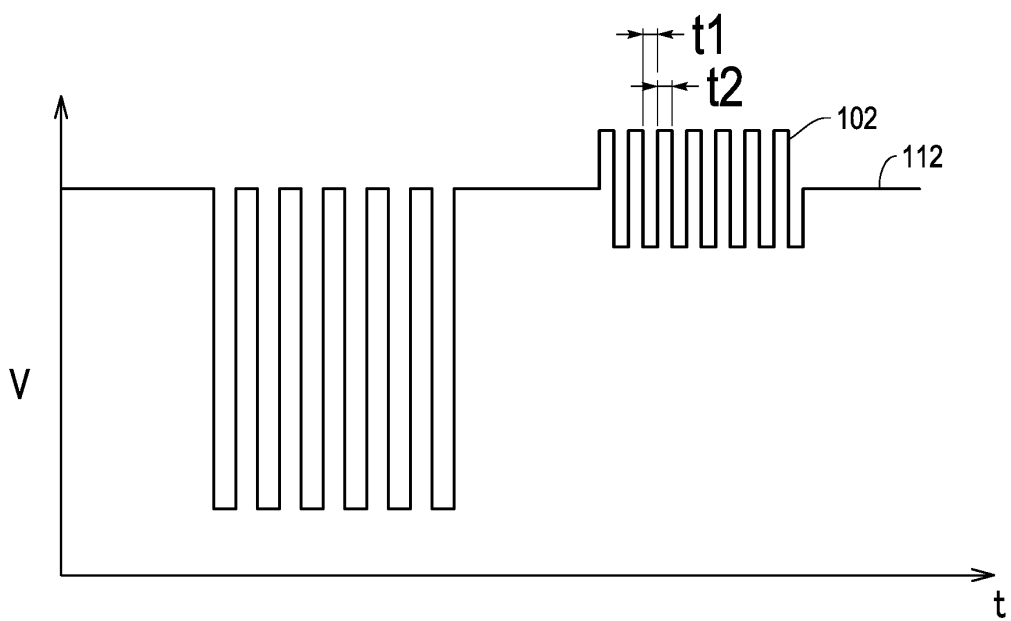


FIG. 2

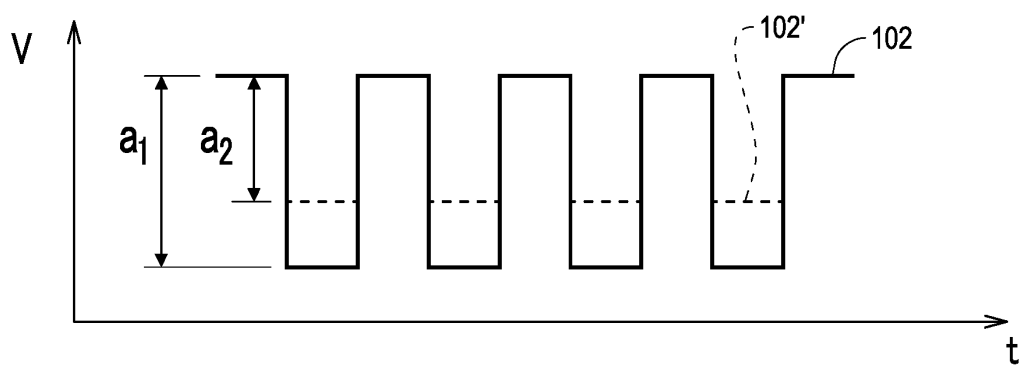


FIG. 3

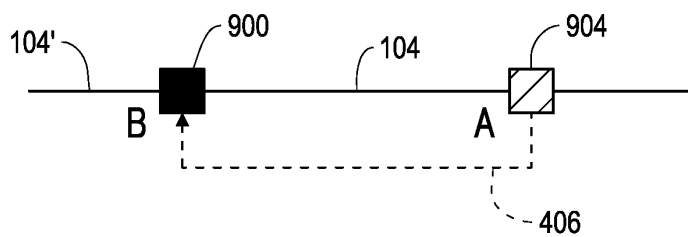


FIG. 4

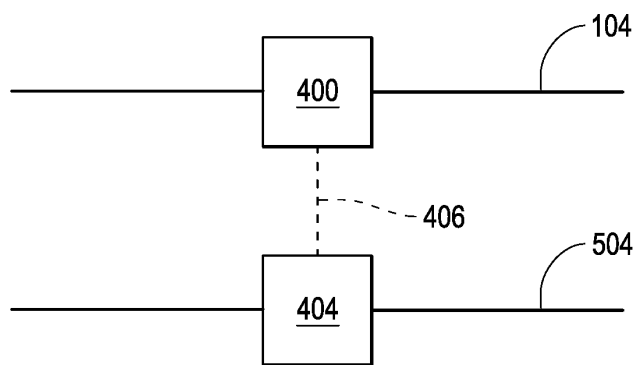


FIG. 5

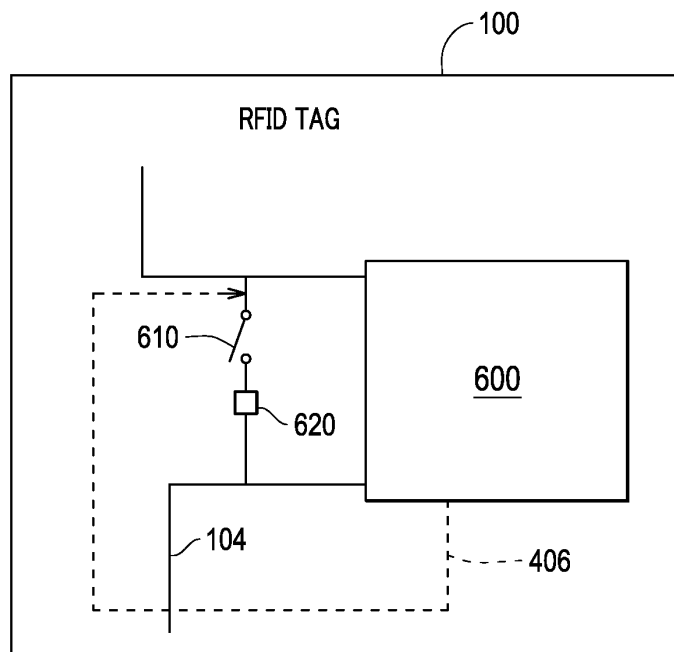


FIG. 6

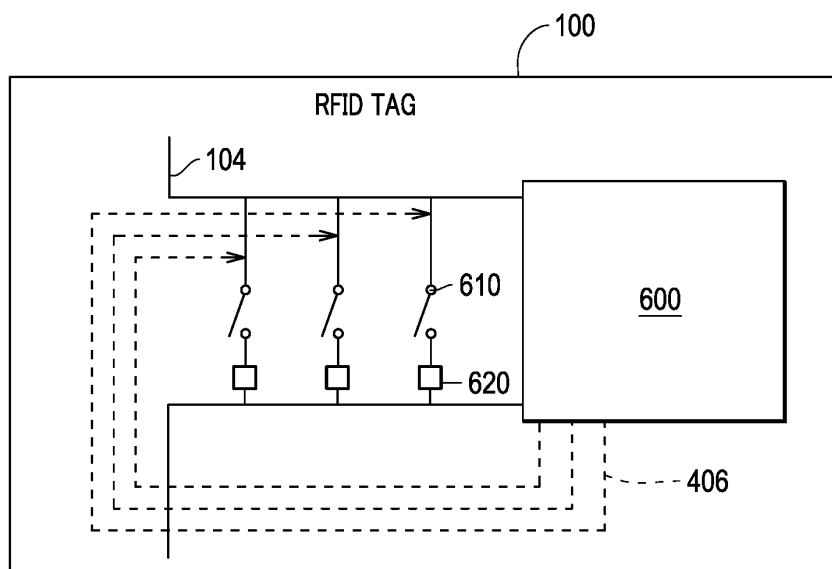


FIG. 7

METHOD TO INCREASE RFID TAG SENSITIVITY

BACKGROUND

[0001] Passive Radio-Frequency Identification (RFID) tags typically consist of an integrated circuit (IC) connected to an antenna. The IC is often a low power device, powered purely by RF energy harvested from the reader signal. The tag responds to the reader by varying its input impedance (and reflectance) and thus modulating the backscattered signal.

[0002] In RFID systems, both forward (reader-to-tag) and reverse (tag-to-reader) links are important. Current passive CMOS RFID ICs are approaching the fundamental limits of their turn-on sensitivity, dictated by diode-based voltage multiplier limits of RF-to-DC power conversion. The best ICs currently have sensitivity of about -20 dBm which has been reached for several years and no further sensitivity improvement is expected.

[0003] Often the overall system performance is limited by the tag sensitivity; in other words, the tag is the weakest link in the communication system. For many applications, such as for tag reading in indoor multi-tag multipath scenarios, or AVI tolling applications, better passive tag sensitivity is desired. Every dB of improvement in tag sensitivity results in measurable system performance improvement, e.g. in the useable range of the tag.

[0004] In the past, improvements to tag sensitivity and range have been attempted. One such solution proposes a tag which can combine voltages from two ports of orthogonal dipole antennas to gain more tag sensitivity but requires a large cross-dipole tag and the presence of circularly polarized reader signal in order to extract power from both polarizations. Another solution is to eschew a passive tag design for a powered tag design, or to sacrifice bandwidth. These solutions increase the size of the tag and/or require battery replacement, often rendering them unsuitable for their target applications. Sacrificing bandwidth is also unacceptable in many applications.

[0005] Traditionally, the tag transmission performance has been viewed as paramount. The prevailing belief is that a reduction in tag transmission performance would reduce the range of the tag. Thus, solutions that improve tag range by sacrificing tag transmission performance have not been explored.

SUMMARY

[0006] A radio-frequency identification (RFID) tag includes a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal. The tag further includes a switch connected to the main antenna and a

separate length of antenna. The tag further includes a circuit connected to a different portion of the main antenna than the switch. The circuit is configured to vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having high reflectance periods when an amount of reflectance by the main antenna of the RF signal is greater than a predetermined amount, and low reflectance periods when an amount of reflectance by the main antenna of the RF signal is lower than the predetermined amount. The circuit is further configured to reduce the reflectance of the main antenna below a predefined amount during the high reflectance periods to enable wireless power reception during the high reflectance periods by changing a resonant frequency of the main antenna to generate the high reflectance periods and low reflectance periods. The circuit is further configured to change the resonant frequency by controlling the switch to intermittently connect the separate length of antenna to the main antenna.

[0007] A radio-frequency identification (RFID) tag includes a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal. The tag further includes a circuit that is configured to vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having high reflectance periods when an amount of reflectance by the main antenna of the RF signal is greater than a predetermined amount, and low reflectance periods when an amount of reflectance by the main antenna of the RF signal is lower than the predetermined amount. The circuit increases a duty cycle of the low reflectance periods and decreases a duty cycle of the high reflectance periods to increase a time period of wireless power transmission.

[0008] A radio-frequency identification (RFID) tag includes a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal. The tag further includes a circuit that is configured to vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having first reflectance periods, and second reflectance periods when an amount of reflectance by the main antenna of the RF signal is different than during the first reflectance periods. The main antenna continuously harvests power while transmitting the reflected signal to the RFID reader.

[0009] In some embodiments, the circuit changes a resonant frequency of the antenna to generate the high reflectance periods and low reflectance periods. In some embodiments, the circuit changes a resonant frequency of the antenna to generate the first reflectance periods and second reflectance periods. In some embodiments, the circuit adds a

separate length of antenna to the antenna during the high reflectance periods. In some embodiments, the circuit adds a separate length of antenna to the antenna during the first reflectance periods. In some embodiments, the RFID tag further includes a switch that adds the length of antenna by connecting the length of antenna to the antenna during the high reflectance periods, the switch being located on a different portion of the antenna than the circuit. . In some embodiments, the RFID tag further includes a switch that adds the length of antenna by connecting the length of antenna to the antenna during the first reflectance periods, the switch being located on a different portion of the antenna than the circuit. In some embodiments, the antenna includes a first antenna for receiving the RF signal, and a second antenna for receiving power, and the second antenna continues to absorb a portion of the RF signal during the high reflectance periods to generate a sufficiently low reflectance to enable wireless power harvesting during the high reflectance periods. In some embodiments, the antenna includes a first antenna for receiving the RF signal, and a second antenna for receiving power, and the second antenna continues to absorb a portion of the RF signal during the first and second reflectance periods to generate a sufficiently low reflectance to enable wireless power harvesting during both the first and second reflectance periods. In some embodiments, the RFID tag further includes a switch controlled by the circuit that connects an RF impedance to the antenna during the high reflectance periods. In some embodiments, the RFID tag further includes a switch controlled by the circuit that connects an RF impedance to the antenna during the first reflectance periods. In some embodiments, the antenna has a reflection coefficient magnitude of 0.5 during the high reflectance periods, and a reflection coefficient of zero during the low reflectance periods. In some embodiments, the predetermined amount is a reflection coefficient magnitude of between 0 and 0.5. In some embodiments, the amount of reflectance by the main antenna of the RF signal is greater than a predetermined amount during the first reflectance periods, the amount of reflectance by the main antenna of the RF signal is lower than the predetermined amount during the second reflectance periods, and the circuit reduces the reflectance of the main antenna below a predefined amount during the first reflectance periods to enable wireless power reception during the first reflectance periods. In some embodiments, the amount of reflectance of by the main antenna of the RF signal during the first reflectance periods is of equal magnitude but opposite polarity to the amount of reflectance of by the main antenna of the RF signal during the second reflectance periods. In some embodiments, the circuit is an application-specific integrated circuit (ASIC). In some embodiments, the antenna is a linearly polarized

antenna. In some embodiments, the circuit increases the duty cycle of the low reflectance period to greater than 50%.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Fig. 1 is a diagram of an RFID tag according to one embodiment and communicating with an RFID reader.

[0011] Fig. 2 is a waveform of a signal transmitted from the RFID tag according to one embodiment to the reader.

[0012] Fig. 3 is a waveform of a signal transmitted from the RFID tag according to one embodiment to the reader.

[0013] Fig. 4 is a schematic of the RFID tag according to one embodiment.

[0014] Fig. 5 is a schematic of the RFID tag according to one embodiment.

[0015] Fig. 6 is a schematic of the RFID tag according to one embodiment.

[0016] Fig. 7 is a schematic of the RFID tag according to one embodiment.

DETAILED DESCRIPTION OF EMBODIMENTS

[0017] The RFID tag 100 according to some embodiments communicates with the reader 110 by backscattering a reader signal 112 to produce a reflected signal 102 (the signal transmitted from RFID tag 100 to reader 110) using its antenna 104. RFID tag 100 simultaneously communicates with reader 110 and receives power transmission from the reader signal 112. When an RFID tag 100 backscatters (talks to the reader 110), it switches between two reflectance states. One reflectance state is power harvesting. Another reflectance state is close to a short-circuit, in order to provide maximum backscattered signal to the reader 110. In this embodiment, z_1 is an integrated circuit controlling a switch to selectively connect impedance z_2 to antenna 104 and vary the antenna impedance to generate reflected signal 102. As discussed in the Background, this signal is designed to have the maximum strength to maximize the range of the tag 100.

[0018] As a result, the tag shorts (or approximately shorts) its antenna port (and hence its RF power supply) approximately 50% of the time (duty cycle of a typical tag-to-reader data signal), thus losing up to 3 dB of the incoming RF power (the tag IC cannot harvest RF power when the input terminals are shorted). Fig. 2 shows waveforms of reader signal 112 and backscatter signal 102. As shown in Fig. 2, the duty cycle of the backscatter signal 102 is approximately 50%. In other words $t_1 = t_2$, where t_1 is the length of the OFF time (low reflectance period) for each period of the signal and t_2 is the length of ON time (high reflectance period) for each period. In some embodiments the length of t_2 could be shortened and the length of t_1 lengthened by altering the duty cycle. This increases the power

reception of the RFID tag by increasing the portion of the communication time where power is received.

[0019] Modern RFID tags still follow this backscattering scheme, even though modern RFID readers are much more sensitive than they used to be and can successfully detect and decode weak tag signals. The result is that at the fringes of the tag range, the tag will intermittently lose power while attempting to communicate with the reader. This results in failed communication with the reader and shrinks the useable range of tag transmission.

[0020] The inventors have determined several embodiments that counter the basic assumptions in the art and sacrifice tag transmission performance in order to increase its range. Accordingly, several embodiments described herein sacrifice backscatter signal strength in order to provide additional received power to the tag 100. Fig. 3 shows how the amplitude a_1 or depth of backscatter 102 is reduced to a_2 in order to increase charging of the RFID tag 100. This allows for steady transmission of a (weakened) signal 102' at the fringes of the tag range, which modern readers are able to read. Instead of the antenna 104 reflecting substantially all of the signal and substantially none of the signal during different transmission periods, antenna 104 has periods of relatively high reflectance and relatively low reflectance. In other words, in the periods of high reflectance, the antenna has reflectance higher than a predetermined amount, and in the periods of low reflectance, the antenna has reflectance lower than a predetermined amount. In several embodiments the predetermined amount is a reflection coefficient magnitude of 0 to 0.5. This results from some of signal 102 being absorbed during the (relatively high reflectance) period when substantially all of the signal 102 would normally be reflected. The relatively low reflectance period has a lower reflectance than the high reflectance period, and the alternation between these two different periods generates signal 102'. In other embodiments, there are first and second reflectance periods with equal amounts of reflectance and opposite polarities. In those embodiments, power is still harvested during both periods.

[0021] This expands the useable range of the tag, by allowing the antenna to continuously harvest power while transmitting the reflected signal 102'. Several embodiments use existing CMOS integrated circuits, and can nevertheless have significant sensitivity improvement (e.g. 3 dB). A 3dB improvement in tag sensitivity corresponds to 40% more tag range in free space. According to several embodiments of the tag, backscattered signal strength is sacrificed in order to gain more power efficiency during tag modulation and hence more tag sensitivity and more tag range.

[0022] As a result, when such tag 100 backscatters, it will not be fully shorting its receiving antenna port and thus will have additional received RF power available (e.g. 3 dB more). For example, when signal strength is sacrificed by 6dB in certain embodiments, 2.43 dB of tag sensitivity is gained, as explained in the following equations (1)-(4) and Table 1. The reflection coefficient ρ is described according to equation (1).

$$(1) \quad \rho_i = (z_i - z_a^*) / (z_i + z_a^*),$$

where z_a is the antenna impedance.

Each state also has power coefficient τ_i , defined by:

$$(2) \quad \tau_i = 1 - |\rho_i|^2$$

Power efficiency of the tag can be described by:

$$(3) \quad P_e = \frac{1}{2} \tau_1 + \frac{1}{2} \tau_2,$$

where the signal duty ratio is 50%.

Modulation depth of the backscattered signal can be described by:

$$(4) \quad K = \frac{1}{4} |\rho_1 - \rho_2|^2$$

Equation 5 defines α , which is between zero and 1

$$(5) \quad \alpha = |\rho_2|$$

Table 1			
α	K	τ_2	P_e
0	0	1	1 (0 dB)
$\frac{1}{2}$	1/16 (-12 dB)	$\frac{1}{2}$	0.875 (-0.56 dB)
1	$\frac{1}{4}$	0	$\frac{1}{2}$ (-3 dB)

[0023] In Table 1, the antenna with $\alpha = 0$ is impractical because it has zero backscatter. The antenna with $\alpha = 1$ is a conventional antenna. The antenna with $\alpha = \frac{1}{2}$ is an antenna according to one embodiment. In this antenna, P_e is improved by 2.33 dB and has a 30% increase in range. K is reduced by 6 dB.

[0024] The tags described herein can take the sensitivity of passive RFID tags beyond what current CMOS integrated circuits are capable of and thus be important for many practical RFID applications, such as automotive vehicle identification and tolling applications. One of the significant advantages of several embodiments is that they work with linearly polarized reader signals and linearly polarized tags, prevailing on RFID market.

[0025] The RFID tag 100 can be implemented in several different ways, including:

[0026] 1. Physical – reduced backscatter signal strength and increased tag power efficiency are achieved via spatial separation of receiving 904 and backscattering 900 ports/points on the tag antenna using control line 406. A shared antenna 104 can have a modulator A that only slightly changes antenna resonant frequency (by engaging/disengaging extra antenna length 104'), allowing one to maintain a high received power efficiency during tag modulation cycle, but still providing a detectable differential backscattered signal to the reader, as illustrated in Figure 4. Another implementation of this method can be two separate antennas 104, 504 that are used for receiving power and backscattering as shown in Figure 5.

[0027] 2. Electrical - reduced backscatter signal strength and increased tag power efficiency are achieved and controlled via choosing a different modulating impedance within tag circuitry. These embodiments are shown in Figs. 6 and 7. In these embodiments, an ASIC or processor 600 controls one or more switches 610 to add or subtract one or more impedances 620 from antenna 104. This changes the resonant frequency and reflectance properties without shorting the antenna 104. As a result, a measureable signal 102' is sent from tag 100 to reader 110, and power reception is maintained throughout transmission.

[0028] According to the embodiments shown in Figs. 4 and 6, the antenna 104 is linearly polarized. Antenna 104 in these embodiments has a separate receive port 904 and backscatter port 900. An RFID integrated circuit (IC; an ASIC or processor in some embodiments) A, 600 is connected to the receive port 904, and a switch B, 610 (a MOSFET in some embodiments) is attached to backscatter port 900. The RFID integrated circuit A, 600 controls the switch B, 610 to add or subtract a portion 104' of antenna 104 in order to generate the reduced backscatter signal 102'. By adding and subtracting portion 104', the resonant frequency of the antenna 104 is not changed too drastically, and the antenna 104 receives power in both the on and off portions of the duty cycle (i.e. high reflectance and low reflectance periods or vice versa). In this embodiment, RFID integrated circuit A, 600 and switch B, 610 share the same antenna 104 and have common electrical ground (portion of the antenna between the ASIC and the modulator). In some embodiments, switch B, 610 is implemented using a PIN diode. Many more frequency reconfigurable antennas (such as slot antennas) could be used to achieve a similar effect.

[0029] Although the invention has been described with reference to embodiments herein, those embodiments do not limit the scope of the invention. Modifications to those embodiments or different embodiments may fall within the scope of the invention.

WHAT IS CLAIMED IS

1. A radio-frequency identification (RFID) tag comprising:
 - a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal;
 - a switch connected to the main antenna and a separate length of antenna; and
 - a circuit connected to a different portion of the main antenna than the switch, the circuit being configured to:
 - vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having high reflectance periods when an amount of reflectance by the main antenna of the RF signal is greater than a predetermined amount, and low reflectance periods when an amount of reflectance by the main antenna of the RF signal is lower than the predetermined amount;
 - reduce the reflectance of the main antenna below a predefined amount during the high reflectance periods to enable wireless power harvesting during the high reflectance periods by changing a resonant frequency of the main antenna to generate the high reflectance periods and low reflectance periods; and
 - change the resonant frequency by controlling the switch to intermittently connect the separate length of antenna to the main antenna.
2. The tag of claim 1, wherein the predetermined amount is a reflection coefficient magnitude of between 0 and 0.5.
3. The tag of claim 1, wherein the predefined amount is a reflection coefficient magnitude of 0.5.
4. The tag of claim 1, wherein the circuit is an application-specific integrated circuit (ASIC).
5. The tag of claim 1, wherein the main antenna is a linearly polarized antenna.
6. A radio-frequency identification (RFID) tag comprising:
 - a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal; and
 - a circuit that is configured to vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having high reflectance periods when an amount of reflectance by the main antenna of the RF signal is greater than a predetermined amount, and low reflectance periods when an amount of reflectance by the main antenna of the RF signal is lower than the predetermined amount,

wherein the circuit increases a duty cycle of the low reflectance periods and decreases a duty cycle of the high reflectance periods to increase a time period of wireless power transmission.

7. The tag of claim 6, wherein the predetermined amount is a reflection coefficient magnitude of between 0 and 1.

8. The tag of claim 6, wherein the circuit increases the duty cycle of the low reflectance periods to greater than 50%.

9. The tag of claim 6, wherein the circuit is an application-specific integrated circuit (ASIC).

10. The tag of claim 6, wherein the main antenna is a linearly polarized antenna.

11. A radio-frequency identification (RFID) tag comprising:
a main antenna that receives a radio-frequency (RF) signal from an RFID reader and wirelessly harvests power from the RF signal; and
a circuit that is configured to vary a reflection coefficient of the main antenna to transmit a reflected signal to the RFID reader, the reflected signal having first reflectance periods, and second reflectance periods when an amount of reflectance by the main antenna of the RF signal is different than during the first reflectance periods,

wherein the main antenna continuously harvests power while transmitting the reflected signal to the RFID reader.

12. The RFID tag of claim 11,
wherein the circuit changes a resonant frequency of the main antenna to generate the first and second reflectance periods.

13. The RFID tag of claim 12,
wherein the circuit adds a separate length of antenna to the main antenna during the first reflectance periods.

14. The RFID tag of claim 13, further comprising:
a switch that adds the separate length of antenna by connecting the separate length of antenna to the main antenna during the first reflectance periods, the switch being located on a different portion of the main antenna than the circuit.

15. The RFID tag of claim 11,
wherein the main antenna includes a first antenna for receiving the RF signal,
and a second antenna for receiving power, and
the second antenna continues to absorb a portion of the RF signal during the
first and second reflectance periods to generate a sufficiently low reflectance to enable
wireless power harvesting during both the first and second reflectance periods.
16. The RFID tag of claim 11, further comprising:
a switch controlled by the circuit that connects an RF impedance to the main
antenna during the first reflectance periods.
17. The RFID tag of claim 11, wherein
the amount of reflectance by the main antenna of the RF signal is greater than
a predetermined amount during the first reflectance periods,
the amount of reflectance by the main antenna of the RF signal is lower than
the predetermined amount during the second reflectance periods, and
the circuit reduces the reflectance of the main antenna below a predefined
amount during the first reflectance periods to enable wireless power reception during the first
reflectance periods.
18. The tag of claim 11, wherein the amount of reflectance of by the main antenna
of the RF signal during the first reflectance periods is of equal magnitude but opposite
polarity to the amount of reflectance of by the main antenna of the RF signal during the
second reflectance periods.
19. The tag of claim 11, wherein the circuit is an application-specific integrated
circuit (ASIC).
20. The tag of claim 11, wherein the main antenna is a linearly polarized antenna.

ABSTRACT OF THE DISCLOSURE

A radio-frequency identification (RFID) tag with improved sensitivity includes an antenna that receives a radio-frequency (RF) signal and wireless power from an RFID reader. The RFID tag further includes a circuit that varies a reflection coefficient of the antenna to transmit a reflected signal to the reader, the reflected signal having periods of high reflectance when a relatively high amount of the RF signal is reflected, and low reflectance periods when a relatively low amount of the RF signal is reflected. The reflectance of the antenna is sufficiently low during the high reflectance periods to enable wireless power reception during the high reflectance periods.