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# Datasheet for the decision of 8 July 2021

**Case Number:** T 0107/17 - 3.5.03

**Application Number:** 05704774.8

**Publication Number:** 1714506

**IPC:** H04W36/02

**Language of the proceedings:** EN

**Title of invention:**
Method and system for base station change of packet switched communications in a mobile communications system

**Patent Proprietor:**
Telefonaktiebolaget LM Ericsson (publ)

**Opponent:**
KELTIE LLP

**Headword:**
Base station change/ERICSSON

**Relevant legal provisions:**
EPC Art. 123(2)

**Keyword:**
Added subject-matter - all requests (yes): unallowable generalisation

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**Case Number: T 0107/17 - 3.5.03**

# D E C I S I O N
# of Technical Board of Appeal 3.5.03
# of 8 July 2021

| | |
|---|---|
| **Appellant I:** (Opponent) | KELTIE LLP<br>No.1 London Bridge<br>London SE1 9BA (GB) |
| **Representative:** | Lawrence, Richard Anthony<br>Keltie LLP<br>No.1 London Bridge<br>London SE1 9BA (GB) |
| **Appellant II:** (Patent Proprietor) | Telefonaktiebolaget LM Ericsson (publ)<br>164 83 Stockholm (SE) |
| **Representative:** | Hoffmann Eitle<br>Patent- und Rechtsanwälte PartmbB<br>Arabellastraße 30<br>81925 München (DE) |
| **Decision under appeal:** | **Interlocutory decision of the Opposition Division of the European Patent Office posted on 11 November 2016 concerning maintenance of the European Patent No. 1714506 in amended form.** |

**Composition of the Board:**

| | |
|---|---|
| **Chair** | K. Bengi-Akyürek |
| **Members:** | T. Snell |
| | R. Romandini |

## Summary of Facts and Submissions

I. The present case concerns appeals filed both by the opponent (henceforth, "**Appellant I**") and the proprietor (henceforth, "**Appellant II**") against the interlocutory decision of the opposition division concerning maintenance of the patent in amended form on the basis of a "new first auxiliary request".

II. Appellant I requests that the decision under appeal be set aside and that the patent be revoked.

III. Appellant II requests, as a **main request**, that the decision under appeal be set aside and that the patent be maintained as granted (i.e. that the opposition be rejected).

Alternatively, Appellant II requests that the patent be maintained in amended form in accordance with one of the following auxiliary requests:

- **auxiliary requests 1A, 1B or 2A** all as filed with their statement of grounds of appeal dated 20 March 2017; or

- **auxiliary requests 2B, 3 or 4** all as filed with the reply to Appellant II's appeal dated 4 August 2017.

- **auxiliary requests 0, 1C or 2C**, all as filed with the submission dated 8 June 2021.

- **auxiliary request 2B2** as filed at the oral proceedings before the board on 8 July 2021.

Appellant II requests that the auxiliary requests be considered in the following order:

**0, 1A, 1B, 1C, 2A, 2B, 2B2, 2C, 3, 4.**

IV. The board's decision was announced at the end of the oral proceedings held via videoconference on 8 July 2021.

V. Claim 1 of the **main request** (i.e. claim 1 as granted) reads as follows:

"A method in a mobile station (MS) for base station change in a cellular radio network, wherein a base station transfers packet switched communications between the mobile station and the network, the method characterized by the step of:

- transmitting a message to the network providing a downlink sequence number status for a packet flow subject to lossless packet switched handover implicitly acknowledging downlink packets received by the mobile station."

VI. Claim 1 of **auxiliary request 0** reads as follows (amendments vis-à-vis claim 1 of the main request underlined):

"A method in a mobile station (MS) for base station change in a cellular radio network, wherein a base station transfers packet switched communications between the mobile station and the network, the method characterized by the step of:

- transmitting a message to the network providing a downlink sequence number status for a packet flow subject to lossless packet switched handover

implicitly acknowledging downlink packets received by the mobile station,

wherein the sequence number status message includes the next expected, Protocol Data Unit, PDU, to be received."

VII. Claim 1 of **auxiliary requests 1A and 1B** reads as follows (amendments vis-à-vis claim 1 of the main request underlined):

"A method in a mobile station (MS) for base station change from a source base station to a target base station in a cellular radio network, wherein a base station transfers packet switched communications between the mobile station and the network, the method characterized by the steps of:

- receiving a handover command message from the source base station at the mobile station; and
- transmitting in a target cell a message to the network providing a downlink sequence number status for a packet flow subject to lossless packet switched handover implicitly acknowledging downlink packets received by the mobile station."

VIII. Claim 1 of **auxiliary request 1C** differs from claim 1 of auxiliary requests 1A and 1B in that it contains the following clause at the end:

"wherein the sequence number status message includes the next expected, Protocol Data Unit, PDU, to be received."

IX. Claim 1 of **auxiliary requests 2A and 2B** reads as follows (amendments vis-à-vis claim 1 of auxiliary request 1A underlined):

"A method in a mobile station (MS) for base station change from a source base station to a target base station in a cellular radio network, wherein a base station transfers packet switched communications between the mobile station and the network, the method characterized by the steps of:

- receiving a handover command message from the source base station at the mobile station ordering the mobile station to a target cell; and
- transmitting upon arrival in a target cell in response to the handover command message a message to the network providing a downlink sequence number status for a packet flow subject to lossless packet switched handover implicitly acknowledging downlink packets received by the mobile station."

X. Claim 1 of **auxiliary request 2B2** reads as follows (amendments vis-à-vis claim 1 of auxiliary request 2A underlined):

"A method in a mobile station (MS) for base station change from a source base station to a target base station in a cellular radio network, wherein a base station transfers packet switched communications between the mobile station and the network, the method characterized by the steps of:

- receiving a handover command message from the source base station at the mobile station ordering the mobile station to a target cell of the target base station; and

- transmitting upon arrival in a target cell in response to the handover command message a message to the target base station of the network providing a downlink sequence number status for a packet flow subject to lossless packet switched handover implicitly acknowledging downlink packets received by the mobile station."

XI. Claim 1 of **auxiliary request 2C** differs from claim 1 of auxiliary requests 2A and 2B in that it contains the following clause at the end:

"wherein the sequence number status message includes the next expected, Protocol Data Unit, PDU, to be received."

XII. Claim 1 of **auxiliary request 3** reads as follows (amendments vis-à-vis claim 1 of the main request underlined):

"A method in a mobile station (MS) for base station change from a source base station to a target base station in a cellular radio network, wherein a base station transfers packet switched communications between the mobile station and the network, the method characterized by the steps of:

- receiving a handover command message from the source base station at the mobile station;
- upon arrival of the mobile station in a target cell of the target base station, transmitting in the target cell a message to the network providing a downlink sequence number status for a packet flow subject to lossless packet switched handover implicitly acknowledging downlink packets received by the mobile station and starting uplink

transmission from the next uplink packet that was not acknowledged in the source cell."

XIII. Claim 1 of **auxiliary request 4** differs from claim 1 of auxiliary request 3 in that it additionally contains the following clause before the "receiving" step:

"- receiving RLC packet acknowledgements in the source cell from the source base station;"

## Reasons for the Decision

*1. Technical context*

1.1 The present patent concerns a method for a base station subsystem (BSS) change, i.e. handover, in a cellular radio network. When packets (N-PDUs, in the following referred to simply as "PDUs") are received by the mobile station (MS), the MS sends acknowledgement messages to the network. However, during handover, if the source base station ("source BSS") does not assist by sending downlink PDU sequence number status information to the network, in particular to the target SGSN ("serving GPRS support node"), the network will not be aware of PDUs successfully received by the MS before handover, resulting in unnecessary re-transmission of PDUs and thus causing additional traffic on the network and unnecessary delay.

1.2 In order to mitigate these problems, when there is a change of base station, the mobile station transmits downlink sequence number status information (e.g. the next expected downlink PDU to be received by the MS) to the network (i.e. to the "target BSS"), in order to

"implicitly acknowledg[e] downlink packets received by the mobile station" (cf. claim 1 as granted).

2. ***Main request*** *– claim 1 – Articles 100(c) and 123(2) EPC*

2.1 Compliance with Article 123(2) EPC is assessed using the "gold standard", according to which an amendment can only be made within the limits of what a skilled person would derive, directly and unambiguously, using common general knowledge, from the whole of the documents as filed.

2.2 Claim 1 of the main request includes the following limiting features (as labelled by the board):

(a) A method in a mobile station (MS) for base station change in a cellular radio network,
(b) wherein a base station transfers packet switched communications between the MS and the network;
(c) comprising the step of transmitting a message to the network providing a downlink sequence number status for a packet flow subject to lossless packet switched handover implicitly acknowledging downlink packets received by the MS.

2.3 Thus, claim 1 is directed to a method performed by the mobile station during a handover between base stations.

2.4 The opposition division considered that the subject-matter of claim 1 was originally disclosed on page 13, lines 19-27 of the application as filed (cf. point 18.4 of the impugned decision). This passage of the description reads as follows:

*"If upon arrival in the target cell, the MS sends the network a message that provides downlink*

*sequence number status for all packet flows subject to lossless PS handover, the target SGSN will have exact knowledge as to which downlink N-PDU to begin sending for each packet flow. The target SGSN deletes all downlink N-PDUs forwarded from the source SGSN that are implicitly acknowledged by the downlink sequence number status provided by the MS upon arrival in the target cell."*

2.5 The board however agrees with Appellant I (cf. their statement of grounds of appeal, page 4, first three paragraphs) that this passage describes the operation of the mobile station for lossless handover in a specific context, which is "*Management of downlink status* ***without source BSS assistance***" (cf. page 12, line 27 ff.; emphasis added), i.e. when the source BSS does not assist handover by informing the network of the status of PDUs successfully received by the MS.

Starting out from this embodiment, the person skilled in the art could not, directly and unambiguously, extract the general concept disclosed in claim 1, feature (c), which defines a step carried out by a mobile station which could be used in *other* contexts than that described on page 13. In particular, in contexts where the source BSS does assist by informing the source SGSN about the status of successfully received PDUs, or in the context of any other handover scenario. Claim 1 therefore concerns an unallowable generalisation with respect to the content of the application as filed.

2.6 Appellant II counter-argues as follows (cf. the submission dated 8 June 2021, page 6, section 1.2.1, 3rd paragraph):

"... *'[M]anagement of downlink status without source BSS assistance'* is only the title and effect of the claimed embodiment, but not a technical feature of the embodiment, and especially not a technical feature limiting the MS. As obvious from the previous embodiment *'management of downlink status with source BSS assistance'* on pages 11 and 12, the BSS assistance is assistance to the SGSN. That is, without the transmitting step of claim 1, the new SGSN would need to be provided differently with information about previous downlink packets. According to page 12, second paragraph, the source SGSN may provide the target SGSN with a status message indicating the already sent sequence numbers so that this information is conveyed over a wired connection between the SGSNs.

Accordingly, *'without source BSS assistance'* is a negative feature not related to operations at the MS and its data exchange with the BSS over the air interface, and thus cannot be incorporated in claim 1 or limit a method in a mobile station in order to provide a technical difference."

2.7 Although the board agrees that "without source BSS assistance" is a negative feature in the sense that it is not a feature of the method carried out by the MS, it is nevertheless fundamental to what is directly and unambiguously disclosed to the skilled person on pages 12 and 13 of the description as filed (and also Figure 3). What is disclosed there is a *particular* handover scenario setting out the roles, positive and negative, of the MS combined with those of the source and target base stations and SGSNs. This passage therefore does not provide support for claiming a

method carried out by the mobile station generally for use in any handover scenario.

2.8 Appellant II further argued that a claim for a method carried out by the mobile station was justified because the passage on page 13 of the description as filed was "explained from the MS viewpoint". In addition, claim 37 as filed was a claim for a mobile station, thus providing support for claim 1.

However, these arguments are also not convincing. The embodiment on page 13 is also explained from the point of view of network elements other than the MS, e.g. the target SGSN (cf. page 13, lines 23-27). As regards claim 37 as filed, present claim 1 is limited by features of different scope than that of claim 37 (even taking account of the change of category) since it defines "*processing means extracting information for the mobile station to inform the network of [the] next expected downlink protocol unit*", rather than the "*a message ... providing downlink sequence number status for a packet flow subject to lossless packet switched handover implicitly acknowledging downlink packets received by the mobile station*" as defined by present claim 1. A combination of claim 37 with the description on page 13, lines 19-27 resulting in the claimed subject-matter is also not directly and unambiguously derivable from the present application as filed.

2.9 Consequently, claim 1 as granted does not comply with Article 123(2) EPC.

3. **Auxiliary requests 0, 1A to 1C, 2A, 2B, 2B2, 2C, 3, 4** - claim 1 - Article 123(2) EPC

3.1 The above objection applies, *mutatis mutandis*, to claim 1 of each of the pending auxiliary requests since they are all directed to a method [carried out] by a mobile station which does not reflect, *inter alia*, the limitation set out on pages 12 and 13 of the description as filed that the source base station does not assist in informing the network of the downlink sequence number status.

3.2 Although e.g. claim 1 of auxiliary request 2B2, filed at the oral proceedings before the board, now indicates that the "message providing a downlink sequence number status" is transmitted from the MS to the "target base station" (rather than merely to the "network") in accordance with e.g. Figure 3 of the original application (see message 7': "PS Handover Complete"), it still fails to reflect, directly and unambiguously, that the source base station does indeed not "assist" in informing the network of the downlink sequence number status as originally disclosed.

4. Since there is no allowable set of claims, the opposed patent must be revoked.

**Order**

**For these reasons it is decided that:**

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chair:

B. Brückner K. Bengi-Akyürek

Decision electronically authenticated