

TSG-RAN Working Group1 meeting #12

TSGR1#12(00)0572

Seoul, Korea, April, 10 – April 13, 2000

Agenda Item : AH04
Source : Nortel Networks
Title : **Correction and Editorial modifications of 25.212 for the 2nd DTX insertion in Compressed mode**
Document for : **Decision**

1. Introduction

This CR implements the editorial modifications that Nortel proposed on the RAN 1 reflector between RAN1#11 and RAN1#12.

It contains:

- Removal of a redundant sentence defining $N^{cm}_{data,*}$
- Separation of the 6th paragraph of 2d DTX indication bits insertion into three parts for clarity.

In addition to Change request clarifies that the additional DTX insertion refers to the higher layer scheduling only. Indeed additional DTX insertion is used in reference to DTX insertion for normal mode. For SF reduction no additional DTX insertion is needed since this is performed in the Physical channel mapping. For the downlink compressed mode by puncturing, there is no need for additional DTX insertion with respect to normal mode since p bits are inserted to create the exact transmission gap. As a consequence the sentence mentioning additional DTX insertion is modified and the note indicating that the DTX for the SF reduction is effectively done in the physical channel mapping is removed. If it was to be retained then a similar note for the puncturing should be included to reference the p bits introduced in the first interleaver.

3GPP/SMG Meeting #12
Seoul, Korea, April 10 – April 13 2000

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e.g. for 3GPP use the format TP-99xxx
 or for SMG, use the format P-99-xxx

<h2 style="margin: 0;">CHANGE REQUEST</h2>		<i>Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.</i>
25.212	CR 071r1	Current Version: 3.2.0
GSM (AA.BB) or 3G (AA.BBB) specification number ↑	↑ CR number as allocated by MCC support team	
For submission to: WG1 # 12 <i>list expected approval meeting # here</i>	for approval <input checked="" type="checkbox"/> for information <input type="checkbox"/>	strategic <input type="checkbox"/> non-strategic <input type="checkbox"/> <i>(for SMG use only)</i>

Form: CR cover sheet, version 2 for 3GPP and SMG The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/CR-Form-v2.doc>

Proposed change affects: (U)SIM ME UTRAN / Radio Core Network
(at least one should be marked with an X)

Source: Nortel Networks **Date:** _____

Subject: Corrections and editorial modifications of 25.212 for 2nd insertion of DTX bits for CM

Work item: TS 25.212

Category:	F Correction <input checked="" type="checkbox"/> A Corresponds to a correction in an earlier release <input type="checkbox"/> B Addition of feature <input type="checkbox"/> C Functional modification of feature <input type="checkbox"/> D Editorial modification <input type="checkbox"/>	Release:	Phase 2 <input type="checkbox"/> Release 96 <input type="checkbox"/> Release 97 <input type="checkbox"/> Release 98 <input type="checkbox"/> Release 99 <input checked="" type="checkbox"/> Release 00 <input type="checkbox"/>
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(only one category shall be marked with an X)

Reason for change: Editorial corrections on section 4.2.9.2, reflecting the remarks made by Nortel Networks on the RAN1 reflector between RAN1#11 and RAN1#12.

Clauses affected: 4.2.9.2

Other specs affected:	Other 3G core specifications <input type="checkbox"/> → List of CRs: Other GSM core specifications <input type="checkbox"/> → List of CRs: MS test specifications <input type="checkbox"/> → List of CRs: BSS test specifications <input type="checkbox"/> → List of CRs: O&M specifications <input type="checkbox"/> → List of CRs:	
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Other comments: _____



<----- double-click here for help and instructions on how to create a CR.

4.2.9.2 2nd insertion of DTX indication bits

The DTX indication bits inserted in this step shall be placed at the end of the radio frame. Note that the DTX will be distributed over all slots after 2nd interleaving.

The bits input to the DTX insertion block are denoted by $s_1, s_2, s_3, \dots, s_S$, where S is the number of bits from TrCH multiplexing. The number of PhCHs is denoted by P and the number of bits in one radio frame, including DTX indication bits, for each PhCH by R .

In normal mode $R = \frac{N_{data,*}}{P} = 15N_{data1} + 15N_{data2}$, where N_{data1} and N_{data2} are defined in [2].

For compressed mode, $N'_{data,*}$ is defined as $N'_{data,*} = P(15N'_{data1} + 15N'_{data2})$. N'_{data1} and N'_{data2} are the number of bits in the data fields of the slot format used for the current compressed mode, i.e. slot format A or B as defined in [2] corresponding to the Spreading Factor and the number of transmitted slots in use.

In case of compressed mode by puncturing and fixed positions, DTX shall be inserted until $N'_{data,*}$ bits, since the exact room for the gap is already reserved thanks to the earlier insertion of the p-bits. Therefore R is defined as $R = N'_{data,*} / P$.

In compressed mode ~~by SF reduction and~~ by higher layer scheduling, additional DTX with respect to normal mode shall be inserted if the ~~transmission time reduction method~~ transmission time reduction by higher layer scheduling does not exactly create a transmission gap of the desired TGL.

The number of bits available to the CCTrCH in one radio frame in compressed mode by SF reduction and by higher

layer scheduling is denoted by $N_{data,*}^{cm}$ and $R = \frac{N_{data,*}^{cm}}{P}$.

~~The exact value of $N_{data,*}^{cm}$ is dependent on the TGL and the transmission time reduction method, which are signalled~~

~~from higher layers.~~ For the transmission time reduction by SF/2 method in compressed mode $N_{data,*}^{cm} = \frac{N'_{data,*}}{2}$;

~~and for other methods~~ compressed mode by higher layer scheduling the exact value of $N_{data,*}^{cm}$ is dependent on the TGL

which is signalled from higher layers. It can be calculated as $N_{data,*}^{cm} = N'_{data,*} - N_{TGL}$. ~~For every transmission time reduction method $N'_{data,*} = P(15N'_{data1} + 15N'_{data2})$, where N'_{data1} and N'_{data2} are the number of bits in the data fields of a slot for slot format A or B as defined in [2].~~

N_{TGL} is the number of bits that are located within the transmission gap and defined as:

$$N_{TGL} = \begin{cases} \frac{TGL}{15} N'_{data,*}, & \text{if } N_{first} + TGL \leq 15 \\ \frac{15 - N_{first}}{15} N'_{data,*}, & \text{in first frame if } N_{first} + TGL > 15 \\ \frac{TGL - (15 - N_{first})}{15} N'_{data,*}, & \text{in second frame if } N_{first} + TGL > 15 \end{cases}$$

N_{first} and TGL are defined in subclause 4.4.

NOTE : ~~In compressed mode by SF/2 method DTX is also added in physical channel mapping stage (subclause 4.2.12.2). During 2nd DTX insertion the number of CCTrCH bits is kept the same as in normal mode.~~

The bits output from the DTX insertion block are denoted by $w_1, w_2, w_3, \dots, w_{(PR)}$. Note that these bits are four valued in case of compressed mode by puncturing, and three valued otherwise. They are defined by the following relations:

$$w_k = s_k \quad k = 1, 2, 3, \dots, S$$

$$w_k = \mathbf{d} \quad k = S+1, S+2, S+3, \dots, PR$$

where DTX indication bits are denoted by \mathbf{d} . Here $s_k \in \{0, 1, p\}$ and $\mathbf{d} \notin \{0, 1\}$.