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**Source:** Nokia  
**Title:** CR 25.215-042: UTRAN RSSI measurement  
**Document for:** Approval

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## 1 Discussion

UTRAN RSSI measurement was discussed in TSG RAN Ad Hoc meeting on RRM in Turin on February 9<sup>th</sup> 2000. Discussion was based on Nokia contribution RPA000040, which was approved in the meeting. This contribution and the attached CR are provided to implement the agreed change in TS25.215.

For UTRAN RSSI measurement following parameters shall be defined:

- reporting range
- measurement range
- resolution
- measurement accuracy

**Reporting Range** defines the range of values defined for messaging. Reporting range should cover all values that may be used in UTRAN taking into account macro, micro and pico scenarios. However, it is not required that measurement range of all base station (types) cover the whole reporting range. Reporting range is defined in 25.215. Decision in RRM Ad Hoc was to change the range to be [-112,...,-50] dBm.

**Measurement Range** defines the range to be supported by base station (type). Measurement range may cover only part of Reporting Range. Measurement Range may be different for each base station type and/or deployment scenario. (Note: Measurement Range is for RAN WG4 to decide; it is mentioned here to highlight the difference between Reporting Range and Measurement Range.)

**Resolution** defines the resolution (or step size) used in measurement reporting. Defined resolution should not degrade measurement reporting accuracy. Resolution is defined in 25.215. Decision in RRM Ad Hoc was to change the resolution to 0.1dB.

**Measurement accuracy** defines the minimum requirement for the measurement. (Note: Measurement Range is for RAN WG4 to decide; it will be defined 25.133)

## 2 Conclusion

Reporting range for UTRAN RSSI measurement is proposed to be changed to reflect the decision in RAN Ad Hoc meeting in RRM. CR is provided in annex.

### 3G 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 042

Current Version: 3.1.1

3G specification number ↑

↑ CR number as allocated by 3G support team

For submission to TSG RAN#7 for approval X (only one box should be marked with an X)  
list TSG meeting no. here ↑ for information

Form: 3G CR cover sheet, version 1.0 The latest version of this form is available from: ftp://ftp.3gpp.org/Information/3GCRF-xx.rtf

**Proposed change affects:** USIM  ME  UTRAN  Core Network   
(at least one should be marked with an X)

**Source:** TSG RAN WG1 **Date:** 28.2.2000

**Subject:** UTRAN RSSI measurement

**3G Work item:**

**Category:** F Correction   
(only one category shall be marked with an X)  
A Corresponds to a correction in a 2G specification   
B Addition of feature   
C Functional modification of feature   
D Editorial modification

**Reason for change:** To implement a decision made in TSG RAN Ad Hoc meeting on RRM.

**Clauses affected:** 5.2.1 RSSI

**Other specs affected:** Other 3G core specifications  → List of CRs:  
Other 2G 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:**

Column field	Comment
Definition	Contains the definition of the measurement.
Range/mapping	Gives the range and mapping to bits for the measurements quantity.

## 5.2.1 RSSI

Definition	Received Signal Strength Indicator, the wide-band received power within the UTRAN uplink carrier channel bandwidth in an UTRAN access point. The reference point for the RSSI measurements shall be the antenna connector.
Range/mapping	<p>RSSI is given with a resolution of <del>0.1</del> <del>0.5</del> dB with the range [<del>-112</del>-<del>405</del>, ..., <del>-50</del>-<del>74</del>] dBm. RSSI shall be reported in the unit RSSI_LEV where:</p> <p>RSSI_LEV_00: RSSI &lt; <del>-112.0</del>-<del>405.0</del> dBm  RSSI_LEV_01: <del>-112.0</del>-<del>405.0</del> dBm ≤ RSSI &lt; <del>-111.9</del>-<del>404.5</del> dBm  RSSI_LEV_02: <del>-111.9</del>-<del>404.5</del> dBm ≤ RSSI &lt; <del>-111.8</del>-<del>404.0</del> dBm  ...  RSSI_LEV_61864: <del>-50.2</del>-<del>73.0</del> dBm ≤ RSSI &lt; <del>-50.1</del>-<del>73.5</del> dBm  RSSI_LEV_61962: <del>-50.1</del>-<del>73.5</del> dBm ≤ RSSI &lt; <del>-50.0</del>-<del>74.0</del> dBm  RSSI_LEV_62063: <del>-50.0</del>-<del>74.0</del> dBm ≤ RSSI</p>

## 5.2.2 SIR

Definition	<p>Signal to Interference Ratio, is defined as: <math>(RSCP/ISCP) \times SF</math>. Measurement shall be performed on the DPCCH after RL combination in Node B. The reference point for the SIR measurements shall be the antenna connector.</p> <p>where:</p> <p>RSCP = Received Signal Code Power, the received power on one code.</p> <p>ISCP = Interference Signal Code Power, the interference on the received signal. Only the non-orthogonal part of the interference is included in the measurement.</p> <p>SF=The spreading factor used on the DPCCH.</p>
Range/mapping	<p>SIR is given with a resolution of 0.5 dB with the range [-11, ..., 20] dB. SIR shall be reported in the unit UTRAN_SIR where:</p> <p>UTRAN_SIR_00: SIR &lt; -11.0 dB  UTRAN_SIR_01: -11.0 dB ≤ SIR &lt; -10.5 dB  UTRAN_SIR_02: -10.5 dB ≤ SIR &lt; -10.0 dB  ...  UTRAN_SIR_61: 19.0 dB ≤ SIR &lt; 19.5 dB  UTRAN_SIR_62: 19.5 dB ≤ SIR &lt; 20.0 dB  UTRAN_SIR_63: 20.0 dB ≤ SIR</p>

## 5.2.3 Transmitted carrier power

Definition	Transmitted carrier power, is the total transmitted power on one carrier from one UTRAN access point. Measurement shall be possible on any carrier transmitted from the UTRAN access point. The reference point for the total transmitted power measurement shall be the antenna connector. In case of Tx diversity the total transmitted power for each branch shall be measured.
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