

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To: Y.P.LEE, MOCK & PARTNERS 12F Daelim Acrotel, 13 Eonju-ro 30-gil, Gangnam-gu, Seoul 06292 Republic of Korea		Date of mailing (day/month/year) 31 August 2020 (31.08.2020)	
Applicant's or agent's file reference SH-61254-PCT		FOR FURTHER ACTION See paragraph 2 below	
International application No. PCT/KR2020/005730	International filing date (day/month/year) 29 April 2020 (29.04.2020)	Priority date(day/month/year) 30 April 2019 (30.04.2019)	
International Patent Classification (IPC) or both national classification and IPC H04W 28/04(2009.01)i, H04W 72/14(2009.01)i, H04L 1/18(2006.01)i			
Applicant SAMSUNG ELECTRONICS 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/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 31 August 2020 (31.08.2020)	Authorized officer YANG, Jeong Rok Telephone No. +82-42-481-5709
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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/KR2020/005730

Box No. I 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 43*bis*.1(b))

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 13*ter*.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 13*ter*.1(a)).

on paper or in the form of an image file (Rule 13*ter*.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/KR2020/005730

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>1-15</u>	YES
	Claims	<u>NONE</u>	NO
Inventive step (IS)	Claims	<u>NONE</u>	YES
	Claims	<u>1-15</u>	NO
Industrial applicability (IA)	Claims	<u>1-15</u>	YES
	Claims	<u>NONE</u>	NO

2. Citations and explanations :

Reference is made to the following documents:

D1: NOKIA et al., 'Configured grant timer(s) for NR-U', R2-1903713, 3GPP TSG-RAN WG2 Meeting #105bis, Xian, China, 29 March 2019

D2: HUAWEI et al., 'Transmission with configured grant for NR-U', R2-1904958, 3GPP TSG-RAN WG2 Meeting #105bis, Xi'an, China, 29 March 2019

I. Novelty and Inventive Step (PCT Article 33(2) and (3))

1. Claims 1-8

1.1. Claims 1, 5

D1, which is considered to be the closest prior art to the subject matter of claim 1, discloses a method comprising: starting a new timer (e.g., CGRT) when a TB is actually transmitted on a configured grant, wherein the new timer is introduced for auto retransmission on the configured grant for the case of the TB previous being transmitted on the configured grant (see section 2); starting a legacy configured grant timer (e.g., CGT) upon reception of PDCCH as well as transmission on a PUSCH of a dynamic grant (see section 2); and stopping the new timer upon reception of a HARQ feedback or a dynamic grant for a HARQ process (see section 2).

Claim 1 differs from D1 in that it further comprises receiving, from a base station, configuration information for an uplink resource; determining a Hybrid Automatic Repeat Request (HARQ) process based on the configuration information; and stopping a CGT based on a DFI indicating whether the base station received uplink data. However, the different features would be easily derived from the disclosure of D2 (see section 2.3: a UE selects a HARQ

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process ID from an RRC configured set of HARQ IDs for NR-unlicensed configured grant transmission, and see section 2.2: a UE shall stop a configuredGrantTimer if HARQ feedback is received for a corresponding HARQ process, wherein the HARQ feedback was defined and carried through a DFI).

Claim 5 relates to a user equipment (UE) and has substantially the same technical features as claim 1. Accordingly, the same reasoning as in claim 1 can be applied to claim 5.

It would have been obvious to a person skilled in the art to arrive at the matter defined in claims 1, 5 by combining the teachings of D1 and D2. Therefore, claims 1, 5 lack an inventive step.

1.2. Claims 2-4, 6-8

The additional features of claims 2, 6 would be easily derived from the disclosure of D2 (see section 2.2: a UE shall stop a configuredGrantTimer if a HARQ feedback is received for a corresponding HARQ process, wherein the HARQ feedback was defined and carried through DFI).

The additional features of claims 3, 7 would be easily derived from the disclosure of D1 (see section 1: "NR Rel-15 assumed ACK upon expiry of the timer to allow new transmission on the configured grant for the same process").

The additional features of claims 4, 8 would be easily derived from the disclosure of D1 (see section 2: starting a legacy configured grant timer (e.g., CGT) upon reception of PDCCH as well as transmission on a PUSCH of a dynamic grant).

Therefore, claims 2-4, 6-8 lack an inventive step as being obvious over D1 in view of D2.

2. Claims 9-15

2.1. Claims 9, 13

D2, which is considered to be the closest prior art to the subject matter of claim 9, discloses a method comprising: selecting, by a UE, a HARQ process ID from an RRC

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configured set of HARQ IDs for NR-licensed configured grant transmission (see section 2.3); and stopping, by the UE, a configuredGrantTimer if HARQ feedback is received for a corresponding HARQ process, wherein the HARQ feedback was defined and carried through a DFI (see section 2.2).

Claim 9 differs from D2 in that it further comprises transmitting, to a UE, downlink feedback information (DFI), wherein, based on the DFI, a configured grant retransmission timer stops. However, the different feature would be easily derived from the disclosure of D1 (see section 2: a new timer for auto retransmission (e.g., CGRT) is stopped upon reception of HARQ feedback or a dynamic grant for a HARQ process).

Claim 13 relates to a base station and has substantially the same technical features as claim 9. Accordingly, the same reasoning as in claim 9 can be applied to claim 13.

It would have been obvious to a person skilled in the art to arrive at the matter defined in claims 9, 13 by combining the teachings of D1 and D2. Therefore, claims 9, 13 lack an inventive step.

2.2. Claims 10-12, 14-15

The additional features of claims 10, 14 would be easily derived from the disclosure of D2 (see section 2.2: a UE shall stop a configuredGrantTimer if HARQ feedback is received for a corresponding HARQ process, wherein the HARQ feedback was defined and carried through DFI).

The additional features of claims 11, 15 would be easily derived from the disclosure of D1 (see section 1: "NR Rel-15 assumed ACK upon expiry of the timer to allow new transmission on the configured grant for the same process").

The additional feature of claim 12 would be easily derived from the disclosure of D1 (see section 2: starting a legacy configured grant timer (e.g., CGT) upon reception of PDCCH as well as transmission on a PUSCH of a dynamic grant).

Therefore, claims 10-12, 14-15 lack an inventive step as being obvious over D2 in view of D1.

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II. Industrial Applicability (PCT Article 33(4))

Claims 1-15 are industrially applicable.