TSG-RAN Meeting #14 ***TSGRP#14(01) 0872***
Kyoto, Japan, 11 - 14, December, 2001

Title: **Agreed CRs to TS 25.415**

Source: **TSG-RAN WG3**

Agenda item: **8.3.3/8.3.4/9.4.3**

RP Tdoc	R3 Tdoc	Spec	CR_Num	Rev	Release	CR_Subject	Cat	Cur_Ver	New_Ver	Workitem
RP-010872	R3-013521	25.415	079	1	Rel-4	Time-based Frame Numbering	B	4.2.0	4.3.0	TEI

3GPP TSG-RAN WG3 Meeting #25 ***R3-013521***
Makuhari, Japan, 26th November– November 30th 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.415** **CR** **079** ⌘ 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 X

Title:	⌘	Time based Frame Numbering
Source:	⌘	R-WG3
Work item code:	⌘	TEI
Date:	⌘	21 November 01
Category:	⌘	**B**
Release:	⌘	REL-4

Use one of the following categories:
F *(essential 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: ⌘ In RAN3#23 it was agreed that the proper timing resolution for time based frame numbering clarification in uplink was valid and a CR shall be presented.

In Ran3#24, it was agreed to have the clarification that two packets consecutive at the source could not have the same frame number and that one way of doing this was to have the frame number set according to the time of the source of the signal (e.g. UE in uplink, TRAU time in downlink) instead of the timing of the Iu UP clock which can desynchronised from the nodeB clock.

Summary of change: ⌘ The setting of a frame number based on time is clarified.

Impact Analysis:
Impact assessment towards the previous version of the specification (same release):
This CR has isolated impact with the previous version of the specification (same release) because it would not work properly if internal timing was used.

The CR has an impact only under functional point of view.

The impact can be considered isolated because the change affects one system function.

Consequences if not approved: ⌘ Two uplink successive frames could result in being sent on the Iu with the same frame number due to a small jitter leading to undesirable effects in the receiver side (TRAU). Also, an ambiguity exists for the correct timing in uplink after a silence period.

Clauses affected:	⌘	6.6.3.3		
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://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.

6.6.3.3 Frame Number

Description: The Iu UP frame numbering is handled by a Frame Number. The frame numbering can be based on either time or sent Iu UP PDU. In case the frame numbering is based on time the purpose of the frame number is to be of help in handling the Time Alignment functionality. When the frame number is based on time, the Frame number set in the PDU header is incremented by one (modulo 16) at each new ITI. The Frame number set in the PDU header may e.g. be based on the timing of the source. The source is where the original payload was created. Two packets that were consecutive at the source shall not have the same frame number assigned. In case the Frame number relates to sent Iu UP PDU the purpose of the Frame Number is to provide the receiving entity with a mechanism to keep track of lost Iu UP frames. When the frame number is based on sent Iu UP PDU, the Frame number is incremented by one (modulo 16) for each sent Iu UP PDU. For a given user data connection, there is no relations between the frame numbers of frames sent in the downlink direction and the frame numbers of frames sent in the uplink direction.

In the case the Frame Number relates to sent Iu UP PDU, the following applies:

- Frame loss is when an incoming PDU frame has a frame number that is equal to (previous PDU frame number + 2) modulo [max. PDU frame number + 1]. This indicates that one and only one PDU frame has been lost.

- Unexpected frame number is when an incoming PDU does not have the expected frame number and is not considered as a Frame Loss.

Value range: {0-15}.

Field length: 4 bits.