

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>P20172224</b>	<b>FOR FURTHER ACTION</b>	see Form PCT/ISA/220 as well as, where applicable, item 5 below.
International application No. <b>PCT/CN2017/104081</b>	International filing date ( <i>day/month/year</i> ) <b>28 September 2017</b>	(Earliest) Priority Date ( <i>day/month/year</i> )
Applicant <b>QUALCOMM Incorporated et al</b>		

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 3 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 43.6bis(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. 10

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.

## INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN2017/104081

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>		
H04L 1/00(2006.01)i		
According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b>		
Minimum documentation searched (classification system followed by classification symbols)		
H04L; 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)		
CNABS, CNTXT, CNKI, VEN: rate match+ resource, RMR, configuration, reference signal, resource element?, RE? element?, identify, PDSCH, PUCCH, SRS, map+		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	Sharp. "R1-154067 DRS design for LAA" 3GPP Draft, 23 August 2015 (2015-08-23), pages 1-3	1-12
Y	AT&T. "R1-1700315 Design and Evaluation of CSI-RS for NR MIMO with Mixed Numerology Support" 3GPP draft, 28 February 2017 (2017-02-28), sections 1-3	1-12
A	CN 106301737 A (诺基亚通信公司) 04 January 2017 (2017-01-04) 全文	1-12
A	WO 2015158111 A1 (中兴通讯股份有限公司) 22 October 2015 (2015-10-22) 全文	1-12
A	US 2014301303 A1 (BROADCOM CORP) 09 October 2014 (2014-10-09) 全文	1-12
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input checked="" type="checkbox"/> 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		Date of mailing of the international search report
08 June 2018		27 June 2018
Name and mailing address of the ISA/CN		Authorized officer
STATE INTELLECTUAL PROPERTY OFFICE OF THE P.R.CHINA 6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088 China		ZHANG,Zhen
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**INTERNATIONAL SEARCH REPORT**  
**Information on patent family members**

International application No.

**PCT/CN2017/104081**

Patent document cited in search report			Publication date (day/month/year)	Patent family member(s)			Publication date (day/month/year)
CN	106301737	A	04 January 2017	JP	2013529869	A	22 July 2013
				KR	20130032369	A	01 April 2013
				US	2014161066	A1	12 June 2014
				CN	103069875	B	31 August 2016
				US	9392605	B2	12 July 2016
				CN	103069875	A	24 April 2013
				EP	2586240	B1	31 December 2014
				US	8743799	B2	03 June 2014
				CA	2803684	A1	29 December 2011
				AU	2011269244	A1	31 January 2013
				KR	101506560	B1	07 April 2015
				SG	186452	A1	30 January 2013
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				US	2011317657	A1	29 December 2011
				US	2016242164	A1	18 August 2016
				CA	2803684	C	23 August 2016
				WO	2011160926	A1	29 December 2011
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				RU	2545527	C2	10 April 2015
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				MX	321264	B2	23 June 2014
				IN	201211421	P1	17 October 2014
				SG	186452	B	05 June 2015
				MX	2013000128	A	27 March 2013
WO	2015158111	A1	22 October 2015	CN	105007600	A	28 October 2015
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				GB	2512653	B	11 April 2018
				GB	201306183	D0	22 May 2013