



- (51) International Patent Classification:
H04W 72/04 (2009.01)
- (21) International Application Number:
PCT/CN2020/078980
- (22) International Filing Date:
12 March 2020 (12.03.2020)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:
PCT/CN2019/079929
27 March 2019 (27.03.2019) CN
- (71) Applicant: **TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)** [SE/SE]; S-164 83 Stockholm (SE).
- (72) Inventor; and
(71) Applicant (*for SC only*): **LIN, Zhipeng** [CN/CN]; No. 32, Chi Tian Road Jiangning Development Zone, Nanjing, Jiangsu 211100 (CN).
- (72) Inventor: **HARRISON, Robert Mark**; 3208 Walker Place, Grapevine, TX 76051 (US).
- (74) Agent: **ZHONGZI LAW OFFICE**; 7F, New Era Building, 26 Pinganli Xidajie, Xicheng, District, Beijing 100034 (CN).
- (81) Designated States (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DJ, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JO, JP, KE, KG, KH, KN, KP, KR, KW, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,

(54) Title: METHOD, APPARATUS FOR MONITORING PDCCH IN RANDOM ACCESS PROCEDURE

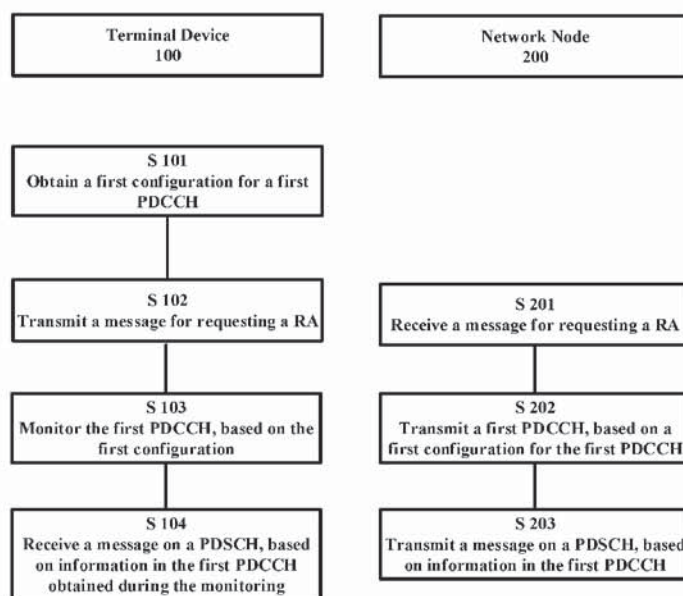


FIG. 3

(57) Abstract: Embodiments of the present disclosure relates to a method, apparatus for monitoring PDCCH in random access procedure. The method performed by a terminal device comprises: obtaining (S101) a first configuration for a first physical downlink control channel, PDCCH; transmitting (S102) a message for requesting a random access, RA; monitoring (S103) the first PDCCH, based on the first configuration; and receiving (S104) a message on a physical downlink shared channel, PDSCH, based on information in the first PDCCH obtained during the monitoring; wherein the message for requesting the RA includes a random access channel, RACH, preamble and a physical uplink shared channel, PUSCH. According to embodiments of the present disclosure, the monitoring of PDCCH may be achieved in a RACH procedure different with 4-step RACH procedure, such as in a 2-step RACH procedure.

OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, WS, ZA, ZM, ZW.

- (84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

Published:

— with international search report (Art. 21(3))

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

To:
100034
7F, New Era Building, 26 Pinganli Xidajie, Xicheng District, Beijing, China
ZHONGZI LAW OFFICE

**NOTIFICATION OF TRANSMITTAL OF
INTERNATIONAL PRELIMINARY
REPORT ON PATENTABILITY**
(Chapter II of the Patent Cooperation
Treaty)
(PCT Rule 71.1)

Date of mailing(day/month/year) :
26. Jul. 2021 (26. 07. 2021)

Applicant's or agent's file reference: PF200115PCT

IMPORTANT NOTIFICATION

International application No. PCT/CN2020/078980	International filing date (day/month/year) 12. Mar. 2020 (12. 03. 2020)	Priority date (day/month/year) 27. Mar. 2019 (27. 03. 2019)
--	--	--

Applicant: TELEFONAKTIEBOLAGET LM ERICSSON (PUBL) et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary report on patentability and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the *PCT Applicant's Guide*.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed invention is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

National Intellectual Property Administration, PRC(IPEA/CN) 6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088 Facsimile No. (86—10) 62019451	Authorized officer: WANG, Dechuang Telephone No.: 86—(10)—53961791
---	---

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PF200115PCT	FOR FURTHER ACTION	See Form PCT/IPEA/416
International application No PCT/CN2020/078980	International filing date (<i>day/month/year</i>) 12. Mar. 2020 (12. 03. 2020)	Priority date (<i>day/month/year</i>) 27. Mar. 2019 (27. 03. 2019)
International Patent Classification (IPC) or national classification and IPC H04W 72/04 (2009. 01) i		
Applicant TELEFONAKTIEBOLAGET LM ERICSSON (PUBL) et al		
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☒ (<i>sent to the applicant and to the International Bureau</i>) a total of <u>2</u> sheets, as follows: ☒ sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions). ☐ sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2). ☐ superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)). b. ☐ (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____ containing a sequence listing, in the form of an Annex C/ST.25 text file, as indicated in the Supplemental Box Relating to Sequence Listing (see paragraph 3ter of Annex C of the Administrative Instructions).		
4. This report contains indications relating to the following items: ☒ Box No. I Basis of the report ☒ 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 Article 35(2) with regard to novelty, inventive step or 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		
Date of submission of the demand 26. Jan. 2021 (26. 01. 2021)	Date of completion of this report 18. Jun. 2021 (18. 06. 2021)	
National Intellectual Property Administration, PRC (IPEA/CN) 6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088 Facsimile No. (86-10) 62019451	Authorized officer WANG, Dechuang Telephone No. 86-(10)-53961791	

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/CN2020/078980

Box No. I Basis of the report

 1. With regard to the **language**, this report is based on:

- ☒ 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))
 - ☐ publication of the international application (Rule 12.4(a))
 - ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

 2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- ☒ the international application as originally filed/furnished

☐ the description:	pages	_____	as originally filed/furnished	
	pages	_____	received by this Authority on _____	
☐ the claims:	Nos.	_____	as originally filed/furnished	
	Nos.*	_____	as amended (together with any statement) under Article 19	
	Nos.*	_____	received by this Authority on	_____
☐ the drawings:	pages	_____	as originally filed/furnished	
	pages	_____	received by this Authority on	_____

- ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.

 3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/figs _____
☐ the sequence listing (*specify*) _____

 4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rule 70.2(c) and (c-bis)).

- ☐ the description, pages _____
☐ the claims, Nos. _____
☐ the drawings, sheets/figs _____
☐ the sequence listing (*specify*): _____

 5. ☐ This report has been established:

- ☐ taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).
☐ without taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rules 66.4bis and 70.2(e)).

6. With regard to top-up searches (Rules 66.1ter and 70.2(f)):

- ☐ A top-up search was carried out by this Authority on
☐ Additional relevant documents have been discovered during the top-up search.
☐ No top-up search was carried out by this Authority because it would serve no useful purpose.

 7. ☐ Supplementary international search report(s) from Authority(ies) _____ has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/CN2020/078980

Box No. II Priority

1. ☐ This report has been established as if no priority had been claimed due to the failure to furnish within the prescribed time limit the requested:
- ☐ copy of the earlier application whose priority has been claimed (Rule 66.7(a)).
 - ☐ translation of the earlier application whose priority has been claimed (Rule 66.7(b)).
2. ☐ This report has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rule 64.1). Thus for the purposes of this report, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

After verification, the priority is valid.

Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement																			
1. Statement:	<table border="0"> <tr> <td>Novelty (N)</td> <td>Claims <u>1-15</u></td> <td>YES</td> </tr> <tr> <td></td> <td>Claims <u>None</u></td> <td>NO</td> </tr> <tr> <td>Inventive step (IS)</td> <td>Claims <u>5,10</u></td> <td>YES</td> </tr> <tr> <td></td> <td>Claims <u>1-4,6-9,11-15</u></td> <td>NO</td> </tr> <tr> <td>Industrial applicability(IA)</td> <td>Claims <u>1-15</u></td> <td>YES</td> </tr> <tr> <td></td> <td>Claims <u>None</u></td> <td>NO</td> </tr> </table>		Novelty (N)	Claims <u>1-15</u>	YES		Claims <u>None</u>	NO	Inventive step (IS)	Claims <u>5,10</u>	YES		Claims <u>1-4,6-9,11-15</u>	NO	Industrial applicability(IA)	Claims <u>1-15</u>	YES		Claims <u>None</u>	NO
Novelty (N)	Claims <u>1-15</u>	YES																		
	Claims <u>None</u>	NO																		
Inventive step (IS)	Claims <u>5,10</u>	YES																		
	Claims <u>1-4,6-9,11-15</u>	NO																		
Industrial applicability(IA)	Claims <u>1-15</u>	YES																		
	Claims <u>None</u>	NO																		
2. Citations and explanations (Rule 70.7)	I. Novelty and inventive step D1: R1-1805945 (25.05.2018) D2: CN108282899A (13.07.2018) D2 discloses a method for two-step contention based random access (see claims 1-10, descriptions 82-125), comprising: UE sends Msg1 message to the base station, wherein the Msg1 message comprises: a Random Access Preamble and a data portion, and the C-RNTI is carried in the data portion (namely "transmitting a message for requesting a RA" and "the message for requesting the RA includes a random access channel, RACH, preamble"); monitoring, by UE, within an Msg2 message receiving window or before an Msg2 message receiving timer times out: physical layer scheduling signaling addressed with a temporary C-RNTI, wherein the search space corresponding to the physical layer scheduling signaling is a common search space (namely "obtaining a first configuration indicating common search space, C-SS"); determining that two-step random access of the user equipment is successful, in a case that a UE identifier carried in the Msg1 message is a cell radio network temporary identifier (C-RNTI) and physical layer scheduling signaling addressed based on the C-RNTI is received by the user equipment. Claims 1, 11 differ from D2 in that: (1) the message for requesting the RA further includes a PUSCH, and receiving/transmitting a message on a PDSCH; (2) it is Type 1 C-SS for PDCCH and monitoring the PDCCH. Claim 11 differs from D2 further in that: (3) the processor executes the instructions in the memory to implement the corresponding method. Claims 6, 13 differ from D2 in that: (1), (4) it is Type 1 C-SS for PDCCH. Claim 13 differs from D2 further in that: (3). So, the independent claims 1, 6, 11, 13 and the dependent claims 2-5,7-10, 12, 14 are novel in the sense of PCT Article 33(2). For difference (1), D2 discloses Msg1 message comprises a RA Preamble and C-RNTI in the data portion, it is a normal design for using PUSCH to carry the data and C-RNTI; D2 further discloses the physical layer scheduling signaling addressed based on the C-RNTI is received by																			

the user equipment, it is a normal design for using PDSCH to carry the scheduling signaling. For differences (2) and (4), D1 (see section 4.3) discloses that: The UE monitors Msg2 PDCCH in the Type1-PDCCH C-SS configured by SIB1, but using C-RNTI. Obviously the differences (2) and (4) are disclosed by D1, it is also two-step RA procedure including Msg1 and Msg2 in section 4.3 in D1.

The difference (3) is also a normal design for the person skilled in the art.

Therefore based on D2 and D1 combination, claims 1, 6, 11, 13 do not meet PCT 33(3).

The additional features of claims 2-4, 7-9 are either disclosed by D1/D2 or normal designs for the person skilled in the art. So, claims 2-4, 7-9 lack an inventive step of PCT Article 33(3).

The additional features of claims 5, 10 are neither disclosed by D1/D2 nor normal designs for the person skilled in the art. So, claims 5, 10 involve an inventive step of PCT Article 33(3).

Claim 12 cites claim 11, considering the comments on claims 1-5, when the terminal device is operative to perform the method according to any of claims 1 to 4, claim 12 lacks an inventive step of PCT Article 33(3), when the terminal device is operative to perform the method according to claim 5, claim 12 involves an inventive step of PCT Article 33(3).

Claim 14 cites claim 13, considering the comments on claims 6-10, when the network node is operative to perform the method according to any of claims 6 to 9, claim 14 lacks an inventive step of PCT Article 33(3), when the network node is operative to perform the method according to claim 10, claim 14 involves an inventive step of PCT Article 33(3).

Claim 15 cites one of claims 1-5 or one of claims 6-10, the corresponding method implemented by the processor executing instructions is normal design for the person skilled in the art. Considering the comments on claims 1-10, claim 15 is novel in the sense of PCT Article 33(2), claim 15 lacks an inventive step of PCT Article 33(3) when citing any one of claims 1-4 or claims 6-9, claim 15 involves an inventive step of PCT Article 33(3) when citing claim 5 or claim 10.

II. Industrial applicability

Claims 1 to 15 can find industrial applicability in the technical field of communications, and thus meet the requirements of PCT Article 33(4).

To:

National Intellectual Property Administration, PRC
6, Xitucheng Road, Jimen Bridge
Haidian District
Beijing 100088
P.R.China

Response to Written Opinion pursuant to Article 34 PCT

Application Number: PCT/CN2020/078980
Application Date: March 12, 2020
Applicant: Telefonaktiebolaget LM Ericsson (publ)
Our Reference: PF200115PCT

Enclosure(s):

Dear Sirs,

With reference to our demand for International Preliminary Examination of the above-identified application under PCT Chapter II, we file herewith the following, without prejudice:

Novelty and Inventive Step

With regard to the Examiner's objections in Item V, Applicant respectfully requests the Examiner to re-consider these objections in view of the following observations.

As to claim 1

Claim 1 relates to a method performed by a terminal device, for monitoring PDCCH in random access procedure. The method comprises:

obtaining (S101) a first configuration indicating Type 1 common search space, C-SS, for a first physical downlink control channel, PDCCH;

transmitting (S102) a message for requesting a random access, RA;

monitoring (S103) the first PDCCH, based on the Type 1 C-SS; and

receiving (S104) a message on a physical downlink shared channel, PDSCH, based on information in the first PDCCH obtained during the monitoring;

wherein the message for requesting the RA includes a random access channel, RACH, preamble and a physical uplink shared channel, PUSCH.

According to embodiments of the present disclosure, a terminal device may perform a random access procedure, in which **a message for requesting the RA (including a random access channel, RACH, preamble and a physical uplink shared channel, PUSCH)**, may be sent by the terminal device. Namely, the random access procedure performed by the terminal device may be a RACH procedure different from the current 4-step RACH procedure, for example, it may be a 2-step RACH procedure.

For performing such different RACH procedure, the terminal device may obtain (S101) **a first configuration** indicating Type 1 common search space, C-SS, for a first physical downlink control channel, PDCCH (which may be **a response to the message for requesting the RA**).

Therefore, claim 1 defines an overall solution for a RA procedure. That is, with such first configuration, the terminal device may be well prepared for receiving the response to the message for requesting the RA, without extra signalings or steps in the RA procedure. A RA procedure (such as a 2-step RA) with less steps than the current 4-step RACH procedure can be realized.

D1, as cited by the Examiner, only discloses 4-step RACH procedure (including Msg1, Msg2, Msg3, Msg4). D1 completely doesn't disclose any method for other RACH procedures.

That is, D1 only disclose a configuration for 4-step RA, but does not disclose "a first configuration for a first PDCCH (which may be a response to a message requesting a RA other than 4-step RA)".

Further, for such RA other than 4-step RA, claim 1 further specifically defines other distinguishing features, as accepted by the examiner, "receiving (S104) a message on a physical downlink shared channel, PDSCH, based on information in the first PDCCH obtained during the monitoring; wherein the message for requesting the RA includes a random access channel, RACH, preamble and a physical uplink shared channel, PUSCH", etc.

These features in claim 1 cooperate with each to realize a complete solution of the present application, particularly to realize the RA other than 4-step RA.

It is an obvious hindsight bias to assert them as normal design in the examiner's opinion, without any prior art evidence about such RA or details of such features.

Thus, claim 1 is novel and inventive over R1.

Further, corresponding independent claims 6, 11, 13, and other claims referring to them are all novel and inventive over the prior arts.

Conclusion

In view of the above, the claims are believed to satisfy the patentability requirements of the PCT.

However, if the Examiner still has any objections that might preclude the issuance of a favorable opinion in the forthcoming International Preliminary Report on Patentability (IPRP) regarding the patentability of all pending claims, we would be grateful for an opportunity to respond to the remaining objections.

Respectfully submitted,

Zhongzi Law Office
for
Telefonaktiebolaget LM Ericsson (publ)



TRATADO DE COOPERACIÓN EN MATERIA DE PATENTES

PCT

De la
AUTORIDAD DE EXAMINACIÓN PRELIMINAR INTERNACIONAL

NOTIFICACIÓN DE TRANSMISIÓN DEL REPORTE PRELIMINAR INTERNACIONAL DE PATENTABILIDAD (Capítulo II del Tratado de Cooperación en Materia de Patentes) (PCT Rule 71.1)

Para:
100034
7F, New Era Building, 26 Pinganli Xidajie, Xiching District, Beijing, China
OFICINA LEGAL ZHONGZI

Fecha de envoi (día/mes/año)
26 de julio de 2021 (26.07.2021)

Referencia del expediente del solicitante o agente: PF200115PCT		NOTIFICACIÓN IMPORTANTE
Solicitud internacional No. PCT/CN2020/078980	Fecha de presentación internacional (día/mes/año) 12 de Mar de 2020(12. 03. 2020)	Fecha de prioridad (día/mes/año) 27 de Marzo de 2019 (27.03.2019)

Solicitante:	TELEFONAKTIEBOLAG LM ERICSSON (PUBL) et al
--------------	--

1. El solicitante es notificado por medio del presente que esta Autoridad de Examinación Preliminar Internacional transmite en el presente el reporte preliminar internacional de patentabilidad y sus anexos, si los hay, establecidos en la solicitud internacional.
2. Una copia del reporte y sus anexos, si los hay, está siendo transmitida a la Oficina Internacional para comunicarlo a todas las Oficinas seleccionadas.
3. Donde se requiera por cualquiera de las Oficinas seleccionadas, la Oficina Internacional preparará una traducción en Inglés del reporte (pero no de cualquier anexo) y transmitirá dicha traducción a aquellas oficinas.

4. RECORDATORIO

El solicitante debe entrar a la fase nacional ante las oficinas seleccionadas por medio de realizar ciertos actos (presentar traducciones y pagar los derechos oficiales) dentro de los 30 meses dentro de la fecha de prioridad (o después en algunas oficinas) (Artículo 39(1)) (ver también el recordatorio enviado por la Oficina Internacional con la Forma PCT/IB/301)

Cuando una traducción de la solicitud internacional deba entregarse a una Oficina elegida, dicha traducción debe contener una traducción de todos los anexos del informe preliminar internacional sobre patentabilidad. Es responsabilidad del solicitante preparar y proporcionar dicha traducción directamente a cada Oficina elegida en cuestión.

Para obtener más detalles sobre los plazos y requisitos aplicables de las Oficinas elegidas, consulte el Volumen II de Guía del PCT del Solicitante

Se llama la atención del solicitante sobre el artículo 33 (5), que establece que los criterios de novedad, actividad inventiva y aplicabilidad industrial descritos en el artículo 33 (2) a (4) sirven simplemente para fines de examen preliminar internacional y que "cualquier Estado Contratante puede aplicar criterios adicionales o diferentes para decidir si, en ese Estado, la invención reivindicada es patentable o no "(véase también el Artículo 27 (5))". Dichos criterios adicionales pueden estar relacionados, por ejemplo, con exenciones de patentabilidad, requisitos para permitir la divulgación, la claridad y el soporte de las reivindicaciones.

Administración Nacional de Propiedad Intelectual, PRC (IPEA/CN) 6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088 Fax: (86-10) 62019451	Funcionario autorizado: WANG, Dechuang Teléfono No.: 86-(10)-53961791
--	--

TRATADO DE COOPERACIÓN EN MATERIA DE PATENTES
P C T
REPORTE DE EXAMEN PRELIMINAR INTERNACIONAL SOBRE LA PATENTABILIDAD
(Capítulo II del Tratado de cooperación en materia de patentes)

(Artículo 36 y Regla 70 del PCT)

Referencia al expediente del solicitante o del agente PF200115PCT	PARA ACCIÓN ADICIONAL ver Forma PCT/IPEA/416																									
No. de solicitud internacional PCT/CN2020/078980	Fecha de presentación internacional (día/mes/año) 12 de marzo de 2020 (12.03.2020)	(Fecha de Prioridad) (día/mes/año) 27 de marzo de 2019 (27.03.2019)																								
Clasificación de Patente Internacional (CIP) o Clasificación nacional y CIP H04W 72/04 (2009.01) i																										
Solicitante TELEFONAKTIEBOLAG LM ERICSSON (PUBL) et al																										
1. Este reporte es el reporte de examen preliminar internacional, establecido por esta Autoridad de Examen Preliminar Internacional bajo el Artículo 35 y transmitido al solicitante de acuerdo con el Artículo 36. 2. Este REPORTE consiste de <u>5</u> hojas, incluyendo esta carátula. 3. Este reporte también está acompañado por ANEXOS, que comprenden: a. ☒ (enviado al solicitante y a la Oficina Internacional) un total de <u>2</u> hojas, como sigue: ☒ las hojas a la descripción, reivindicaciones y/o dibujos que han sido enmendados y/o las hojas que contienen rectificaciones autorizadas por esta Autoridad a no ser que esas hojas fueran sustituidas o canceladas y cualesquiera cartas adjuntas (ver Reglas 46.5, 66.8, 70.16, 91.2 y Sección 607 de las Instrucciones Administrativas). ☐ las hojas que contienen rectificaciones, donde fue realizada la decisión por esta Autoridad para no tomarlas en cuenta debido a que éstas no fueron autorizadas por o notificadas a esta Autoridad al tiempo cuando esta Autoridad comenzó a redactar este reporte, y cualesquiera cartas adjuntas (Reglas 66.4bis, 70.2(e), 70.16 y 91.2). ☐ las hojas que sustituyan y cualesquiera cartas adjuntas, donde esta Autoridad considera que las hojas de sustitución contienen una enmienda que va más allá de la descripción en la solicitud internacional como fue presentada, o las hojas sustitutas no fueron acompañadas por una carta que indique la base para las enmiendas en la solicitud, como se presentó como es indicado en el inciso 4 de la Casilla No. 1 y en la Casilla Suplementaria (ver Regla 70.16(b)). b. ☐ (enviada a la Oficina Internacional únicamente) un total de (indicar tipo y número de portadores electrónicos), que contiene un lista de secuencias y/o las tablas relacionadas a éstas, en una forma legible en computadora únicamente, como es indicado en la Casilla Suplementaria con relación al Listado de Secuencias (ver párrafo 3bis del Anexo C de las Instrucciones Administrativas).																										
4. Este reporte contiene las indicaciones que están relacionadas con los siguientes incisos: <table style="width: 100%; border: none;"> <tr> <td style="width: 10%;">☒</td> <td style="width: 40%;">Casilla No I</td> <td>Base del reporte</td> </tr> <tr> <td>☒</td> <td>Casilla No II</td> <td>Prioridad</td> </tr> <tr> <td>☐</td> <td>Casilla No III</td> <td>Ningún establecimiento del reporte con respecto a la novedad, actividad inventiva, o aplicabilidad Industrial</td> </tr> <tr> <td>☐</td> <td>Casilla No IV</td> <td>Carencia de unidad de la invención</td> </tr> <tr> <td>☒</td> <td>Casilla No V</td> <td>Declaración razonada bajo el Artículo 35(2) con respecto a la novedad, actividad inventiva o Aplicabilidad industrial; las citas y explicaciones que apoyan tal declaración</td> </tr> <tr> <td>☐</td> <td>Casilla No VI</td> <td>Ciertos documentos citados</td> </tr> <tr> <td>☐</td> <td>Casilla No VII</td> <td>Ciertos defectos en la solicitud internacional</td> </tr> <tr> <td>☐</td> <td>Casilla No VIII</td> <td>Ciertas observaciones en la solicitud internacional.</td> </tr> </table>			☒	Casilla No I	Base del reporte	☒	Casilla No II	Prioridad	☐	Casilla No III	Ningún establecimiento del reporte con respecto a la novedad, actividad inventiva, o aplicabilidad Industrial	☐	Casilla No IV	Carencia de unidad de la invención	☒	Casilla No V	Declaración razonada bajo el Artículo 35(2) con respecto a la novedad, actividad inventiva o Aplicabilidad industrial; las citas y explicaciones que apoyan tal declaración	☐	Casilla No VI	Ciertos documentos citados	☐	Casilla No VII	Ciertos defectos en la solicitud internacional	☐	Casilla No VIII	Ciertas observaciones en la solicitud internacional.
☒	Casilla No I	Base del reporte																								
☒	Casilla No II	Prioridad																								
☐	Casilla No III	Ningún establecimiento del reporte con respecto a la novedad, actividad inventiva, o aplicabilidad Industrial																								
☐	Casilla No IV	Carencia de unidad de la invención																								
☒	Casilla No V	Declaración razonada bajo el Artículo 35(2) con respecto a la novedad, actividad inventiva o Aplicabilidad industrial; las citas y explicaciones que apoyan tal declaración																								
☐	Casilla No VI	Ciertos documentos citados																								
☐	Casilla No VII	Ciertos defectos en la solicitud internacional																								
☐	Casilla No VIII	Ciertas observaciones en la solicitud internacional.																								
Fecha de presentación de la solicitud 26 de enero de 2021 (26.01.2021)	Fecha en la que se completa este reporte 18 de junio de 2021 (18.06.2021)																									
Administración Nacional de Propiedad Intelectual, PRC (IPEA/CN) 6, Xitucheng Rd., Jimen Bridge, Haidian District, Beijing 100088 Fax: (86-10) 62019451	Funcionario autorizado WANG, Dechuang Teléfono N°: 86-(10)-53961791																									

REPORTE PRELIMINAR INTERNACIONAL
SOBRE LA PATENTABILIDAD

Solicitud internacional No.

PCT/CN2020/078980

Casilla No. I. Base del reporte

1. Con respecto al **idioma**, este reporte está basado en
- ☒ la solicitud internacional en el idioma en el cual se presentó.
 - ☐ una traducción de la solicitud internacional en Inglés el cual es el idioma de una traducción proporcionada para los fines de:
 - ☐ búsqueda internacional (bajo las Reglas 12.3 y 23.1(b))
 - ☐ publicación de la solicitud internacional (bajo la Regla 12.4)
 - ☐ examen preliminar internacional (bajo las Reglas 55.2 y/o 55.3)

2. Con respecto a los **elementos** de la solicitud internacional, este reporte está basado en *(hojas de reemplazo que han sido proporcionadas a la Oficina receptora en respuesta a una invitación bajo el Artículo 14, son denominadas en este reporte como "originalmente presentadas" y no son anexadas a este reporte)*:

- ☒ la solicitud internacional como se presentó/envió originalmente

☐ la descripción:	páginas	_____	como se presentó/envió originalmente
	páginas	_____	recibido por esta autoridad el
☐ las reivindicaciones:	Nos.	_____	como se presentó/envió originalmente
	Nos.*	_____	como se enmendaron (junto con cualquier declaración) bajo el Artículo 19
	Nos.*	_____	recibido por esta autoridad el
☐ las figuras:	páginas	_____	como se presentó/envió originalmente
	páginas	_____	recibido por esta autoridad el

- ☐ un listado de secuencias - ver Casilla Suplementaria Relacionada al Listado de Secuencias

3. ☐ Las enmiendas han dado como resultado la cancelación de:
- ☐ la descripción, páginas _____
 - ☐ las reivindicaciones, Nos. _____
 - ☐ los dibujos, láminas/figs. _____
 - ☐ el listado de secuencias *(especificar)*: _____
4. ☐ Este reporte ha sido redactado como si (algunas de) las enmiendas anexadas a este reporte y listadas en seguida no hubieran sido realizadas, ya que éstas han sido consideradas como más allá de la descripción como se presentó, como se indica en la Casilla Suplementaria (Regla 70.2(c)).

- ☐ la descripción, páginas _____
- ☐ las reivindicaciones, Nos. _____
- ☐ los dibujos, hojas/figs. _____
- ☐ el listado de secuencias *(especificar)*: _____

5. ☐ Esta reporte ha sido establecida

- ☐ tomando en cuenta la **rectificación de un error obvio** autorizada por o notificada a esta Autoridad bajo la Regla 91 (Reglas 66.1(d-bis) y 70.2(e)).
 - ☐ sin tomar en cuenta la **rectificación de un error obvio** autorizada por o notificada a esta Autoridad bajo la Regla 91 (Reglas 66.4bis y 70.2(e)).
6. ☐ Con respecto a las búsquedas complementarias (Reglas 66.1 ter y 70.2(f)):
- ☐ Esta Autoridad llevó a cabo una búsqueda complementaria el
 - ☐ Documentos adicionales relevantes han sido descubiertos durante la búsqueda complementaria.
 - ☐ No se realizó ninguna búsqueda complementaria por esta Autoridad porque no tendría ninguna utilidad.
7. ☐ Reportes de búsqueda internacional suplementarios de la(s) autoridad(es)_____ han sido recibidos y tomados en cuenta en la redacción de este reporte (Reglas 45bis.8(b) y (c)).

** Si el artículo 4 se aplica todas o algunas de estas hojas se pueden marcar "sustituida"*

REPORTE PRELIMINAR INTERNACIONAL
SOBRE LA PATENTABILIDAD

Solicitud internacional No.

PCT/CN2020/078980

Casilla No. II Prioridad

1. ☐ Este informe se ha establecido como si no se hubiera reclamado prioridad debido a que no se presentó dentro del plazo establecido lo solicitado:

☐ copia de la solicitud anterior cuya prioridad ha sido reclamada (Regla 66.7 (a)).

☐ traducción de la solicitud anterior cuya prioridad ha sido reivindicada (Regla 66.7 (b)).

2. ☐ Este informe se ha establecido como si no se hubiera reclamado prioridad debido a que la prioridad reclamada se ha declarado inválida (Regla 64.1). Por lo tanto, a los efectos de este informe, se considera que la fecha de presentación internacional indicada anteriormente es la fecha pertinente.

3. Observaciones adicionales, si es necesario:

Después de la verificación, la prioridad es válida.

1 Casilla V Declaración razonada bajo el Artículo 35(2) sobre la novedad, la actividad inventiva o la aplicabilidad industrial; citas y explicaciones que apoyen dicha declaración

1. Declaración:

Novedad (N)	Reivindicaciones <u>1-15</u>	SI
	Reivindicaciones <u>Ninguna</u>	NO
Actividad Inventiva (IS)	Reivindicaciones <u>5-10</u>	SI
	Reivindicaciones <u>1-4, 6-9, 11-15</u>	NO
Aplicabilidad Industrial(N)	Reivindicaciones <u>1-15</u>	SI
	Reivindicaciones <u>Ninguna</u>	NO

2. Citas y explicaciones (Regla 70.7)

I. Novelty and inventive step

D1: RI-1805945 (25.05.2018)

D2: CN108282899A (13.07.2018)

D2 discloses a method for two-step contention based random access (see claims 1-10, descriptions 82-125), comprising: UE sends Msg1 message to the base station, wherein the Msg1 message comprises: a Random Access Preamble and a data portion, and the C-RNTI is carried in the data portion (namely "transmitting a message for requesting a RA" and "the message for requesting the RA includes a random access channel, RACH, preamble"); monitoring, by UE, within an Msg2 message receiving window or before an Msg2 message receiving timer times out: physical layer scheduling signaling addressed with a temporary C-RNTI, where in the search space corresponding to the physical layer scheduling signaling is a common search space (namely "obtaining a first configuration indicating common search space, C-SS"); determining that two-step random access of the user equipment is successful, in a case that a UE identifier carried in the Msg1 message is a cell radio network temporary identifier (C-RNTI) and physical layer scheduling signaling addressed based on the C-RNTI is received by the user equipment.

Claims 1, 11 differ from D2 in that: (1) the message for requesting the RA further includes a PUSCH, and receiving/transmitting a message on a PDSCH; (2) it is Type 1C-SS for PDCCH and monitoring the PDCCH. Claim 11 differs from D2 further in that: (3) the processor executes the instructions in the memory to implement the corresponding method.

Claims 6, 13 differ from D2 in that: (1), (4) it is Type 1C-SS for PDCCH. Claim 13 differs from D2 further in that: (3).

So, the independent claims 1, 6, 11, 13 and the dependent claims 2-5, 7-10, 12, 14 are novel in the sense of PCT Article 33(2).

For difference (1), D2 discloses Msg1 message comprises a RA Preamble and C-RNTI in the data portion, it is a normal design for using PUSCH to carry the data and C-RNTI; D2 further discloses the physical layer scheduling signaling addressed based on the C-RNTI is received by the user equipment, it is a normal design for using PDSCH to carry the scheduling signaling. For differences (2) and (4), D1 (see section 4.3) discloses that: The UE monitors Msg2 PDCCH in the Type1-PDCCH C-SS configured by SIB1, but using C-RNTI. Obviously, the differences (2) and (4) are disclosed by D1, it is also two-step RA procedure including Msg1 and Msg2 in section 4.3 in D1.

The difference (3) is also a normal design for the person skilled in the art.

Therefore based on D2 and D1 combination, claims 1,6,11,13 do not meet PCT 33(3).

The additional features of claims 2-4, 7-9 are either disclosed by D1/D2 or normal designs for the person skilled in the art. So, claims 2-4,7-9 lack an inventive step of PCT Article 33(3).

The additional features of claims 5, 10 are neither disclosed by D1/D2 nor normal designs for the person skilled in the art. So, claims 5, 10 involve an inventive step of PCT Article 33(3).

Claim 12 cites claim 11, considering the comments on claims 1-5, when the terminal device is operative to perform the method according to any of claims 1 to 4, claim 12 lacks an inventive step of PCT Article 33(3), when the terminal device is operative to perform the method according to claim 5, claim 12 involves an inventive step of PCT Article 33(3).

Claim 14 cites claim 13, considering the comments on claims 6-10, when the network node is operative to perform the method according to any of claims 6 to 9, claim 14 lacks an inventive step of PCT Article 33(3), when the network node is operative to perform the method according to claim 10, claim 14 involves an inventive step of PCT Article 33(3).

Claim 15 cites one of claims 1-5 or one of claims 6-10, the corresponding method implemented by the processor executing instructions is normal design for the person skilled in the art. Considering the comments on claims 1-10, claim 15 is novel in the sense of PCT Article 33(2), claim 15 lacks an inventive step of PCT Article 33(3) when citing any one of claims 1-4 or claims 6-9, claim 15 involves an inventive step of PCT Article 33(3) when citing claim 5 or claim 10.

II. Industrial applicability

Claims 1 to 15 can find industrial applicability in the technical field of communications, and thus meet the requirements of PCT Article 33(4).

PCT/CN2020/078980

26 de enero de 2021 (26.01.2021)

Para:

Administración Nacional de Propiedad Intelectual, PRC
6, Xitucheng Rd., Jimen Bridge
Haidian District
Beijing 100088
P.R.China

Respuesta a la Opinión Escrita conforme al Artículo 34 del PCT

Número de Solicitud: PCT/CN2020/078980
Fecha de la Solicitud: 12 de marzo de 2020
Solicitante: Telefonaktiebolaget LM Ericsson (publ)
Nuestra Referencia: PF200115PCT

Adjunto(s):

Dear Sirs,

With reference to our demand for international Preliminary Examination of the above-identified application under PCT Chapter 11, we file herewith the following, without prejudice:

Novelty and inventive Step

With regard to the Examiner's objections in item V, Applicant respectfully requests the Examiner to re-consider these objections in view of the following observations.

As to claim 1

Claim 1 relates to a method performed by a terminal device, for monitoring PDCCH in random access procedure. The method comprises:

obtaining (S101) a first configuration indicating Type 1 common search space, C-SS, for a first physical downlink control channel, PDCCH;

transmitting (S102) a message for requesting a random access, RA; monitoring (S103) the first PDCCH, based on the Type 1 C-SS; and

receiving (S104) a message on a physical downlink shared channel, PDSCH, based on information in the first PDCCH obtained during the monitoring;

wherein the message for requesting the RA includes a random access channel, RACH, preamble and a physical uplink shared channel, PUSCH.

According to embodiments of the present disclosure, a terminal device may perform a random access procedure, in which **a message for requesting the RA (including a random access channel, RACH, preamble and a physical uplink shared channel, PUSCH)**, may be sent by the terminal device. Namely, the random access procedure performed by the terminal device may be a RACH procedure different from the current 4-step RACH procedure, for example, it may be a 2-step RACH procedure.

For performing such different RACH procedure, the terminal device may obtain (S101) **a first configuration** indicating Type 1 common search space, C-SS, for a first physical downlink control channel, PDCCH (which may be **a response to the message for requesting the RA**).

Therefore, claim 1 defines an overall solution for a RA procedure. That is, with such first configuration, the terminal device may be well prepared for receiving the response to the message for requesting the RA, without extra signalings or steps in the RA procedure. A RA procedure (such as a 2-step RA) with less steps than the current 4-step RACH procedure can be realized.

D1, as cited by the Examiner, only discloses 4-step RACH procedure (including Msg1, Msg2, Msg3, Msg4). D1 completely **doesn't** disclose any method for other RACH procedures.

That is, D1 only disclose a configuration for 4-step RA, but does not disclose "a first configuration for a first PDCCH (which may be a response to a message requesting **a RA other than 4-step RA**)".

Further, for such **RA other than 4-step RA**, claim 1 further specifically defines other distinguishing features, as accepted by the examiner, **"receiving (\$104) a message on a physical downlink shared channel, PDSCH, based on information in the first PDCCH obtained during the monitoring; wherein the message for requesting the RA includes a random access channel, RACH, preamble and a physical uplink shared channel, PUSCH", etc.**

These features in claim 1 cooperate with each to realize a complete solution of the present application, particularly to realize the **RA other than 4-step RA**.

It is an obvious hindsight bias to assert them as normal design in the examiner's opinion, without any prior art evidence about such RA or details of such features.

Thus, claim 1 is novel and inventive over R 1.

Further, corresponding independent claims 6, 11, 13, and other claims referring to them are all novel and inventive over the prior arts.

Conclusion

In view of the above, the claims are believed to satisfy the patentability requirements of the PCT.

However, if the Examiner still has any objections that might preclude the issuance of a favorable opinion in the forthcoming international Preliminary Report on Patentability (IPRP) regarding the patentability of all pending claims, we would be grateful for an opportunity to respond to the remaining objections.

Respetuosamente,

Oficina Legal Zhongzi
para
Telefonaktiebolaget LM Ericsson (publ)