

CR-Formv3	
<b>CHANGE REQUEST</b>	
⚡ <b>25.225</b>	CR <b>022</b>
⚡ rev <b>-</b>	⚡ Current version: <b>3.5.0</b> ⚡

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⚡ symbols.

**Proposed change affects:** ⚡ (U)SIM  ME/UE  Radio Access Network  Core Network

<b>Title:</b>	⚡ Measurements for Node B synchronisation		
<b>Source:</b>	⚡ Siemens		
<b>Work item code:</b>	⚡ RANimp-NBsync	<b>Date:</b>	⚡ 10.01.2001
<b>Category:</b>	⚡ <b>B</b>	<b>Release:</b>	⚡ REL-4
	Use <u>one</u> of the following categories: <b>F</b> (essential correction) <b>A</b> (corresponds to a correction in an earlier release) <b>B</b> (Addition of feature), <b>C</b> (Functional modification of feature) <b>D</b> (Editorial modification)		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)
	Detailed explanations of the above categories can be found in 3GPP TR 21.900.		

<b>Reason for change:</b>	⚡ Introduction of measurements necessary for work item
<b>Summary of change:</b>	⚡ Two new UTRAN measurements are necessary for node B synchronisation: Cell Sync Burst Timing and Cell Sync Burst SIR
<b>Consequences if not approved:</b>	⚡ Work item Node B synchronisation is not feasible

<b>Clauses affected:</b>	⚡ 5.2	
<b>Other specs affected:</b>	<input checked="" type="checkbox"/> Other core specifications <input type="checkbox"/> Test specifications <input type="checkbox"/> O&M Specifications	⚡ 25.302, 25.123
<b>Other comments:</b>	⚡	

**How to create CRs using this form:**

Comprehensive information and tips about how to create CRs can be found at: [http://www.3gpp.org/3G\\_Specs/CRs.htm](http://www.3gpp.org/3G_Specs/CRs.htm). Below is a brief summary:

- 1) Fill out the above form. The symbols ⚡ above marked ⚡ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://www.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

## 5.2 UTRAN measurement abilities

NOTE 1: If the UTRAN supports multiple frequency bands then the measurements apply for each frequency band individually.

NOTE 2: The Interference part of the SIR measurement will be dependent on the receiver implementation, and will normally be different from the Timeslot ISCP measurement

NOTE 3: The term "antenna connector" used in this sub-clause to define the reference point for the UTRAN measurements refers to the "BS antenna connector" test port A and test port B as described in [18]. The term "antenna connector" refers to Rx or Tx antenna connector as described in the respective measurement definitions.

### 5.2.1 RSCP

<b>Definition</b>	Received Signal Code Power, the received power on one DPCH, PRACH or PUSCH code. The reference point for the RSCP shall be the Rx antenna connector.
-------------------	--

### 5.2.2 Timeslot ISCP

<b>Definition</b>	Interference Signal Code Power, the interference on the received signal in a specified timeslot measured on the midamble. The reference point for the ISCP shall be the Rx antenna connector.
-------------------	---

### 5.2.3 Received total wide band power

<b>Definition</b>	The received wide band power in a specified timeslot including the noise generated in the receiver, within the bandwidth defined by the pulse shaping filter. In case of receiver diversity the reported value shall be the linear average of the power in the diversity branches. The reference point for the Received total wideband power measurement shall be the output of the pulse shaping filter in the receiver.
-------------------	---

### 5.2.4 SIR

<b>Definition</b>	Signal to Interference Ratio, defined as: $(RSCP/Interference) \times SF$ . Where: RSCP = Received Signal Code Power, the received power on the code of a specified DPCH, PRACH or PUSCH. Interference = The interference on the received signal in the same timeslot which can't be eliminated by the receiver. SF = The used spreading factor.  The reference point for the SIR shall be the Rx antenna connector.
-------------------	--

### 5.2.5 Transport channel BER

<b>Definition</b>	The transport channel BER is an estimation of the average bit error rate (BER) of DCH or USCH 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.
-------------------	---

## 5.2.6 Transmitted carrier power

<b>Definition</b>	<p>Transmitted carrier power, is the ratio between the total transmitted power and the maximum transmission power.</p> <p>Total transmission power is the power [W] transmitted on one DL carrier in a specific timeslot from one UTRAN access point.</p> <p>Maximum transmission power is the power [W] on the same carrier when transmitting at the configured maximum transmission power for the cell.</p> <p>The 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 Tx antenna connector.</p> <p>In case of Tx diversity the transmitted carrier power for each branch shall be measured and the maximum of the two values shall be reported to higher layers, i.e. only one value will be reported to higher layers.</p>
-------------------	---

## 5.2.7 Transmitted code power

<b>Definition</b>	<p>Transmitted Code Power, is the transmitted power on one carrier and one channelisation code in one timeslot. The reference point for the transmitted code power measurement shall be the Tx antenna connector.</p>
-------------------	---

## 5.2.8 RX Timing Deviation

<b>Definition</b>	<p>'RX Timing Deviation' is the time difference <math>TRX_{dev} = TTS - TRX_{path}</math> in chips, with</p> <p>TRX<sub>path</sub>: time of the reception in the Node B of the first detected uplink path (in time) to be used in the detection process. The reference point for TRX<sub>path</sub> shall be the Rx antenna connector.</p> <p>TTS: time of the beginning of the respective slot according to the Node B internal timing</p>
-------------------	---

NOTE: This measurement can be used for timing advance calculation or location services.

## 5.2.9 UTRAN GPS Timing of Cell Frames for LCS

<b>Definition</b>	<p><math>T_{UTRAN-GPS}</math> is defined as the time of occurrence of a specified UTRAN event according to GPS Time Of Week. The specified UTRAN event is the beginning of the transmission of a particular frame (identified through its SFN) transmitted in the cell. The reference point for <math>T_{UTRAN-GPS}</math> shall be the Tx antenna connector.</p>
-------------------	---

## 5.2.10 Cell Sync Burst Timing

<b>Definition</b>	<p>Cell sync burst timing is the time of start (defined by the first detected path in time) of the cell sync burst of a neighbouring cell. Type 1 is used for the initial phase of Node B synchronization. Type 2 is used for the steady-state phase of Node B synchronization. Both have different range.</p> <p>The reference point for the cell sync burst timing measurement shall be the Rx antenna connector.</p> <p><b>Type 1:</b>  Cell sync burst timing = <math>T_{RX} - T_{slot}</math> in chips, where  <math>T_{slot}</math>: time of start of the cell sync timeslot in the frame, where the cell sync burst was received.  <math>T_{RX}</math>: time of start (defined by the first detected path in time) of a cell sync burst received from the target UTRA cell.</p> <p><b>Type 2:</b>  Cell sync burst timing = <math>T_{RX} - T_{slot}</math> in chips, where  <math>T_{slot}</math>: time of start of the cell sync timeslot in the frame, where the cell sync burst was received.  <math>T_{RX}</math>: time of start (defined by the first detected path in time) of a cell sync burst received from the target UTRA cell.</p>
-------------------	---

## 5.2.11 Cell Sync Burst SIR

<b>Definition</b>	<p>Signal to Interference Ratio for the cell sync burst, defined as: <math>RSCP/Interference</math>, where:</p> <p><math>RSCP</math> = Received Signal Code Power, the received power on the code and code offset of a cell sync burst.</p> <p><math>Interference</math> = The interference on the received signal in the same timeslot which can't be eliminated by the receiver</p> <p>The reference point for the cell sync burst SIR shall be the Rx antenna connector.</p>
-------------------	---