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**Datasheet for the decision
of 3 May 2013**

Case Number: T 1427/09 - 3.5.05

Application Number: 01962282.8

Publication Number: 1325580

IPC: H04L 1/00, H04L 27/34

Language of the proceedings: EN

Title of invention:

Systems and methods for communicating spread spectrum signals
using variable signal constellations

Applicant:

Ericsson Inc.

Headword:

Communicating spread spectrum signals using variable signal
constellations/ERICSSON

Relevant legal provisions:

EPC Art. 56, 84, 106, 107, 108, 123(2)

Keyword:

"Added subject-matter (yes)"

"Clarity (no)"

"Inventive step (no)"

Decisions cited:

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Catchword:

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Case Number: T 1427/09 - 3.5.05

D E C I S I O N
of the Technical Board of Appeal 3.5.05
of 3 May 2013

Appellant: Ericsson Inc.
(Applicant) 6300 Legacy Drive
MS EVW 2-C-2
Plano, TX 75024 (US)

Representative: Kühn, Friedrich Heinrich
Ericsson AB
Patent Unit Radio Networks
Torshamnsgatan 23
S-164 80 Stockholm (SE)

Decision under appeal: Decision of the Examining Division of the
European Patent Office posted 9 March 2009
refusing European application No. 01962282.8
pursuant to Article 97(2) EPC.

Composition of the Board:

Chair: A. Ritzka
Members: M. Höhn
F. Blumer

Summary of Facts and Submissions

I. This appeal is against the decision of the examining division, posted on 9 March 2009, refusing European patent application No. 01962282.8 on the ground of lack of inventive step (Article 56 EPC) in the light of the prior-art documents:

D1: WO 99/39472 A1,

D4: WO 97/21294 A2 and

D5: US 5781542 A1.

II. The notice of appeal was received on 11 May 2009. The appeal fee was paid on the same day. The statement setting out the grounds of appeal was received on 17 June 2009. The appellant requested that the appealed decision be set aside and that a patent be granted on the basis of the set of claims 1 to 29 filed with the statement setting out the grounds of appeal. Oral proceedings were requested on an auxiliary basis.

III. The notice of appeal was in the name of Mr. Friedrich Kühn, European Patent Attorney, but had no hand-written signature. The electronic filing of said document on 11 May 2009 was certified by a signature authentication showing that both the sender certificate and the signer certificate underlying said filing were issued to I. Elfving.

IV. The statement setting out the grounds of appeal bore the name of Mr. Friedrich Kühn as well as a hand-written signature. The electronic filing of said statement on 17 June 2009 was certified by a signature authentication showing that both the sender certificate

and the signer certificate underlying said filing were issued to R. Ahlund.

- V. In a communication dispatched 8 September 2009 the board referred to the applicable rules on the electronic filing of documents (Decision of the President of the EPO dated 26 February 2009 concerning the electronic filing of documents, OJ EPO 2009, 182 - hereinafter the "2009 Decision"), according to which the authenticity of documents filed in appeal proceedings "shall be confirmed by means of an enhanced electronic signature of a person authorised to act in the proceedings in question" (2009 Decision, Article 8(2)). The board noted that apparently neither Mr. or Ms. Elfving nor Mr. or Ms. Ahlund was authorised to act in the present proceedings and that, consequently, the notice of appeal and the statement setting out the grounds of appeal should be deemed not to be signed. In accordance with Rule 50(3) EPC, the appellant was invited to file signed copies of said documents within two months.
- VI. By telefax letter received on 20 October 2009, the appellant filed copies of the notice of appeal (dated 11 May 2009) and the statement setting out the grounds of appeal (dated 17 June 2009), which both bore the hand-written signature of Mr. Kühn, the professional representative recorded for the present proceedings.
- VII. In an interlocutory decision of 17 November 2009 it was decided that the notice of appeal was deemed to be signed and to have been filed on 11 May 2009 and that the statement setting out the grounds of appeal was

deemed to be signed and to have been filed on 17 June 2009.

VIII. A summons to oral proceedings to be held on 3 May 2013 was issued on 4 February 2013. In an annex accompanying the summons the board expressed the preliminary opinion that the subject-matter of independent claims 1 and 29 did not appear to fulfil the requirements of Articles 84 and 123(2) EPC and did not appear to involve an inventive step (Article 56 EPC) having regard to D1, D4 or D5 and common general knowledge. The board gave its reasons for the objections and explained that the appellant's arguments were not convincing.

IX. By letter dated 14 March 2013 the board was informed that the appellant would not be attending the oral proceedings.

X. Independent claim 1 reads as follows:

"1. A communications system, comprising: an error correction encoder (810, 910, 1010) that error correction encodes a bitstream according to an error correction code; characterised in a variable symbol generator (820, 920, 1020) that generates symbols from a group of bits of the error correction encoded bitstream according to a selected one of a plurality of selectable signal constellations of different orders, the selected one comprises a signal constellations of a higher order than Quadrature Phase Shift Keying and the symbols comprise real and imaginary multi-bit values; a spreader (830, 930) that spreads the symbols by combining an orthogonal spreading code and a complex

scrambling code comprising real and imaginary values resulting in second real and imaginary values; a complex multiplier (1050) that multiplies the second real and imaginary values and the real and imaginary multi-bit values from the variable symbol generator to produce spread symbol values, and a transmitter (840, 940, 1040) that transmits the spread symbol values in a communications medium."

- XI. The appellant requested in writing that the appealed decision be set aside and that a patent be granted on the basis of the set of claims 1 to 29 filed with the statement setting out the grounds of appeal.

- XII. Oral proceedings were held on 3 May 2013 in the absence of the appellant. After due deliberation on the basis of the written submissions, the board announced its decision.

Reasons for the Decision

1. Admissibility

The appeal complies with Articles 106 to 108 EPC (see Facts and Submissions, points II to VII above). In the interlocutory decision of 17 November 2009 it was decided that the notice of appeal was deemed to be signed and to have been filed on 11 May 2009 and that the statement setting out the grounds of appeal was deemed to be signed and to have been filed on 17 June 2009. The appeal is therefore admissible.

2. Non-attendance at oral proceedings

By letter dated 14 March 2013 the board was informed that the appellant would not be attending the oral proceedings. The board considered it expedient to maintain the date set for oral proceedings. Nobody attended on behalf of the appellant.

Article 15(3) RPBA stipulates that the board is not obliged to delay any step in the proceedings, including its decision, by reason only of the absence at the oral proceedings of any party duly summoned who may then be treated as relying only on its written case.

Hence, the board was in a position to announce a decision at the end of the oral proceedings.

3. Amendments

Independent claims 1 and 29 were amended by addition of the feature "the selected one comprises a signal

constellations [sic] of a higher order than Quadrature Phase Shift Keying". As support for this amendment reference was made to page 35, line 8 and page 39, line 22 of the description as filed.

- 3.1 However, those passages of the description merely disclose the ability to use and reconfigure higher-order signal constellations (e.g., signal constellations of a higher order than QPSK) and that real and imaginary symbol component values may be single bits (e.g., for QPSK mapping) or multi-bit values (e.g., for higher order constellations), with the number of bits being chosen to provide a desired degree of accuracy.
- 3.2 The description as a whole only directly and unambiguously discloses causing the variable symbol generator to employ one of a plurality of selectable signal constellations of varying order, such as QPSK, 8-PSK (phase shift keying), 16-QAM (quadrature amplitude modulation), and 64-QAM constellations, and the variable spreader to apply one of a plurality of selectable spreading codes (see page 34, lines 9 to 13). According to the disclosure of the invention, QPSK as a "base constellation" (see page 30, line 14) has to be part of this plurality of selectable signal constellations from which it can be switched to higher-order signal constellations, i.e. signal constellations of a higher order than QPSK (see also page 14, lines 14 to 22).

The appellant did not react to this objection with any substantive amendment or argument.

The subject-matter of independent claims 1 and 29 therefore does not fulfil the requirements of Article 123(2) EPC.

4. Clarity - Article 84 EPC

The wording of claims 1 and 29 lacks clarity for several reasons.

4.1 Independent claim 1 is directed to a communications system. However, only a transmitter is specified, not a receiver. Therefore it is not a system that is claimed, but only a transmitter being an apparatus.

However, the feature added by amendment to claim 1 is worded using method-like language (the selected one comprises...), thus rendering the category of claim 1 unclear.

4.2 By referring to a "selected one" of the signal constellations the reader is left in doubt as to how such a signal constellation has to be selected and what the criterion is for selection. Both aspects are considered to be essential for carrying out the invention as claimed.

If the "selected one" of the signal constellations has to be of a higher order than QPSK, the wording of claim 1 can also be interpreted in such a way that, among other higher-order constellations such as 16-QAM or 32-QAM, QPSK is also available as a signal constellation, but is not selected. This, however, is unlikely, because only the signal constellations of a higher order than QPSK are used according to claim 1.

It is therefore unclear for what purpose QPSK still exists in the system.

- 4.3 The feature of claim 1 specifying the spreader is considered to be ambiguous, because the spreading of symbols is not achieved by the steps of combining an orthogonal spreading code and a complex scrambling code. Rather, the spreading takes place in the complex multiplier in the following feature of claim 1.
- 4.4 Independent claim 29 is directed to a receiving station and is defined by features corresponding to claim 1. The aforementioned objections therefore apply accordingly.
- 4.5 The appellant did not react to these objections, which were raised in the annex to the summons, with any substantive amendment or argument.

The subject-matter of independent claims 1 and 29 therefore does not fulfil the requirements of Article 84 EPC.

5. Inventive step - Article 56 EPC

Throughout the description of the present application the use of QPSK is described as being equally as suitable as other modulation schemes. In the annex to the summons to oral proceedings, the board informed the appellant that it did not see why limiting such modulation schemes by excluding QPSK should involve an inventive step and thereby should overcome the reasons presented by the examining division for the refusal. The appellant did not react to this objection either

with any substantive amendment or argument. The board therefore maintains the opinion that the subject-matter of claim 1 does not involve an inventive step for the reasons set out in section II of the decision under appeal, in particular in the light of publications D1, D4 or D5 when combined with the skilled person's common general knowledge.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chair:

K. Götz

A. Ritzka