

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

# PCT

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

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/EP2023/052257

International filing date (day/month/year)  
31.01.2023

Priority date (day/month/year)  
09.02.2022

International Patent Classification (IPC) or both national classification and IPC  
INV. H04W68/02 ADD. H04W88/14 H04W92/24

Applicant  
TELEFONAKTIEBOLAGET LM ERICSSON (PUBL)

1. This opinion contains indications relating to the following items:

- |                                                  |                                                                                                                                                                                |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> Box No. I    | Basis of the opinion                                                                                                                                                           |
| <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 Rule 43 <i>bis</i> .1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement |
| <input checked="" type="checkbox"/> Box No. VI   | Certain documents cited                                                                                                                                                        |
| <input checked="" type="checkbox"/> Box No. VII  | Certain defects in the international application                                                                                                                               |
| <input checked="" type="checkbox"/> 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 66.1 *bis*(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

Authorized Officer

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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.
  - b. ☐ furnished subsequent to the international filing date for the purposes of international search (Rule 13ter.1(a)),
    - ☐ accompanied by a statement to the effect that the sequence listing does not go beyond the disclosure in the international application as filed.
4. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established to the extent that a meaningful opinion could be formed without a WIPO Standard ST.26 compliant sequence listing.
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:

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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>1-35</u> |
|                               | No: Claims  |             |
| Inventive step (IS)           | Yes: Claims | <u>1-35</u> |
|                               | No: Claims  |             |
| Industrial applicability (IA) | Yes: Claims | <u>1-35</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

**Re Item V**

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

1 Reference is made to the following document:

D1 NOKIA ET AL: "Correction to PPI setting control over N4",  
3GPP DRAFT; S2-1910227 WAS S2-1910172 WAS 23501 PPI FAR QER  
AGREED, 3RD GENERATION PARTNERSHIP PROJECT (3GPP),  
MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ;  
F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRA, vol. SA WG2, no. Split, HR;  
20191014 - 20191018 17 October 2019 (2019-10-17), XP051797002,  
Retrieved from the Internet: URL:https://ftp.3gpp.org/  
Meetings\_3GPP\_SYNC/SA2/Docs/S2-1910227.zip S2-1910227 was  
S2-1910172 was 23501 PPI FAR QER AGREED.docx  
[retrieved on 2019-10-17]

2 D1 is regarded as being the prior art closest to the subject-matter of claim 1,  
and discloses:

*A method for facilitating paging policy differentiation, performed by a Session  
Management Function, SMF, the method comprising:  
~~determining that a paging policy differentiation feature is supported by a User  
Plane Function~~  
sending, toward the UPF, a message instructing the UPF to insert a Paging  
Policy Indicator value into downlink packets based on a Differentiated Services  
Code Point value, (page 2: "To enable this, the SMF instructs the UPF to  
detect the DSCP in the TOS (IPv4) / TC (IPv6) value in the IP header of the  
DL PDU (by using a DL PDR with the DSCP for this traffic) and to transfer  
the corresponding PPI in the CN tunnel header (by using a QER with  
the PPI value"),  
~~wherein the message includes DSCP-to-PPI control information~~*

3 The subject-matter of claim 1 therefore differs from this known D1 in

*a) "determining that a paging policy differentiation feature is supported by a  
User Plane Function"*

and in

*b) "wherein the message includes DSCP-to-PPI control information".*

- and is therefore new (Article 33(2) PCT).
- 4 Concerning the feature a) it is considered that even if D1 does not directly discloses the feature a), it is clearly within the routinary capabilities of the skilled man in the art to carry out procedures after checking that the partner units are suitably in the position of complying with them.
- 5 The problem to be solved by the present invention may be then refereed to the feature b) and can be regarded as how to improve the flexibility of the Paging Policy Differentiation.
- 6 The solution to this problem proposed in claim 1 of the present application is therefore the insertion in the message of a DSCP-to-PPI control information.
- 7 The solution is considered as involving an inventive step (Article 33(3) PCT) because the flexibility of the PPD can be reached by operating on different aspects. In this case, the closest prior art offers only a pre-scheduled relationship between the DSCP and the PPI, whereas in the specific case of the present application, the flexibility is obtained by operating a direct command from the SMF to the UPF.  
Such type of solution is not hinted nor rendered obvious by the adoption of the pre-scheduled relationship disclosed by D1.
- 8 The above analysis equally applies to independent claims 9, 17, 18, 19, 20, 28 which are related to the same subject-matter as claim 1 under a different category or by complementary scheme.
- 9 The subject matter of the dependent claims is to be considered novel and inventive, however some minor the clarity issues listed in the following section should be complied with.

## **Re Item VI**

### **Certain documents cited**

- D3 ERICSSON: "Paging Policy Differentiation", 3GPP DRAFT; C4-221333, 3RD GENERATION PARTNERSHIP PROJECT (3GPP), MOBILE COMPETENCE CENTRE ; 650, ROUTE DES LUCIOLES ; F-06921 SOPHIA-ANTIPOLIS CEDEX ; FRANCE, vol. CT WG4, no. E-Meeting; 20220217 - 20220225 9 February 2022 (2022-02-09), XP052105225, Retrieved from the Internet: URL:[https://ftp.3gpp.org/tsg\\_ct/WG4\\_protocollars\\_ex-CN4/](https://ftp.3gpp.org/tsg_ct/WG4_protocollars_ex-CN4/)

TSGCT4\_108e\_meeting/Docs/C4-221333.zip  
C4-221333\_CR0611\_29.244\_paging\_differentiation A.docx  
[retrieved on 2022-02-09]

### **Re Item VII**

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

- 1 The independent claims are not in the two-part form in accordance with Rule 6.3(b) PCT, which in the present case would be appropriate, with those features known in combination from the prior art D1 being placed in the preamble (Rule 6.3(b)(i) PCT) and the remaining features being included in the characterising part (Rule 6.3(b)(ii) PCT).
- 2 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in D1 is not mentioned in the description, nor are these documents identified therein.

### **Re Item VIII**

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

- 1 The application does not meet the requirements of Article 6 PCT, because the following claims are not clear.
  - 1.1 In claims 4 and 23 the feature "determining the paging policy [...]" is unclear in that it is not understandable if this is a separated step or it refers to the just previous feature of the "comprising" step.
  - 1.2 Claim 5 should depend only on 3 (and claim 24 on 22).
  - 1.3 The dependencies of claims 12 and 31 are incorrect.