

# PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

# PCT

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

To:

see form PCT/ISA/220

Date of mailing  
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference  
see form PCT/ISA/220

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/EP2020/058351

International filing date (day/month/year)  
25.03.2020

Priority date (day/month/year)  
28.03.2019

International Patent Classification (IPC) or both national classification and IPC  
INV. H04W36/08 H04W36/36

Applicant  
TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)

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 usually 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:



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Date of completion of  
this opinion

see form  
PCT/ISA/210

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**Box No. I Basis of the opinion**

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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:

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**Box No. II Priority**

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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 43bis.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 43bis.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:

**see separate sheet**

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**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**

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1. Statement

Novelty (N)	Yes: Claims	<u>1-12</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	<u>1-12</u>
Industrial applicability (IA)	Yes: Claims	<u>1-12</u>
	No: Claims	

2. Citations and explanations

**see separate sheet**

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**Box No. VI Certain documents cited**

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1. Certain published documents (Rules 43bis.1 and 70.10)

and / or

2. Non-written disclosures (Rules 43bis.1 and 70.9)

**see form 210**

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**Box No. VII Certain defects in the international application**

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The following defects in the form or contents of the international application have been noted:

**see separate sheet**

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**Box No. VIII Certain observations on the international application**

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The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

**see separate sheet**

Reference is made to the following documents:

- D1** CATT: "Signalling Procedure of Conditional Handover",  
3GPP DRAFT; R2-1900949
- D2** WO 2018/104217 A1
- D3** CATT ET AL: "RRC Reconfiguration Complete Indication to DU",  
3GPP DRAFT; R3-180834
- D4** WO 2019/215666 A1

### **Re Item II**

#### **Priority**

1.

The present report is made under the assumption of a valid priority claim since the priority document is not yet available. See Item VI below.

### **Re Item VIII**

#### **Certain observations on the international application**

1.

The **independent claims 9 and 10** both directed to a "*wireless device*" are lacking conciseness (Article 6 PCT).

1.

**Claim 1** leaves unclear (Article 6 PCT) to which of the previous actions the "*otherwise*" refers (e.g. instead of "*otherwise, if the... configuration is completed*")

Moreover, **claim 1** refers to a "*completion of a conditional handover configuration*" leaving unclear whether this relates to the other features (Article 6 PCT), since there is no mention of any configuration. It should be clear that there is "*a conditional handover command including configuration information* (see e.g. description paragraph [0003] or [0008]) ~~or being~~ associated with a triggering condition for execution of handover".

3.

It is clear from the description that the **alleged effect of the invention** compared to the PA is provided by proceeding to the handover without **delay** (see in particular [0010]). **Claim 1** does not define clearly this **essential condition** (Article 6 PCT) merely refers to a negative feature and does not exclude still waiting after detecting the condition.

The claim should clearly define the essential features, e.g. *"executing the handover to the target cell or beam **without delay and without sending** (see description [0010] and [0040]) a message confirming completion"*.

4.

**Claim 2** should clearly (Article 6 PCT) refer to *"wherein **the sending**"*. I.e. it should be clear that this refer to the sending in the *"otherwise etc."* condition of **claim 1**.

5.

**Claim 4** is unclear (Article 6 PCT) as inconsistently it defines **another subject-matter and not a limitation**, although unclearly worded as a dependent claim (Rule 6.4 PCT). **Claim 4** defines that if the handover message contains an indication, the confirming completion is just skipped (e.g. irrespectively of being *"yet completed"* or not). Once the triggering condition is met and the configuration is not yet complete, skipping the message in **claim 1** is unconditional, i.e. claim 4 defines the possible **exclusion** of this feature.

## **Re Item V**

### **Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

The above **clarity objections** (Item VIII) notwithstanding, the **claims** do not meet the requirements of the Article 33 PCT for the following reasons.

1.

**Closest-prior-art: D1** discloses according to the **essential features of claim 1** a method, in a wireless device operating in a wireless communication network, the method comprising:

receiving, from a source node, a conditional handover command, the conditional handover command including or being associated with a triggering condition for execution of handover to a target cell or target beam (see in particular page 3, proposal 5: *"RRConnectionReconfiguration is used as conditional handover configuration message, and it is generated by the serving cell to assemble the handover commands from candidate cells"*);

detecting, that the triggering condition is met;

~~if a conditional handover configuration is not yet completed, executing the handover to the target cell or beam (see in particular page 3, Step 7-8: "UE will initiate handover to the target candidate cell when this cell meets the condition of event 2... UE sends conditional handover complete message to the target candidate cell"; "Event 2 can be configured by the source cell") without sending a message confirming completion of a conditional handover configuration to the source node, and~~

~~otherwise sending the message confirming completion of the conditional handover configuration to the source node (see in particular page 3, first two lines: "a response message RRCConnectionReconfigurationComplete should be sent to serving cell").~~

- **Difference:** The difference is that **if a conditional handover configuration is not yet completed**, executing the handover to the target cell or beam **without sending a message confirming completion of a conditional handover configuration to the source node, and otherwise** sending the message confirming completion of the configuration.

- **Effect / Problem:** The corresponding effect / problem is how to make the HO faster once the triggering event has been detected.

- **Solution:** Faced with the problem posed a skilled person would consult documents that relate to similar handover and to the signalling described in the CPA. He would come across several documents which address the above issues.

**D2** discloses (see in particular [0013] and [0021]) that in "autonomous user equipment handover, the user equipment may initiate a RA procedure without having to first successfully complete handover signaling with the base station in the source cell" and "UE may initiate the autonomous HO without even attempting to send a message to the source base station" because "delaying the message to the base station may increase the duration of the interruption caused by the HO". Thus, it would be obvious to the skilled person that this can be applied in the situation of **D1** once the trigger condition is detected, i.e. he **would** avoid any delay caused by sending other messages which had otherwise to be sent to the source BS (e.g. as the RRCreconfigurationcomplete of **D1**) and just proceed to handover.

**Alternatively** he would come across **D3** (see in particular page 1, paragraphs 1-2) which discusses "whether a new message i.e. UE Reconfiguration Complete message should be introduced to enable" the information "that the RRC reconfiguration is already completed at UE side". In the context of 3GPP "however, some companies raised a concern that there are no cases of RRC reconfiguration in which UE Reconfiguration Complete message is necessary and to wait such message may only cause delay". Thus, the skilled person starting from **D1** proposing the possible use this message for responding to the CHO configuration, would realize that this message is also not strictly

necessary. Faced with the problem posed, he clearly learns from **D3** the **principle** that Reconfiguration complete messages can be skipped if not strictly necessary and causing delay, as it is the case in **D1** as soon as the trigger event is detected. It would be also obvious that if there is no pending handover there is no delay issue, i.e. the message can be sent as normally proposed in **D1**.

Thus, starting from **D1** and based on any of **D2 or D3** the skilled person would obviously arrive at the subject-matter of the **claims**.

Thus **claim 1** does not involve an inventive step (Article 33(3) PCT).

2.

**Dependent claims 2-8 and claims 9-12** do not contain any additional features which, in combination with the features of any claim to which they refer, meet the requirements of the Article 33(3) PCT in respect of inventive step, because they relate to non technical aspects or, if technical, to obvious implementation details.

- **Claims 2 and 5-8:** Basic trivial details of HO implementation, see e.g. already **D1** (see the already cited passages).

- **Claims 3-4:** Obvious minor details within the common general knowledge of a skilled person. See e.g. **D2** (see the already cited passages suggesting that skipping further signalling with the source BS is possible to have a faster HO).

- **Claims 9-12:** Obvious minor details, see what already outlined above *mutatis mutandis*.

Therefore, **dependent claims 2-8 and claims 9-12** do not meet the requirements of the Article 33(3) PCT.

## **Re Item VI**

### **Certain documents cited**

Certain published documents

Patent No	Publication date	Filing date	Priority date
<b>WO2019215666</b>	14.11.2019	09.05.2019	10.05.2018

The above document **D4** (see in particular [0022]-[0026]) discloses the same principles and details of the present application that *"when the UE is configured for CHO and the condition to execute the CHO is immediately met, or met within a given time, the UE does not send an acknowledge message, such as for example RRC reconfiguration complete message, to the source cell, but executes the CHO and sends a message to the target cell. If the condition to trigger the CHO is not met within a given time, the UE may send an acknowledge message to the source cell"*.

This document may become relevant under Article 33(1) PCT if the priority of the present application is not validly claimed. For the **EP regional phase** the above WO publication may also become a prior-right under Article 54(3) EPC if it validly enters the European phase.

## **Re Item VII**

### **Certain defects in the international application**

1.

The **independent claims** are not in the **two-part form** recommended by Rule 6.3 (b) PCT, which in the present case would be appropriate, having a pre-characterizing portion which reflects the **closest prior-art** (Rule 6.3(b) PCT).

2.

Contrary to the requirements of Rule 5.1(a)(ii) PCT, the **relevant background art** disclosed in the **cited documents D1 to D3** is not mentioned in the description, nor are the relevant contents of these documents discussed therein.

3.

**Caveat:** In case of amendments (e.g. if entering the PCT-II phase) the Applicant is required to clearly **identify any amendment** (deletion, addition, replacement) and to **indicate their basis** in the original application (Rule 46.5 PCT; see also Rule 70.2(c-bis) PCT).

4.

**PCT-EPO Guidelines:** In the above passages, unless explicit mention of the *"PCT-EPO Guidelines"* is made, any reference to *"PCT Guidelines"* still refers to the *"Guidelines for the processing by international searching and preliminary examining authorities of international applications under the Patent Cooperation Treaty"*.