

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference P201738599	FOR FURTHER ACTION		See item 4 below
International application No. PCT/CN2017/099107	International filing date (<i>day/month/year</i>) 25 August 2017 (25.08.2017)	Priority date (<i>day/month/year</i>) 29 August 2016 (29.08.2016)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant FIBERHOME TELECOMMUNICATION TECHNOLOGIES CO., LTD			

<p>1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).</p> <p>2. This REPORT consists of a total of 6 sheets, including this cover sheet.</p> <p>In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.</p>																								
<p>3. This report contains indications relating to the following items:</p> <table> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. I</td> <td>Basis of the report</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. II</td> <td>Priority</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. III</td> <td>Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. IV</td> <td>Lack of unity of invention</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. V</td> <td>Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VI</td> <td>Certain documents cited</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> <p>4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).</p>	<input checked="" type="checkbox"/>	Box No. I	Basis of the report	<input checked="" type="checkbox"/>	Box No. II	Priority	<input type="checkbox"/>	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability	<input type="checkbox"/>	Box No. IV	Lack of unity of invention	<input checked="" type="checkbox"/>	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	<input type="checkbox"/>	Box No. VI	Certain documents cited	<input type="checkbox"/>	Box No. VII	Certain defects in the international application	<input type="checkbox"/>	Box No. VIII	Certain observations on the international application
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	Date of issuance of this report 05 March 2019 (05.03.2019)
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From the INTERNATIONAL SEARCHING AUTHORITY

To:

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing <i>(day/month/year)</i> 29 November 2017	
Applicant's or agent's file reference P201738599	FOR FURTHER ACTION See paragraph 2 below
International application No. PCT/CN2017/099107	International filing date <i>(day/month/year)</i> 25 August 2017
Priority date <i>(day/month/year)</i> 29 August 2016	
International Patent Classification (IPC) or both national classification and IPC H01R 12/65(2011.01)i; H01R 13/627(2006.01)i; H01R 13/631(2006.01)i; H01R 13/64(2006.01)i	
Applicant FIBERHOME TELECOMMUNICATION TECHNOLOGIES CO., LTD	

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/	Date of completion of this opinion	Authorized officer
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

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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. II **Priority**

1. The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43*bis*.1 and 64.1) is the claimed priority date.
2. This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:
 - [1] Upon verification, the priority claim for the present international application is valid.

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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	1-17 None
			YES NO
	Inventive step (IS)	Claims	3-5 1, 2, 6-17
			YES NO
	Industrial applicability (IA)	Claims	1-17 None
			YES NO
2. Citations and explanations :			
[1] D1: CN 202840152 U (27 March 2013)			
[2] D2: CN 205081323 U (09 March 2016)			
[3] I. Novelty			
[4] D1 discloses an inter-board connector, comprising a female connector and a male connector (see description, paragraphs [0023] - [0029], and figures 3-7); the female connector (the female connector) comprises a base body, and an upper surface (i.e. the connecting surface) and a lower surface (i.e. the welding surface) which are provided opposite to each other; the base body is provided with a plurality of connection ports (i.e. the terminal holes) which penetrate through the upper and lower surfaces; contact terminals (i.e. the female terminals) are accommodated in the connection ports, and the contact terminals are used to weld a PCB of a female end; the male connector comprises a base body, and an upper surface (i.e. the plugging surface) and a lower surface (i.e. the compressing surface) which are provided opposite to each other; the upper surface of the male connector is provided opposite to the upper surface of the female connector; contact terminals (i.e. the plug pins) are provided on the upper surface of the male connector; the contact terminals extend into the connection ports of the female connector; the contact terminals of the male connector are connected to the contact terminals of the female connector; welding pins (i.e. the male terminals) are provided on the lower surface; the contact terminals are connected to the welding pins; and the welding pins are used to connect a PCB of a male end.			
[5] Claim 1 differs from D1 in respect of: i) two locking fasteners fixed to two sides of the female end body, the locking fasteners each comprising a fixing portion close to the welding surface, an elastic arm extending from the fixing portion towards the connecting surface, and a buckle provided on the elastic arm. Claim 10 differs from D1 in that: (ii) latching grooves are fixedly provided at two sides of the male end body, respectively, and a baffle plate is provided on one side, close to the compressing surface, of each of the locking grooves. Claim 15 differs from D1 in respect of differences i) and ii) above, and in that a locking portion comprises locking fasteners and locking grooves, the locking fasteners are provided opposite to the locking grooves, the locking fasteners are mounted in the locking grooves in a plug-in manner, the elastic arms stretch into the locking grooves, and the buckles are snap-fitted in the baffle plates. Therefore, claims 1, 10, and 15 and dependent claims 2-9, 11-14, 16 and 17 thereof are novel in the sense of PCT Article 33(2).			
[6] II. Inventive Step			
[7] With regard to the differences above, D2 discloses a board-to-board connector, comprising a female connector and a male connector (see description, paragraphs [0024] - [0033], and figures 1-3) which comprise a locking fastener and locking hole structure (i.e. the locking portion), i.e. two locking fasteners fixed to two sides of the female connector and provided opposite to each other, and locking holes respectively fixedly provided at two sides of the base of the male connector; the locking fasteners are mounted in the locking holes in a plug-in manner; a baffle plate is provided on one side, close to the compressing surface, of each of the locking grooves; the locking fasteners each comprises a fixing portion close to the welding surface, an elastic arm extending from the fixing portion towards a connecting surface, and a buckle provided on the elastic arm; and the elastic arms stretch into the locking holes, and the buckles are snap-fitted in the baffle plates. Furthermore, the features above can also achieve the effect of			

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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**

improving the connection stability. Therefore, claims 1, 10, and 15 do not involve an inventive step in the sense of PCT Article 33(3).

- [8] The additional technical features of dependent claims 2, 6, 7, and 12 are common general knowledge in the art. The additional technical features of claims 8, 11, and 14 are disclosed in D1 (see description, paragraph [0027]), and the additional technical features of claims 9, 13, 16, and 17 are disclosed in D2 (see description, paragraphs [0025] - [0032]). Therefore, dependent claims 2, 6-9, 11-14, 16, and 17 do not involve an inventive step in the sense of PCT Article 33(3).
- [9] The additional technical features of dependent claim 3 are neither disclosed in the prior art nor common general knowledge in the art. Therefore, dependent claims 3-5 involve an inventive step in the sense of PCT Article 33(3).
- [10] III. Industrial Applicability
- [11] Claims 1-17 are industrially applicable in the sense of PCT Article 33(4).