TSG-RAN Meeting #14
Kyoto, Japan, 11 – 14, December, 2001

RP-010745

Title: **Agreed CR (Rel-4) to TS 25.215**

Source: **TSG-RAN WG1**

Agenda item: **8.1.4**

No.	Spec	CR	Rev	R1 T-doc	Subject	Release	Cat	W/I Code	V_old	V_new
1	25.215	099	2	R1-01-1258	UE GPS code phase measurement	Rel-4	F	TEI4	4.2.0	4.3.0
2	25.215	106	1	R1-01-1294	UTRAN SFN-SFN observed time difference measurement	Rel-4	F	LCS1-UEpos-enh	4.2.0	4.3.0

CR-Form-v4

CHANGE REQUEST

| ⌘ | **25.215 CR 099** | ⌘ rev | **2** | ⌘ Current version: | **4.2.0** | ⌘ |

*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: ⌘	UE GPS Code Phase Measurement	
Source: ⌘	TSG RAN WG1	
Work item code: ⌘	TEI4	***Date:*** ⌘ 20 Nov 2001
Category: ⌘	**F**	***Release:*** ⌘ REL-4

Use <u>one</u> 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 <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)*

Reason for change: ⌘	- The UE GPS code phase measurement is currently described in the A-GPS positioning procedure specified in the R'99 Stage-2 Functional Specification of UE Positioning in UTRAN (TS 25.305). - The information elements required for reporting these GPS code phase measurements to the UTRAN are already specified in the R'99 RRC Protocol Specification (TS 25.331). - However, this UE GPS code phase measurement is not currently defined in TS 25.215. - Unfortunately, the absence of this measurement definition makes it unclear how RAN WG4 can proceed with the development of performance requirements for the A-GPS positioning method (see WG4 liaison R1-01-1004).

Summary of change: ⌘	- The UE GPS code phase measurement definition put forth in WG4 liaison R1-01-1004 is added to section 5.1, "UE measurement abilities".
	- Changes in addition to rev1:
	  - Range information removed
	  - Applicability of "Connected Inter" state removed
	
	Isolated Impact Analysis:
	
	This proposed change corrects specific isolated functionality where a component of this functionality was missing in the specifications. This CR, would not affect implementations behaving as indicated in the CR, would affect implementations supporting the corrected functionality otherwise.

Consequences if not approved: ⌘	Structurally, forward progress in the development of RAN WG4 performance requirements (TS 25.133) for the A-GPS positioning method will be impaired.

Clauses affected: ⌘	5.1.13
Other specs ⌘	☐ Other core specifications ⌘

Affected:	☐ 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.

5.1.12   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

5.1.13   UE GPS code phase

Definition	The whole and fractional phase of the spreading code of the ith GPS satellite signal. The reference point for the GPS code phase shall be the antenna connector of the UE.
Applicable for	Connected Intra

5.2   UTRAN measurement abilities

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

Column field	Comment
Definition	Contains the definition of the measurement.

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 [19]. The term "antenna connector" refers to Rx or Tx antenna connector as described in the respective measurement definitions.

CR-Form-v4

CHANGE REQUEST

| ⌘ | **25.215** CR **106** | ⌘ | rev | **1** | ⌘ | Current version: | **4.2.0** | ⌘ |

*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: ⌘	UTRAN SFN-SFN observed time difference measurement	
Source: ⌘	TSG RAN WG1	
Work item code: ⌘	LCS1-UEpos-enh	***Date:*** ⌘ 20th Nov 2001
Category: ⌘ **F**		***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: ⌘	Currently, the SFN-SFN *observed* time difference (OTD) measurement in *UTRAN* measures the time between the beginning of adjacent *slots* from reference and neighbour cells. To enable the calculation of the *real* time difference (RTD) between the beginning of *frames*, it is proposed that the UTRAN SFN-SFN OTD measurement is altered to measure the time between beginning of *frames* from the reference and the neighbour cell. If assistance data on RTD between beginning of frames from a reference and a neighbour cell could be conveyed to the UE, the search window for UE SFN-SFN OTD measurements could be significantly narrowed and the UE search for cells made quicker.
Summary of change: ⌘	The definition of UTRAN SFN-SFN observed time difference measurement is changed. According to the new definition, the UTRAN SFN-SFN observed time difference measures the time between the beginning of adjacent radio frames from the reference and the neighbour cell.
Consequences if not approved: ⌘	With the current specifications, the radio network will not be able to provide the real time difference (RTD) between beginning of frames from the reference and neighbour Node B's as mandatory assistance data to the UE unless a Location Measurement Unit (LMU) is placed at every Node B. The UE can use this RTD information to find signals for UE SFN-SFN observed time difference (OTD) measurements. In direct scrambling code search of measurable signals the UE does not otherwise know the real starting times of frames and it then has to search the entire 38 400-chip range. Such a wide search is time consuming and it is not even known beforehand if anything can really be found. The search window would be wide without knowledge of RTD and the UE search for Node B's would be slow.

Clauses affected: ⌘	5.2.14
Other specs ⌘ **X**	Other core specifications ⌘ TS 25.302, TS 25.331, TS 25.423, TS

			25.433
affected:		Test specifications	
		O&M Specifications	

Other comments:	⌘	Isolated impact: This CR only affects UTRAN SFN-SFN observed time difference measurement.

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.

5.2.10 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 $0 \leq$(n-2-AICH Transmission Timing)≤ 14 and AICH_Transmission_Timing can have values 0 or 1. The reference point for T_{TX} shall be the Tx antenna connector.
	T_{RX} = The time of reception of the beginning (the first detected path, in time) of the PRACH message from the UE at PRACH access slot n. The reference point for T_{RX} shall be the Rx antenna connector.
	PCPCH:
	Propagation delay = $(T_{RX} - T_{TX} - (L_{pc\text{-}preamble} + 1) \cdot 2560 - (k-1) \cdot 38400)/2$, where
	T_{TX} = The transmission time of CD-ICH at access slot (n-2-T_{cpch}), where $0 \leq$(n-2-T_{cpch})≤ 14 and T_{cpch} can have values 0 or 1. The reference point for T_{TX} shall be the Tx antenna connector.
	T_{RX} = The time of reception of the first chip (the first detected path, in time) of the kth frame of the PCPCH message from the UE, where $k \in \{1, 2,\ldots, N\_Max\_frames\}$. The reference point for T_{RX} shall be the Rx antenna connector.
	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 $0 \leq$(n + $L_{pc\text{-}preamble}$ /2)≤ 14 and where $L_{pc\text{-}preamble}$ can have values 0 or 8.

5.2.11 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.

5.2.12 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.

5.2.13 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.

5.2.14 SFN-SFN observed time difference

Definition	The relative timing difference between cell j and cell i, defined as $T_{CPICHRxj}$ - $T_{CPICHRxi}$, where:
	$T_{CPICHRxj}$ is the time when the LMU receives the beginning of one Primary CPICH ~~slot~~frame from cell j and
	$T_{CPICHRxi}$ is the time when the LMU receives the beginning of the Primary CPICH ~~slot~~frame from cell i that is closest in time to the beginning of Primary CPICH ~~slot~~frame received from cell j.
	The reference point for the measurements shall be the Rx antenna connector.