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**Datasheet for the decision  
of 17 June 2011**

**Case Number:** T 1816/08 - 3.5.03  
**Application Number:** 99918326.2  
**Publication Number:** 0989696  
**IPC:** H04J 13/00  
**Language of the proceedings:** EN

**Title of invention:**

Method of assignment and transmission of spread signals in direct sequence spread spectrum CDMA mobile communication system, mobile communication system, and transmitter, receiver and transmitter/receiver of mobile communication system

**Applicant:**

NTT MOBILE COMMUNICATIONS NETWORK INC.

**Headword:**

CDMA mobile communication system/NTT

**Relevant legal provisions:**

EPC Art. 54, 123(2)

**Relevant legal provisions (EPC 1973):**

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**Keyword:**

"Added subject-matter: main and first auxiliary requests (yes)"  
"Novelty: main and second auxiliary requests (no); third auxiliary request (yes)"  
"Remittal (yes)"

**Decisions cited:**

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**Catchword:**

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Case Number: T 1816/08 - 3.5.03

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.03  
of 17 June 2011

**Appellant:** NTT MOBILE COMMUNICATIONS NETWORK INC.  
10-1, Toranomom 2-chome  
Minato-ku  
Tokyo 105-8436 (JP)

**Representative:** Midgley, Jonathan Lee  
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**Decision under appeal:** Decision of the Examining Division of the  
European Patent Office posted 7 March 2008  
refusing European patent application  
No. 99918326.2 pursuant to Article 97(2) EPC.

**Composition of the Board:**

**Chairman:** A. S. Clelland  
**Members:** T. Snell  
R. Moufang

## Summary of Facts and Submissions

- I. This appeal is against the decision of the examining division refusing European patent application No. 99918326.2, with publication number EP-A-989696.

The refusal was based on the ground that the subject-matter of claim 1 of a main request and an auxiliary request did not meet the requirement of novelty pursuant to Article 52(1) in combination with Article 54(2) EPC having regard to the disclosure of the following document:

D2: Higuchi et al: "Fast cell search algorithm in DS-CDMA mobile radio using long spreading codes", Vehicular Technology Conference, 1997, IEEE 47TH, PHOENIX, AZ, USA 4-7 MAY 1997, pages 1430-1434.

- II. The appellant filed a notice of appeal against the above decision and requested that "the refusal of the application by the Examining Division be overturned in its entirety and that the application be granted in the form submitted before or during the Oral Proceedings or of an amended version". New claim sets of a main request and an auxiliary request were subsequently filed together with a statement of grounds of appeal.

Oral proceedings were conditionally requested.

- III. In a communication accompanying a summons to oral proceedings the board gave a preliminary opinion in which, *inter alia*, matters concerning Articles 123(2) and 84 EPC, as well as Article 52(1) in combination with Article 54 EPC, were raised with respect to claims

of the main and auxiliary requests. With regard to novelty, the board referred to a further document,

D5: WO-A-92/00639,

which is a related patent application to a Japanese application cited in the International Search Report and which comprises more details of the IS-95 CDMA system mentioned in D2.

- IV. In response to the board's communication, the appellant filed new claims of a main and three auxiliary requests together with supporting arguments. In a further submission dated 3 June 2011, the appellant indicated that it would not attend the oral proceedings and requested that the procedure be continued in writing.
- V. Oral proceedings were held on 17 June 2011 in the absence of the appellant. From the written submissions the board understood that the appellant requested that the decision under appeal be set aside and a patent be granted on the basis of claims 1 to 3 of the main request, or alternatively claims 1 to 3 of one of the first, second or third auxiliary requests, all filed with the letter dated 17 May 2011.

At the end of the oral proceedings, after due deliberation, the board announced its decision.

- VI. Claim 1 of the **main request** reads as follows:

"A spreading code assigning method for use in a direct sequence CDMA mobile communication system for transmitting a signal after spreading said signal

doubly with a first spreading code in a first spreading code group and a second spreading code in a second spreading code group, said first spreading code having the same repetition period as an information symbol period, said second spreading code having a longer repetition period than the information symbol period, said first spreading code and said second spreading code forming spreading codes for enlarging a band of a wide-band signal, a rate of said spreading codes being higher than an information rate, said method characterized by comprising the step of:  
assigning a code and a corresponding phase associated with each base station group, a group including more than one base station, or a code and a corresponding phase associated with each network type to which said base station group belongs, as said second spreading code, wherein said second spreading code functions as an identifier of said base station group or said network type."

VII. Claim 1 of the **first auxiliary request** is the same as claim 1 of the main request except that the characterising part of the claim reads:

"said method characterized by comprising the step of:  
for a base station group, said group including more than one base station, or a network type to which said base station group belongs, assigning a code and a corresponding phase as said second spreading code, wherein said second spreading code functions as an identifier of said base station group or said network type."

VIII. Claim 1 of the **second auxiliary request** is the same as claim 1 of the main request except that the characterising part of the claim reads:

"said method characterized by comprising the step of: assigning a code, generated based on a generating polynomial, an initial value and a corresponding phase, associated with each base station group, a group including more than one base station, or a code, generated based on a generating polynomial, an initial value and a corresponding phase, associated with each network type to which said base station group belongs, as said second spreading code, wherein said second spreading code functions as an identifier of said base station group or said network type."

IX. Claim 1 of the **third auxiliary request** is the same as claim 1 of the main request except that the characterising part of the claim reads:

"said method characterized by comprising the step of: for a base station group, said group including more than one base station, or a network type to which said base station group belongs, assigning a code, generated based on a generating polynomial, an initial value and a corresponding phase, as said second spreading code, wherein said second spreading code functions as an identifier of said base station group or said network type."

X. Claim 3 of each request relates to a direct sequence CDMA mobile communication system with features essentially corresponding to claim 1 of each request.

For the sake of conciseness, only claim 3 of the **third auxiliary request** is reproduced here in full:

"A direct sequence CDMA mobile communication system for transmitting a signal after spreading said signal doubly with a first spreading code in a first spreading code group and a second spreading code in a second spreading code group, said first spreading code having the same repetition period as an information symbol period, said second spreading code having a longer repetition period than the information symbol period, said first spreading code and said second spreading code forming spreading codes for enlarging a band of a wide-band signal, a rate of said spreading codes being higher than an information rate, said system characterized by comprising:

a base station (55-60) using said second spreading code, generated based on a generating polynomial, an initial value and a corresponding phase, assigned to each base station of a base station group ( $61_{1-n}$ ), a group including more than one base station, or said second spreading code, generated based on a generating polynomial, an initial value and a corresponding phase, assigned to each base station of a network type to which said base station group belongs, wherein said second spreading code and the corresponding phase function as an identifier of said base station group or said network type; and

a mobile station communicating with said base station by using a signal which is spread using said second spreading code and said corresponding phase assigned to said base station."



## Reasons for the decision

### 1. *Procedural matters*

1.1 The board considered it to be expedient to hold oral proceedings, which had been conditionally requested by the appellant, for reasons of procedural economy (Article 116(1) EPC). The appellant subsequently requested continuation of the procedure in writing, which the board understood as a request for cancellation of the oral proceedings and the issuing of a further communication, but advanced no reasons for doing so. Considering that the board was in a position to issue a decision in compliance with Article 113(1) EPC (see below), the board saw no reason for cancelling the oral proceedings or issuing a further communication, since this would only delay the board's decision. The appellant's request for continuation in writing was therefore rejected. Having verified that the appellant was duly summoned the board decided to continue the oral proceedings in the absence of the appellant (Rule 115(2) EPC and Article 15(3) RPBA).

1.2 In the communication accompanying the summons the appellant was informed of the board's preliminary objections of lack of novelty (cf. Article 54 EPC) and added subject-matter (cf. Article 123(2) EPC). The appellant was therefore aware that these issues would be discussed, and indeed presented arguments in response to the board's communication. Therefore, the present decision complies with Article 113(1) EPC.

2. *Article 123(2) EPC - main request*

2.1 The feature of claim 1 "assigning a code and a corresponding phase associated with each base station group" is, in the board's view, an intermediate generalisation of the passage at column 13, lines 16 to 26 of the application as filed (referring to the published version EP-A-0989696), which is the only passage where the phase is mentioned. According to this passage, a code is generated based on "parameters about [*sic*] a generating polynomial, an initial value, and a phase". By defining a spreading code based only on a "corresponding phase" whilst omitting the generating polynomial and the initial value, other methods of generating a spreading code are embraced which are not embraced by the above-cited passage of the application as filed, contrary to Article 123(2) EPC.

2.2 The appellant argued essentially that it was common general knowledge that spreading codes can be generated using such parameters and therefore it would not be a surprise to the skilled person that the spreading code was generated in this way. However, even if this were true, the board finds this argument unconvincing. At issue is whether or not the application contains a direct and unambiguous disclosure for a spreading code and a corresponding phase generated in a manner which embraces other ways than using a generating polynomial and an initial value. In the board's view, it does not.

Therefore, the board concludes that claim 1 of the main request does not comply with Article 123(2) EPC.

2.3 The same applies, *mutatis mutandis*, to independent claim 3.

3. *Article 123(2) EPC - first auxiliary request*

The objection raised above in connection with claims 1 and 3 of the main request (cf. point 2) applies, *mutatis mutandis*, to claims 1 and 3 of the first auxiliary request.

Therefore, the board concludes that claims 1 and 3 of the first auxiliary request do not comply with Article 123(2) EPC either.

4. *Novelty: main request - claim 1*

4.1 Although claim 1 of the main request does not comply with Article 123(2) EPC, the board deems it expedient to consider the matter of novelty with respect to the main request as it is relevant to the discussion of novelty in respect of certain auxiliary requests.

4.2 The present application relates to a CDMA transmission system in which several base stations form a base station group. The transmitted signals are spread by two spreading codes, a first spreading code (short code) having the same repetition period as an information symbol period and a second spreading code (long code) having a longer repetition period than the information symbol period.

4.3 The Qualcomm IS-95 spread spectrum system mentioned in D2 and described more fully in document D5 is considered to represent the closest prior art (NB:

although D5 does not mention "IS-95" by name, the board understands D5 to be a patent application by Qualcomm setting out features of IS-95; this was not disputed by the appellant).

4.4 The appellant also did not dispute the contention of the examining division in the impugned decision that the preamble of claim 1 of the main request corresponds to the method of CDMA transmission according to the IS-95 system (cf. point 1 of section "II Reasons for the decision"). The board notes that D5 discloses the use of orthogonal Walsh codes as the first spreading code which apparently have a repetition rate of 19.2 thousand times per second (= 1.2288 MHz /64), which is the same as the symbol rate (cf. D5, page 19, lines 21-22; page 38, lines 17-19; page 36, lines 19-20), and the use of a long spreading code as the second spreading code with a repetition rate of 1.2288 MHz /32768, ie the repetition period is longer than a symbol period (cf. D5, page 14, lines 29-30; page 38, lines 17-19).

4.5 The characterising part of claim 1 of the main request reads as follows:

"assigning a code and a corresponding phase associated with each base station group, a group including more than one base station, or a code and a corresponding phase associated with each network type to which said base station group belongs, as said second spreading code, wherein said second spreading code functions as an identifier of said base station group or said network type."

4.6 The appellant argues that the characterising part of claim 1 of the main request must be interpreted in the sense that each base station group uses a unique code and phase, ie all the base stations of a group use the same code and phase, because only a single code and phase can function as an identifier of a base station group, whereas in the IS-95 system each base station uses a spreading code with a different phase offset. The appellant argues further that any implicit identification of a group of base stations in IS-95 is only apparent with the benefit of hindsight. Therefore, in the appellant's view, the spreading codes used in IS-95 are not group identifiers. The board however disagrees. In the first place, the vague wording "assigning a code and a corresponding phase associated with each base station group" does not necessarily mean that each base station uses the same code and phase. Secondly, as already mentioned and acknowledged by the appellant, in IS-95, different time-shifted versions of a PN code are assigned to different cell sites, ie base stations (cf. D2, page 1430, left-hand col., lines 31-33; D5, page 15, lines 25-27). In the board's view, these different cell sites constitute a group of base stations within the meaning of claim 1. Consequently, any one of these codes with its corresponding time shift is one of the codes of the base station group and is therefore "a code and a corresponding phase associated with each base station group". Moreover, a mobile receiver is able to synchronise to the spreading code whatever the time shift and hence identify that the received signal has been transmitted by a base station of the group. Hence, each code with its different time shift implicitly functions as an identifier of the group. As to whether this implicit

identification is apparent only with the benefit of hindsight, in the board's view this is irrelevant for the purposes of examining for novelty.

4.7 The board concludes that the subject-matter of claim 1 of the main request is not new with respect to the IS-95 system (Articles 52(1) and 54 EPC).

4.8 *Novelty: First auxiliary request - claim 1*

Although claim 1 of the first auxiliary request would meet the requirement of novelty for the same reason as claim 1 of the third auxiliary request, this matter is moot as it does not comply with Article 123(2) EPC.

5. *Novelty: Second auxiliary request - claim 1*

Claim 1 of the second auxiliary request differs from claim 1 of the main request in that, instead of assigning "a code and a corresponding phase", a code is assigned that is "generated based on a generating polynomial, an initial value and a corresponding phase".

Claim 1 of the second auxiliary request therefore additionally requires a generating polynomial and an initial value. However, in the IS-95 system, each long code is also generated using a generating polynomial (cf. D5, page 15, lines 15-18). Implicitly, the code generator must also have an initial value.

The board concludes that the subject-matter of claim 1 of the second auxiliary request is not new either (Articles 52(1) and 54 EPC).

6. *Third auxiliary request*

6.1 The characterising part of claim 1 of the third auxiliary request reads as follows:

"for a base station group, said group including more than one base station, or a network type to which said base station group belongs, assigning a code, generated based on a generating polynomial, an initial value and a corresponding phase, as said second spreading code, wherein said second spreading code functions as an identifier of said base station group or said network type."

6.2 In the view of the board, this wording has to be interpreted in the sense that the second spreading code generated based on a generating polynomial, an initial value and a corresponding phase is a common code for all the base stations of the base station group, ie all base stations use the same code sequence, generating polynomial, initial value and phase.

6.3 This feature finds a basis in paragraph [0065] of the description as originally filed (cf. the published application EP-A-0989696) and thus complies with Article 123(2) EPC.

6.4 The board also considers that claim 1 is sufficiently clear within the meaning of Article 84 EPC, except for the issue raised in point 6.8 below.

6.5 As regards novelty, in the IS-95 system the base stations of a group do not make use of a common code

and corresponding phase (as stated above, each base station uses a different phase offset). The subject-matter of claim 1 of the third auxiliary request is therefore new with respect to this system (cf. Article 54 EPC).

6.6 Points 6.1 to 6.5 apply equally to independent claim 3.

6.7 The issue of inventive step in respect of claims 1 and 3 (cf. Article 56 EPC) has hitherto neither been considered by the examining division nor the board. The board also notes that the new feature of using a common code based on the same generating polynomial, initial value and a corresponding phase was not included in the original claims and may not have been searched. It also has to be considered whether the IS-95 system constitutes the closest prior art in respect of new claims 1 and 3. The board therefore exercises its discretion under Article 111(1) EPC to remit the case to the examining division for these matters to be considered further.

6.8 In the board's opinion, the scope of protection conferred by the term "network type" used in claims 1 and 3 is not clear (cf. Article 84 EPC). It appears to the board that the intended meaning, having regard to the description in paragraph [0049] ff., is "network including one or more telephone systems". The board therefore suggests that this matter also be considered by the examining division.



**Order**

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

1. The decision under appeal is set aside.
  
2. The case is remitted to the department of first instance for further prosecution on the basis of the claims of the third auxiliary request filed with the letter dated 17 May 2011.

The Registrar:

The Chairman:

G. Rauh

A. S. Clelland