

PATENT ASSIGNMENT COVER SHEET

Electronic Version v1.1
Stylesheet Version v1.2

EPAS ID: PAT5924863

SUBMISSION TYPE:	NEW ASSIGNMENT
NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
NOKIA TECHNOLOGIES OY	07/05/2019

RECEIVING PARTY DATA

Name:	VIVO MOBILE COMMUNICATION CO., LTD.
Street Address:	#283, BBK ROAD, WUSHA
City:	CHANG'AN DONGGUAN, GUANGDONG
State/Country:	CHINA
Postal Code:	523860

PROPERTY NUMBERS Total: 20

Property Type	Number
Application Number:	10117730
Application Number:	10891846
Application Number:	10691252
Application Number:	11808104
Application Number:	12459088
Application Number:	10570718
Application Number:	11136133
Application Number:	13852646
Application Number:	14130070
Application Number:	12316603
Application Number:	11119412
Application Number:	12641998
Application Number:	14673923
Application Number:	10335254
Application Number:	12767196
Application Number:	10997397
Application Number:	11440710
Application Number:	12933676
Application Number:	13050348
Application Number:	12621844

PATENT

CORRESPONDENCE DATA**Fax Number:** (312)977-9959*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:** 3129779902**Email:** tmorales@millermatthiashull.com**Correspondent Name:** MILLER, MATTHIAS & HULL LLP**Address Line 1:** ONE NORTH FRANKLIN STREET**Address Line 2:** SUITE 2350**Address Line 4:** CHICAGO, ILLINOIS 60606

ATTORNEY DOCKET NUMBER:	60193
NAME OF SUBMITTER:	THOMAS A. MILLER
SIGNATURE:	/thomas a. miller/
DATE SIGNED:	01/23/2020

Total Attachments: 13

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RECORDATION FORM COVER SHEET PATENTS ONLY

To the Director of the U.S. Patent and Trademark Office: Please record the attached documents or the new address(es) below.

1. Name of conveying party(ies)

Nokia Technologies OY
Karaportti 3, Espoo, Finland
02610

Additional name(s) of conveying party(ies) attached? Yes No

2. Name and address of receiving party(ies)

Name: VIVO MOBILE COMMUNICATION CO., LTD.

Internal Address: _____

Street Address: #283, BBK Road, Wusha

City: Chang'an Dongguan, Guangdong

State: _____

Country: CN Zip: 523860

Additional name(s) & address(es) attached? Yes No

3. Nature of conveyance/Execution Date(s):

Execution Date(s) _____

- Assignment Merger
- Security Agreement Change of Name
- Joint Research Agreement
- Government Interest Assignment
- Executive Order 9424, Confirmatory License
- Other _____

4. Application or patent number(s):

This document serves as an Oath/Declaration (37 CFR 1.63).

A. Patent Application No.(s)

10/117,730; 10/891,846; 10/691,252; 11/808,104; 12/459,088
10/570,718; 11/136,133; 13/852,646; 14/130,070; 12/316,603
11/119,412; 12/641,998; 14/673,923; 10/335,254; 12/767,196
10/997,397; 11/440,710; 12/933,676; 13/050,348; 12/621,844

B. Patent No.(s)

7,369,520; 7,376,554; 7,382,634; 8,209,399; 8,213,610;
7,398,017; 7,397,658; 9,418,346; 9,435,981; 8,265,721;
7,430,424; 8,285,233; 9,466,108; 7,480,522; 8,374,658;
7,492,815; 7,515,930; 8,433,989; 9,639,273; 8,447,974

Additional numbers attached? Yes No

5. Name and address to whom correspondence concerning document should be mailed:

Name: Miller, Matthias & Hull LLP

Internal Address: Suite 2350

Street Address: One North Franklin Street

City: Chicago

State: IL Zip: 60606

Phone Number: (312) 235-4767

Docket Number: 60134

Email Address: tmorales@millermatthiashull.com

6. Total number of applications and patents involved: 20**7. Total fee (37 CFR 1.21(h) & 3.41) \$** _____

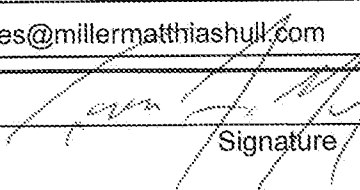
- Authorized to be charged to deposit account
- Enclosed
- None required (government interest not affecting title)

8. Payment Information

Deposit Account Number 50-3629

Authorized User Name Thomas A. Miller

9. Signature:



Signature

January 22, 2020
Date

Thomas A. Miller
Name of Person Signing

Total number of pages including cover sheet, attachments, and documents:

Documents to be recorded (including cover sheet) should be faxed to (571) 273-0140, or mailed to:
Mail Stop Assignment Recordation Services, Director of the USPTO, P.O.Box 1450, Alexandria, V.A. 22313-1450

PATENT ASSIGNMENT

This Patent Assignment (this "Assignment") is made effective as of July 5, 2019 (the "Effective Date") between Nokia Technologies Oy, a corporation organized under the laws of Finland, having its registered offices at Karaportti 3, 02610 Espoo, Finland ("Assignor"), and Vivo Mobile Communication Co., Ltd., a company incorporated under the laws of the People's Republic of China, having its registered office at 283# Bubugao (BBK) road, Jiangbei, Wusha Industrial Zone, Chang'An Dongguan, Guangdong, 523860, People's Republic of China ("Assignee").

WHEREAS, Assignor is the owner of certain patents and patent applications, as more particularly described in **Exhibit A**, incorporated herein by reference;

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Assignor hereby sells, assigns, transfers and conveys to Assignee, and its successors and assigns, all right, title, and interest in and to (a) each of the patents and patent applications listed in **Exhibit A** attached hereto (hereinafter "the Assigned Patents"); (b) all reissues, re-examinations, continuations, continuations-in-part, divisionals, renewals and extensions of such Assigned Patents (whether pending, issued, abandoned or filed prior to, on or after the Effective Date); (c) all patents and patent applications (i) to which any or all of the foregoing in (a) or (b) directly or indirectly claims priority to, or the benefit of, the filing date, or (ii) for which any or all of the foregoing in (a) or (b) directly or indirectly forms a basis for priority or otherwise provides the benefit of an earlier filing date; and (d) all foreign counterparts to any or all of the foregoing. Notwithstanding anything to the contrary, and for the avoidance of doubt, (A) (c)(i) and (ii) above shall not include patents and patent applications merely because they directly or indirectly share the same basis for priority, and (B) Assigned Patents do not include any patents or patent applications that are not owned or controlled by Nokia Technologies Oy and its subsidiaries as of the Effective Date and shall not include any patents or patent applications owned or controlled by Nokia Shanghai Bell or its subsidiaries. Given the number of Assigned Patents, the Assigned Patents may include Patents that have gone abandoned and may not be recoverable (all in (a) to (d) shall be collectively referred to as "Patent Rights", except that Patent Rights shall not include any patents and patent applications set forth under (A) to (B)).

Assignor agrees to and hereby does sell, assign, transfer and convey unto Assignee all rights (i) in and to causes of action and enforcement rights for the Patent Rights including all rights to pursue damages, injunctive relief and other remedies for past, present and future infringement of the Patent Rights, (ii) the right to apply (or continue prosecution) in any and all countries of the world for Assigned Patents, design Assigned Patents, utility models, certificates of invention or other governmental grants for the Patent Rights, including under the Paris Convention for the Protection of Industrial Property, the International Patent Cooperation Treaty, or any other convention, treaty, agreement or understanding, and (iii) the rights, if any, to revive prosecution of any abandoned Patent Rights.

Assignor hereby authorizes the respective patent office or governmental agency in each jurisdiction to issue any and all patents, certificates of invention, utility models or other governmental grants or issuances that may be granted upon any of the Patent Rights in the name of Assignee, as the assignee to the entire interest therein.

Assignor hereby authorizes and requests the attorney or agent of record to insert on this Assignment any further identification that may be necessary or desirable in order to comply with

PATENT PURCHASE AGREEMENT BETWEEN NOKIA TECHNOLOGIES LTD, NOKIA SOLUTIONS AND NETWORKS OY AND VIVO MOBILE COMMUNICATION CO.,LTD.

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the rules of the respective patent office or governmental agency in each jurisdiction for recordation or other official recognition.

This Assignment shall be binding upon and inure to the benefit of the parties and their respective successors and permitted assigns. The sale, assignment, transfer and conveyance is made subject to certain encumbrances which, for clarity, shall run with the assigned Patent Rights.

Any rule of construction to the effect that ambiguities are to be resolved against the drafting party will not be applied in the construction or interpretation of this Assignment. The words "include", "including" and variations thereof will be deemed to be followed by the words "without limitation". The use of "or" will not be deemed to be exclusive. This Assignment may be executed in counterparts, each of which when executed will be deemed to be an original but all of which taken together will constitute one and the same agreement.

[Signature page follows.]

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AND NETWORKS OY AND VIVO MOBILE COMMUNICATION CO.,LTD.

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PATENT
REEL: 051594 FRAME: 0904

IN WITNESS WHEREOF, intending to be legally bound, the parties through their duly authorized representatives have executed this Assignment as of the Effective Date.

NOKIA TECHNOLOGIES OY

By: *Eeva Hakoranta*

Name: Eeva Hakoranta
Authorized Signatory

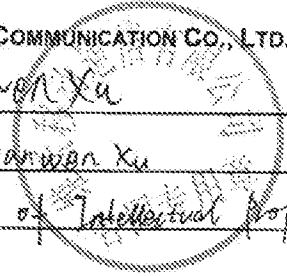
Title: _____

VIVO MOBILE COMMUNICATION CO., LTD.

By: *Xianwan Xu*

Name: Xianwan Xu

Title: Head of Intellectual Property



NOKIA TECHNOLOGIES OY

By: *Harri Honkasalo*

Name: Harri Honkasalo
Authorized Signatory

Title: _____

05-07-2019

This is to certify that Eeva Hakoranta,
Harri Honkasalo
is/are legally authorized to sign on behalf of
Nokia Technologies Oy
and she/he has/they have signed this document.
Helsinki Ex officio:

Anne Aho-Eagling
Anne Aho-Eagling
ylitarkastaja, julkinen notaari
överinspektör, notarius publicus
Senior officer, Notary Public



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PATENT PURCHASE AGREEMENT BETWEEN NOKIA TECHNOLOGIES LTD, NOKIA SOLUTIONS AND NETWORKS OY AND VIVO MOBILE COMMUNICATION CO.,LTD.

Exhibit A to Patent Assignment
Patents and Patent Applications

ORIGIN	FAMILY REF	COUNTRY	APPLICATION NUMBER	PUB NUMBER	GRANT NUMBER
TECH	103531	GB	1717220.6		
TECH	13806	US	09/360761		6175274
TECH	18128	US	10/009273		6778037
TECH	18290	US	09/716881		6794930
TECH	18743	US	10/519270	20050228565	7223022
TECH	18748	DE	01660140.3	1173028	60150871.8
TECH	18748	JP	2001-215833	2002-100994	4160278
TECH	18748	US	09/904486	20030206558	7072366
TECH	18962	US	10/117730	20030063615	7369520
TECH	18962	US	09/969297		7349357
TECH	19205	US	10/970393	20050052297	7026967
TECH	19267	US	10/691252	20040080964	7382634

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TECH	23735	US	10/437455	20040019836	7610031
TECH	23823	CN	200380100155.2	1685611	200380100155.2
TECH	23823	DE	03775429.8	1565985	60338839.6
TECH	23823	GB	03775429.8	1565985	1565985
TECH	23823	IN	1628/CHENP/2004		261706
TECH	23823	NL	03775429.8	1565985	1565985
TECH	23823	US	10/304915		6693470
TECH	23979	US	11/239280	20060093073	7646832
TECH	24034	US	09/843014	20010044291	6963735
TECH	24233	NL	99660194.4	1016817	1016817
TECH	24233	NL	05007478.0	1564568	1564568
TECH	24233	US	11/079635	20050213348	7192175
TECH	24233	US	11/404976	20060187677	7712942
TECH	24233	US	09/473765		7114820
TECH	24408	US	09/471919		6636164
TECH	24737	US	09/429384		6618591
TECH	24831	US	09/885202	20020000976	6686906
TECH	24970	US	09/465102		6584198
TECH	25072	US	09/471505		6396444
TECH	25276	AT	02722550.7	1384154	1384154

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TECH	25276	CA	2443790		2443790
TECH	25276	CN	200710100881.4	101038577	200710100881.4
TECH	25276	DE	02722550.7	1384154	60220398.8
TECH	25276	DE	07075053.4	1771020	60233357.1
TECH	25276	FR	02722550.7	1384154	1384154
TECH	25276	FR	07075053.4	1771020	1771020
TECH	25276	IT	07075053.4	1771020	502009901779092
TECH	25276	KR	2003-7013321	2004-15095	860883
TECH	25276	US	12/462860	20090307381	7870319
TECH	25276	US	10/473846	20040133722	7627704
TECH	25628	DE	11161992.0	2337229	60345825.4
TECH	25628	NL	11161992.0	2337229	2337229
TECH	25628	US	10/060648	20030143961	6731913
TECH	29431	US	09/779858	20020109635	6504507
TECH	32335	US	10/027089	20020086650	7171235
TECH	32616	DE	02100313.2	1253506	60222825.5
TECH	32616	NL	02100313.2	1253506	1253506
TECH	32616	US	10/112382	20020154475	6757157
TECH	33440	US	10/525454	20060251153	7796679

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TECH	37053	US	10/891846	20050065783	7376554
TECH	40742	US	11/246260	20060199595	7577439
TECH	46504	US	10/915701	20050276313	7746917
TECH	47673	CN	200680029021.X	101238696	200680029021.X
TECH	47673	DE	06780293.4	1913749	602006055129.0
TECH	47673	US	11/200247	20070030796	7808883
TECH	48137	US	10/997397	20060109891	7492815
TECH	48700	US	11/136133	20060268498	7397658
TECH	50498	US	11/356841	20070192990	7546152
TECH	51212	US	11/897962	20080064337	7885318
TECH	51655	CN	200780013781.6	101422021	200780013781.6
TECH	51655	US	11/405755	20070243897	7580726
TECH	52483	DE	07826078.3	2057626	602007018960.8
TECH	52483	GB	07826078.3	2057626	2057626
TECH	52483	US	11/515499	20080059154	
TECH	54292	CN	200780043177.8	101543035	200780043177.8
TECH	54292	EP	07823157.8	2077032	
TECH	54292	KR	2009-7009466	09-85621	1061471
TECH	54292	US	11/545880	20080086371	9225847
TECH	55236	US	11/808104	20080307072	8209399

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TECH	56347	KR	2009-7016687	09-110333	1167695
TECH	61714	US	12/005891	20090168369	7751195
TECH	63886	US	12/933676	20110029848	8433989
TECH	64661	US	12/175757	20100014240	8089749
TECH	64851	US	12/316603	20100151924	8265721
TECH	65329	US	12/641998	20100159860	8285233
TECH	69505	US	12/459088	20100329452	8213610
TECH	70752	US	12/621844	20110119486	8447974
TECH	71033	US	12/628532	20110128393	8730338
TECH	71930	CN	201180020828.8	102859978	201180020828.8
TECH	71930	DE	112011101438.4		
TECH	71930	US	12/767196	20110263304	8374658
TECH	72305	EP	11765132.3	2556450	
TECH	72305	US	13/083212	20110282968	9026609
TECH	72502	US	13/332763	20120166464	
TECH	72944	EP	10852074.3	2578050	2578050
TECH	72944	US	13/700619	20130078985	9155032

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TECH	74236	US	13/293257	20120117389	
TECH	74564	US	13/050348	20120198343	9639273
TECH	74671	US	13/073678	20120221697	9854055
TECH	75662	US	14/130070	20140146223	9435981
TECH	77593	US	14/379870	20150039632	
TECH	80446	US	14/074135	20140130124	9307411
TECH	81667	US	13/852646	20140298217	9418346
TECH	86274	CN	201510740275.3	105574848	
TECH	86274	US	14/930392	20160125626	
TECH	86428	EP	15186420.4	3012751	
TECH	86428	US	14/519492	20160112727	
TECH	86474	GB	1421329.2	2537948	
TECH	86474	US	14/948260	20160154999	9246946
TECH	87017	CN	201610193251.5	106023132	
TECH	87017	EP	16158162.4	3089109	
TECH	87017	US	14/573923	20160292863	9466108
TECH	28496	CN	02820571.5	1572083	02820571.5
TECH	28496	DE	02775099.1	1442554	60243057.7
TECH	28496	IN	1085/CHENP/2004	1085/CHENP/2004	246676
TECH	28496	NL	02775099.1	1442554	1442554

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TECH	28496	US	10/046274	20030079122	7178041
TECH	29778	US	09/802610	20010032537	6583674
TECH	32691	US	09/886412		6473019
TECH	32961	US	09/974138	20030081657	6584331
TECH	33610	US	09/995067	20020093371	6586967
TECH	33775	CN	03820045.7	1679306	03820045.7
TECH	33775	US	10/521663	20060128417	7558594
TECH	34568	US	10/335254	20040203524	7480522
TECH	51499	US	11/440710	20070273293	7515930
TECH	25382	US	09/652067		6944282
TECH	25402	US	09/875653	20020030698	7085649
TECH	35221	CN	02828623.5		02828623.5
TECH	35221	DE	02713112.7	1488653	60238447.8
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TECH	35221	GB	02713112.7	1488653	1488653
TECH	35221	NL	02713112.7	1488653	1488653
TECH	35221	US	10/401112	20030219532	7053771
TECH	36813	DE	04744254.6	1656741	602004007010.6

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TECH	36813	EP	07007608.8	1843478	
TECH	36813	FR	04744254.6	1656741	1656741
TECH	36813	KR	2006-7001203	2006-52835	0988898
TECH	36813	NL	04744254.6	1656741	1656741
TECH	36813	US	10/643599	20050040894	6954109
TECH	36969	DE	04767145.8	1661374	602004018941.3
TECH	36969	FR	04767145.8	1661374	1661374
TECH	36969	GB	04767145.8	1661374	1661374
TECH	36969	US	10/570718	20070065140	7398017
TECH	47280	CA	2605922		2605922
TECH	47280	GB	06744515.5	1875749	1875749
TECH	47280	HK	08102370.8	1108544	
TECH	47280	IN	8698/DELNP/2007		308264
TECH	47280	KR	2007-7027768	08-14805	0967857
TECH	47280	NL	06744515.5	1875749	1875749
TECH	47280	US	11/119412	20060246927	7430424
TECH	50398	DE	06820802.4	1941709	602006055133.9
TECH	50398	GB	06820802.4	1941709	1941709
TECH	50398	HK	08112827.6	1119000	
TECH	50398	KR	2008-7005534	08-34027	0972351

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TECH	50398	US	11/259733	20070090923	9800712
TECH	67654	DE	02755253.8	1421741	60207581.5
TECH	67654	FR	02755253.8	1421741	1421741
TECH	67654	GB	02755253.8	1421741	1421741
TECH	67654	IE	02755253.8	1421741	1421741
TECH	67654	IT	02755253.8	1421741	502006901387560
TECH	67654	JP	2003-524193	2005501478	4163616
TECH	67654	US	10/487645	20050025161	8743891

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AND NETWORKS OY AND VIVO MOBILE COMMUNICATION CO.,LTD.