

PATENT ASSIGNMENT COVER SHEET

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SUBMISSION TYPE:	NEW ASSIGNMENT		
NATURE OF CONVEYANCE:	NUNC PRO TUNC ASSIGNMENT		
EFFECTIVE DATE:	03/03/2017		
CONVEYING PARTY DATA			
		Name	Execution Date
		IGOR DANILO DIEGO CURCIO	09/21/2021
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Property Type		Number	
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DATE SIGNED:	09/23/2021		
Total Attachments: 2			
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CONFIRMATORY ASSIGNMENT

I, Igor Danilo Diego Curcio (hereinafter referred to as The ASSIGNOR):

Executed an assignment on March 3, 2017 of my entire rights to U.S. Patent Application Serial No. 15/444,891 filed February 28, 2017, including my U.S. Patent rights, my worldwide Patent rights, and my full and exclusive right to the invention entitled "Method and Apparatus for Improving the Visual Quality of Viewport-Based Omnidirectional Video Streaming" and any patents filed therefor. On the first page of that assignment, my surname was inadvertently misspelled. By my execution of this confirmatory assignment, I am confirming that the assignment I executed on March 3, 2017 was and is a proper assignment of all my rights in this invention to Nokia Technologies OY.

More specifically, I am confirming that for good and valuable consideration, the receipt and sufficiency of which were and are hereby acknowledged, I have assigned to (hereafter referred to as The ASSIGNEE):

Nokia Technologies OY
Karaportti 3
02610 Espoo
Finland

An invention entitled:

**METHOD AND APPARATUS FOR IMPROVING THE VISUAL QUALITY OF
VIEWPORT-BASED OMNIDIRECTIONAL VIDEO STREAMING**

The PATENT RIGHTS referred to in this agreement are described at least in:

- ☒ U.S. Patent Application Serial No.: 15/444,891 filed February 28, 2017;
- ☒ PCT Application Serial No.: PCT/FI2018/050122 filed February 20, 2018; and
- ☒ European Patent Application Serial No.: EP18761570 filed September 20, 2019 as a regional phase entry of PCT/FI2018/050122.

The PATENT RIGHTS for which the assignment is confirmed under this agreement are:

- ☒ U.S. Patent rights
- ☒ worldwide Patent rights. In this case, the assignee shall have the right to claim the benefit of the filing date of any Patent Application identified above.
- ☒ the full and exclusive right to the invention;

The ASSIGNOR does hereby confirm the assignment of the following to each ASSIGNEE; their successors and assigns:

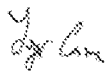
an equal interest in and to the entire right, title and interest in and to the PATENT RIGHTS in the invention, all continuations, continuations-in-part, divisionals, re-issues, and re-examination patents and patent applications; and

the right to claim priority under 35 U.S.C. § 119, based on any earlier foreign applications for this invention.

As to all U.S. Patent Applications assigned under this Agreement, the ASSIGNOR hereby confirms the prior authorization and request to the Commissioner of Patents and Trademarks to issue all Letters Patent to the ASSIGNEE(S) as the ASSIGNEE(S) of an equal interest in the entire right, title and interest, for the sole use and enjoyment of said ASSIGNEE(S), their successors and assigns.

Further, the ASSIGNOR confirms the agreement to communicate to said ASSIGNEE(S), or their representatives, any facts known to the ASSIGNOR respecting said invention, and testify in any legal proceedings, sign all lawful papers, execute all divisional, continuation, substitute, renewal, reexamination and reissue applications, execute all necessary assignment papers to cause any and all Letters Patent to be issued to said ASSIGNEE(S), make all rightful oaths and generally do everything necessary or desirable to aid said ASSIGNEE(S), their successors and assigns, to obtain and enforced proper protection for said invention.

Further, I confirm the authorization of the attorney of record to update this document to include Patent Office information as deemed necessary (i.e., filing date, serial number, etc.);
Inventor: Please sign and date below:



[Igor Danilo Diego Curcio]

Sep 21, 2021

Date