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Datasheet for the decision
of 18 November 2015

Case Number:	T 2206/11 - 3.5.05
Application Number:	05026149.4
Publication Number:	1672825
IPC:	H04L1/00
Language of the proceedings:	EN

Title of invention:
Method and apparatus for transmitting and receiving data with
high reliability in a mobile communication system supporting
packet data transmission

Applicant:
Samsung Electronics Co., Ltd.

Headword:
Uplink control information sent on downlink channel/SAMSUNG

Relevant legal provisions:
EPC Art. 56

Keyword:
Inventive step - (yes)

Decisions cited:

Catchword:

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Case Number: **T 2206/11 - 3.5.05**

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 18 November 2015

Appellant: (Applicant)	Samsung Electronics Co., Ltd. 129, Samsung-ro Yeongtong-gu Suwon-si, Gyeonggi-do, 443-742 (KR)
Representative:	Grünecker Patent- und Rechtsanwälte PartG mbB Leopoldstraße 4 80802 München (DE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 30 March 2011 refusing European patent application No. 05026149.4 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	A. Ritzka
Members:	P. Cretaine
	F. Blumer

Summary of Facts and Submissions

I.   The appeal is against the decision of the examining
        division, posted on 30 March 2011, refusing European
        patent application No. 05026149.4 on the grounds that
        the claims of the main request, a first auxiliary
        request and a second auxiliary request did not meet the
        requirements of Article 56 EPC, having regard to the
        disclosure of

        D1: EP 1 339 188.

        The second auxiliary request was also found to
        contravene Article 123(2) EPC.

II.   Notice of appeal was received on 9 June 2011. The
        appeal fee was paid on the same day. The statement
        setting out the grounds of appeal was received on
        9 August 2011. The appellant requested that the
        decision be set aside and that a patent be granted on
        the basis of a new main request (claims 1 to 12) filed
        with the statement setting out the grounds of
        appeal. In addition, oral proceedings were
        requested as an auxiliary measure.

III.   A summons to oral proceedings scheduled for
        18 November 2011 was issued on 24 July 2015. In an
        annex to this summons pursuant to Article 15(1) RPBA,
        the board expressed its preliminary opinion on the
        appeal. In particular, objections under Article 56 EPC
        were raised, based either on D1 or on the prior art
        acknowledged by the appellant in the description (see
        paragraph [0029], in particular lines 5 to 9).

IV.   Independent claim 1 of the sole request reads as
        follows:

"A method of transmitting a maximum power ratio of an
Enhanced Dedicated Physical Data Channel, E-DPDCH, to a
Dedicated Physical Control Channel, DPCCH, whose power
is controlled for uplink packet data transmission in a
mobile communication system, the method comprising the
steps of:
generating a 16-bit user equipment identifier,
UE-ID ,specific cyclic redundancy check, CRC, by
combining a CRC generated for detecting errors from
control information with a UE-ID for identifying a user
equipment, UE, to receive the control information,
wherein the control information comprises the maximum
power ratio for uplink transmission;
generating 90 coded bits by adding the UE-ID specific
CRC and 8 tails bits to 6-bit control information and
encoding the added bits at a coding rate of 1/3;
generating a 60-bit rate-matched block by rate-matching
the coded bits according to a rate matching pattern
representing positions of bits to be punctured among
the coded bits; and
transmitting the rate-matched block to the UE,
wherein the rate matching pattern comprises {1, 2, 5,
6, 7, 11, 12, 14, 15, 17, 23, 24, 31, 37, 44, 47, 61,
63, 64, 71, 72, 75, 77, 80, 83, 84, 85, 87, 88, 90}."

The main request comprises further independent claims
directed towards a corresponding transmitting apparatus
(claim 4), a corresponding receiving method (claim 7)
and a corresponding receiving apparatus (claim 10).

Reasons for the Decision

1.   The appeal is admissible.

2.   Prior art

2.1   D1 discloses a channel coding method for downlink
        signalling information sent by a base station to user
        equipment on a 3GPP High Speed Shared Control Channel
        HS-SCCH (see paragraphs [0003] to [0005], Figures 1 and
        2). An 8-bit signalling, or control, information
        ("Part 1 of the signalling information") is coded and
        transmitted on the HS-SCCH by:
        - generating a 12-bit user equipment identifier cyclic
        redundancy check ("CRC-1") by combining a CRC generated
        for detecting errors from control information with a
        UE-ID for identifying a user equipment to receive the
        control information;
        - generating coded bits by adding the UE-ID specific
        CRC and 8 tails bit ("N_T intermediate tail bits") to the
        control information and encoding the added bits at a
        coding rate of 1/3 (see Figure 2);
        - generating a 40-bit rate-matched block by
        rate-matching the coded bits according to a rate
        matching pattern representing positions of bits to be
        punctured among the coded bits (see column 2, lines 2
        to 5);
        - transmitting the rate-matched block to the UE.

2.2   The appellant also acknowledged that the transmission
        of uplink packet data control information on the
        downlink using channel coding, as defined in column 6,
        lines 5 to 17 of the description, was generally
        known in the art at the priority date of the
        application.

3.   Inventive step

3.1   It was common ground during the oral proceedings that
       the differences between the subject-matter of claim 1
       and the disclosure of D1 were the following:

       (i) there are 6 bits of control information, instead of
       8 bits as in the scheme of D1;

       (ii) the user specific CRC has a size of 16 bits,
       instead of 12 bits as in the scheme of Dl;

       (iii) the number of coded bits is 90, instead of 56 or
       84 bits as in the scheme of D1;

       (iv) the rate matched block consists of 60 bits,
       instead of 40 bits as in the scheme of Dl;

       (v) the rate matching pattern comprises {1, 2, 5, 6, 7,
       11 , 12, 14, 15, 17, 23, 24, 31, 37, 44, 47, 61, 63,
       64, 71, 72, 75, 77, 80, 83, 84, 85, 87, 88, 90},
       whereas no specific pattern is given in Dl; and

       (vi) the control information comprises a maximum power
       ratio of an Enhanced Dedicated Physical Data Channel to
       a Dedicated Physical Control Channel whose power is
       controlled for uplink packet data transmission.

3.2   In respect of features (i) to (iv), the board agrees
       with the examining division that they represent
       straightforward measures with no inventive merit in
       themselves. This was not challenged by the appellant.

       The control information defined in feature (vi) is sent
       on the downlink channel and used by the mobile
       equipment for controlling its _uplink_ packet data
       transmission, whereas the control information
       transmitted on the downlink channel of D1 is used for

controlling the <u>downlink</u> transmission of packets (see paragraph [0003]). The skilled person would, however, straightforwardly apply the coding defined in D1 to uplink control information, as required by feature (vi), since the coding scheme itself is not dependent on the content of the coded information. Therefore feature (vi) alone does not confer an inventive step on the subject-matter of claim 1.

With respect to feature (v), the decision under appeal stated that the skilled person was aware that different puncturing patterns achieved different BLER performances and would apply routine trial and error (e.g. simulations) or normal design procedure (e.g. calculations) in order to minimize the BLER.

The appellant however argued that, contrary to what was described in the application (see column 8, lines 2 to 6), D1 did not suggest that the rate matching pattern was to be specifically selected so as to improve BLER performance. Rather, in paragraph [0020] dealing with BLER performance, D1 explicitly suggested the use of other methods to improve BLER performance, namely interleaving and diversity, thereby leading the skilled person away from adapting the rate matching pattern. Furthermore, the appellant plausibly argued that the process itself of finding and selecting the claimed specific pattern was not a mere routine trial and error procedure, but rather involved complex simulations or calculations necessitating inventive skills, and that the claimed specific pattern defined by feature (v) had been proven to improve BLER performance.

For these reasons, the board considers that the skilled person, starting from D1 as the closest prior art and trying to solve the underlying technical problem of

improving the BLER, would not have been incited by D1
to select a particular rate matching pattern. The use
of the claimed specific rate matching pattern, as
defined by feature (v) of claim 1, therefore involves
an inventive step.

3.3   It should be noted that the above-mentioned reasoning
        is also valid when departing from the prior art
        acknowledged by the appellant (see paragraph 2.2). Even
        if the skilled person were to combine this prior art
        with document D1, he would not arrive at the specific
        rate matching pattern defined in claim 1 without the
        use of inventive skill, for the same reasons as
        detailed in paragraph 3.2 above with respect to feature
        (v).

Order

For these reasons it is decided that:

1.   The decision under appeal is set aside.

2.   The case is remitted to the examining division with the
      order to grant a patent on the basis of the following
      documents:
      - claims 1 to 12 as filed with the statement setting out
      the grounds of appeal dated 9 August 2011,
      - description:
        - pages 1, 2, 6 to 14, 16 to 20 and 22 to 30 as
            originally filed,
        - pages 3, 3a, 4, 5, 15, 21 and 31 as filed with letter
            dated 14 May 2008,
      - drawing pages 1/5 to 5/5 as originally filed.

The Registrar: The Chair:

K. Götz-Wein   A. Ritzka

Decision electronically authenticated