

PATENT COOPERATION TREATY

From the INTERNATIONAL SEARCHING AUTHORITY

To:
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 China Suite B 1601A, 8 Xue Qing Rd., Haidian, Beijing

 AFD CHINA INTELLECTUAL PROPERTY LAW
 OFFICE

PCT

WRITTEN OPINION OF THE
 INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing (day/month/year) 03 May 2018	
Applicant's or agent's file reference 181709103	FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/CN2017/096866	International filing date (day/month/year) 10 August 2017
Priority date (day/month/year)	
International Patent Classification (IPC) or both national classification and IPC H04L 1/18(2006.01)i	
Applicant ZTE CORPORATION	

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 WANG, Chengmiao
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International application No.

PCT/CN2017/096866

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:

**WRITTEN OPINION OF THE
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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>1-37</u>	YES
	Claims	<u>None</u>	NO
Inventive step (IS)	Claims	<u>None</u>	YES
	Claims	<u>1-37</u>	NO
Industrial applicability (IA)	Claims	<u>1-37</u>	YES
	Claims	<u>None</u>	NO

2. Citations and explanations :

- [1] Reference is made to the following documents:
- [2] D1: EP2555459 A2 06.02.2013
- [3] D2: EP2955864 A1 16.12.2015
- [4] D1 discloses a method for receiving controlling information at a user equipment (UE) (the description ,paragraphs [0377]- [0397] ; figures 1-11; claims 1-12), the method comprising:
- [5] receiving downlink control information (DCI) scheduling UL transmission of a first transport block (TB) and a second transport block (TB) from a base station (BS) through a physical downlink control channel (PDCCH) (corresponding to “receiving, from a base station (BS), a first control information, wherein the first control information comprises information relating to scheduling of a transmission from the UE to the BS”);
- [6] transmitting the first and second transport blocks (TBs) scheduled by the DCI to the base station (BS) (corresponding to “transmitting the transmission at least once, wherein the transmission utilizes one or more sub-frames”);
- [7] receiving information indicating acknowledgement (ACK) or negative acknowledgement (NACK) of each of the received first and second transport blocks (TBs) from the base station (BS), using a first physical hybrid-automatic repeat request indicator channel (PHICH) resource with respect to the first transport block (TB), and using a second PHICH resource with respect to the second transport block (TB) (corresponding to “receiving the second control information, wherein the second control information comprises an ACK feedback that acknowledges that the BS received the transmission ”).
- [8] D1 also discloses a method for receiving controlling information at a user equipment (UE).
- [9] D1 implicitly discloses a user equipment (UE) apparatus comprising an antenna configured to receive communication signals from a base station (BS) and a processor configured to the method.
- [10] D1 implicitly discloses a base station (BS) apparatus comprising an antenna configured to transmit communication signals to a user equipment (UE) and a processor configured to the method.
- [11] Claims 1,13,24,32 differ from D1 in that: a first control information in a second search space in at least one sub-frame; the one or more sub-frames of the transmission has a different time domain position than the first control information's at least one sub-frame; a second control information in a first or the second search space during the transmission. D2 discloses a method for receiving, by a user equipment (UE) (paragraphs [0030]- [0108] in the description; figures 1-20; claims 1-16), a control channel from a base station in a wireless communication; the method comprising: monitoring control channel candidates in a search space on a first subframe and receiving the control channel including control information corresponding to each of one or more subframes after a predetermined number of subframes from the first subframe, wherein, when the one or more subframes are multiple subframes, the control channel candidates are sorted according to control information respectively corresponding to the multiple subframes. The above different features are normal designs in the art based on the foregoing features in D1 and D2. Therefore, claims 1,13,24,32 meet PCT Article 33(2). Claims 1,13,24,32 do not meet PCT Article 33(3).

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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**

- [12] The additional features in dependent claims 2-12,14-23,25-31,33-37 are normal designs in the art.
Therefore, claims 2-12,14-23,25-31,33-37 meet PCT Article 33(2), but do not meet PCT Article 33(3).
- [13] Claims 1-37 can find industrial applicability, and thus meet PCT Article 33(4).