

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

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NTD PATENT & TRADEMARK AGENCY
 LIMITED

PCT

WRITTEN OPINION OF THE
 INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing (day/month/year) 02 May 2018	
Applicant's or agent's file reference P20172130	FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/CN2017/097057	International filing date (day/month/year) 11 August 2017
International Patent Classification (IPC) or both national classification and IPC H04W 52/02(2009.01)i	
Applicant QUALCOMM Incorporated et al	

1. This opinion contains indications relating to the following items:

- Box No. I Basis of the opinion
- Box No. II Priority
- Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- Box No. IV Lack of unity of invention
- Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement
- Box No. VI Certain documents cited
- Box No. VII Certain defects in the international application
- Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA/ STATE INTELLECTUAL PROPERTY OFFICE OF THE P.R.CHINA China 6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088	Date of completion of this opinion 24 April 2018	Authorized officer LI,Ping
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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established 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)).
2. This opinion has been established taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 43*bis*.1(a)).
3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, this opinion has been established on the basis of a sequence listing filed or furnished:
 - a. (means)
 - on paper
 - in electronic form
 - b. (time)
 - in the international application as filed
 - together with the international application in electronic form
 - subsequently to this Authority for the purposes of search
4. In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

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Box No. V **Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	<u>1-24</u>	YES
	Claims	<u>None</u>	NO
Inventive step (IS)	Claims	<u>None</u>	YES
	Claims	<u>1-24</u>	NO
Industrial applicability (IA)	Claims	<u>1-24</u>	YES
	Claims	<u>None</u>	NO

2. Citations and explanations :

- [1] Reference is made to the following document:
- [2] D1: Qualcomm Incorporated, Advanced Grant Indication for UE Power Saving, 3GPP TSG RAN WG1 NR Ad-Hoc#2, R1- 1711187 30.06.2017
- [3] D1 discloses a method including the following steps: UE can be more power efficient in connected mode if it receives some scheduling information in advance from the gNB. Such information includes at least an indication of whether a grant should be expected. We propose the term Advanced Grant Indication (AGI) to refer to this information. During the WUS occasion, UE detects for AGI. If the result indicates “grant unexpected” (which applies to the entire ON duration), the UE is allowed to go back to sleep and skip the ON duration. If the result indicates “grant expected”, the main modem wakes up and start monitoring for grants during the ON duration (see sections 1-2).
- [4] The different feature between claims 1,13 and D1, which is the closest prior art, is in claims 1,13: configuring one or more beams for an advanced grant indication. In addition, the different feature between claim 13 and D1 is: determining whether a communication is to be transmitted to the UE during the DRX on duration. Therefore claims 1,13 are novel in the sense of PCT Article 33(2).
- [5] According to the difference between claims 1,13 and D1 mentioned above, the problem to be solved by the present invention may be regarded as how to configure the resource for an advanced grant indication and determine whether to transmit the AGI or not. However, utilizing one or more beams to transmit the grant indication is a normal design in the art, and it's a matter of normal design for a person skilled in the art that determining whether a communication is to be transmitted to the UE or not. It would be obvious for a person skilled in the art to apply the normal design in the art to D1 and arrive at the subject-matter of claims 1,13 without exercising an inventive step. Therefore, claims 1,13 do not involve an inventive step in the sense of PCT Article 33(3).
- [6] Claims 2-12 are dependent on claim 1. Claims 14-18 are dependent on claim 13. Because claims 1,13 are novel, claims 2-12, 14-18 also are novel in the sense of PCT Article 33(2). The additional features of claims 2-12, 14-18 are normal designs in the art. Therefore, claims 2-12, 14-18 do not involve an inventive step in the sense of PCT Article 33(3).
- [7] Claim 19 relates to a user equipment for wireless communication corresponding to claim 1, claim 20 relates to a base station for wireless communication corresponding to claim 13. It is easy for a person skilled in the art to use memory and one or more processors coupled to the memory to implement the method. Therefore, claims 19,20 are novel in the sense of PCT Article 33(2) and do not involve an inventive step in the sense of PCT Article 33(3).
- [8] Claim 21 relates to an apparatus for wireless communication corresponding to claim 1, claim 22 relates to an apparatus for wireless communication corresponding to claim 13. It is easy for a person skilled in the art to think about the corresponding means from the function to be implemented. Therefore, claims 21,22 are novel in the sense of PCT Article 33(2) and do not involve an inventive step in the sense of PCT Article 33(3).
- [9] Claim 23 relates to a non-transitory computer-readable medium storing one or more instructions for wireless communication corresponding to claim 1, claim 24 relates to a non-transitory computer-readable medium storing one or more instructions for wireless communication corresponding to claim 13. It is

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Box No. V

**Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability;
citations and explanations supporting such statement**

easy for a person skilled in the art to use a non-transitory computer-readable medium storing one or more instructions to implement the method. Therefore, claims 23,24 are novel in the sense of PCT Article 33(2) and do not involve an inventive step in the sense of PCT Article 33(3).

- [10] The solutions of claims 1-24 can find industrial applicability in the technical field of communication, and thus meet the criteria set out in PCT Article 33(4).