TSG-RAN Working Group 1 meeting #10
Beijing, China
January 18 – January 21, 2000

TSGR1#10(00)0041

Agenda item: AH 16

Source: Ericsson

Title: CR 25.215-024: Definition of Transmitted carrier power

Document for: Decision

In the liaison statement R1-99j31 (R4rrm11/99 "Liaison Statement on measurement accuracy ") from WG4 received at WG1#9, it was proposed that the UTRAN measurement Transmitted carrier power shall be defined as a relative measurement, e.g. the total carrier power (given in Watt) in relation to the maximum possible power on that carrier (given in Watt). This change of definition has already been incorporated in the WG2 specification 25.302 v3.2.0 (release 1999).

In the new definition in 25.302 the Transmitted carrier power is defined as the ratio between the total transmitted power on one DL carrier from one UTRAN access point, compared to the maximum power possible to use on that DL carrier at this moment of time. With "maximum power possible to use on that DL carrier" is meant the maximum mean power on the carrier and not the peak power. In TS 25.433 "UTRAN Iub Interface NBAP Signalling" section "8.2.12 Cell Setup" an information element named "Maximum transmission power" is defined. The Maximum transmission power IE value shall be stored in the Node B and at any instance of time the total maximum output power in the cell shall not be above this value. The IE "Maximum transmission power" can therefore be used as the denominator in the expression for the Transmitted carrier power measurement.

The Transmitted carrier power measurement will then be defined as:
Transmitted carrier power, is the ratio between the total transmitted power on one carrier [W] from one UTRAN access point and the maximum transmission power [W] that is possible to use on the same carrier during the measurement period, where the maximum transmission power is the configured maximum transmission power for the cell.

This CR will introduce this change in TS 25.215 section 5.2.3.

In 25.104 section 6.4.1 Inner loop power control in the downlink, the minimum power control step size is defined to 0.5dB with a relative accuracy of ±0.25dB. Assuming a maximum accuracy around ±0.25dB for the relative power estimation will give around ± 5% unit's error in a linear scale at high loads (around 90%). To introduce as small quantisation error as possible using $1/5^{th}$ of the expected best accuracy is proposed, e.g. $1/5^{th}$ of 5% gives a step size of 1%.

In 25.215 currently 7 bits (128 values) are allocated for reporting the transmitted carrier power. It is proposed to report the transmitted carrier power in percentage. The range is proposed from 0% to 100% in step of 1%-unit. In the proposed mapping the value 0% is represented by one value. The proposed range will require 101 values (7 bits).

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Beijing, China, Jan 18 – Jan 21, 2000

Document ???00???
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	024	Current Version:	3.1.0

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

For submission to: TSG-RAN #7 *list expected approval meeting # here ↑*

for approval [X] for information [ ]

strategic [ ] non-strategic [ ] *(for SMG use only)*

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 [ ] UTRAN / Radio [X] Core Network [ ]

Source: Ericsson **Date:** 2000-01-12

Subject: Definition of Transmitted carrier power

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	[X]
A	Corresponds to a correction in an earlier release	[ ]
B	Addition of feature	[ ]
C	Functional modification of feature	[ ]
D	Editorial modification	[ ]

Release:

Phase 2	[ ]
Release 96	[ ]
Release 97	[ ]
Release 98	[ ]
Release 99	[X]
Release 00	[ ]

Reason for change: In TS 25.302 v3.x.y the UTRAN measurement Transmitted carrier power has been redefined. In the new definition the Transmitted carrier power shall be reported as the ratio between the transmitted power on one carrier and the maximum power possible to use on that carrier. This CR will introduce this change in TS 25.215 section 5.2.3.

Clauses affected: 5.2.3 Transmitted carrier power

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.

5.2.3 Transmitted carrier power

Definition	Transmitted carrier power, is the ratio between the total transmitted power on one carrier [W] from one UTRAN access point and the maximum transmission power [W] that is possible to use on the same carrier during the measurement period, where the maximum transmission power is the configured maximum transmission power for the cell. Measurement shall be possible on any carrier transmitted from the UTRAN access point. The reference point for the ~~total~~ transmitted carrier power measurement shall be the antenna connector. In case of Tx diversity the ~~total~~ transmitted carrier power for each branch shall be measured.
Range/mapping	Transmitted carrier power is given with a resolution of 1~~0.5~~ %-unit~~dB~~ with the range [0, ..., ~~5~~100] %~~dBm~~ Transmitted carrier power shall be reported in the unit UTRAN_TX_POWER where: ~~UTRAN_TX_POWER_016: 0.0 dBm ≤ Transmitted carrier power < 0.5 dBm~~ ~~UTRAN_TX_POWER_017: 0.5 dBm ≤ Transmitted carrier power < 1.0 dBm~~ ~~UTRAN_TX_POWER_018: 1.0 dBm ≤ Transmitted carrier power < 1.5 dBm~~ ~~...~~ ~~UTRAN_TX_POWER_114 49.0 dBm ≤ Transmitted carrier power < 49.5 dBm~~ ~~UTRAN_TX_POWER_115: 49.5 dBm ≤ Transmitted carrier power < 50.0 dBm~~ ~~UTRAN_TX_POWER_116: 50.0 dBm ≤ Transmitted carrier power < 50.5 dBm~~ UTRAN_TX_POWER_000: Transmitted carrier power = 0 % UTRAN_TX_POWER_001: 0 % < Transmitted carrier power ≤ 1 % UTRAN_TX_POWER_002: 1 % < Transmitted carrier power ≤ 2 % UTRAN_TX_POWER_003: 2 % < Transmitted carrier power ≤ 3 % ... UTRAN_TX_POWER_098: 97 % < Transmitted carrier power ≤ 98 % UTRAN_TX_POWER_099: 98 % < Transmitted carrier power ≤ 99 % UTRAN_TX_POWER_100: 99 % < Transmitted carrier power ≤ 100 %