3GPP TSG-RAN Meeting #15 ***RP-020048***
Jeju, Korea, 5 – 8, March, 2002

Title: **Agreed CRs (R99 and Rel-4 Category A) to TS 25.215**

Source: **TSG-RAN WG1**

Agenda item: **7.1.3**

No.	Spec	CR	Rev	R1 T-doc	Subject	Release	Cat	Workitem	V_old	V_new
1	25.215	113	1	R1-020455	Clarification of UE measurements applicability	R99	F	TEI	3.9.0	3.10.0
2	25.215	114	1	R1-020455	Clarification of UE measurements applicability	Rel-4	A	TEI	4.3.0	4.4.0
3	25.215	115	-	R1-020448	Correction to the definition of UTRAN GPS timing of cell frames for UE positioning	R99	F	TEI	3.9.0	3.10.0
4	25.215	116	-	R1-020448	Correction to the definitions of UTRAN GPS timing of cell frames for UE positioning	Rel-4	A	TEI	4.3.0	4.4.0
5	25.215	117	-	R1-020454	Correction to the definition of UE GPS timing of cell frames for UE positioning	R99	F	TEI	3.9.0	3.10.0
6	25.215	118	-	R1-020454	Correction to the definition of UE GPS timing of cell frames for UE positioning	Rel-4	A	TEI	4.3.0	4.4.0

3GPP TSG RAN Meeting #15
Jeju, Korea, 5 – 8, March, 2002

R1-020455

CR-Form-v5

CHANGE REQUEST

⌘ **25.215** **CR** **113** ⌘ **rev** **1** ⌘ Current version: **3.9.0** ⌘

*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 ☐

Title:	⌘	Clarification of UE measurements Applicability
Source:	⌘	TSG RAN WG1
Work item code:	⌘	TEI
Date:	⌘	February 13th 2002
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one 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)

Reason for change:	⌘	Application of the UE measurements is not clearly specified
Summary of change:	⌘	This CR clarifies for each UE measurement in which RRC state it can be performed by the mobile and on which type of cell (intra/inter frequency). This level of detail was agreed to be put in the RAN1 specifications at the joint RAN1/RAN2 meeting February 5th-6th in Sophia-Antipolis.
Consequences if not approved:	⌘	Ambiguous specifications of UE measurement applicability Isolated Impact Analysis: This is an isolated impact CR that corrects a functionality where the specification contained contradictions. This CR would not affect implementations behaving as indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Clauses affected:	⌘	5.1 and subclauses		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

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. 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://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 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.

5.1 UE measurement abilities

The structure of the table defining a UE measurement quantity is shown below.

Column field	Comment
Definition	Contains the definition of the measurement.
Applicable for	States in which RRC state according to [14] ~~if~~ a measurement shall be possible to perform ~~in Idle mode and/or Connected mode~~. For RRC connected mode states ~~also~~ information is also given o~~f~~n the possibility to perform the measurement on intra-frequency and/or inter-frequency ~~are given~~. The following terms are used in the tables: Idle = Shall be possible to perform in idle mode; URA_PCH = Shall be possible to perform in URA_PCH; CELL_PCH = Shall be possible to perform in CELL_PCH; CELL_FACH = Shall be possible to perform in CELL_FACH; CELL_DCH = Shall be possible to perform in CELL_DCH; For all RRC connected mode states i.e. URA_PCH, CELL_PCH, CELL_FACH and CELL_DCH ~~Connected~~ Intra appended to the RRC state = Shall be possible to perform in ~~connected~~ the corresponding RRC state ~~mode~~ on an intra-frequency cell; ~~Connected~~ Inter appended to the RRC state = Shall be possible to perform in ~~connected~~ the corresponding RRC state ~~mode~~ on an inter-frequency cell. Inter-RAT appended to the RRC state = Shall be possible to perform in the corresponding RRC state on an inter-RAT cell.

The term "antenna connector of the UE" used in this sub-clause to define the reference point for the UE measurements is defined in [18]. Performance and reporting requirements for the UE measurements are defined in [20].

5.1.1 CPICH RSCP

Definition	Received Signal Code Power, the received power on one code measured on the Primary CPICH. The reference point for the RSCP shall be the antenna connector of the UE. If Tx diversity is applied on the Primary CPICH the received code power from each antenna shall be separately measured and summed together in [W] to a total received code power on the Primary CPICH.
Applicable for	Idle~~,~~, URA_PCH intra, URA_PCH inter, CELL_PCH intra, CELL_PCH inter, CELL_FACH intra, CELL_FACH inter, CELL_DCH intra, CELL_DCH inter ~~Connected Intra, Connected Inter~~

5.1.2 PCCPCH RSCP

Definition	Received Signal Code Power, the received power on one code measured on the PCCPCH from a TDD cell. The reference point for the RSCP shall be the antenna connector of the UE. See [21] for further details on this measurement.
Applicable for	Idle, ~~Connected Inter~~ URA_PCH inter, CELL_PCH inter, CELL_FACH inter, CELL_DCH inter

5.1.3 UTRA carrier RSSI

Definition	The received wide band power, including thermal noise and noise generated in the receiver, within the bandwidth defined by the receiver pulse shaping filter. The reference point for the measurement shall be the antenna connector of the UE.
Applicable for	~~Idle, Connected Intra, Connected Inter~~, CELL_FACH intra, CELL_FACH inter CELL_DCH intra, CELL_DCH inter

5.1.4 GSM carrier RSSI

Definition	Received Signal Strength Indicator, the wide-band received power within the relevant channel bandwidth. Measurement shall be performed on a GSM BCCH carrier. The reference point for the RSSI shall be the antenna connector of the UE.
Applicable for	Idle, ~~Connected Inter~~ URA_PCH inter-RAT CELL_PCH inter-RAT CELL_FACH inter-RAT CELL_DCH inter-RAT

5.1.5 CPICH Ec/No

Definition	The received energy per chip divided by the power density in the band. The CPICH Ec/No is identical to CPICH RSCP/UTRA Carrier RSSI. Measurement shall be performed on the Primary CPICH. The reference point for the CPICH Ec/No shall be the antenna connector of the UE. If Tx diversity is applied on the Primary CPICH the received energy per chip (Ec) from each antenna shall be separately measured and summed together in [Ws] to a total received chip energy per chip on the Primary CPICH, before calculating the Ec/No.
Applicable for	Idle, URA_PCH intra, URA_PCH inter, CELL_PCH intra, CELL_PCH inter, CELL_FACH intra, CELL_FACH inter, CELL_DCH intra, CELL_DCH inter~~, Connected Intra, Connected Inter~~

5.1.6 Transport channel BLER

Definition	Estimation of the transport channel block error rate (BLER). The BLER estimation shall be based on evaluating the CRC of each transport block associated with the measured transport channel after RL combination. The BLER shall be computed over the measurement period as the ratio between the number of received transport blocks resulting in a CRC error and the number of received transport blocks. When either TFCI or guided detection is used, the measurement “Transport channel BLER” may only be requested for a transport channel when the associated CRC size is non zero and at least one transport format in the associated transport format set includes at least one transport block. When neither TFCI nor guided detection is used, the measurement “Transport channel BLER” may only be requested for a transport channel when the associated CRC size is non zero and all transport formats in the associated transport format set include at least one transport block. The measurement “Transport channel BLER” does not apply to transport channels mapped on a P-CCPCH and a S-CCPCH. The UE shall be able to perform the measurement “Transport channel BLER” on any transport channel configured such that the measurement “Transport channel BLER” can be requested as defined in this section.
Applicable for	~~Connected Intra~~CELL_DCH intra

5.1.7 UE transmitted power

Definition	The total UE transmitted power on one carrier. The reference point for the UE transmitted power shall be the antenna connector of the UE.
Applicable for	CELL_FACH intra, CELL_DCH intra~~Connected Intra~~

5.1.8 SFN-CFN observed time difference

Definition	The SFN-CFN observed time difference to cell is defined as: OFF×38400+ T_m, where: T_m= (T_{UETx}-T_0) - T_{RxSFN}, given in chip units with the range [0, 1, …, 38399] chips T_{UETx} is the time when the UE transmits an uplink DPCCH/DPDCH frame. T_0 is defined in [1]. T_{RxSFN} is the time at the beginning of the neighbouring P-CCPCH frame received most recent in time before the time instant T_{UETx}-T_0in the UE. If the beginning of the neighbouring P-CCPCH frame is received exactly at T_{UETx}-T_0 then T_{RxSFN}=T_{UETx}-T_0 (which leads to T_m=0). and OFF=(SFN-CFN_{Tx}) mod 256, given in number of frames with the range [0, 1, …, 255] frames CFN_{Tx} is the connection frame number for the UE transmission of an uplink DPCCH/DPDCH frame at the time T_{UETx}. SFN is the system frame number for the neighbouring P-CCPCH frame received in the UE at the time T_{RxSFN}. The reference point for the SFN-CFN observed time difference shall be the antenna connector of the UE. In case the inter-frequency measurement is done with compressed mode, the UE is not required to read the cell SFN of the target inter-frequency neighbour cell and the value for the parameter OFF is always reported to be 0. In case that the SFN measurement indicator indicates that the UE does not need to read cell SFN of the target neighbour cell, the value of the parameter OFF is always be set to 0.
~~NOTE: In Compressed mode it is not required to read cell SFN of the target neighbour cell.~~	
Applicable for	~~Connected Inter, Connected Intra~~ CELL_FACH intra, CELL_FACH inter, CELL_DCH intra, CELL_DCH inter

5.1.9 SFN-SFN observed time difference

Definition	**Type 1:** The SFN-SFN observed time difference to cell is defined as: OFF×38400+ T_m, where: T_m= T_{RxSFNj} - T_{RxSFNi}, given in chip units with the range [0, 1, …, 38399] chips T_{RxSFNj} is the time at the beginning of a received neighbouring P-CCPCH frame from cell j. T_{RxSFNi} is time at the beginning of the neighbouring P-CCPCH frame from cell i received most recent in time before the time instant T_{RxSFNj} in the UE. If the next neighbouring P-CCPCH frame is received exactly at T_{RxSFNj} then T_{RxSFNj}= T_{RxSFNi} (which leads to T_m=0). and OFF=(SFN_i- SFN_j) mod 256, given in number of frames with the range [0, 1, …, 255] frames SFN_j is the system frame number for downlink P-CCPCH frame from cell j in the UE at the time T_{RxSFNj}. SFN_i is the system frame number for the P-CCPCH frame from cell i received in the UE at the time T_{RxSFNi}. The reference point for the SFN-SFN observed time difference type 1 shall be the antenna connector of the UE. **Type 2:** The relative timing difference between cell j and cell i, defined as $T_{CPICHRxj}$ - $T_{CPICHRxi}$, where: $T_{CPICHRxj}$ is the time when the UE receives one Primary CPICH slot from cell j $T_{CPICHRxi}$ is the time when the UE receives the Primary CPICH slot from cell i that is closest in time to the Primary CPICH slot received from cell j. The reference point for the SFN-SFN observed time difference type 2 shall be the antenna connector of the UE.
Applicable for	**Type 1:** Idle, ~~Connected Intra~~URA_PCH intra, CELL_PCH intra, CELL_FACH intra, CELL_DCH intra **Type 2:** ~~Idle, Connected Intra, Connected Inter~~ URA_PCH intra, URA_PCH inter, CELL_PCH intra, CELL_PCH inter, CELL_FACH intra, CELL_FACH inter CELL_DCH intra, CELL_DCH inter

5.1.10 UE Rx-Tx time difference

Definition	The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link. Type 1 and Type 2 are defined. For Type 1, the reference Rx path shall be the first detected path (in time) amongst the paths (from the measured radio link) used in the demodulation process. For Type 2, the reference Rx path shall be the first detected path (in time) amongst all paths (from the measured radio link) detected by the UE. The reference path used for the measurement may therefore be different for Type 1 and Type 2. The reference point for the UE Rx-Tx time difference shall be the antenna connector of the UE. Measurement shall be made for each cell included in the active set.
Applicable for	~~Connected~~ CELL_DCH Intra

5.1.11 Observed time difference to GSM cell

Definition	The Observed time difference to GSM cell is defined as: T_{RxGSMj} - T_{RxSFNi}, where: T_{RxSFNi} is the time at the beginning of the P-CCPCH frame with SFN=0 from cell i. Cell i is an intra-frequency cell. T_{RxGSMj} is the time at the beginning of the GSM BCCH 51-multiframe from GSM frequency j received closest in time after the time T_{RxSFNi}. If the next GSM multiframe is received exactly at T_{RxSFNi} then T_{RxGSMj} =T_{RxSFNi} (which leads to T_{RxGSMj} - T_{RxSFNi} = 0). The reference point for the Observed time difference to GSM cell shall be the antenna connector of the UE. The beginning of the GSM BCCH 51-multiframe is defined as the beginning of the first tail bit of the frequency correction burst in the first TDMA-frame of the GSM BCCH 51-multiframe, i.e. the TDMA-frame following the IDLE-frame. The reported time difference is calculated from the actual measurement in the UE. The actual measurement shall be based on: $T_{MeasGSM,j}$: The start of the first tail bit of the most recently received GSM SCH on frequency j $T_{MeasSFN,i}$: The start of the last P-CCPCH frame received on frequency i before receiving the GSM SCH on frequency j For calculating the reported time difference, the frame lengths are always assumed to be 10 ms for UTRA and (60/13) ms for GSM.
Applicable for	Idle, ~~Connected~~, URA_PCH inter-RAT, CELL_PCH inter-RAT, CELL_FACH inter-RAT, CELL_DCH Inter-RAT

5.1.12 UE GPS Timing of Cell Frames for UE positioning

Definition	The timing between cell j and GPS Time Of Week. $T_{UE-GPSj}$ 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 detected path (in time) of the cell j CPICH, where cell j is a cell within the active set. The reference point for $T_{UE-GPSj}$ shall be the antenna connector of the UE.
Applicable for	~~Connected Intra, Connected Inter~~ CELL_FACH intra, CELL_DCH intra

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R1-020455

CR-Form-v5

CHANGE REQUEST

⌘ **25.215** **CR** **114** ⌘ **rev** **1** ⌘ Current version: **4.3.0** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

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Source:	⌘	TSG RAN WG1
Work item code:	⌘	TEI
Date:	⌘	February 13th 2002
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
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REL-5 *(Release 5)*

Reason for change:	⌘	Application of the UE measurements is not clearly specified
Summary of change:	⌘	This CR clarifies for each UE measurement in which RRC state it can be performed by the mobile and on which type of cell (intra/inter frequency). This level of detail was agreed to be put in the RAN1 specifications at the joint RAN1/RAN2 meeting February 5th-6th in Sophia-Antipolis.
Consequences if not approved:	⌘	Ambiguous specifications of UE measurement applicability Isolated Impact Analysis: This is an isolated impact CR that corrects a functionality where the specification contained contradictions. This CR would not affect implementations behaving as indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Clauses affected:	⌘	5.1 and subclauses		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

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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.

5.1 UE measurement abilities

The structure of the table defining a UE measurement quantity is shown below.

Column field	Comment
Definition	Contains the definition of the measurement.
Applicable for	States in which RRC state according to [14] ~~if~~ a measurement shall be possible to perform ~~in Idle mode and/or Connected mode~~. For RRC connected mode states ~~also~~ information is also given o~~f~~n the possibility to perform the measurement on intra-frequency and/or inter-frequency ~~are given~~. The following terms are used in the tables: Idle = Shall be possible to perform in idle mode; URA_PCH = Shall be possible to perform in URA_PCH; CELL_PCH = Shall be possible to perform in CELL_PCH; CELL_FACH = Shall be possible to perform in CELL_FACH; CELL_DCH = Shall be possible to perform in CELL_DCH; For all RRC connected mode states i.e. URA_PCH, CELL_PCH, CELL_FACH and CELL_DCH ~~Connected~~ Intra appended to the RRC state = Shall be possible to perform in ~~connected~~ the corresponding RRC state ~~mode~~ on an intra-frequency cell; ~~Connected~~ Inter appended to the RRC state = Shall be possible to perform in ~~connected~~ the corresponding RRC state ~~mode~~ on an inter-frequency cell. Inter-RAT appended to the RRC state = Shall be possible to perform in the corresponding RRC state on an inter-RAT cell.

The term "antenna connector of the UE" used in this sub-clause to define the reference point for the UE measurements is defined in [18]. Performance and reporting requirements for the UE measurements are defined in [20].

5.1.1 CPICH RSCP

Definition	Received Signal Code Power, the received power on one code measured on the Primary CPICH. The reference point for the RSCP shall be the antenna connector of the UE. If Tx diversity is applied on the Primary CPICH the received code power from each antenna shall be separately measured and summed together in [W] to a total received code power on the Primary CPICH.
Applicable for	Idle~~,~~, URA_PCH intra, URA_PCH inter, CELL_PCH intra, CELL_PCH inter, CELL_FACH intra, CELL_FACH inter, CELL_DCH intra, CELL_DCH inter ~~Connected Intra, Connected Inter~~

5.1.2 PCCPCH RSCP

Definition	Received Signal Code Power, the received power on one code measured on the PCCPCH from a TDD cell. The reference point for the RSCP shall be the antenna connector of the UE. See [21] for further details on this measurement.
Applicable for	Idle, ~~Connected Inter~~ URA_PCH inter, CELL_PCH inter, CELL_FACH inter, CELL_DCH inter

5.1.3 UTRA carrier RSSI

Definition	The received wide band power, including thermal noise and noise generated in the receiver, within the bandwidth defined by the receiver pulse shaping filter. The reference point for the measurement shall be the antenna connector of the UE.
Applicable for	~~Idle, Connected Intra, Connected Inter~~, CELL_FACH intra, CELL_FACH inter CELL_DCH intra, CELL_DCH inter

5.1.4 GSM carrier RSSI

Definition	Received Signal Strength Indicator, the wide-band received power within the relevant channel bandwidth. Measurement shall be performed on a GSM BCCH carrier. The reference point for the RSSI shall be the antenna connector of the UE.
Applicable for	Idle, ~~Connected Inter~~ URA_PCH inter-RAT CELL_PCH inter-RAT CELL_FACH inter-RAT CELL_DCH inter-RAT

5.1.5 CPICH Ec/No

Definition	The received energy per chip divided by the power density in the band. The CPICH Ec/No is identical to CPICH RSCP/UTRA Carrier RSSI. Measurement shall be performed on the Primary CPICH. The reference point for the CPICH Ec/No shall be the antenna connector of the UE. If Tx diversity is applied on the Primary CPICH the received energy per chip (Ec) from each antenna shall be separately measured and summed together in [Ws] to a total received chip energy per chip on the Primary CPICH, before calculating the Ec/No.
Applicable for	Idle, URA_PCH intra, URA_PCH inter, CELL_PCH intra, CELL_PCH inter, CELL_FACH intra, CELL_FACH inter, CELL_DCH intra, CELL_DCH inter~~, Connected Intra, Connected Inter~~

5.1.6 Transport channel BLER

Definition	Estimation of the transport channel block error rate (BLER). The BLER estimation shall be based on evaluating the CRC of each transport block associated with the measured transport channel after RL combination. The BLER shall be computed over the measurement period as the ratio between the number of received transport blocks resulting in a CRC error and the number of received transport blocks. When either TFCI or guided detection is used, the measurement “Transport channel BLER” may only be requested for a transport channel when the associated CRC size is non zero and at least one transport format in the associated transport format set includes at least one transport block. When neither TFCI nor guided detection is used, the measurement “Transport channel BLER” may only be requested for a transport channel when the associated CRC size is non zero and all transport formats in the associated transport format set include at least one transport block. The measurement “Transport channel BLER” does not apply to transport channels mapped on a P-CCPCH and a S-CCPCH. The UE shall be able to perform the measurement “Transport channel BLER” on any transport channel configured such that the measurement “Transport channel BLER” can be requested as defined in this section.
Applicable for	~~Connected Intra~~CELL_DCH intra

5.1.7 UE transmitted power

Definition	The total UE transmitted power on one carrier. The reference point for the UE transmitted power shall be the antenna connector of the UE.
Applicable for	CELL_FACH intra, CELL_DCH intra~~Connected Intra~~

5.1.8 SFN-CFN observed time difference

Definition	The SFN-CFN observed time difference to cell is defined as: OFF×38400+ T_m, where: T_m= (T_{UETx}-T_0) - T_{RxSFN}, given in chip units with the range [0, 1, …, 38399] chips T_{UETx} is the time when the UE transmits an uplink DPCCH/DPDCH frame. T_0 is defined in [1]. T_{RxSFN} is the time at the beginning of the neighbouring P-CCPCH frame received most recent in time before the time instant T_{UETx}-T_0in the UE. If the beginning of the neighbouring P-CCPCH frame is received exactly at T_{UETx}-T_0 then T_{RxSFN}=T_{UETx}-T_0 (which leads to T_m=0). and OFF=(SFN-CFN_{Tx}) mod 256, given in number of frames with the range [0, 1, …, 255] frames CFN_{Tx} is the connection frame number for the UE transmission of an uplink DPCCH/DPDCH frame at the time T_{UETx}. SFN is the system frame number for the neighbouring P-CCPCH frame received in the UE at the time T_{RxSFN}. The reference point for the SFN-CFN observed time difference shall be the antenna connector of the UE. In case the inter-frequency measurement is done with compressed mode, the UE is not required to read the cell SFN of the target inter-frequency neighbour cell and the value for the parameter OFF is always reported to be 0. In case that the SFN measurement indicator indicates that the UE does not need to read cell SFN of the target neighbour cell, the value of the parameter OFF is always be set to 0.
~~NOTE: In Compressed mode it is not required to read cell SFN of the target neighbour cell.~~	
Applicable for	~~Connected Inter, Connected Intra~~ CELL_FACH intra, CELL_FACH inter, CELL_DCH intra, CELL_DCH inter

5.1.9 SFN-SFN observed time difference

Definition	**Type 1:** The SFN-SFN observed time difference to cell is defined as: OFF×38400+ T_m, where: T_m= T_{RxSFNj} - T_{RxSFNi}, given in chip units with the range [0, 1, …, 38399] chips T_{RxSFNj} is the time at the beginning of a received neighbouring P-CCPCH frame from cell j. T_{RxSFNi} is time at the beginning of the neighbouring P-CCPCH frame from cell i received most recent in time before the time instant T_{RxSFNj} in the UE. If the next neighbouring P-CCPCH frame is received exactly at T_{RxSFNj} then T_{RxSFNj}= T_{RxSFNi} (which leads to T_m=0). and OFF=(SFN_i- SFN_j) mod 256, given in number of frames with the range [0, 1, …, 255] frames SFN_j is the system frame number for downlink P-CCPCH frame from cell j in the UE at the time T_{RxSFNj}. SFN_i is the system frame number for the P-CCPCH frame from cell i received in the UE at the time T_{RxSFNi}. The reference point for the SFN-SFN observed time difference type 1 shall be the antenna connector of the UE. **Type 2:** The relative timing difference between cell j and cell i, defined as $T_{CPICHRxj}$ - $T_{CPICHRxi}$, where: $T_{CPICHRxj}$ is the time when the UE receives one Primary CPICH slot from cell j $T_{CPICHRxi}$ is the time when the UE receives the Primary CPICH slot from cell i that is closest in time to the Primary CPICH slot received from cell j. The reference point for the SFN-SFN observed time difference type 2 shall be the antenna connector of the UE.
Applicable for	**Type 1:** Idle, ~~Connected Intra~~ URA_PCH intra, CELL_PCH intra, CELL_FACH intra, CELL_DCH intra **Type 2:** ~~Idle, Connected Intra, Connected Inter~~ URA_PCH intra, URA_PCH inter, CELL_PCH intra, CELL_PCH inter, CELL_FACH intra, CELL_FACH inter CELL_DCH intra, CELL_DCH inter

5.1.10 UE Rx-Tx time difference

Definition	The difference in time between the UE uplink DPCCH/DPDCH frame transmission and the first detected path (in time), of the downlink DPCH frame from the measured radio link. Type 1 and Type 2 are defined. For Type 1, the reference Rx path shall be the first detected path (in time) amongst the paths (from the measured radio link) used in the demodulation process. For Type 2, the reference Rx path shall be the first detected path (in time) amongst all paths (from the measured radio link) detected by the UE. The reference path used for the measurement may therefore be different for Type 1 and Type 2. The reference point for the UE Rx-Tx time difference shall be the antenna connector of the UE. Measurement shall be made for each cell included in the active set.
Applicable for	~~Connected~~ CELL_DCH Intra

5.1.11 Observed time difference to GSM cell

Definition	The Observed time difference to GSM cell is defined as: T_{RxGSMj} - T_{RxSFNi}, where: T_{RxSFNi} is the time at the beginning of the P-CCPCH frame with SFN=0 from cell i. Cell i is an intra-frequency cell. T_{RxGSMj} is the time at the beginning of the GSM BCCH 51-multiframe from GSM frequency j received closest in time after the time T_{RxSFNi}. If the next GSM multiframe is received exactly at T_{RxSFNi} then T_{RxGSMj} =T_{RxSFNi} (which leads to T_{RxGSMj} - T_{RxSFNi} = 0). The reference point for the Observed time difference to GSM cell shall be the antenna connector of the UE. The beginning of the GSM BCCH 51-multiframe is defined as the beginning of the first tail bit of the frequency correction burst in the first TDMA-frame of the GSM BCCH 51-multiframe, i.e. the TDMA-frame following the IDLE-frame. The reported time difference is calculated from the actual measurement in the UE. The actual measurement shall be based on: $T_{MeasGSM,j}$: The start of the first tail bit of the most recently received GSM SCH on frequency j $T_{MeasSFN,i}$: The start of the last P-CCPCH frame received on frequency i before receiving the GSM SCH on frequency j For calculating the reported time difference, the frame lengths are always assumed to be 10 ms for UTRA and (60/13) ms for GSM.
Applicable for	Idle, ~~Connected~~, URA_PCH inter-RAT, CELL_PCH inter-RAT, CELL_FACH inter-RAT, CELL_DCH Inter-RAT

5.1.12 UE GPS Timing of Cell Frames for UE positioning

Definition	The timing between cell j and GPS Time Of Week. $T_{UE-GPSj}$ 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 detected path (in time) of the cell j CPICH, where cell j is a cell within the active set. The reference point for $T_{UE-GPSj}$ shall be the antenna connector of the UE.
Applicable for	~~Connected Intra, Connected Inter~~ CELL_FACH intra, CELL_DCH intra

3GPP TSG RAN Meeting #15
Jeju, Korea, 5 – 8, March, 2002

R1-020448

CR-Form-v4

CHANGE REQUEST

⌘ **25.215 CR 115** ⌘ rev **-** ⌘ Current version: **3.9.0** ⌘

*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 **X** Core Network ☐

Title:	⌘	Correction to the definition of UTRAN GPS timing of cell frames for UE positioning
Source:	⌘	TSG RAN WG1
Work item code:	⌘	TEI
Date:	⌘	February 19th 2002
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one 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)

Reason for change: ⌘

On the UTRAN side, the definition of the GPS timing of cell frames includes the reference to cells "within the active set". The notion of an active set does generally exist on the UTRAN side and the network should be able to request the measurement without specific reference to the active set of a given UE. Thus it is suggested to remove this text .

Summary of change: ⌘ The text "where cell j is a cell within the active set" is removed from the definition of UTRAN GPS timing of cell frames for UE positioning. "cell j" is simply replaced by "the cell" since the cell to be measured is one of the cells managed by the node B.

Consequences if not approved: ⌘ Incorrect definition of the UTRAN GPS measurement for UE positioning.

Isolated Impact Analysis:
This is an isolated impact CR that corrects a functionality where the specification contained contradictions. This CR would not affect implementations behaving as indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Clauses affected: ⌘

Other specs affected: ⌘
☐ Other core specifications ⌘
☐ Test specifications
☐ O&M Specifications

Other comments: ⌘

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.
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://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 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.

5.2.9 UTRAN GPS Timing of Cell Frames for UE positioning

Definition	$T_{UTRAN-GPSj}$ is defined as the time of the 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 in the cell. ~~j (identified through its SFN), where cell j is a cell within the active set~~. The reference point for $T_{UTRAN-GPSj}$ shall be the Tx antenna connector.

3GPP TSG RAN Meeting #15
Jeju, Korea, 5 – 8, March, 2002

R1-020448

CR-Form-v4

CHANGE REQUEST

⌘ **25.215** **CR** **116** ⌘ rev **-** ⌘ Current version: **4.3.0** ⌘

*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 **X** Core Network ☐

Title:	⌘	Correction to the definition of UTRAN GPS timing of cell frames for UE positioning
Source:	⌘	TSG RAN WG1
Work item code:	⌘	TEI
Date:	⌘	February 19th 2002
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one 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)

Reason for change:	⌘	On the UTRAN side, the definition of the GPS timing of cell frames includes the reference to cells "within the active set". The notion of an active set does generally exist on the UTRAN side and the network should be able to request the measurement without specific reference to the active set of a given UE. Thus it is suggested to remove this text .
Summary of change:	⌘	The text "where cell j is a cell within the active set" is removed from the definition of UTRAN GPS timing of cell frames for UE positioning. "cell j" is simply replaced by "the cell" since the cell to be measured is one of the cells managed by the node B.
Consequences if not approved:	⌘	Incorrect definition of the UTRAN GPS measurement for UE positioning. Isolated Impact Analysis: This is an isolated impact CR that corrects a functionality where the specification contained contradictions. This CR would not affect implementations behaving as indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Clauses affected:	⌘			
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

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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.

5.2.9 UTRAN GPS Timing of Cell Frames for UE positioning

Definition	$T_{UTRAN-GPS_j}$ is defined as the time of the 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 in the cell ~~j (identified through its SFN), where cell j is a cell within the active set~~. The reference point for $T_{UTRAN-GPS_j}$ shall be the Tx antenna connector.

3GPP TSG RAN Meeting #15
Jeju, Korea, 5 – 8, March, 2002

R1-020454

CR-Form-v4

CHANGE REQUEST

⌘ **25.215 CR 117** ⌘ rev **-** ⌘ Current version: **3.9.0** ⌘

*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 **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to the definition of UE GPS timing of cell frames for UE positioning
Source:	⌘	TSG RAN WG1
Work item code:	⌘	TEI
Date:	⌘	February 19th 2002
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one 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)

Reason for change:	⌘	The requirement that the measurement must be made with active set cells limits the measurement to being performed only when the mobile is in CELL_DCH. RAN1 and RAN2 have jointly agreed that the UE should also be able to perform UE positioning measurements while in the CELL_FACH state.
Summary of change:	⌘	"Cell j" is defined as the cell chosen by the UE instead of being a cell from the active set. This definition encompasses both the case of CELL_FACH and CELL_DCH
Consequences if not approved:	⌘	There will be conflicting and incorrect requirements for the performance of the measurement UE GPS timing of cell frames for UE positioning. Isolated Impact Analysis: This is an isolated impact CR that corrects a functionality where the specification contained contradictions. This CR would not affect implementations behaving as indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Clauses affected:	⌘			
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

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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.

5.1.12 UE GPS Timing of Cell Frames for UE positioning

Definition	The timing between cell j and GPS Time Of Week. $T_{UE\text{-}GPSj}$ 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 detected path (in time) of the cell j CPICH, where cell j is a cell ~~within the active set~~ chosen by the UE. The reference point for $T_{UE\text{-}GPSj}$ shall be the antenna connector of the UE.
Applicable for	Connected Intra, Connected Inter

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R1-020454

CR-Form-v4

CHANGE REQUEST

⌘ **25.215 CR 118** ⌘ rev **-** ⌘ Current version: **4.3.0** ⌘

*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 **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to the definition of UE GPS timing of cell frames for UE positioning
Source:	⌘	TSG RAN WG1
Work item code:	⌘	TEI
Date:	⌘	February 19th 2002
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
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C *(functional modification of feature)*
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Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
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R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	The requirement that the measurement must be made with active set cells limits the measurement to being performed only when the mobile is in CELL_DCH. RAN1 and RAN2 have jointly agreed that the UE should also be able to perform UE positioning measurements while in the CELL_FACH state.
Summary of change:	⌘	"Cell j" is defined as the cell chosen by the UE instead of being a cell from the active set. This definition encompasses both the case of CELL_FACH and CELL_DCH
Consequences if not approved:	⌘	There will be conflicting and incorrect requirements for the performance of the measurement UE GPS timing of cell frames for UE positioning. Isolated Impact Analysis: This is an isolated impact CR that corrects a functionality where the specification contained contradictions. This CR would not affect implementations behaving as indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Clauses affected:	⌘			
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

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Definition	The timing between cell j and GPS Time Of Week. $T_{UE\text{-}GPSj}$ 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 detected path (in time) of the cell j CPICH, where cell j is a cell ~~within the active set~~ chosen by the UE. The reference point for $T_{UE\text{-}GPSj}$ shall be the antenna connector of the UE.
Applicable for	Connected Intra, Connected Inter