505706903 10/03/2019

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
NIKOLAOS PAPANDREOU	08/06/2019
CHARALAMPOS POZIDIS	08/05/2019
NIKOLAS IOANNOU	08/19/2019
ROMAN ALEXANDER PLETKA	08/19/2019
RADU IOAN STOICA	08/28/2019
SASA TOMIC	07/31/2019
TIMOTHY FISHER	07/30/2019
AARON DANIEL FRY	07/30/2019
ANDREW D. WALLS	07/30/2019

RECEIVING PARTY DATA

Name: INTERNATIONAL BUSINESS MACHINES CORPORATION	
Street Address:	NEW ORCHARD ROAD
City:	ARMONK
State/Country:	NEW YORK
Postal Code:	10504

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16554371

CORRESPONDENCE DATA

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Email: alma@zilkakotab.com ZILKA-KOTAB, PC Correspondent Name: Address Line 1: 1155 N. 1ST ST. Address Line 2: **SUITE 105**

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ATTORNEY DOCKET NUMBER: TUC1P535/P201809591US01 NAME OF SUBMITTER: DOMINIC M. KOTAB

PAIENI REEL: 050630 FRAME: 0043 505706903

SIGNATURE:	/Dominic M. Kotab/
DATE SIGNED:	10/03/2019
	This document serves as an Oath/Declaration (37 CFR 1.63).
Total Attachments: 8	
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PATENT REEL: 050630 FRAME: 0044

DECLARATION (37 C.F.R. 1.63) FOR UTILITY PATENT APPLICATION USING AN APPLICATION DATA SHEET (37 C.F.R. 1.76) AND ASSIGNMENT

Title of Invention: HYBRID READ VOLTAGE CALIBRATION IN NON-VOLATILE RANDOM ACCESS MEMORY

As a	below named and undersigned inventor, I hereby declare that:
This	declaration is directed to the attached application, or (if following box is checked):
	United States application or PCT international application number
The	above-identified application was made or authorized to be made by me.
	ieve that I am the original inventor or an original joint inventor of a claimed invention in the cation.
l hav	e reviewed and understand the contents of the application, including the claims.
	aware of the duty to disclose to the United States Patent and Trademark Office all information on to me to be material to patentability as defined in 37 CFR Section 1,56.

Whereas, I ("ASSIGNOR") have made certain inventions, improvements, and discoveries (herein referred to as the "Invention") disclosed in the above-identified patent application and further identified by the IBM Docket Number provided above in the header of this document;

Whereas, International Business Machines Corporation (herein referred to as the "ASSIGNEE"), a corporation of New York having a place of business at Armonk, New York, desires to acquire, and I desire to grant to the ASSIGNEE, my entire worldwide right, title, and interest in and to the Invention and in and to any and all patent applications and patents directed thereto;

Now, therefore, for good and valuable consideration, the receipt and sufficiency thereof being hereby acknowledged, I hereby sell or have sold, assign or have assigned, and otherwise transfer or have transferred to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the Invention, the above-identified United States patent application, and any and all other patent applications and patents for the Invention which may be applied for or granted therefor in the United States and in all foreign countries and jurisdictions, including all divisions, continuations, reissues, reexaminations, renewals, extensions, counterparts, substitutes, and extensions thereof, and all rights of priority resulting from the filing of such applications and granting of such patents. In addition, I hereby authorize and request the Director of the United States Patent and Trademark Office to issue any United States Patent, and foreign patent authorities to issue any foreign patent, granted for the Invention, to the ASSIGNEE, its successors, legal representatives, and assigns, my entire worldwide right, title, and interest in and to the same to be held and enjoyed by the ASSIGNEE, its successors, legal representatives, and assigns to the full end of the terms for which any and all such patents may be granted, as fully and entirely as would have been held and enjoyed by me had this Assignment not been made; and I agree to execute any and all documents and instruments and perform all lawful acts reasonably related to recording this Assignment or perfecting title to the Invention and all

Page 1 of 3

related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and am unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

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)	Legal Name of Inventor: Nikolaos Papandreou	
	Signature: Mapandreau	Date: 6, Aug 2019
(2)	Legal Name of Inventor: Charalampos Pozidis	
	Signature:	Date:
(3)	Legal Name of Inventor: Nikolas Ioannou	
	Signature:	Date:
(4)	Legal Name of Inventor: Roman Alexander Plet	ka .
	Signature:	Date:

related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

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(1)	Legal Name of Inventor:	Nikolaos Papandreou	
	Signature:		Date:
(2)	Legal Name of Inventor:	Charalampos Pozidis	
	Signature:	1/2/5	Date: 08/05/2019
(3)	Legal Name of Inventor:	Nikolas Ioannou	
	Signature:		Date:
(4)	Legal Name of Inventor:	Roman Alexander Pletka	
	Signature:		Date:

related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns.

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(1)	Legal Name of Inventor: Nikolaos Papandreou	
	Signature:	Date:
(2)	Legal Name of Inventor: Charalampos Pozidis	
	Signature:	Date:
(3)	Legal Name of Inventor: Nikolas Ioannou	
	Signature:	Date: <u>[]8/14/249</u>
(4)	Legal Name of Inventor: Roman Alexander Pletka	
	Signature:	Date:

related patents and applications, in the ASSIGNEE, its successors, legal representatives, and assigns, whenever requested by the ASSIGNEE, its successors, legal representatives, or assigns

I acknowledge my prior and ongoing obligations to sell, assign, and transfer my rights under this Assignment to the ASSIGNEE and an unaware of any reason why I may not have the full and unencumbered right to sell, assign, and transfer my rights hereby sold, assigned, and transferred, and have not executed, and will not execute, any document or instrument in conflict herewith. I also hereby grant the ASSIGNEE, its successors, legal representatives, and assigns, the right to insert in this Assignment any further identification (including, but not limited to, patent Application Number) which may be necessary or desirable for recordation of this Assignment. This Assignment is governed by the substantive laws of the State of New York, and any disputes will be resolved in a New York state court or federal court sited in New York.

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(1)	Legal Name of Inventor:	Nikolaos Papandreou	
	Signature:		Date:
(2)	Legal Name of Inventor:	Charalampos Pozidis	
	Signature:		Date:
(3)	Legal Name of Inventor:	Nikolas loannou	
	Signature:		Date:
(4)	Legal Name of Inventor:	Roman Alexander Pletka	
	Signature: Zo	New Pelle	Date: 08/19/2019

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(5)	Legal Name of Inventor		
	Signature: //, /	Las Harre	Date: <u>08/23/2@19</u>
(6)	Legal Name of Inventor:	Sasa Tornic	
	Signature:		Date:
(7)	Legal Name of Inventor.	Timothy Fisher	
	Signature:		Date:
(8)	Legal Name of Inventor:	Aaron Daniel Fry	
	Signature:		Date:
(9)	Legal Name of Inventor:	Andrew D. Walls	
	Signature:		Date:

Page 3 of 3

(5)	Legal Name of Inventor:	Radu Ioan Stoica		
	Signature:		Date: _	
(6)	Legal Name of Inventor:			
	Signature: Caz	ce Maint	Date: _	07/31/2019
(7)	Legal Name of Inventor:	Timothy Fisher		
	Signature:		Date: _	
(8)	Legal Name of Inventor:	Aaron Daniel Fry		
	Signature:		Date: _	
(9)	Legal Name of Inventor:	Andrew D. Walls		
	Signature		Date:	

(5)	Legal Name of Inventor: Radu Ioan Stoica		
	Signature:	Date: _	
(6)	Legal Name of Inventor: Sasa Tomic		
	Signature:	Date: _	
(7)	Legal Name of Inventor: Timothy Fisher		
	Signature:	Date: _	7-30-19
(8)	Legal Name of Inventor: Aaron Daniel Fry		
	Signature: Won Daniel Try	Date: _	730-19
(9)	Legal Name of Inventor: Andrew D. Walls		
	Signature: Alexandra Malla	m	7_30-19