

# PATENT COOPERATION TREATY

# PCT

## INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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| Applicant's or agent's file reference<br><b>P72725 WO1</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>FOR FURTHER ACTION</b>                                                |                                                                                                                                                                 | See Form PCT/IPEA/416 |                                     |           |                     |                          |            |          |                          |             |                                                                                                  |                          |            |                            |                                     |           |                                                                                                                                                                 |                          |            |                         |                                     |             |                                                  |                                     |              |                                                       |
| International application No.<br><b>PCT/EP2018/071909</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | International filing date ( <i>day/month/year</i> )<br><b>13.08.2018</b> | Priority date ( <i>day/month/year</i> )<br><b>15.08.2017</b>                                                                                                    |                       |                                     |           |                     |                          |            |          |                          |             |                                                                                                  |                          |            |                            |                                     |           |                                                                                                                                                                 |                          |            |                         |                                     |             |                                                  |                                     |              |                                                       |
| International Patent Classification (IPC) or national classification and IPC<br><b>INV. H04W24/02</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                          |                                                                                                                                                                 |                       |                                     |           |                     |                          |            |          |                          |             |                                                                                                  |                          |            |                            |                                     |           |                                                                                                                                                                 |                          |            |                         |                                     |             |                                                  |                                     |              |                                                       |
| Applicant<br><b>Telefonaktiebolaget LM Ericsson (publ)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                          |                                                                                                                                                                 |                       |                                     |           |                     |                          |            |          |                          |             |                                                                                                  |                          |            |                            |                                     |           |                                                                                                                                                                 |                          |            |                         |                                     |             |                                                  |                                     |              |                                                       |
| <ol style="list-style-type: none"> <li>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.</li> <li>2. This REPORT consists of a total of <u>7</u> sheets, including this cover sheet.</li> <li>3. This report is also accompanied by ANNEXES, comprising:               <ol style="list-style-type: none"> <li>a. <input checked="" type="checkbox"/> (<i>sent to the applicant and to the International Bureau</i>) a total of <u>7</u> sheets, as follows:                   <ul style="list-style-type: none"> <li><input checked="" type="checkbox"/> 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).</li> <li><input type="checkbox"/> 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).</li> <li><input type="checkbox"/> 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)).</li> </ul> </li> <li>b. <input type="checkbox"/> (<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).</li> </ol> </li> </ol> |                                                                          |                                                                                                                                                                 |                       |                                     |           |                     |                          |            |          |                          |             |                                                                                                  |                          |            |                            |                                     |           |                                                                                                                                                                 |                          |            |                         |                                     |             |                                                  |                                     |              |                                                       |
| <ol style="list-style-type: none"> <li>4. This report contains indications relating to the following items:               <table style="width: 100%; border: none;"> <tr> <td style="width: 10%;"><input checked="" type="checkbox"/></td> <td style="width: 15%;">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 checked="" type="checkbox"/></td> <td>Box No. VII</td> <td>Certain defects in the international application</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td>Box No. VIII</td> <td>Certain observations on the international application</td> </tr> </table> </li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                          |                                                                                                                                                                 |                       | <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 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 |
| <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 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                                                                                                           |                       |                                     |           |                     |                          |            |          |                          |             |                                                                                                  |                          |            |                            |                                     |           |                                                                                                                                                                 |                          |            |                         |                                     |             |                                                  |                                     |              |                                                       |
| Date of submission of the demand<br><br><b>27.05.2019</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                          | Date of completion of this report<br><br><b>08.11.2019</b>                                                                                                      |                       |                                     |           |                     |                          |            |          |                          |             |                                                                                                  |                          |            |                            |                                     |           |                                                                                                                                                                 |                          |            |                         |                                     |             |                                                  |                                     |              |                                                       |
| Name and mailing address of the international preliminary examining authority:<br><br><div style="display: flex; align-items: center;"> <div>             European Patent Office<br/>             D-80298 Munich<br/>             Tel. +49 89 2399 - 0<br/>             Fax: +49 89 2399 - 4465           </div> </div>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                          | Authorized officer<br><br><b>Rosenauer, Hubert</b><br><br>Telephone No. +49 89 2399-7231                                                                        |                       |                                     |           |                     |                          |            |          |                          |             |                                                                                                  |                          |            |                            |                                     |           |                                                                                                                                                                 |                          |            |                         |                                     |             |                                                  |                                     |              |                                                       |



# INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.  
PCT/EP2018/071909

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## Box No. I Basis of the report

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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 (under Rules 12.3(a) and 23.1(b))
    - ☐ publication of the international application (under Rule 12.4(a))
    - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a) and (b))
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*):

### Description, Pages

1-24 as originally filed

### Claims, Numbers

1-13 filed in electronic form on

02-09-2019

### Drawings, Sheets

1/14-14/14 as originally filed

- ☐ 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 (Rules 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)).

**INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY**

International application No.  
PCT/EP2018/071909

6. ☒ With regard to top-up searches (Rules 66.1 *ter* and 70.2(f)):
- ☒ A top-up search was carried out by this Authority on 27.06.2019 (all discovered documents are listed in the Supplemental Box Relating to Top-up Search).
  - ☐ 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".

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**Box No. V Reasoned statement under Article 35(2) 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>1-13</u> |
|                               | No: Claims  |             |
| Inventive step (IS)           | Yes: Claims | <u>1-13</u> |
|                               | No: Claims  |             |
| Industrial applicability (IA) | Yes: Claims | <u>1-13</u> |
|                               | No: Claims  |             |

2. Citations and explanations (Rule 70.7):

see separate sheet

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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

D4, Huawei: "Slice exchange during NG setup", 3GPP R3-171767" was not cited in the international search report. A copy of the document is appended hereto.

**Re Item V**

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

Reference is made to the following documents:

- D1        NOKIA ET AL: "Slice Assistance Information over RRC",  
             3GPP DRAFT; R2-1705325, 14 May 2017, XP051275765
- D2        ERICSSON: "NW slicing support at NG-C establishment and  
             update", 3GPP DRAFT; R3-171713, 6 May 2017, XP051265609
- D3        WO 2017/135860 A1
- D4        Huawei: "Slice exchange during NG Setup", 3GPP DRAFT;  
             R3-171767, 14 May 2017, XP51276549

- 1        D4 is considered as closest prior art because in one single reference it discloses the combination of features which constitutes the most promising starting point and it is directed to a similar purpose.

D4 discloses a method of operation of a mobility function entity in a core network of a cellular communications network (see in particular page 1, paragraphs 2.1 and 2.2; It is noted that the AMF corresponds to the claimed mobility function entity), comprising:

receiving, from a radio access node of the cellular communications network, first information indicative of one or more tracking areas supported by the radio access node and one or more network slices supported per tracking area by the radio access node (see in particular page 1, paragraphs 2.1 and 2.2; It is noted that the gNB, which corresponds to the claimed radio access node, transmits in a NG Setup procedure a NSSAI list in Supported TAs in NG SETUP REQUEST. Paragraph 2.1 clearly describes that the AMF needs to know the supported slices per TA in order to be able to decide how a TA list should be constructed for each UE.).

The subject-matter of claim 1 therefore differs from this known method in that the mobility function entity further performs the steps of determining one or more network slices that are: (a) supported by the radio access node and the mobility function entity and (b) permitted by one or more network policies, for each of at least one of the one or more tracking areas supported by the radio access node;

sending, to the radio access node, second information indicative of the one or more network slices that are: (a) supported by the radio access node and the mobility function entity and (b) permitted by one or more network policies, for each of the at least one of the one or more tracking areas supported by the radio access node and is therefore new (Article 33(2) PCT).

The effect of above distinguishing features is to enable the core network to identify the network slices which are supported and permitted per tracking area in the RAN and the core network. The problem to be solved by the present invention may be regarded as how to identify the network slices which are supported and permitted per tracking area in the RAN and the core network.

The solution to this problem proposed in claims 1 and 13 to 15 of the present application is considered as involving an inventive step (Article 33(3) PCT) for the following reasons:

D4 does neither disclose a determining step that is performed by a mobility function entity in a CN, wherein it is determined one or more network slices that are (a) supported by the radio access node and the mobility function entity and not (b) permitted by one or more network policies nor does it hint the skilled person to amend the teaching in order to arrive at the claimed subject-matter.

In contrast, D4 describes that the mobility function entity sends supported NSSAI information to the gNB in order to enable the gNB to determine which network slices are supported by the respective AMF.

D1 and D2 are also silent with respect to above distinguishing features. D1 merely describes in a general manner that NSSAI information is exchanged during a NG setup procedure, but is silent how this information is evaluated to provide the claimed solution.

D2 merely discloses that a NG setup message includes the supported TAs and a list of applicable S-NSSAIs.

The subject-matter of the present invention as claimed in respective independent claims 1 and 13 is neither disclosed in, nor rendered obvious by the **remaining prior art documents** cited in the international search report

since said documents, which merely relate to a very general state of the art of network slicing, do **not** describe the method or means according to the particular feature combination of the present invention or part thereof as defined in said respective independent claims 1 and 13.

The subject-matter of respective independent claims 1 and 13 therefore is considered to be **new** and to **involve an inventive step**, Article 33 (2) and (3) PCT.

- 2 As **claims 2 to 12** are dependent on claim 1, said claims 2 to 12 do **also meet** the requirements of Article 33 (2) and (3) PCT.
- 3 The present invention is **susceptible of industrial application**. Article 33 (4) PCT.

**Re Item VII:**

- 1 According to the requirements of Rule 6.3 (b) PCT, the independent claims should have been correctly cast in the **two-part form**, with those features which in combination are part of the nearest prior art (as. e.g. described in the **document D4**) being placed in the preamble.
- 2 According to the requirements of Rule 5.1 (a) (ii) PCT, the relevant background art disclosed in the documents D1, D2 and D4 should have been mentioned in the description, nor are these documents identified therein.
- 3 The **opening part** of the description - including the statement of the object/ solution - should have been **brought into conformity** with the wording of any new or amended independent claim(s), Rule 5.1 (a) (iii) PCT.  
  
In particular, for any "*embodiment*" in the description no longer covered by the **amended claims**, the applicant is requested to **bring at the same time the description into conformity** with said amended claims (Rule 5.1(a)(iii) PCT).

**Item VIII:**

- 1 The claims do not meet the requirements of Article 6 PCT for the following reasons:
  - 1.1 Claims 6, 8, 10 and 12 define one the respective features "N2 setup request", "N2 configuration update" and "N22 slice configuration update".

These features, however, are only defined in the context of a 5G network, whereas the respective claims are not restricted to such a network, thereby rendering the scope of protection of these claims unclear.
  - 1.2 The subject-matter described in paragraph [0076] does not fall within the scope of the claims. This inconsistency between the claims and the description leads to doubt concerning the matter for which protection is sought, thereby rendering the claims unclear, Article 6 PCT.



Date  
2019-09-02  
Your Date  
2018-07-03

Reference (Document No)  
P72725 WO1  
Your Reference  
PCT/EP2018/071909

Attending to this matter

Mikael Nyberg +46107159215

European Patent Office

Via CMS (epoline Case Management System)

80298 Munich  
GERMANY

## Demand in Response to the 2<sup>nd</sup> Written Opinion pursuant to Articles 34 and 31(1) PCT

**Application Number:** PCT/EP2018/071909  
**Application Date:** 2018-08-13  
**Applicant:** Telefonaktiebolaget LM Ericsson (publ)  
**Our Reference:** P72725 WO1

### Enclosure(s):

Enclosure 1: Amended claims – clean version  
Enclosure 2: Amended claims – markup version

Dear Sirs,

In response to the 2<sup>nd</sup> Written Opinion (the Opinion) dated 2019-07-03 that has been issued for the above identified International Patent Application (the Application) published as WO 2019/034601 A1, the Applicant hereby submits a 2<sup>nd</sup> **Demand** (Articles 34 and 31(1) PCT and Rule 53 PCT) with the below comments and enclosed amendments.

### Ericsson AB

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Reg No: 556056-6258

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## 1 Amendments

The independent claims 1-15 currently on file have been amended such that claims 13 and 15 have been deleted. The remaining claims have been renumbered accordingly.

It is respectfully submitted that the deletion remedies the objections raised in **Item VIII section 1.1** of the Opinion relating to the plurality of independent claims and suggesting that a single independent claim per category should be used to define the invention.

The Applicant respectfully wishes to postpone any remaining remedies, possibly needed for the objections raised in **Item VII** and **Item VIII sections 1.2-1.3** of the Opinion, to the later national/regional phase if required in the particular nation or region.

A markup version of the amended claims is provided in **Enclosure 2**. A clean version of the amended claims is provided in **Enclosure 1**.

## 2 Novelty and Inventive Step

The Opinion seems to consider the claims currently on file to be **new** and to **involve an inventive step**, see **Item V** of the Opinion. Thus, at this stage, there seems to be no need for any further discussion of novelty and inventive step of the pending claims.

## 3 Summary

In view of the above a positive International Preliminary Examination Report is respectfully requested.

Should the Examiner have any questions that may be favorably discussed over the telephone or deems further minor amendments to be needed before issuance of a positive IPER, you are welcome to contact the case responsible patent attorney, Mikael Nyberg on +46107159215.

Mikael Nyberg  
European Patent Attorney

Association Ericsson (Registration number 643)

Applicant's Ref.: P72725 WO1  
Enclosure 1  
2019-09-02

1

## Claims

1. A method of operation of a mobility function entity (18) in a core network (17) of a cellular communications network (10), comprising:

5 receiving (102, 204, 306, 410, 506), from a radio access node (14) of the cellular communications network (10), first information indicative of one or more tracking areas supported by the radio access node (14) and one or more network slices supported per tracking area by the radio access node (14);

determining (112A, 214A, 316A, 420A, 516A) one or more network slices  
10 that are: (a) supported by the radio access node (14) and the mobility function entity (18) and (b) permitted by one or more network policies, for each of at least one of the one or more tracking areas supported by the radio access node (14);

sending (112B, 214B, 316B, 420B, 516B), to the radio access node (14),  
second information indicative of the one or more network slices that are: (a)  
15 supported by the radio access node (14) and the mobility function entity (18) and (b) permitted by one or more network policies, for each of the at least one of the one or more tracking areas supported by the radio access node (14).

2. The method of claim 1 further comprising:

20 obtaining (106, 110; 208, 212; 310, 314; 414, 418; 510, 514) third information indicative of one or more network slices that are permitted by the one or more network policies for each of the at least one of the one or more tracking areas supported by the radio access node;

wherein determining (112A, 214A, 316A, 420A, 516A) the one or more  
25 network slices that are: (a) supported by the radio access node and the mobility function entity and (b) permitted by one or more network policies, for each of the at least one of the one or more tracking areas supported by the radio access node, comprises:

for each of the at least one of the one or more tracking areas  
30 supported by the radio access node, determining (112A, 214A, 316A,

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420A, 516A) the one or more network slices for the tracking area that are:  
(a) supported by the radio access node and the mobility function entity  
and (b) permitted by the one or more network policies based on the third  
information.

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3. The method of claim 1 further comprising:

determining (104, 206, 308, 412, 508), for each of at least one of the one  
or more tracking areas supported by the radio access node, one or more network  
slices that are supported by both the radio access node and the mobility function  
entity for the tracking area; and

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sending (106, 208, 310, 414, 510), to a network slice selection function  
entity (19), third information that is indicative of the one or more network slices  
that are supported by both the radio access node (14) and the mobility function  
entity (18) for each of at least one of the one or more tracking areas supported by  
the radio access nodes.

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4. The method of claim 3 wherein determining (112A, 214A, 316A, 420A,  
516A) the one or more network slices that are: (a) supported by the radio access  
node and the mobility function entity and (b) permitted by one or more network  
policies, for each of the at least one of the one or more tracking areas supported  
by the radio access node, comprises:

20

receiving (110, 212, 314, 418, 514), from the network slice selection  
function entity (18), fourth information indicative of one or more network slices  
that are permitted by the one or more network policies for each of the at least  
one of the one or more tracking areas supported by the radio access node; and

25

for each of the at least one of the one or more tracking areas supported by  
the radio access node, determining (112A, 214A, 316A, 420A, 516A) the one or  
more network slices for the tracking area that are: (a) supported by the radio  
access node and the mobility function entity and (b) permitted by the one or more  
network policies based on the fourth information.

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5. The method of any one of claim 1 to 4 wherein receiving (102, 204, 306, 410, 506) the first information comprises receiving (102) the first information at a time of deployment of the radio access node and instantiation of the mobility  
5 function entity.

6. The method of any one of claim 1 to 5 wherein:  
receiving (102, 204, 306, 410, 506) the first information comprises  
receiving (102) a N2 setup request comprising the first information; and  
10 sending (112B, 214B, 316B, 420B, 516B) the second information  
comprises sending (112B) a N2 setup response comprising the second  
information.

7. The method of any one of claim 1 to 5 wherein receiving (102, 204, 306,  
15 410, 506) the first information comprises receiving (204) the first information  
upon occurrence of a change in the one or more tracking areas supported by the  
radio access node and/or a change in the one or more network slices supported  
by the radio access node.

20 8. The method of any one of claim 1 to 4 or 6 wherein:  
receiving (102, 204, 306, 410, 506) the first information comprises  
receiving (204) a N2 configuration update request comprising the first  
information; and  
sending (112B, 214B, 316B, 420B, 516B ) the second information  
25 comprises sending (214B) a N2 configuration update response comprising the  
second information.

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9. The method of any one of claim 1 to 5 further comprising:  
sending (304), to the radio access node, an update command upon  
occurrence in a change of the one or more network slices supported by the  
mobility function entity; and

5 wherein receiving (102, 204, 306, 410, 506) the first information comprises  
receiving (306) the first information in response to sending the update command.

10. The method of claim 9 wherein the update command is an N2  
configuration update command, and

10 receiving (306) the first information comprises receiving (306) a N2  
configuration update request comprising the first information upon receiving the  
N2 configuration update command; and

sending (316B) the second information comprises sending (316B) a N2  
configuration update response comprising the second information.

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11. The method of any one of claim 1 to 5 further comprising:  
receiving (404), from a network slice selection function entity, an update  
request;

20 upon receiving (404) the update request, sending (408), to the radio  
access node, an update command; and

wherein receiving (102, 204, 306, 410, 506) the first information comprises  
receiving (410) the first information in response to sending the update command.

12. The method of claim 11 wherein the update request is an N22 slice  
25 configuration update request, the update command is an N2 configuration update  
command, and

receiving (410) the first information comprises receiving (410) a N2  
configuration update request comprising the first information upon receiving the  
N2 configuration update command; and

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sending (420B) the second information comprises sending (420B) a N2 configuration update response comprising the second information.

13. A network node (36) that implements a mobility function entity (18) for a  
5 core network (17) of a cellular communications system (10), comprising:  
at least one processor (40, 58); and  
memory (42, 60) comprising instructions executable by the at least one  
processor (40, 58) whereby the network node is operable to perform the method  
of any one of claim 1 to 12.

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