TSG RAN Meeting #27   **RP-050048**
Tokyo, Japan, 9 - 11 March 2005

Title   CR (Rel-6 Category F) to TS25.214 for Gain factor setting for E-DCH
Source   TSG RAN WG1
Agenda Item   9.6

RAN1 Tdoc	Spec	CR	Rev	Rel	Cat	Current Version	Subject	Work item	Remarks
R1-050215	25.214	362	2	Rel-6	F	6.4.0	Gain factor setting for E-DCH	EDCH-Phys	

CR-Form-v7.1

CHANGE REQUEST

⌘ **25.214 CR 362** ⌘**rev 2** ⌘ Current version: **6.4.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ ☐ ME **X** Radio Access Network **X** Core Network ☐

Title: ⌘	Gain factor setting for E-DCH
Source: ⌘	RAN WG1
Work item code:⌘	EDCH-Phys *Date:* ⌘ 17/2/2005
Category: ⌘ **F**	*Release:* ⌘ Rel-6

Use <u>one</u> of the following categories:
F (correction)
A (corresponds to a correction in an earlier release)
B (addition of feature),
C (functional modification of feature)
D (editorial modification)
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use <u>one</u> of the following releases:
Ph2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
Rel-4 (Release 4)
Rel-5 (Release 5)
Rel-6 (Release 6)
Rel-7 (Release 7)

Reason for change: ⌘	It is not yet described how to set the uplink DPCCH/E-DPCCH and E-DPDCH power difference.
Summary of change:⌘	Detailed description on: - setting the gain factor of E-DPCCH - setting the gain factor of E-DPDCH
Consequences if not approved: ⌘	Gain factor setting for E-DPCCH and E-DPDCH is impossible.

Clauses affected: ⌘	5.1.2.5B

	Y	N	
Other specs affected: ⌘		X	Other core specifications ⌘
			Test specifications
			O&M Specifications

Other comments: ⌘	

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm. Below is a brief summary:

1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

5.1.2.5B   Setting of the uplink DPCCH/E-DPCCH and E-DPDCH power difference

5.1.2.5B.1   DPCCH/ E-DPCCH

The E-DPCCH gain factor, β_{ec}, which is defined in [3] subclause 4.2.1.3, is calculated according to

$$\beta_{ec} = \beta_c \cdot 10^{\left(\frac{\Delta_{E-DPCCH}}{20}\right)}$$

where β_c value is signalled by higher-layer or calculated as described in subclause 5.1.2.5.2 or 5.1.2.5.3 and $\Delta_{E\text{-}DPCCH}$ is defined in [3] subcaluse 4.2.1.3.

5.1.2.5B.2   DPCCH/ E-DPDCH

5.1.2.5B.2.1   General

The E-DPDCH gain factor, β_{ed}, which is defined in [3] subclause 4.2.1.3, may take a different value for each E-TFC. Generally, the gain factors for different E-TFCs are computed as described in subclause 5.1.2.5B.2.3 and only the gain factor of E-TFC(s) used as reference E-TFC(s) is configured as described in subclause 5.1.2.5B.2.2. At least the lowest E-TFC of the set of E-TFCs configured by the network shall be signalled as a reference E-TFC.

The gain factors may vary on radio frame basis or sub-frame basis depending on the E-DCH TTI used. Further, the setting of gain factors is independent of the inner loop power control.

5.1.2.5B.2.2   Signalled gain factors

The gain factor β_{ed} is calculated according to

$$\beta_{ed} = \beta_c \cdot 10^{\left(\frac{\Delta_{E-DPDCH}}{20}\right)}$$

where β_c value is signalled by higher-layer or calculated as described in subclause 5.1.2.5.2 or 5.1.2.5.3 and $\Delta_{E\text{-}DPDCH}$ is defined in [3] subcaluse 4.2.1.3.

5.1.2.5B.2.3   Computed gain factors

The gain factor β_{ed} of an E-TFC is computed based on the signalled settings for its corresponding reference E-TFC.

Let $E\text{-}TFCI_{ref,m}$ denote the E-TFCI of the m:th reference E-TFC, where $m=1,2,\ldots,M$ and M is the number of signalled reference E-TFCs and $E\text{-}TFCI_{ref,1} < E\text{-}TFCI_{ref,2} < \ldots < E\text{-}TFCI_{ref,M}$. Let $E\text{-}TFCI_j$ denote the E-TFCI of the j:th E-TFC. For the j:th E-TFC:

   if $E\text{-}TFCI_j \geq E\text{-}TFCI_{ref,M}$, the reference E-TFC is the M:th reference E-TFC.

   if $E\text{-}TFCI_{ref,1} \leq E\text{-}TFCI_j < E\text{-}TFCI_{ref,M}$, the reference E-TFC is the m:th reference E-TFC such that $E\text{-}TFCI_{ref,m} \leq E\text{-}TFCI_j < E\text{-}TFCI_{ref,m+1}$.

Let $\beta_{ed,ref}$ denote the gain factor of the reference E-TFC. Also let $L_{e,ref}$ denote the number of E-DPDCHs used for the reference E-TFC and $L_{e,j}$ denote the number of E-DPDCHs used for the j:th E-TFC. If SF2 is used, $L_{e,ref}$ and $L_{e,j}$ are the equivalent number of physical channels assuming SF4. Let $K_{e,ref}$ denote the number of data bits of the reference E-TFC and $K_{e,j}$ denote the number of data bits of the j:th E-TFC.

For the j:th E-TFC, the gain factor $\beta_{ed,j}$ is then computed as:

$$\beta_{ed,j} = \beta_{ed,ref} \sqrt{\frac{L_{e,ref}}{L_{e,j}}} \sqrt{\frac{K_{e,j}}{K_{e,ref}}}$$