TSG-RAN Working Group 1 meeting #14
Oulu, Finland
July 4th – 7th, 2000

TSGR1#14(00)0899

Agenda item:

Source: Ericsson

Title: CR 25.215-067: Insertion of UTRAN SIR_{error} measurement in 25.215

Document for: Decision

Introduction

In the LS R3-00-1878, WG3 asks WG1 to include the UTRAN SIR_{error} measurement in their specifications, currently defined only in TS 25.433 (NBAP specification). Together with the inclusion a clarification of the definition of the measurement is also requested.

UTRAN SIR_{error} measurement

The SIR_{error} can be used by the UTRAN outer loop power control. An event can be triggered in Node B and sent to the RNC if the SIR_{error} exceeds a certain threshold. The SIR_{error} is calculated as $SIR_{error}=SIR-SIR_{target}$, see figure 1.

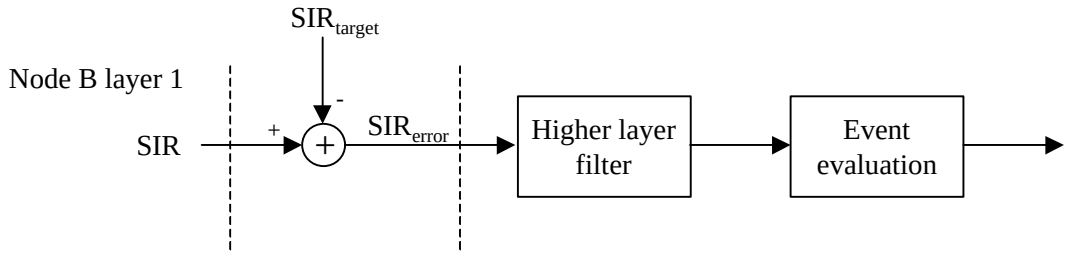

Figure 1 SIR_{error} calculation

The SIR_{target} can be updated at each TTI for the transport channels used in one radio link, e.g. the maximum update rate is set by the minimum TTI used. The longest TTI that can be configured is 80ms, which is a multiple of the lower TTIs possible, e.g. 40, 20 and 10ms.

At the WG4#12 meeting it was decided that the measurement period for the Node B SIR measurement shall be 80ms, see R4-000337, CR 10 for 25.133. During the 80 ms measurement period over which the SIR is measured the SIR_{target} may have changed. Therefore the SIR_{target} shall also be averaged over the same time period as the SIR before the SIR_{error} is calculated. The averaging of the SIR_{target} shall be made in a linear scale. This will mean that SIR_{error} shall be calculated every 80ms from the reported 80ms average SIR and the 80 ms average SIR_{target}.

Proposal

The attached CR for 25.215 contains the above proposed changes.

3GPP TSG RAN WG1 Meeting #14
Oulu, Finland, July 4th – 7th, 2000

Document ????0???
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.215	CR	067	Current Version:	3.3.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	TSG-RAN #9	for approval	X	strategic		(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic		

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

Source: Ericsson **Date:** 2000-06-14

Subject: Insertion of UTRAN SIR_{error} measurement in 25.215

Work item:

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

Reason for change: In LS R3-00-1878, WG3 asks WG1 to include the UTRAN SIR_{error} measurement in their specifications. Together with the inclusion a clarification of the definition of the measurement is also requested. This CR includes the SIR_{error} measurement in 25.215.

Clauses affected: 5.2

Other specs affected:			
Other 3G core specifications		→ List of CRs:	
Other GSM core specifications		→ List of CRs:	
MS test specifications		→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

help.doc

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

5.2.2 SIR

Definition	Signal to Interference Ratio, is defined as: (RSCP/ISCP)×SF. Measurement shall be performed on the DPCCH after RL combination in Node B. In compressed mode the SIR shall not be measured in the transmission gap. The reference point for the SIR measurements shall be the antenna connector. where: RSCP = Received Signal Code Power, the received power on one code. ISCP = Interference Signal Code Power, the interference on the received signal. Only the non-orthogonal part of the interference is included in the measurement. SF=The spreading factor used on the DPCCH.

5.2.3 SIR_{error}

Definition	$SIR_{error} = SIR - SIR_{target\_ave}$, where: SIR = the SIR measured by UTRAN, defined in section 5.2, given in dB. SIR_{target_ave} = the SIR_{target} averaged over the same time period as the SIR used in the SIR_{error} calculation. The averaging of SIR_{target} shall be made in a linear scale and SIR_{target_ave} shall be given in dB.

5.2.43 Transmitted carrier power

Definition	Transmitted carrier power, is the ratio between the total transmitted power and the maximum transmission power. Total transmission power is the mean power [W] on one carrier from one UTRAN access point. Maximum transmission power is the mean power [W] on one carrier from one UTRAN access point when transmitting at the configured maximum power for the cell. Measurement shall be possible on any carrier transmitted from the UTRAN access point. The reference point for the transmitted carrier power measurement shall be the antenna connector. In case of Tx diversity the transmitted carrier power for each branch shall be measured.

5.2.54 Transmitted code power

Definition	Transmitted code power, is the transmitted power on one channelisation code on one given scrambling code on one given carrier. Measurement shall be possible on the DPCCH-field of any dedicated radio link transmitted from the UTRAN access point and shall reflect the power on the pilot bits of the DPCCH-field. When measuring the transmitted code power in compressed mode all slots shall be included in the measurement, e.g. also the slots in the transmission gap shall be included in the measurement. The reference point for the transmitted code power measurement shall be the antenna connector. In case of Tx diversity the transmitted code power for each branch shall be measured and summed together in [W].

5.2.65 Transport channel BER

Definition	The transport channel BER is an estimation of the average bit error rate (BER)) of RL-combined DPDCH data. The transport channel (TrCH) BER is measured from the data considering only non-punctured bits at the input of the channel decoder in Node B. It shall be possible to report an estimate of the transport channel BER for a TrCH after the end of each TTI of the TrCH. The reported TrCH BER shall be an estimate of the BER during the latest TTI for that TrCH. Transport channel BER is only required to be reported for TrCHs that are channel coded.

5.2.7~~6~~ Physical channel BER

Definition	The Physical channel BER is an estimation of the average bit error rate (BER) on the DPCCH after RL combination in Node B. An estimate of the Physical channel BER shall be possible to be reported after the end of each TTI of any of the transferred TrCHs. The reported physical channel BER shall be an estimate of the BER averaged over the latest TTI of the respective TrCH.

5.2.8~~7~~ Round trip time

Definition	Round trip time (RTT), is defined as RTT = $T_{RX} - T_{TX}$, where T_{TX} = The time of transmission of the beginning of a downlink DPCH frame to a UE. T_{RX} = The time of reception of the beginning (the first significant path) of the corresponding uplink DPCCH/DPDCH frame from the UE. Note: The definition of "first significant path" needs further elaboration. Measurement shall be possible on DPCH for each RL transmitted from an UTRAN access point and DPDCH/DPCCH for each RL received in the same UTRAN access point.

5.2.9~~8~~ UTRAN GPS Timing of Cell Frames for LCS

Definition	The timing between cell j and GPS Time Of Week. $T_{UTRAN-GPSj}$ is defined as the time of occurrence of a specified UTRAN event according to GPS time. The specified UTRAN event is the beginning of a particular frame (identified through its SFN) in the first significant multipath of the cell j CPICH, where cell j is a cell within the active set.
Applicable for	Connected Intra, Connected Inter

5.2.10~~9~~ PRACH/PCPCH Propagation delay

Definition	Propagation delay is defined as one-way propagation delay as measured during either PRACH or PCPCH access: PRACH : Propagation delay = $(T_{RX} - T_{TX} - 2560)/2$, where: T_{TX} = The transmission time of AICH access slot (n-2-AICH transmission timing), where $0 \le$ (n-2-AICH Transmission Timing) ≤ 14 and AICH_Transmission_Timing can have values 0 or 1. T_{RX} = The time of reception of the beginning (the first significant path) of the PRACH message from the UE at PRACH access slot n. Note: The definition of "first significant path" needs further elaboration. PCPCH: Propagation delay = $(T_{RX} - T_{TX} - (L_{pc\text{-}preamble} + 1)*2560 - (k-1)*38400)/2$, where T_{TX} = The transmission time of CD-ICH at access slot (n-2-T_{cpch}), where $0 \le$ (n-2-T_{cpch}) ≤ 14 and T_{cpch} can have values 0 or 1. T_{RX} = The time of reception of the first chip (the first significant path) of the kth frame of the PCPCH message from the UE, where $k \in \{1, 2, \ldots, N\_Max\_frames\}$. N_max_frames is a higher layer parameter and defines the maximum length of the PCPCH message. The PCPCH message begins at uplink access slot ($n+L_{pc\text{-}preamble}/2$), where $0 \le (n + L_{pc\text{-}preamble}/2) \le 14$ and where $L_{pc\text{-}preamble}$ can have values 0 or 8. Note: The definition of "first significant path" needs further elaboration.

5.2.110 Acknowledged PRACH preambles

Definition	The Acknowledged PRACH preambles measurement is defined as the total number of acknowledged PRACH preambles per access frame per PRACH. This is equivalent to the number of positive acquisition indicators transmitted per access frame per AICH.

5.2.121 Detected PCPCH access preambles

Definition	The detected PCPCH access preambles measurement is defined as the total number of detected access preambles per access frame on the PCPCHs belonging to a CPCH set.

5.2.132 Acknowledged PCPCH access preambles

Definition	The Acknowledged PCPCH access preambles measurement is defined as the total number of acknowledged PCPCH access preambles per access frame on the PCPCHs belonging to a SF. This is equivalent to the number of positive acquisition indicators transmitted for a SF per access frame per AP-AICH.