

**PATENT COOPERATION TREATY**

**PCT**

**INTERNATIONAL SEARCH REPORT**

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 162751PC	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. PCT/US2017/024191	International filing date ( <i>day/month/year</i> ) 25 March 2017 (25-03-2017)	(Earliest) Priority Date ( <i>day/month/year</i> ) 27 March 2016 (27-03-2016)
Applicant  QUALCOMM INCORPORATED		

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 4 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. 3

- 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/US2017/024191

A. CLASSIFICATION OF SUBJECT MATTER  
INV. H04W28/06  
ADD. H03M7/30

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 H03M

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	US 2002/058501 A1 (HANNU HANS [SE] ET AL) 16 May 2002 (2002-05-16) figures 1-5 paragraphs [0003], [0011] paragraphs [0015], [0016], [0019] paragraph [0020] paragraphs [0030], [0031], [0033] paragraphs [0035], [0037] paragraphs [0040] - [0044] paragraphs [0049] - [0050] ----- -/--	1-30

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  11 July 2017	Date of mailing of the international search report  17/07/2017
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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  Bouton, Eric
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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/US2017/024191

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>US 2015/063350 A1 (SUNDARAM VINAITHEERTHAN [US] ET AL) 5 March 2015 (2015-03-05)  figures 1, 11, 20  paragraphs [0003], [0005] - [0007]  paragraphs [0009] - [0011]  paragraphs [0039] - [0041]  paragraphs [0082], [0083]  paragraphs [0102] - [0111]  paragraphs [0184], [0185], [0189]  paragraph [0199]  paragraphs [0214], [0217]  paragraph [0227]; table 4  paragraphs [0256] - [0262]  paragraphs [0244] - [0253]</p> <p style="text-align: center;">-----</p>	1, 19, 29, 30
X, P	<p>WO 2016/171959 A1 (QUALCOMM INC [US])  27 October 2016 (2016-10-27)  paragraphs [0006] - [0010]  paragraphs [0048] - [0063]  paragraphs [0067] - [0075]  paragraphs [0082] - [0091]  figures 3-6</p> <p style="text-align: center;">-----</p>	1, 19, 29, 30

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2017/024191

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2002058501	A1	16-05-2002	AR 031407 A1 24-09-2003
			AU 1115402 A 27-05-2002
			EP 1334558 A1 13-08-2003
			JP 3982688 B2 26-09-2007
			JP 2004515942 A 27-05-2004
			US 2002058501 A1 16-05-2002
			WO 0241499 A1 23-05-2002
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			US 2015066881 A1 05-03-2015
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WO 2016171959	A1	27-10-2016	US 2016309364 A1 20-10-2016
			WO 2016171959 A1 27-10-2016
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