

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 30A-140 647	FOR FURTHER ACTION see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/EP2018/070913	International filing date (<i>day/month/year</i>) 1 August 2018 (01-08-2018)	(Earliest) Priority Date (<i>day/month/year</i>) 11 August 2017 (11-08-2017)
Applicant TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)		

This international search report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This international search report consists of a total of 6 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. **Basis of the report**

a. With regard to the **language**, the international search was carried out on the basis of:

- the international application in the language in which it was filed
 a translation of the international application into _____, which is the language of a translation furnished for the purposes of international search (Rules 12.3(a) and 23.1(b))

b. This international search report has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43.6**bis**(a)).

c. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. **Certain claims were found unsearchable** (See Box No. II)

3. **Unity of invention is lacking** (see Box No III)

4. With regard to the **title**,

- the text is approved as submitted by the applicant
 the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

- the text is approved as submitted by the applicant
 the text has been established, according to Rule 38.2, by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority

6. With regard to the **drawings**,

a. the figure of the **drawings** to be published with the abstract is Figure No. 4A

- as suggested by the applicant
 as selected by this Authority, because the applicant failed to suggest a figure
 as selected by this Authority, because this figure better characterizes the invention

b. none of the figures is to be published with the abstract

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Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.

2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.

3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

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A. CLASSIFICATION OF SUBJECT MATTER
INV. H04W74/08
ADD. H04W74/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
H04W

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	HUAWEI ET AL: "Random Access Procedure Remaining Issues", 3GPP DRAFT; R2-163228 RANDOM ACCESS PROCEDURE REMAINING ISSUES, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE , vol. RAN WG2, no. Sophia Antipolis, France; 20160503 - 20160504 28 April 2016 (2016-04-28), XP051095152, Retrieved from the Internet: URL:http://www.3gpp.org/ftp/tsg_ran/WG2_RL2/TSGR2_AHs/2016_05_LTE_NB_IoT/Docs/[retrieved on 2016-04-28] Section 2.3 RA-RNTI ----- -/--	1-3,6, 11-13, 18-20, 25, 27-30, 32,33

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search 9 January 2019	Date of mailing of the international search report 18/01/2019
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Name and mailing address of the ISA/ European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Fax: (+31-70) 340-3016	Authorized officer Nogueroles Petersen
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International application No

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>WO 2017/121380 A1 (ZTE CORP [CN]) 20 July 2017 (2017-07-20)</p> <p>abstract paragraphs [0340] - [0361]; claims 61-64 -----</p>	<p>1-3,6, 11-13, 18-20, 25, 27-30, 32,33</p>
X	<p>CN 106 973 441 A (ZTE CORP) 21 July 2017 (2017-07-21)</p> <p>paragraphs [0354] - [0374]; claims 61-64 -----</p>	<p>1-3,6, 11-13, 18-20, 25, 27-30, 32,33</p>
A	<p>WO 2016/158394 A1 (NTT DOCOMO INC [JP]) 6 October 2016 (2016-10-06)</p> <p>abstract & EP 3 280 191 A1 (NTT DOCOMO INC [JP]) 7 February 2018 (2018-02-07) paragraphs [0015], [0016], [0020], [0030] - [0035], [0045], [0046] -----</p>	<p>1-25, 27-30, 32,33</p>
A	<p>US 2013/102320 A1 (SUZUKI SHOICHI [JP] ET AL) 25 April 2013 (2013-04-25) paragraphs [0056], [0074] - [0078], [0083], [0097] -----</p>	<p>1-33</p>
A	<p>MOTOROLA: "RA-RNTI Allocation", 3GPP DRAFT; R2-081824 RA-RNTI, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, vol. RAN WG2, no. Shenzhen, China; 20080325, 25 March 2008 (2008-03-25), XP050139521, [retrieved on 2008-03-25] the whole document -----</p>	<p>1-33</p>

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Information on patent family members

International application No PCT/EP2018/070913

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 2017121380	A1	20-07-2017	NONE

CN 106973441	A	21-07-2017	CN 106973441 A 21-07-2017
			EP 3404991 A1 21-11-2018
			KR 20180102630 A 17-09-2018

WO 2016158394	A1	06-10-2016	CN 107113716 A 29-08-2017
			EP 3280191 A1 07-02-2018
			JP WO2016158394 A1 27-07-2017
			US 2017339745 A1 23-11-2017
			WO 2016158394 A1 06-10-2016

US 2013102320	A1	25-04-2013	CN 102687578 A 19-09-2012
			EP 2523521 A1 14-11-2012
			JP 2011142532 A 21-07-2011
			US 2013102320 A1 25-04-2013
			WO 2011083740 A1 14-07-2011

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-25, 29, 30(completely); 27, 28, 32, 33(partially)

Apparatus, method, system and computer product for determining a Random Access-Radio Network Temporary Identifier RA-RNTI

2. claims: 26, 31(completely); 27, 28, 32, 33(partially)

Apparatus, method, system and computer product for managing Radio Network Temporary Identifiers RNTIs
