

## PATENT ASSIGNMENT COVER SHEET

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<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
BAREND WILHELMUS MARINUS VAN LIEMPD	02/09/2018
ARIUMI SANEAKI	02/02/2018
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<b>Postal Code:</b>	1050
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	15887462
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	(312)913-0002
<i>Correspondence will be sent to the e-mail address first; if that is unsuccessful, it will be sent using a fax number, if provided; if that is unsuccessful, it will be sent via US Mail.</i>	
<b>Phone:</b>	3129130001
<b>Email:</b>	mueller@mbhb.com
<b>Correspondent Name:</b>	MCDONNELL BOEHNNEN HULBERT & BERGHOFF LLP
<b>Address Line 1:</b>	300 SOUTH WACKER DRIVE
<b>PATENT</b>	

<b>Address Line 4:</b> CHICAGO, ILLINOIS 60606	
<b>ATTORNEY DOCKET NUMBER:</b>	17-1821
<b>NAME OF SUBMITTER:</b>	SYDNEY R. KOKJOHN
<b>SIGNATURE:</b>	/Sydney R. Kokjohn/
<b>DATE SIGNED:</b>	03/20/2018
<b>Total Attachments: 3</b> source=Scan_042319#page1.tif source=Scan_042319#page2.tif source=Scan_042319#page3.tif	

**ASSIGNMENT**

Case No.: 17-1821

Serial No.: 15/887,462

Inventor(s): Barend Wilhelmus Marinus van Liempd, Ariumi Saneaki

Date of Execution  
of Application:

Filing Date: February 2, 2018

In consideration of One Dollar (\$1.00) and other good and valuable considerations in hand paid, the receipt and sufficiency whereof are hereby acknowledged, the undersigned hereby assign to:

IMEC VZW  
Kapeldreef 75  
3001 Leuven, Belgium

Murata Manufacturing Company Ltd.  
10-1, Higashikotari 1-chome  
617-8555 Nagaokakyo-shi, Kyoto, Japan

VRIJE UNIVERSITEIT BRUSSEL  
Pleinlaan 2, building E 4th Floor  
1050 Brussel, Belgium

its successors and assigns, the entire right, title and interest in the invention or improvements of the undersigned disclosed in an application for Letters Patent of the United States, entitled:

**Front-End Module Comprising an EBD Circuit, Telecommunication  
Device Comprising the Front-End Module and Method for Operating Them**

and identified as:

**Case No. 17-1821**

in the offices of McDONNELL BOEHNEN HULBERT & BERGHOFF LLP and in said application and any and all other applications, both United States and foreign, which the undersigned may file, either solely or jointly with others, on said invention or improvements, and in any and all Letters Patent of the United States and foreign countries, which may be obtained on any of said applications, and in any reissue or extension of such patents, and further assigns to said assignee the priority right provided by the International Convention.

The undersigned hereby authorize and request the Commissioner of Patents and Trademarks to issue said Letters Patent to said assignee.

The undersigned hereby authorize and request the attorneys of record in said application to insert in this assignment the filing date and serial number of said application when officially known, and the date of execution of the application.

MCDONNELL BOEHNEN  
HULBERT & BERGHOFF LLP  
300 SOUTH WACKER DRIVE  
CHICAGO, ILLINOIS 60606  
TELEPHONE (312) 913-0001

  
**PATENT**

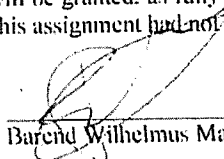
**REEL: 045286 FRAME: 0340**

The undersigned warrant themselves to be the owners of the entire right, title and interest in said invention or improvements and to have the right to make this assignment, and further warrant that there are no outstanding prior assignments, licenses, or other encumbrances on the interest herein assigned.

For said considerations the undersigned hereby agree, upon the request and at the expense of said assignee, its successors and assigns, to execute any and all divisional, continuation and substitute applications for said invention or improvements, and any necessary oath, affidavit or declaration relating thereto, and any application for the reissue or extension of any Letters Patent that may be granted upon said application and any and all applications and other documents for Letters Patent in foreign countries on said invention or improvements, that said assignee, its successors or assigns may deem necessary or expedient, and for the said considerations the undersigned authorize said assignee to apply for patents for said invention or improvements in its own name in such countries where such procedure is proper and further agree, upon the request of said assignee, its successors and assigns, to cooperate to the best of the ability of the undersigned with said assignee, its successors and assigns, in any proceedings or transactions involving such applications or patents, including the preparation and execution of preliminary statements, giving and producing evidence, and performing any and all other acts necessary to obtain, maintain and enforce said Letters Patent, both United States and foreign, and vest all rights therein hereby conveyed in the assignee, its successors and assigns, whereby said Letters Patent will be held and enjoyed by the said assignee, its successors and assigns, to the full end of the term for which said Letters Patent will be granted, as fully and entirely as the same would have been held and enjoyed by the undersigned if this assignment had not been made.

Signature:

Name:

  
Barend Wilhelmus Marinus van Liempd

Date:

9-2-2018 (February)

Signature:

Name:

Ariumi Saneaki

Date:

The undersigned warrant themselves to be the owners of the entire right, title and interest in said invention or improvements and to have the right to make this assignment, and further warrant that there are no outstanding prior assignments, licenses, or other encumbrances on the interest herein assigned.

For said considerations the undersigned hereby agree, upon the request and at the expense of said assignee, its successors and assigns, to execute any and all divisional, continuation and substitute applications for said invention or improvements, and any necessary oath, affidavit or declaration relating thereto, and any application for the reissue or extension of any Letters Patent that may be granted upon said application and any and all applications and other documents for Letters Patent in foreign countries on said invention or improvements, that said assignee, its successors or assigns may deem necessary or expedient, and for the said considerations the undersigned authorize said assignee to apply for patents for said invention or improvements in its own name in such countries where such procedure is proper and further agree, upon the request of said assignee, its successors and assigns, to cooperate to the best of the ability of the undersigned with said assignee, its successors and assigns, in any proceedings or transactions involving such applications or patents, including the preparation and execution of preliminary statements, giving and producing evidence, and performing any and all other acts necessary to obtain, maintain and enforce said Letters Patent, both United States and foreign, and vest all rights therein hereby conveyed in the assignee, its successors and assigns, whereby said Letters Patent will be held and enjoyed by the said assignee, its successors and assigns, to the full end of the term for which said Letters Patent will be granted, as fully and entirely as the same would have been held and enjoyed by the undersigned if this assignment had not been made.

Signature: \_\_\_\_\_  
Name: Barend Wilhelmus Marinus van Liempd

Date: \_\_\_\_\_

Signature: Saneaki Ariumi  
Name: Ariumi Saneaki

Date: February 2, 2018