

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 D144674-PCT	FOR FURTHER ACTION		See item 4 below
International application No. PCT/US2017/067709	International filing date (<i>day/month/year</i>) 20 December 2017 (20.12.2017)	Priority date (<i>day/month/year</i>) 24 January 2017 (24.01.2017)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant INTEL IP CORPORATION			

<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 8 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 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 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 30 July 2019 (30.07.2019)
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PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To: GRIFFIN III, Malvern U. Eversheds Sutherland (US) LLP 999 Peachtree Street NE, Suite 2300 Atlanta, Georgia 30309 USA		Date of mailing (day/month/year) 12 November 2018 (12.11.2018)	
Applicant's or agent's file reference D144674-PCT		FOR FURTHER ACTION See paragraph 2 below	
International application No. PCT/US2017/067709	International filing date (day/month/year) 20 December 2017 (20.12.2017)	Priority date(day/month/year) 24 January 2017 (24.01.2017)	
International Patent Classification (IPC) or both national classification and IPC H04W 64/00(2009.01)i, H04W 56/00(2009.01)i			
Applicant INTEL IP 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/KR International Application Division Korean Intellectual Property Office 189 Cheongsa-ro, Seo-gu, Daejeon, 35208, Republic of Korea Facsimile No. +82-42-481-8578	Date of completion of this opinion 12 November 2018 (12.11.2018)	Authorized officer LEE, Seoung Young Telephone No. +82-42-481-3535
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WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/US2017/067709

Box No. 1 Basis of this 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 43bis.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:
 - a. forming part of the international application as filed:
 - in the form of an Annex C/ST.25 text file.
 - on paper or in the form of an image file.
 - b. furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
 - c. furnished subsequent to the international filing date for the purposes of international search only:
 - in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
 - on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).
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 forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
5. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/US2017/067709

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

1. Statement

Novelty (N)	Claims	<u>1-25</u>	YES
	Claims	<u>NONE</u>	NO
Inventive step (IS)	Claims	<u>4-8,16-19,24-25</u>	YES
	Claims	<u>1-3,9-15,20-23</u>	NO
Industrial applicability (IA)	Claims	<u>1-25</u>	YES
	Claims	<u>NONE</u>	NO

2. Citations and explanations :

Reference is made to the following documents:

D1: US 2013-0031001 A1 (STEPHEN PATRICK FRECHETTE et al.) 31 January 2013

D2: US 2012-0258732 A1 (SEUNG-HYUK JEONG) 11 October 2012

D3: US 2012-0155302 A1 (SEUNG-HYUK JEONG) 21 June 2012

D4: US 2013-0196691 A1 (JIE LIANG) 01 August 2013

D5: WO 2016-126280 A1 (INTEL IP CORPORATION) 11 August 2016

2.1 Novelty (PCT Article 33(2)) and Inventive Step (PCT Article 33(3))

2.1.1 Claims 1-12

D1, which is considered to be the closest prior art to the subject matter of claim 1, discloses an apparatus for controlling serving of Consumer to Service-Provider matching functionality using its relevancy to a request configured to: accept, by a mobile device, geolocation information associated with the request (see claim 1 in D1); and compare, by the mobile device, the accepted geolocation information associated to a searching Consumer, with geolocation information associated to potential matching Service Providers (see claim 1 in D1), wherein the geolocation information employed to locate Consumers and Service-Providers includes at least one of Global Positioning System (GPS) coordinates, a WiFi connection location, cell-phone radio tower triangulation, a Bluetooth connection location, an IP address, a Media Access Control address (MAC) address, Radio Frequency Identification (RFID) data, street address data, latitude and longitude data, a zip code, a city, a region, or a manual entry of the Consumer or Service-Provider's location (see claim 3 in D1).

The subject matter of claim 1 differs from that of D1 in 'determining a first location measurement with a first coordinated AP of one or more coordinated APs and a second location measurement with a second coordinated AP of the one or more coordinated APs using a first R-AID'. However, it can be easily derived from the features of D2 in selecting a

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predetermined number of access points among a plurality of access points based on at least one of user input and attributes of the plurality of access points; obtaining a location coordinate of each of the selected access points; calculating a centric coordinates using the obtained location coordinates of at least two of the selected access points; and determining the calculated centric coordinate as the detected location of a communication terminal (see claim 1; and figure 9 in D2). Accordingly, claim 1 would have been obvious over D1 in view of D2. Therefore, claim 1 does not involve an inventive step under PCT Article 33(3).

The additional feature of claim 2, characterized in that 'a device is unassociated with at least one of one or more coordinated APs', is not explicitly disclosed in D1 and D2. However, the feature is merely a matter of design option when the general knowledge in the relevant field of the art is used.

The additional feature of claim 3, characterized in that 'a device is associated with at least one of one or more coordinated APs', is not explicitly disclosed in D1 and D2. However, the feature is merely a matter of design option when the general knowledge in the relevant field of the art is used.

The additional feature of claim 9 can be easily derived from the feature of D1 ('consumers for Service-Providers 410 may submit requests for services and may accept responses to their requests': see paragraph [0046]; and figure 4).

The additional feature of claim 10 can be easily derived from the feature of D1 ('notifying each Service-Provider in a list sequentially and waiting a set time for an affirmative response until either all Service-Providers in a list are notified or one responds in the affirmative': see claim 5).

(Note: The international search report and the written opinion have been established on the assumption that claim 10 refers to claim 1.)

The additional feature of claim 11, characterized in 'further comprising a transceiver configured to transmit and receive wireless signals', is not explicitly disclosed in D1 and D2. However, the feature is merely a matter of design option when the general knowledge in the relevant field of the art is used.

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The additional feature of claim 12, characterized in 'further comprising one or more antennas coupled to a transceiver', is not explicitly disclosed in D1 and D2. However, the feature is merely a matter of design option when the general knowledge in the relevant field of the art is used.

Accordingly, claims 2-3 and 9-12 would have been obvious over D1 in view of D2. Therefore, claims 2-3 and 9-12 lack an inventive step under PCT Article 33(3).

The additional feature of claim 4 differs from the prior art documents in 'identifying a trigger frame sent by a first coordinated AP of one or more coordinated APs, wherein the trigger frame comprises the first R-AID and a first resource unit (RU) of one or more RUs; and causing to send a null data packet (NDP) using the first RU'.

The additional feature of claim 5 differs from the prior art documents in that 'memory and processing circuitry are further configured to determine a second R-AID associated with a location capability support'.

Claims 6-8 are dependent on claim 5.

And they are not disclosed in any of the prior art documents, nor are they obvious by the documents, taken alone or in combination. Accordingly, claims 4-8 are novel and involve an inventive step under PCT Article 33(2) and (3).

2.1.2 Claims 13-20

D1, which is considered to be the closest prior art to the subject matter of claim 13, discloses a system comprising: a Service Provider which determines location-based information about potential matches (Service Provider or Consumer) via passive means that include but are not limited to a list created on a webpage generated by a Server that contains a list of the Service Provider(s) or Consumer(s) that adhere to search criteria (see paragraph [0041]; and figure 1A in D1); and the Service Provider which returns as a result of the Consumer's search using at least comparison result (see claim 1 in D1).

The subject matter of claim 13 differs from that of D1 in 'determining a location measurement of a first coordinated AP of one or more coordinated APs and a device using a first R-AID'. However, it can be easily derived from the features of D2 in selecting a predetermined number

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of access points among a plurality of access points based on at least one of user input and attributes of the plurality of access points; obtaining a location coordinate of each of the selected access points; calculating centric coordinates using the obtained location coordinates of at least two of the selected access points; and determining the calculated centric coordinate as the detected location of a communication terminal (see claim 1; and figure 9 in D2). Accordingly, claim 13 would have been obvious over D1 in view of D2. Therefore, claim 13 does not involve an inventive step under PCT Article 33(3).

The additional feature of claim 14, characterized in that 'a first coordinated AP of one or more coordinated APs is unassociated with a device', is not explicitly disclosed in D1 and D2. However, the feature is merely a matter of design option when the general knowledge in the relevant field of the art is used.

The additional feature of claim 15, characterized in that 'a first coordinated AP of one or more coordinated APs is associated with a device', is not explicitly disclosed in D1 and D2. However, the feature is merely a matter of design option when the general knowledge in the relevant field of the art is used.

The additional feature of claim 20 can be easily derived from the feature of D1 ('consumers for Service-Providers 410 may submit requests for services and may accept responses to their requests': see paragraph [0046]; and figure 4).

Accordingly, claims 14-15 and 20 would have been obvious over D1 in view of D2. Therefore, claims 14-15 and 20 lack an inventive step under PCT Article 33(3).

The additional feature of claim 16 differs from the prior art documents in 'determining a trigger frame, wherein the trigger frame comprises a resource unit (RU) of one or more RUs and a first R-AID; causing to send the trigger frame; and identifying a null data packet received from the device using the RU'.

The additional feature of claim 17 differs from the prior art documents in that 'location capability support information further comprises a second R-AID associated with a second coordinated AP of one or more coordinated APs'.

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Claims 18 and 19 are dependent on claim 17.

And they are not disclosed in any of the prior art documents, nor are they obvious by the documents, taken alone or in combination. Accordingly, claims 16-19 are novel and involve an inventive step under PCT Article 33(2) and (3).

2.1.3 Claims 21-25

The features of claims 21-25 relate to a method and are substantially the same as those of claims 1-5, differing only in the category. Accordingly, the same reasoning as in claims 1-5 applies to claims 21-25. Therefore, claims 21-23 do not involve an inventive step under PCT Article 33(3), and claims 24 and 25 meet the requirements of PCT Article 33(2) and (3).

(Note: The international search report and the written opinion have been established on the assumption that claim 25 refers to claim 21.)

2.2 Industrial Applicability (PCT Article 33(4))

Claims 1-25 are industrially applicable under PCT Article 33(4).