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**Datasheet for the decision  
of 14 December 2006**

**Case Number:** T 1043/05 - 3.5.03

**Application Number:** 96923527.4

**Publication Number:** 0835593

**IPC:** H04Q 7/30

**Language of the proceedings:** EN

**Title of invention:**

Code division multiple access (CDMA) communication system

**Patent Proprietor:**

INTERDIGITAL TECHNOLOGY CORPORATION

**Opponent:**

Telefonaktiebolaget LM Ericsson (publ)

**Headword:**

CDMA communication system/INTERDIGITAL

**Relevant legal provisions:**

EPC Art. 123(2), 84

RPBA Art. 10b

**Keyword:**

"Amendments - added subject-matter (yes)"

"Late-filed auxiliary requests - not admitted"

**Decisions cited:**

-

**Catchword:**

-



Case Number: T 1043/05 - 3.5.03

**D E C I S I O N**  
of the Technical Board of Appeal 3.5.03  
of 14 December 2006

**Appellant:** INTERDIGITAL TECHNOLOGY CORPORATION  
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**Decision under appeal:** Decision of the opposition division of the  
European Patent Office posted 3 June 2005  
revoking European patent No. 0835593 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** A. S. Clelland  
**Members:** F. van der Voort  
R. Moufang

## Summary of Facts and Submissions

- I. This appeal is against the decision of the opposition division revoking European patent No. 0 835 593 which is based on European patent application 96 923 527.4 which was published as international application WO 97/02714 A pursuant to Article 158(1) EPC. The reason for the decision was that the subject-matter of claim 1 of a main request extended beyond the content of the application as filed. Two auxiliary requests which were filed in the course of the oral proceedings before the opposition division were not admitted under Rule 71a EPC.
- II. The proprietor (appellant) lodged an appeal against the decision and requested that it be set aside and that the patent be maintained as granted (main request) or, alternatively, that "the matter be returned to the opposition division for a continuation of the examination of the opposition" (first auxiliary request) or that the patent be maintained on the basis of claims of any one of four auxiliary requests as filed with the statement of grounds of appeal (second to fifth auxiliary requests). Oral proceedings were conditionally requested.
- III. The respondent (opponent) filed a letter in reply to the statement of the grounds of appeal and requested that the appeal be dismissed. Oral proceedings were conditionally requested.
- IV. The parties were summoned by the board to oral proceedings. In a communication accompanying the summons the board drew attention to issues to be

discussed at the oral proceedings and gave a preliminary opinion on, *inter alia*, the question of whether or not the subject-matter of claim 1 as granted extended beyond the content of the application as filed.

- V. In preparation for the oral proceedings the appellant submitted new third to seventh auxiliary requests, which replaced the previous third to fifth auxiliary requests, and presented arguments in support.
  
- VI. The respondent subsequently filed a letter in which objections under Articles 84, 123(2) and/or 123(3) EPC were raised against claim 1 of each of these new auxiliary requests.
  
- VII. Oral proceedings were held on 14 December 2006. In the course of the oral proceedings, the appellant withdrew all auxiliary requests on file and submitted two new auxiliary requests (first and second auxiliary requests).

The appellant requested that the decision under appeal be set aside and the patent be maintained either as granted (main request) or, failing that, on the basis of the claims of either the first or the second auxiliary request as submitted in the course of the oral proceedings.

The respondent requested that the appeal be dismissed.

At the end of the oral proceedings the board's decision was announced.

VIII. Claim 1 as granted reads as follows:

"A multiple access, spread-spectrum communication system for processing a plurality of telecommunication information signals received simultaneously for simultaneous transmission over a radio frequency (RF) channel as a code-division-multiplexed (CDM) signal, the system comprising:

means (RCS) for receiving a call request signal corresponding to a telecommunication line information signal, and a user identification signal identifying a user to which the call request and information signal are addressed;

a plurality of modem processing means (1210, 1211, 1212, 1215);

assignment means (1230) responsive to a channel assignment signal for coupling the information signals received on the telecommunication lines to respective indicated ones of the plurality of modem processing means (1210, 1211, 1212, 1215);

a system channel controller (920), coupled to a remote call-processing means (102) and responsive to the user identification signal, for providing the channel assignment signal; and

an RF transmitter means (940, 950, 960),

the system being **characterized** :

**in that** one (1210) of the plurality of modem processing means is suitable for providing a global pilot code signal, and each of the modem processing means (1210, 1211, 1212, 1215) is adapted to provide at least one message code signal and combine one of the plurality of

information signals with the respective one message code signal to provide a spread-spectrum processed message signal, each message code signal of the plurality of modem processing means (1210, 1211, 1212, 1215) being synchronized to the global pilot code signal, wherein the global pilot code signal and each message code signal are generated from, and related by, at least one of a family of code generation seeds;  
and by the RF transmitter means (940, 950, 960) being connected to each of the plurality of modem processing means (1210, 1211, 1212, 1215), for combining the plurality of spread-spectrum processed message signals with the global pilot code signal to generate a CDM signal; for modulating a carrier signal with the CDM signal and for transmitting the modulated carrier signal through an RF communication channel."

Claim 1 of the auxiliary requests differs from claim 1 as granted in that the feature "wherein the global pilot code signal and each message code signal are generated from, and related by, at least one of a family of code generation seeds" has respectively been replaced by:

"wherein the global pilot code signal and each message code signal are generated from, and related by, seeds of a family of code generation seeds, the family of code generation seeds consisting of primary seeds and secondary seeds, the secondary seeds being derived from the primary seeds by cyclic shifting and wherein no message code signal is equal to or a cyclic shift of a global code signal" (first auxiliary request) and:

"wherein the global pilot code signal and each message code signal are generated from, and related by, seeds of a family of code generation seeds, wherein the family of code generation seeds is a group of seed values for a linear feedback shift register, which generate families of code sequences that are nearly orthogonal with each other" (second auxiliary request).

### Reasons for the Decision

1. Main request

- 1.1 Claim 1 as granted differs from claim 1 as originally filed *inter alia* by the addition of the following feature:

"wherein the global pilot code signal and each message code signal are generated from, and related by, at least one of a family of code generation seeds".

- 1.2 It was common ground between the parties that, in view of the expression "at least one" in the above feature, claim 1 covered an embodiment of the multiple access, spread-spectrum communication system, in which the global pilot code signal and each message code signal were generated from, and related by, only one seed of the family of code generation seeds.

- 1.3 The appellant argued that this embodiment was based on the application as originally filed since the application disclosed that the system CDMA modem 1210 (see Fig. 12), which is part of one of the modem

interface units (MIUs, see Fig. 9) of a radio carrier station (RCS) of the base station 101 (see Fig. 1), not only provides the global pilot signal but also provides dynamic information which is continuously broadcast via the fast broadcast channel (FBCH), see, in particular, page 42, lines 11 to 14, page 66, lines 13 to 25, and Fig. 12 ("BCAST, GPLOT"). This dynamic information was used at a subscriber unit (SU) for acquisition of and synchronisation with an incoming pilot signal (see page 77, lines 19 to 28). From page 37, Table 5a, it followed that both the spreading code sequence for coding the dynamic information for the FBCH, which corresponded to the message code signal referred to in claim 1, and the spreading code sequence for coding the global pilot signal (GLPT), which corresponded to the global pilot code signal referred to in claim 1, were generated by a single seed which was loaded into the linear feedback shift register (LFSR) 201 of the code generator illustrated in Fig. 2c. When none of the subscriber units within the base station area were active, e.g. during the night, and, hence, no other information signals were transmitted, the global pilot code signal and each message code signal, in this case reduced to merely one, were generated from one and the same seed of the family of code generation seeds.

- 1.4 The board does not accept this argument for the following reasons.

Claim 1 refers to "a user identification signal identifying a user to which the call request and information signal are addressed", these information signals being "received on the telecommunication lines". The claim also defines assignment means "for



coupling the information signals received on the telecommunication lines to respective indicated ones of the plurality of modem processing means (1210, 1211, 1212, 1215)". Further, "each of the modem processing means (1210, 1211, 1212, 1215) is adapted to provide at least one message code signal and combine one of the plurality of information signals with the respective one message code signal to provide a spread-spectrum processed message signal" (underlining by the board).

In the board's view, the "information signal" is therefore a subscriber or call specific information signal and, hence, cannot be equated with the dynamic information of the FBCH, which is broadcast to all subscribers. This interpretation is also in accordance with the description; information signals are received by the base station (BS) 101 via telco links 141, 142, 150 connected to a local exchange (LE) 103 of a telephone network, whereas the dynamic information of the FBCH is set by the radio carrier station (RCS) of the base station, see page 19, lines 10 to 13, page 25, lines 6 to 9, page 42, Table 6, page 113, lines 14 to 16, and Fig. 1. Consequently, a message code signal for coding the dynamic information of the FBCH cannot be equated with the message code signal for coding the user or call specific information signal as referred to in claim 1. It follows that the passages referred to by the appellant do not provide a basis for the feature referred to at point 1.1 above.

- 1.5 If, for the sake of argument, the appellant's interpretation of "information signal" and "message code signal" were followed, the board notes that claim 1 is directed to a system for processing a

plurality of telecommunication information signals. This implies that the system is capable of processing a plurality of telecommunication information signals, which in turn implies that the modem processing means are capable of providing a plurality of message code signals and combining them with the plurality of information signals.

At the same time, the claim is not limited by any definition of the system in terms of one or more of its operating states, in particular one which specifies a relationship between the number of information signals which are processed and the number of seeds used. Consequently, the claim covers an embodiment in which the modem processing means are capable of combining a plurality of information signals with a plurality of message code signals, in which the plurality of message code signals and the global pilot code signal are generated from one seed only. The specific operating state as referred to by the appellant (see point 1.3, last sentence) with one message code signal for the fast broadcast channel (FBCH) would, in any case, not provide a basis for this embodiment, which involves a plurality of message code signals. Hence, also for this reason, the appellant's argument is not convincing.

- 1.6 In the statement of grounds of appeal the appellant further argued that due to the described use of different frequencies for the uplink and downlink, the skilled person would have understood that the same code sequences can be used for both Tables 5a and 5b, with the global pilot code signal and each message code signal being generated by one and the same seed.

1.7 In the board's judgement, the decisive question in deciding whether or not claimed subject-matter extends beyond the content of the application as filed is whether or not it can be directly and unambiguously derived from the application as filed. A clear distinction must be made between the question of whether the subject-matter was disclosed in the application, be it explicitly or implicitly, and the question of whether it would merely have been an obvious implementation to a person skilled in the art reading the application.

In the present case, Tables 5a and 5b concern two separate examples of allocating the spreading code sequences C0 to C63 to logical channels and pilot signals. The spreading code sequences are defined by the tap connections of a linear feedback shift register LFSR 201 together with the additional circuitry as illustrated in Figs 2a and 2c. The way the spreading code sequences are allocated in Tables 5a and 5b is therefore independent of the initial value, i.e. the seed value, which is loaded into the LFSR for generating the respective spreading code sequences. There is no disclosure in the application as originally filed of any specific link between these tables, e.g. one according to which the same seed value is used for both of, or respective parts of, the tables. Hence, the argument does not convince the board.

1.8 The board concludes that the subject-matter of claim 1 as granted extends beyond the content of the application as filed and, hence, does not meet the requirements of Article 123(2) EPC. The main request is therefore not allowable.

2. First and second auxiliary requests

2.1 At the oral proceedings the respondent objected to the admission of the first and second auxiliary requests which were formulated and submitted by the appellant only in the course of the oral proceedings before the board.

2.2 In accordance with Article 10b of the Rules of Procedure of the Boards of Appeal (OJ EPO 3/2003, pages 89 to 98) any amendment to a party's case after it has filed its grounds of appeal may be admitted and considered at the board's discretion. In the board's view, and in line with the established case law of the Boards of Appeal, one of the criteria for admitting further amendments to the claims at a late stage of the appeal proceedings, in the present case in the course of the oral proceedings, is whether or not the claims are clearly allowable. In the present case, in the board's judgement claim 1 of both the first and second auxiliary requests is not clearly allowable having regard to the requirements pursuant to Articles 84 and 123(2) EPC for the following reasons:

2.3 First auxiliary request

2.3.1 Claim 1 of the first auxiliary request specifies that the family of code generation seeds consists of "primary seeds and secondary seeds, the secondary seeds being derived from the primary seeds by cyclic shifting". Further, the feature that "no message code signal is equal to or a cyclic shift of a global code signal" has been added.

2.3.2 The expressions "primary seeds" and "secondary seeds" do not have a well-recognised meaning within the relevant art and, consequently, render the claim *prima facie* unclear.

Further, the feature "the secondary seeds being derived from the primary seeds by cyclic shifting" defines a method step, whereas the claim is directed to a product, namely a multiple access, spread-spectrum communication system. It is unclear whether this feature is to be understood as defining the "secondary seeds" or as implying certain corresponding constructional features, i.e. means for deriving the secondary seeds from the primary seeds by cyclic shifting. It is therefore unclear for which matter protection is sought.

*Prima facie*, claim 1 does not therefore meet the requirements of Article 84 EPC.

2.3.3 The board also notes that according to the application as originally filed, the expression "secondary seeds" is referred to in the description only at page 31, line 16, namely as follows:

"When all primary seeds are known, all secondary seeds of the present invention are derived from the primary seeds by shifting them multiples of 4095 chips modulo  $h(x)$ ."

As defined at page 30, lines 9 to 12,  $h(x)$  is a polynomial. Since claim 1 does not specify the secondary seeds accordingly, the board has doubts as to

whether the feature of "the secondary seeds being derived from the primary seeds by cyclic shifting" satisfies the requirements of Article 123(2) EPC.

2.3.4 With respect to the feature "no message code signal is equal to or a cyclic shift of a global code signal" in claim 1 of the first auxiliary request, the appellant argued that it was based on page 41, lines 3 and 4.

The whole paragraph at page 41, lines 1 to 4, reads however as follows:

"For global codes, the seed values for the 36 bit shift register are chosen to avoid using the same code, or any cyclic shift of the same code, within the same geographical area to prevent ambiguity or harmful interference. No assigned code is equal to, or a cyclic shift of a global code."

The board interprets this passage as defining two conditions:

1) none of the global codes is the same or a cyclic shift of any other code available within the same geographical area, which is to be achieved by appropriately choosing the seed values; and

2) an assigned code is not equal to, or a cyclic shift of any global code.

Claim 1, however, includes the second condition only. The board has therefore doubts as to whether the above-cited passage provides a basis for the above-mentioned feature.

It follows that, at least *prima facie*, claim 1 includes subject-matter which is not directly and unambiguously derivable from the content of the application as filed.

2.3.5 For the reasons set out above, claim 1 of the first auxiliary request does not appear to comply with Articles 84 and 123(2) EPC and, hence, is not clearly allowable.

#### 2.4 Second auxiliary request

2.4.1 Claim 1 of the second auxiliary request includes the additional wording "wherein the family of code generation seeds is a group of seed values for a linear feedback shift register, which generate families of code sequences that are nearly orthogonal with each other". The appellant argued that this feature was based on the passage at page 30, lines 13 and 14, of the application as filed.

2.4.2 The board understands the preposition "for" in the expression "for a linear feedback shift register" as meaning "suitable for", which implies that the linear feedback shift register need not be part of the claimed system; it is merely required that the seed values are suitable for loading into a linear feedback shift register. The claim does not however define any other constructional features in relation to the generation of the families of code sequences. Hence, it is *prima facie* unclear whether or not the wording "seed values ..., which generate families of code sequences that are nearly orthogonal with each other" implies any limitations to the claimed system in terms of its

constructional features (Article 84 EPC). If, for the sake of argument, it were assumed that the above wording implies the constructional feature of means for generating the families of code sequences on the basis of the seed values, it would be unclear whether or not these means are part of the claimed system.

2.4.3 If, alternatively, it were assumed that the linear feedback shift register is part of the claimed system and constitutes, or is at least part of, implied means for generating the families of code sequences, the application as originally filed would not *prima facie* provide a basis for this feature in isolation, since the code sequence generator as described does not merely include a linear feedback shift register (LFSR), but also includes other components, in particular a memory, feed forward sections and code sequence combiners (see page 7, line 25 to page 8, line 9, and Fig. 2c: seed memory 223, feed forward circuits 202 and binary adders 213, 214, 220), none of which are specified in the claim. The board also notes that the reference at page 30, lines 13 and 14 to "a LFSR representing the polynomial  $h(x)$  of equation (2)" is more specific than the linear feedback shift register as defined in claim 1, whilst at page 7, lines 4 to 10, reference is made to a code generator but not to an LFSR; similarly, at page 28, lines 3 to 5, reference is made to "Linear Shift Registers (LSRs) with feedback logic", i.e. a plurality of LSRs. Viewed in terms of the novelty test, the subject-matter of claim 1 is therefore at least *prima facie* novel with respect to the application as originally filed, even though it may well be obvious having regard to the description. A clear basis for the intermediate generalisation, i.e.



means for generating (a plurality of) families of code sequences and including an LFSR, cannot be found (Article 123(2) EPC).

- 2.4.4 The appellant argued that the second auxiliary request was almost identical to the fifth auxiliary request, which was filed in preparation for the oral proceedings and admitted by the board. The objections against the present second auxiliary request would equally apply to claim 1 of that fifth auxiliary request. Since the fifth auxiliary request was admitted, the present second auxiliary request should be admissible too.

The board does not agree. In the board's view, any new request must be considered on its merits and it is irrelevant whether or not some or even all of the objections could have been raised or actually were raised against a similar or even identical claim of a set of claims which had been admitted, but not held allowable, at an earlier stage of the proceedings.

- 2.4.5 For the reasons set out above, claim 1 of the second auxiliary request does not appear to comply with Articles 84 and 123(2) EPC and, hence, is not clearly allowable.

- 2.5 In view of the above, the board exercised its discretion pursuant to Article 10b RPBA not to admit the first and second auxiliary requests to the appeal proceedings.

**Order**

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

The appeal is dismissed.

The Registrar:

The Chairman:

D. Magliano

A. S. Clelland