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**Datasheet for the decision  
of 20 February 2020**

**Case Number:** T 1566/15 - 3.5.03

**Application Number:** 08874734.0

**Publication Number:** 2294888

**IPC:** H04W74/08

**Language of the proceedings:** EN

**Title of invention:**

Methods and apparatuses for performing random access in a telecommunications system

**Patent Proprietor:**

Telefonaktiebolaget LM Ericsson (publ)

**Opponent:**

KELTIE LLP

**Headword:**

Random access in a telecommunications system/ERICSSON

**Relevant legal provisions:**

EPC Art. 100(a), 54, 56  
RPBA Art. 13(1)

**Keyword:**

Novelty - patent as granted (no)

Inventive step - auxiliary requests 2A, 5A and 6 (no)

Admissibility of late-filed auxiliary request 7 (no): divergent  
and not clearly allowable

**Decisions cited:**

T 0087/01, T 1903/13



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Case Number: T 1566/15 - 3.5.03

**D E C I S I O N**  
**of Technical Board of Appeal 3.5.03**  
**of 20 February 2020**

**Appellant:** Telefonaktiebolaget LM Ericsson (publ)  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
8 June 2015 concerning maintenance of the  
European Patent No. 2294888 in amended form.**

**Composition of the Board:**

**Chair** K. Bengi-Akyürek  
**Members:** T. Snell  
J. Geschwind

## Summary of Facts and Submissions

I. The present decision concerns appeals filed both by the opponent (henceforth, "Appellant I") and the proprietor (henceforth, "Appellant II") against the interlocutory decision of the opposition division that the patent as amended in accordance with the first auxiliary request meets the requirements of the EPC.

II. The following document is relevant to the decision:

**D9:** "PDCCH format for allocation of dedicated preambles", Nokia Siemens Networks, Nokia Corporation, 3GPP TSG-RAN WG1 Meeting #53, Kansas City USA, R1-081839, 5-9 May 2008.

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

IV. Appellant II requests that the decision under appeal be set aside and that the opposition be rejected (main request), or alternatively, that the patent be maintained in amended form in accordance with one of auxiliary requests 2A, 5A, 6 or 7 as filed with the letter dated 24 December 2019 in response to the board's written preliminary opinion.

V. At the end of the oral proceedings held on 20 February 2020, the board's decision was announced.

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

"A method in a radio base station (120, 400), to enable a user equipment (110, 500) to perform a contention based random access, Feature B: said radio

base station (120, 400) being assigned a first set forming a pool of non-dedicated random access preambles and a second set forming a pool of dedicated random access preambles, the method characterized in that it comprises the steps of:

- determining (201) a random access preamble identifier, RAPID;
- transmitting (202) a message to the user equipment (110, 500), said message comprising the determined RAPID; and
- receiving (203) from the user equipment (110, 500), a non-dedicated random access preamble that is selected by the user equipment (110, 500) based on the RAPID comprised in the transmitted message."

VII. Claim 1 of **auxiliary request 2A** differs from claim 1 as granted in that the "determining (201)" step reads as follows:

"- determining (201) a random access preamble identifier, RAPID, by selecting a preconfigured RAPID that is associated with a non-dedicated random access preamble of the first set, the pre-configured RAPID having a fixed ID value that signals to the user equipment that a contention-based access is to be performed;"

VIII. Claim 1 of **auxiliary request 5A** reads as follows:

"A method of enabling a user equipment (110, 500) to perform a contention based random access in a telecommunications system comprising a radio base station (120, 400) to which are assigned a first set forming a pool of non-dedicated random access preambles and a second set forming a pool of dedicated random

access preambles, the method characterized in that it comprises the steps of:

- receiving (301) a message from said radio base station (120, 400), said message comprising a random access preamble identifier, RAPID;
- determining (302) that the RAPID received in said message belongs to the first set;
- randomly selecting (303) based on the RAPID received in said message, a non-dedicated random access preamble from the first set; and
- transmitting (304) the selected non-dedicated random access preamble to the radio base station (120, 400)."

IX. Claim 1 of **auxiliary request 6** differs from claim 1 of auxiliary request 5A in that the "receiving (301)" step reads as follows:

"- receiving (301) a message from said radio base station (120, 400), said message comprising a pre-configured random access preamble identifier, RAPID, the pre-configured RAPID having a fixed ID value that signals to the user equipment that a contention-based access is to be performed;".

X. Claim 1 of **auxiliary request 7** differs from claim 1 of auxiliary request 2A in that the wording

"when none of said dedicated random access preambles of the second set are available for allocation to the user equipment (110, 500),"

is inserted at the beginning of the "determining (201)" step.

## **Reasons for the Decision**

### *1. Technical Background*

1.1 The patent concerns random access in a mobile telecommunications system, in particular LTE. As set out in the patent in paragraph [0026],

"... In LTE, there are in total a set comprised of 64 random access preambles available per cell. Thus, a eNodeB can be assigned these 64 preambles. It should be noted that preambles assigned to different cells controlled by the same eNodeB do not necessarily belong to the same set of preambles i.e. different sets (and pools) are typically cell specific. However, for better understanding the different embodiments of the present invention, it is in here assumed that a eNodeB is serving a single cell and therefore, in this case, it is adequate to state that a set of 64 preambles are assigned by eNodeB (or per cell).

A first set within this set of 64 preambles, forms a pool of preambles for use with contention-based random access. The preambles of this pool are, as mentioned earlier, known as non-dedicated random access preambles. This pool is primarily used when there is UE-originated data and the UE has to establish a connection and/or an adequate uplink timing relation with the network through the random access (RA) procedure. When performing contention-based random access, the UE chooses/ selects a non-dedicated random access preamble from

this first set by random. For each non-dedicated random access preamble of this first set is associated a preamble identification number (or preamble identifier) called a RAPID (Random Access Preamble ID). Among the set of 64 preambles, there is also a second set forming a pool of dedicated random access preambles. A dedicated random access preamble of the second set is, as mentioned before, used to perform a contention-free random access. For contention-free random access, it is the eNodeB that assigns a dedicated random access preamble to the UE. In other words this type of random access is triggered by the network (e.g. the eNodeB). For contention-free random access, the eNodeB can therefore map the received preamble to the UE that has sent the random access preamble and has tried to access the system of network. Therefore, unlike for contention-based random access, no contention resolution procedure needs to be performed" (board's underlining).

- 1.2 At the oral proceedings, Appellant II argued (apparently for the first time) that this background information was not public knowledge but in-house expertise. The board however finds this implausible as the passage begins with the phrase "In LTE ...", noting that the term LTE normally refers to a set of commonly-agreed standards issued by the 3rd Generation Partnership Project (3GPP). There is nothing in the patent to suggest that this passage of the patent concerns a *proprietary* LTE system. Furthermore, the formulation of the problem to be solved by the patent starts out from this "prior art" (cf. paragraph [0027]: "... in accordance with prior art solution ...").



1.3 In case T 87/01 (cf. points 5.1 and 5.2 of the reasons), the deciding board held that subject-matter presented as "conventional" in the application, but which the appellant in oral proceedings before the board indicated was internal prior art, at least for the purposes of the decision, formed the correct starting point for assessing inventive step, *inter alia* in order not to deprive the opponent of the possibility of searching for a prior-art document for the underlying subject-matter. This reasoning applies, *mutatis mutandis*, to the present case.

2. *Disclosure of D9*

2.1 D9 is a document for "Discussion and Decision" produced for a working group of the 3GPP. It comprises three discussion proposals concerned with "PDCCH format for allocation of dedicated preambles". Proposals 1 and 2 also concern the allocation of non-dedicated preambles (i.e. "contention based preambles", cf. line 5 of Proposal 1).

2.2 Proposal 1 reads as follows:

"Proposal 1: When N bits are reserved for RB assignment, the value  $2^N - 1$  of the field (all "1"s) means that the PDCCH entry is for allocation of dedicated preambles.

Six of the remaining 14 bits are reserved for preamble index. The same format must be utilized also for indicating that UE should use contention based procedure instead of transmitting dedicated preambles. This is most effectively signalled by defining that a preamble index from the pool of contention based preambles means that UE should

start the contention based procedure:" (board's underlining).

- 2.3 Appellant II argued that D9 should not be taken into account as it was a very short document which had no relation to the patent, was hard to understand, did not mention any base station, and included only one unclear sentence of any possible relevance and was therefore "not enabled". This document only made any sense with the benefit of hindsight.
- 2.4 The board however disagrees with Appellant II as to the comprehensibility and relevance of D9. D9 is directed to the skilled person who is a telecommunications engineer with a specialisation in LTE and random-access procedures (e.g. a member of the 3GPP working group). D9 would be read in the light of the "background" technology set out above. In this context, the skilled person would readily understand that D9 concerns communication between a base station (eNodeB) and a user equipment (UE).
- 2.5 When considering Proposal 1 in this light, the skilled person would understand that a "preamble index" taken from the pool of contention-based preambles (i.e. non-dedicated preambles) equates to the term "RAPID" used in the patent. In D9, as in the patent, it is used as a signal or trigger that the UE should start a contention-based procedure. More is not said. As to the meaning of the expression "start the contention based procedure", the skilled person is aware that a contention-based random access procedure in the usual context mentioned in the "background" section above begins by the UE randomly selecting a preamble from a pool of non-dedicated preambles. However, in the

context of D9, it cannot be directly and unambiguously inferred that a preamble is selected randomly.

3. *Main request - claim 1 - novelty with respect to D9*

3.1 Claim 1 of the main request comprises the following features A to E, as labelled by the opposition division.

- A) A method in a radio base station, to enable a user equipment to perform a contention based random access,
- B) said radio base station being assigned a first set forming a pool of non-dedicated random access preambles and a second set forming a pool of dedicated random access preambles, the method characterized in that it comprises the steps of:
- C) determining a random access preamble identifier, RAPID;
- D) transmitting a message to the user equipment, said message comprising the determined RAPID;
- E) receiving from the user equipment, a non-dedicated random access preamble that is selected by the user equipment based on the RAPID comprised in the transmitted message.

3.2 The test for novelty is that all features must be directly and unambiguously disclosed, taking account of features which are implicit based on the common general knowledge of the skilled person.

3.3 The board holds that D9 discloses features A to D, at least implicitly. Appellant II disagreed that features C and D were disclosed in D9, since there was neither any mention of a base station nor the determination of a RAPID. The board however considers

that the base station is an implicit feature and that the "preamble index" falls within the scope of the term RAPID, as explained above.

3.4 With respect to feature E, it is implicit that D9 discloses, as part of the contention-based procedure, the step of receiving from the user equipment, a non-dedicated random access preamble. This is enough to conclude lack of novelty, since whether or not the preamble "is selected by the user equipment based on the RAPID comprised in the transmitted message" has no limiting effect on the scope of claim 1 and thus is not relevant to the novelty of a method carried out in the base station (see also appealed decision, Reasons 5.13). It would make no difference to this method if the UE chose the non-dedicated preamble in a different way. Appellant II disagreed, arguing that this aspect of feature E helps define the RAPID and therefore limits the definition of the base station. The board disagrees, noting that in some embodiments the preamble may be randomly chosen by the UE.

3.5 Consequently, the subject-matter of claim 1 of the main request is not new with respect to D9 (Articles 52(1) and 54 EPC).

4. *Auxiliary request 2A - claim 1 - inventive step*

4.1 Claim 1 of auxiliary request 2A differs from claim 1 of the main request in that the RAPID is determined "by selecting a pre-configured RAPID that is associated with a non-dedicated random access preamble of the first set, the pre-configured RAPID having a fixed ID value that signals to the user equipment that a contention-based access is to be performed".

- 4.2 The objective technical problem to be solved starting out from D9 can be seen as "how to select a preamble index (RAPID) in such a way as to minimise the processing burden on the network". This is essentially the same problem as formulated by Appellant II at the oral proceedings before the board in connection with claim 1 of auxiliary request 5A, to be considered below.
- 4.3 The skilled person would have noted firstly that there are only a limited number of options for choosing the preamble index. Either all of the contention-based preamble indices may be used by the base station, or only a limited set, in particular one fixed index. This latter option provides the least processing burden on the network and is therefore the obvious choice to solve the above problem.
- 4.4 Appellant II argued that the use of one special RAPID helped the UE to recognise a special case. The board agrees, but considers this to be obvious. Appellant II further argued that using a fixed value resulted in the base station having to check only one preamble value transmitted by the UE instead of all preambles. This argument is however not convincing since claim 1 embraces the UE sending *any* non-dedicated preamble to the base station, e.g. randomly chosen. In this case, the base station would not know which preamble to expect.
- 4.5 Appellant II further argued that compared with D9, the use of a fixed RAPID frees up other RAPIDs for being used for another purpose. However, no other purpose of a RAPID is either claimed or described in the patent, so that this argument is considered to be purely

speculative and not convincing as a justification for an inventive step.

4.6 Consequently, the subject-matter of claim 1 of auxiliary request 2A does not involve an inventive step (Articles 52(1) and 56 EPC).

5. *Auxiliary request 5A - claim 1 - inventive step*

5.1 Claim 1 of auxiliary request 5A concerns a method carried out in the user equipment (UE) rather than in a radio base station and comprises the limitation of randomly selecting, based on the RAPID received in said message [from the radio base station], a non-dedicated random access preamble from the first set. This claim is based on claims 8 and 10 as granted.

5.2 The expression "randomly selecting based on the RAPID" is unclear unless interpreted as meaning "randomly selecting based on *receiving* the RAPID that belongs to the first set", i.e. based on the RAPID as a trigger. This moreover agrees with the interpretation of this feature given by Appellant II.

5.3 The objective technical problem starting out from D9 can be seen as "how to both select a preamble index and effectively implement the step of 'start the contention based procedure' of D9 without burdening the network".

5.4 One obvious way of solving the first part of this problem discussed above in connection with claim 1 of auxiliary request 2A is to pre-configure the preamble index/RAPID as a "fixed ID value", since this simplifies the processing for the base station (see above). After taking this obvious step embraced by claim 1 of auxiliary request 5A (even if this step is

not defined therein), it would be immediately apparent to the skilled person that, in order to solve the second part of the problem, it would be inflexible and ineffective to restrict the UE to sending only the non-dedicated preamble associated with the fixed RAPID. To make more flexible use of the pool of non-dedicated preambles and thus reduce the risk of collisions, it would be obvious that the UE should be free to select other preambles from the pool of non-dedicated preambles.

Since the skilled person is aware that the UE in any case is equipped to randomly select a preamble from the pool of non-dedicated preambles for normal contention-based random access (see the "background" section above), it would be obvious to incorporate random selection into the method disclosed in D9 as well. In so doing, the skilled person would have arrived at a method falling within the scope of claim 1 of auxiliary request 5A without inventive step (Articles 52(1) and 56 EPC).

- 5.5 Appellant II argued essentially that D9 taught that the UE directly mapped the received preamble index to the transmitted non-dedicated preamble with which it was associated, teaching away from making a random selection in the UE. The board however considers that D9 teaches only that a preamble index is used as a signal, or trigger, as in the present patent. Nothing can be inferred from D9 as to how the UE actually determines a non-dedicated preamble for contention-based access. D9 therefore teaches neither in favour nor against carrying out random access in the UE. The skilled person is therefore free to find a solution without any pre-conceived bias. Random selection constitutes thus one of the available options that the

skilled person would have envisaged to solve the above objective problem.

6. *Auxiliary request 6 - claim 1 - inventive step*

6.1 Claim 1 of auxiliary request 6 is also a claim to a method to be carried out in a UE. It incorporates both the pre-configured RAPID with a fixed ID discussed in connection with claim 1 of auxiliary request 2A and the step of randomly selecting, based on the RAPID, a non-dedicated random access preamble discussed in connection with claim 1 of auxiliary request 5A.

6.2 Such a claim has however already been hypothesised in connection with claim 1 of auxiliary request 5A (see point 5.2 above) and found to not comply with the requirement for an inventive step. The same conclusion applies, *mutatis mutandis*, to claim 1 of auxiliary request 6 (Articles 52(1) and 56 EPC).

7. *Auxiliary request 7 - admissibility*

7.1 Claim 1 of auxiliary request 7 differs from claim 1 as granted in that it includes the feature "when none of said dedicated random access preambles of the second set are available for allocation to the user equipment" as a condition for determining said RAPID.

7.2 Late-filed requests filed in response to a communication of the board are expected to be convergent, i.e. to develop the claimed subject-matter in a consistent direction (cf. T 1903/13, Reasons 3.3.4).

7.3 In the present case, claim 1 of auxiliary request 7, unlike claim 1 of the immediately higher-ranking



auxiliary requests 5A and 6, is however directed to a method in a *radio base station* and is therefore not a convergent request.

7.4 Furthermore, this lack of convergence is compounded by the fact that claim 1 now includes a new feature taken from claim 7 as granted which relates to the base station rather than the UE. The significance of this base station-related feature would need to be discussed for the first time independently of the previous discussion with respect to inventive step which concerned "randomly selecting a RAPID" by the UE.

7.5 Finally, on a *prima facie* basis, the board finds it doubtful that this feature - in the absence of any further details on how, when, and by what entity such non-availability is actually detected - would contribute to inventive step, as it appears highly plausible that the contention-based procedure to be started in accordance with D9 is intended to be used in the same context as the present patent, namely when dedicated preambles are no longer available.

7.6 The board has therefore decided to not admit auxiliary request 7 into the appeal proceedings (Article 13(1) RPBA 2007).

## 8. *Conclusion*

As there is no allowable request, it follows that the 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