

## PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1  
Stylesheet Version v1.2

EPAS ID: PAT5047982

<b>SUBMISSION TYPE:</b>	NEW ASSIGNMENT
<b>NATURE OF CONVEYANCE:</b>	ASSIGNMENT
<b>CONVEYING PARTY DATA</b>	
<b>Name</b>	<b>Execution Date</b>
VESA LEHTOVIRTA	12/01/2016
VESA TORVINEN	11/29/2016
<b>RECEIVING PARTY DATA</b>	
<b>Name:</b>	OY L M ERICSSON AB
<b>Street Address:</b>	HIRSALANTIE 11
<b>City:</b>	JORVAS
<b>State/Country:</b>	FINLAND
<b>Postal Code:</b>	02420
<b>PROPERTY NUMBERS Total: 1</b>	
<b>Property Type</b>	<b>Number</b>
<b>Application Number:</b>	16069759
<b>CORRESPONDENCE DATA</b>	
<b>Fax Number:</b>	
<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>	919-948-3390
<b>Email:</b>	official@mbhiplaw.com
<b>Correspondent Name:</b>	MURPHY, BILAK & HOMILLER/ERICSSON
<b>Address Line 1:</b>	1255 CRESCENT GREEN, SUITE 200
<b>Address Line 4:</b>	CARY, NORTH CAROLINA 27518
<b>ATTORNEY DOCKET NUMBER:</b>	1009-2852 / P48964 US2
<b>NAME OF SUBMITTER:</b>	/JUSTIN J. LEONARD, REG. NO. 60,986/
<b>SIGNATURE:</b>	/Justin J. Leonard, Reg. No. 60,986/
<b>DATE SIGNED:</b>	07/12/2018
<b>Total Attachments: 5</b>	
source=1009-2852 Non-Provisional Assignment, Lehtovirta et al to LMF#page1.tif	
source=1009-2852 Non-Provisional Assignment, Lehtovirta et al to LMF#page2.tif	
source=1009-2852 Non-Provisional Assignment, Lehtovirta et al to LMF#page3.tif	
source=1009-2852 Non-Provisional Assignment, Lehtovirta et al to LMF#page4.tif	
source=1009-2852 Non-Provisional Assignment, Lehtovirta et al to LMF#page5.tif	

## ASSIGNMENT AGREEMENT

This Assignment is made by:

**LEHTOVIRTA, Vesa**

**Veininmäki 10B  
02620 Espoo  
Finland**

**TORVINEN, Vesa**

**Sauvontie 42  
21570 Sauvo  
Finland**

(hereinafter referred to as "Assignor(s)") in favor, and for the benefit and behoof of, Oy L M Ericsson Ab, a corporation duly organized under and pursuant to the laws of Finland and having its principal place of business at Hirsalantie 11, 02420 Jorvas, Finland (hereinafter referred to as "Assignee").

The Assignor(s) have, as of the Effective Date, sold, assigned, transferred, and set over, and by these presents, and to the extent any transferable or assignable rights still remain with the inventor, do hereby sell, assign, transfer, and set over, unto the Assignee, its successors, legal representatives, and assigns the entire right, title, and interest in and to the following inventions, application(s) for any and all Letters Patent, Patents and Utility Model(s) in all countries and pursuant to all multilateral treaty organizations, including Finland, the United States of America, the Patent Cooperation Treaty and European Patent Convention, that may be granted therefor and thereon, and in and to any and all divisions, continuations, continuations-in-part, conversions and utility models of said application(s), and reissues and extensions of said Letters Patent, Patents or Utility Model(s), the same to be held and enjoyed by the Assignee, for its use and behoof and the use and the behoof of its successors, legal representatives, and assigns, to the full end of the term or terms for which Letters Patent, Patents and Utility Models may be granted as fully and entirely as the same would have been held and enjoyed by the Assignor(s) had this sale and assignment not been made:

### Explicit Spatial Replay Protection

including, but not limited to, the application(s) for Letters Patent and Utility Model filed in:

Country Code	Patent Application(s)	Filing Date(s)
WO	PCT/EP2016/078653	2016-11-24
US	16/069,759	2018-07-12
		- -

The Effective date is the earliest date of the above listed Filing Date(s).

This Assignment shall be subject to the laws of Finland and Ericsson Inventor Awards System valid at the time of the Assignors submitted the Applicable Notification Form to the Assignee. The Assignor(s) acknowledge that they are aware of the content and provisions of the Ericsson Inventor Awards System.

Assignor(s) hereby authorize and request Assignee's Attorneys to insert the serial number and filing date of said application(s) for Letter Patents, Patent or Utility Model, when

## ASSIGNMENT AGREEMENT

known. The assignment of the above mentioned rights includes a transfer of the whole right to use a priority (including priority according to any convention, multilateral agreement, bilateral agreement and national law) of the above mentioned application(s) for Letter Patent, Patents and Utility Model in all countries and multilateral treaty organizations wherein no residual rights shall remain with the Assignor(s). Assignor(s) hereby request that said Letters Patent, Patents or Utility Model be issued to Assignee as the Assignee of said inventions, the Letters Patent, Patent or Utility Model to be issued for the sole use and behoof of the Assignee, its successors, legal representatives, and assigns. Assignee alone hereinafter has the entire disposal of the invention and possesses entire ownership to any domestic and foreign patents or utility models granted thereafter. The rights granted hereunder shall include all rights to institute legal actions, obtain remedies and recover and retain damages in respect to said Letters Patent, Patents or Utility Model.

The Assignor(s) and Assignee hereby understand and agree that with the execution of this Assignment, to the extent necessary or appropriate, national and/or regional applications may be filed by the Assignee as the applicant and on behalf of the Assignor(s).

The Assignor(s) hereby confirm that the remuneration to be paid to the Assignor(s) in accordance with the Ericsson Inventor Awards System, in addition to the salary of the Assignor(s) as such, constitute fair and reasonable compensation as defined in the Finnish Employee Inventions Act for the assignment an employee invention to the Assignee and that the Assignor(s) shall not have any other claims towards the Assignee. In connection with this the Assignor(s) and the Assignee have particularly taken into account the following factors: degree of readiness, scope of the invention and utilization of the invention. It has been taken into account that the invention may be used in or transferred to other Ericsson's group companies and there are also licensing possibilities.

To the extent Assignee is entitled to receive the rights hereunder pursuant to this Assignment, each of the Assignor(s) hereby covenants and agrees to and with the Assignee, its successors, legal representatives, and assigns, that, at the time of the Effective Date, the Assignor(s) were the sole and lawful owners of the entire right, title, and interest in and to the inventions and application(s) for Letters Patent, Patents or Utility Models above-mentioned, and that the same are unencumbered, and that the Assignor(s) have good and full right and lawful authority to sell and convey the same in the manner herein set forth.

Further, the Assignor(s) hereby covenant(s) and agree(s) to and with the Assignee, its successors, legal representatives, and assigns that the Assignor(s) will, whenever counsel of the Assignee, or the counsel of its successors, legal representatives, and assigns, shall advise that any proceeding in connection with said inventions or said application(s) for Letters Patent, Patents or Utility Models or any proceeding in connection with Letters Patent, Patents or Utility Model for said inventions, in any country and any multilateral treaty organization, including interference proceedings, is lawful and desirable, or that any division, continuation, continuation-in-part, conversion of any application(s) for Letters Patent, Patents or Utility Model, or any reissue or extension of any Letters Patent, Patents or Utility Model to be obtained thereon, is lawful and desirable, sign all papers and documents, take all lawful oaths, and do all acts necessary or required to be done for the procurement, maintenance, enforcement, and defense of Letters Patent, Patents or Utility Model for said inventions, without charge to Assignee, its successors, legal representatives, and assigns, but at the cost and expense of the Assignee, its successors, legal

## ASSIGNMENT AGREEMENT

representatives, and assigns. If any of the Assignor(s) is prevented by any obstacles from signing said documents in person, this Assignment shall be valid as a Power of Attorney for the Assignee to sign these documents on behalf of any such Assignor(s) or, in the event of the death of the latter, the estate thereof.

This Assignment shall be governed by and construed under, and any dispute, controversy or claim related hereto shall be decided in accordance with, the laws of:  
**Sweden**

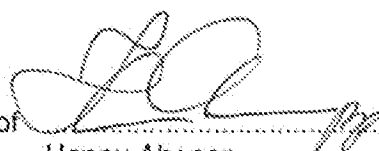
without regard to the conflicts of laws provisions thereof. Any dispute, controversy or claim arising under, out of or relating to this Assignment and any subsequent amendments of this Assignment, including, without limitation, its formation, validity, binding effect, interpretation, performance, breach or termination, as well as non-contractual claims, shall be referred to and finally determined by arbitration in accordance with the WIPO Arbitration Rules. The arbitral tribunal shall consist of a sole arbitrator. The place of arbitration shall be in the country of the inventor's residence. The language to be used in the arbitral proceedings shall be English.

No modifications shall be made to this Assignment unless in writing and signed by each of the Assignor(s) and Assignee. If any of the provisions of this Assignment shall be deemed invalid or unenforceable, then the entire Assignment shall be construed as if not containing the particular invalid or unenforceable provision or provisions, and the rights and obligations of Assignee and Assignor(s) shall be construed and enforced accordingly. Assignee's failure to exercise any option made available as a result hereof, shall not be construed as a waiver of such provisions, rights, or options, or affect the validity of this Assignment. Assignor covenants and agrees that it will not take any actions in violation of this Assignment.

Subsequent assignment from any of the Assignors to the Assignee purporting to convey the subject matter specified herein for a particular country, patent office, or jurisdiction shall not invalidate any provision of this assignment and any such subsequent assignment shall act as a further confirmation of the assignment herein.

Date..... 7.12.2016 .....

Signature on behalf of  
Assignee



Hannu Ahonen  
Senior Group Legal Counsel

# ASSIGNMENT AGREEMENT

Title: Explicit Spatial Replay Protection

Date 1.12.2012 Signature of Assignor

Vesa Lehtovirta  
LEHTOVIRTA, Vesa

Date 1.12.2016 Witnessed by

Name:

Benita Heinonen  
BENITA HEINONEN

Address:

LUMIKINKKIA 8  
02400 KIEKKOJOKI  
FINLAND

Date 1.12.2016 Witnessed by

Name:

Marieta Siivonen  
MARIETA SIIVONEN

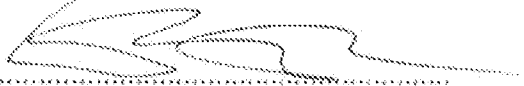
Address:

SUVELINIE 14 B40  
02780 ESPOO  
FINLAND

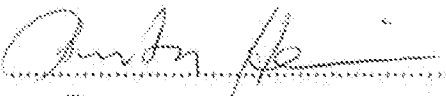
ASSIGNMENT AGREEMENT

Title: Explicit Spatial Replay Protection

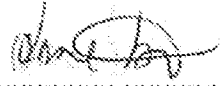
Date 29.11.2016 Signature of Assignor  
TORVINEN, Vesa

  
.....  
TORVINEN, Vesa

Date 29.11.2016 Witnessed by  
Name:  
Address:

  
.....  
BENITA HONONEN  
.....  
LUMIKINEVA 8  
.....  
22400 KIRKKONUMMI  
.....  
FINLAND  
.....

Date 29.11.2016 Witnessed by  
Name:  
Address:

  
.....  
LASSE SAVOLAINEN  
.....  
SAUVONTIE 42  
.....  
21530 SAUVO  
.....  
FINLAND  
.....