504476223 07/27/2017

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
NEREO MARKULIC	06/06/2017
YAO-HONG LIU	06/20/2017
JAN CRANINCKX	06/06/2017

RECEIVING PARTY DATA

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City:	EINDHOVEN	
State/Country:	NETHERLANDS	
Postal Code:	5656 AE	
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Internal Address:	BUILDING E, 4TH FLOOR	
City:	BRUSSEL	
State/Country:	BELGIUM	
Postal Code:	1050	

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	15605261

CORRESPONDENCE DATA

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PATENT 504476223 REEL: 043115 FRAME: 0670

Correspondent Name: MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP

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ATTORNEY DOCKET NUMBER: 17-700

NAME OF SUBMITTER: DAVID R. GROSBY

SIGNATURE: /David R. Grosby/

DATE SIGNED: 07/27/2017

Total Attachments: 3

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> PATENT REEL: 043115 FRAME: 0671

<u>ASSIGNMENT</u>

Case No.: 17-700 Serial No.: 15/605.261

Inventor(s): Nereo Markulic, Yao-Hong Liu, Jan Craninckx

Date of Execution of Application:

Application: Filing Date: May 25, 2017

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

Stichting IMEC Nederland

High Tech Campus 31 5656 AE Eindhoven, Netherlands

Vrije Universiteit Brussel Pleinlaan 2, Building E, 4th Floor

Pleinlaan 2, Building E, 4th Floo 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, entired:

DTC-Based PLL and Method for Operating the DTC-Based PLL

and identified as:

Case No. 17-700

in the offices of MCDONNELL BOEHNEN HULBERT & BERGHOFF LLP and is 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 assigned the proofly 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 second 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.

The undersigned warrant themselves to be the owners of the entire right, title and interest in said

MCDONNELL BOEHNEN HULBERT & BERGHOFF LLI 300 SOUTH WACKET DRIVE CHICAGO, ILLINOES 60608 TELEPHONE (2)21912-0001

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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 hereis 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 assignce 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 assignce, 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:	Norco Markufic	Date: 06.06.2017.
Signatuse: Name:	Yao-Hong Lau	Example:
Signature: Name:	Jan Cranteckx	Date: 06-06-36-4

M DOMPE L'ECENÇEN POURENT CRESCHOPE LL' SON SOUTHERNOISE DOME CRESCHO L'ETHOUS COME 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:	Nereo Markulic	Date:
Signature Name:	Yao-Hong Liu	Date: Zoth June Zo
Signature: Name:	Jan Craninckx	Date:

RECORDED: 07/27/2017

PATENT REEL: 043115 FRAME: 0674