505259297 01/02/2019

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1 Stylesheet Version v1.2 EPAS ID: PAT5306069

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
LUCIA D'ACUNTO	12/13/2018
EMMANUEL THOMAS	12/12/2018
MATTIJS OSKAR VAN DEVENTER	12/11/2018
RAY VAN BRANDENBURG	12/05/2018
ARJEN VEENHUIZEN	12/05/2018

RECEIVING PARTY DATA

Name:	KONINKLIJKE KPN N.V.
Street Address:	WILHELMINAKADE 123
City:	ROTTERDAM
State/Country:	NETHERLANDS
Postal Code:	3072 AP

PROPERTY NUMBERS Total: 1

Property Type	Number
Application Number:	16302500

CORRESPONDENCE DATA

Fax Number: (978)341-0136

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.

Phone: 978.341.0036

Email: Jennifer.Torpey@hbsr.com **Correspondent Name:** TIMOTHY J. MEAGHER ESQ.

Address Line 1: HAMILTON, BROOK, SMITH & REYNOLDS, P.C.

Address Line 2: 530 VIRGINIA ROAD, P.O. BOX 9133

Address Line 4: CONCORD, MASSACHUSETTS 01742-9133

ATTORNEY DOCKET NUMBER:	4965.1073-001
NAME OF SUBMITTER:	JENNIFER TORPEY
SIGNATURE:	/Jennifer Torpey/
DATE SIGNED:	01/02/2019

Total Attachments: 6

PATENT REEL: 047884 FRAME: 0204

505259297

PATENT REEL: 047884 FRAME: 0205

Joint

<u>ASSIGNMENT</u>

Ray Van	HEREAS, we, Lucia D'Acunto, Emmanuel Thomas, Mattijs Oskar Van Deventer, Brandenburg and Arjen Veenhuizen, have invented a certain improvement in Tiled Omnidirectional Video Streaming described in an application for Patent,
	the specification of which is about to be filed in the United States Patent Office (use for utility (37 CFR § 1.53(b)) and design filings only);
	is about to be filed in the United States Patent Office as a Provisional Application;
	the specification of which is United States Application No. [], filed [];
	the specification of which is a Patent Cooperation Treaty Application, International Application No. PCT/EP2017/062517, filed May 24, 2017, which designates the United States of America and is assigned United States Application No. 16/302,500;
	which was patented under United States Patent No. [].
	HEREAS, Koninklijke KPN N.V. (hereinafter "ASSIGNEE"), a corporation and existing under the laws of the country of the Netherlands , and having, and having

WHEREAS, Koninklijke KPN N.V. (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the country of the Netherlands, and having, and having a usual place of business at Wilhelminakade 123, Rotterdam, The Netherlands, 3072 AP desires to confirm its interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue on said invention; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for any and all related provisional and nonprovisional, international and national phase applications, including any and all substitution, reissue, divisional, continuation, and continuation-in-part applications, and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein; we hereby expressly authorize the filing of an International Patent Application under the

~ } ~

Patent Cooperation Treaty which corresponds to and claims the priority of the above-identified application;

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of any future applications including substitution, reissue, divisional or continuation, continuation-in-part applications, and all related provisional and nonprovisional, international and national phase applications, and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

AND, we do hereby authorize and request each Patent Office and the Commissioner of Patents of the United States to issue such Letters Patent as shall be granted upon said invention to said ASSIGNEE, its successors, assigns, and legal representatives.

Inventor	Lucia D'Acumbo	Date 13/12/18
inventor	Emmanuel Thomas	Date <u>11</u> /42/13
	MODL	
Inventor	/ / /// // Mattijs Oskar Van Deventer	Date <u>V - 12 - 20 /</u>

-2-

Docke	A 18 18	10065	388	223	3383
ERRRRR	3. 3383.2.	- SYZES.5.	1 13 :	· • • • • • • • • • • • • • • • • • • •	35.5

inventor		Date	
	Ray Van Brandenburg		
			anamanamanamanamanamanamanamanamanamana
Inventor		Date	
	Arjen Veenhuizen		

Joint

ASSIGNMENT

•	Van Bra	and Arjen Veenhuizen, have invented a certain improvement in ed Omnidirectional Video Streaming described in an application for Patent,			
		the specification of which is about to be filed in the United States Patent Office (use for utility (37 CFR § 1.53(b)) and design filings only);			
	is about to be filed in the United States Patent Office as a Provisional Application;				
	the specification of which is United States Application No. [], filed [];				
		the specification of which is a Patent Cooperation Treaty Application, International Application No. PCT/EP2017/062517 , filed May 24, 2017 , which designates the United States of America and is assigned United States Application No. 16/302,500 ;			
		which was patented under United States Patent No. [].			
	WHE	REAS, Koninklijke KPN N.V. (hereinafter "ASSIGNEE"), a corporation			

WHEREAS, **Koninklijke KPN N.V.** (hereinafter "ASSIGNEE"), a corporation organized and existing under the laws of the country of **the Netherlands**, and having a usual place of business at **Wilhelminakade 123, Rotterdam, The Netherlands, 3072 AP** desires to confirm its interest therein in accordance with agreements duly entered into with us;

NOW, THEREFORE, to all whom it may concern be it known that for and in consideration of said agreements and of other good and valuable consideration, the receipt of which is hereby acknowledged, we have sold, assigned and transferred and by these presents do hereby sell, assign and transfer unto said ASSIGNEE, its successors, assigns and legal representatives, the entire right, title and interest in and throughout the United States of America, its territories and all foreign countries, in and to said invention as described in said application, together with the entire right, title and interest in and to said application and such Letters Patent as may issue on said invention; said invention, application and Letters Patent to be held and enjoyed by said ASSIGNEE for its own use and behalf and for its successors, assigns and legal representatives, to the full end of the term for which said Letters Patent may be granted as fully and entirely as the same would have been held by us had this assignment and sale not been made; we hereby convey all rights arising under or pursuant to any and all international agreements, treaties or laws relating to the protection of industrial property by filing any such applications for Letters Patent. We hereby acknowledge that this assignment, being of the entire right, title and interest in and to said invention, carries with it the right in ASSIGNEE to apply for any and all related provisional and nonprovisional, international and national phase applications, including any and all substitution, reissue, divisional, continuation, and continuation-in-part applications, and obtain from competent authorities in all countries of the world any and all Letters Patent by attorneys and agents of ASSIGNEE's selection and the right to procure the grant of all such Letters Patent to ASSIGNEE for its own name as assignee of the entire right, title and interest therein; we hereby expressly authorize the filing of an International Patent Application under the

> PATENT REEL: 047884 FRAME: 0209

Patent Cooperation Treaty which corresponds to and claims the priority of the above-identified application;

AND, we hereby further agree for ourselves and our executors and administrators to execute upon request any other lawful documents and likewise to perform any other lawful acts which may be deemed necessary to secure fully the aforesaid invention to said ASSIGNEE, its successors, assigns and legal representatives, but at its or their expense and charges, including the execution of applications for patents in foreign countries, and the execution of any future applications including substitution, reissue, divisional or continuation, continuation-in-part applications, and all related provisional and nonprovisional, international and national phase applications, and preliminary or other statements and the giving of testimony in any interference or other proceeding in which said invention or any application or patent directed thereto may be involved;

AND, we do hereby authorize and request each Patent Office and the Commissioner of

Patents of the United States to issue such Letters Patent as shall be granted upon said invention

to said ASSIGNEE, its	s successors, assigns, and legal represer	ntatives.	
Inventor	Lucia D'Acunto	Date	
	Emmanuel Thomas		
Inventor		Data	
mventor	Mattijs Oskar Van Deventer	Date	

PATENT REEL: 047884 FRAME: 0210

	· · · · · · · · · · · · · · · · · · ·
Date_	05-n-70 if
	Date_

-3-

2891790.v1