TSG-RAN Working Group 3, meeting # 6 ***TSGR3#6(99)A04***

Sophia Antipolis, 23-27 August 1999

Agenda Item: 14.3

Source: Nokia

Title: **Handling of TB with air interface CRC failures.**

Document for: Approval

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1 Introduction

The air interface CRC check is applied on each TB both in UL and DL. It is mainly used for L2 retransmission, and in case of UL the result of the air interface CRC check is a TB information inserted in the FP frame. This information is used also for diversity combining and outer loop power control. Even if not clearly stated, the current UL frame structure shows that in case of failures of CRC check, the erroneous TB is always transmitted to the SRNC (with the associated CRC=not Ok information). This paper clarifies the handling of such case.

2 Discussion

In DCH carrying AMR speech connection, and in general for CS connections with a codec (voice or video) that uses also blocks of data with bit errors, it is required that TB with a CRC failure in Node B shall be always transmitted to the SRNC by the Iub/Iur frame protocols, together with the indication of the CRC checksum failure.

On the other hand, in case of RAB using RLC assured mode (a non real time packet data bearer), the erroneous transport block are discarded by UTRAN, and a retransmission is requested by the RLC layer. In this situation the erroneous TB (in UL) shall be discarded by the Node B and only the indication of the CRC checksum failure shall be included in the Iub/Iur FP frames, because the transmission of unused data across the Iub/Iur interface consumes transport resources. Note that the CRC failures are relatively frequent in case of non real time data (using 10 msec interleaving without turbo coding), especially in the worst radio link(s) of one connection in soft handover.

3 Proposals

- To include the following text in [25.427], chapter 7.1 (Data Frame Structure):

  At the transport connection setup, the SRNC indicates with the appropriate RNSAP/NBAP message if the transport blocks with CRC checksum failure in air interface B shall be transmitted to the SRNC. If not, the payload of the UL frame does not include erroneous TBs, but only the CRC=not OK indicator.

- To include in the message contents of RNSAP/NBAP RL SETUP REQUEST, RL RECONFIGURATION REQUEST, RL RECONFIGURATION PREPARE (in [25.423] and [25.433]) the *Error Data Handling* parameter (part of the "DCH parameters"). The parameter has the following description:

  Error Data Handling

  This parameter indicates if the transport blocks with failures in air interface CRC checksum shall be transmitted or not in UL direction.