3GPP TSG-RAN WG1 Meeting #20
Pusan, Korea, 21st May – 25th May 2001

R1-01-0464

Agenda Item: Ad Hoc 29
Source: Siemens AG
Title: CR 25.214-167, Correction of IPDL burst parameters
Document for: Decision

This CR corrects the definition of some IPDL burst mode parameters.

CR-Form-v3

CHANGE REQUEST

⌘ **25.214** **CR** **167** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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 **X** Core Network ☐

Title:	⌘	Correction of IPDL burst parameters
Source:	⌘	Siemens AG
Work item code:	⌘	LCS1-UEpos
Date:	⌘	15. May 2001
Category:	⌘	**F**
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 the current definition of some IPDL burst mode parameters the scaling factor of 256 is missing. This could lead to wrong starting points of the bursts in IPDL burst mode.
Summary of change:	⌘	Correction in the definition of the IPDL burst mode parameters.
Consequences if not approved:	⌘	Wrong calculation of starting points of IPDL bursts.

Clauses affected:	⌘	8.2; 8.3
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.

8.2 Parameters of IPDL

The following parameters are signalled to the UE via higher layers:

IP_Status: This is a logic value that indicates if the idle periods are arranged in continuous or burst mode.

IP_Spacing: The number of 10 ms radio frames between the start of a radio frame that contains an idle period and the next radio frame that contains an idle period. Note that there is at most one idle period in a radio frame.

IP_Length: The length of the idle periods, expressed in symbols of the CPICH.

IP_Offset: A cell specific offset that can be used to synchronise idle periods from different sectors within a Node B.

Seed: Seed for the pseudo random number generator.

Additionally in the case of burst mode operation the following parameters are also communicated to the UE.

Burst_Start: Specifies the start of the first burst of idle periods. 256×Burst_Start is ~~T~~the SFN where the first burst of idle periods starts.

Burst_Length: The number of idle periods in a burst of idle periods.

Burst_Freq: Specifies the time between the start of a burst and the start of the next burst. 256×Burst_Freq is ~~T~~the number of radio frames of the primary CPICH between the start of a burst and the start of the next burst.

8.3 Calculation of idle period position

In burst mode, the first burst starts in the radio frame with SFN = Burst_Start. The *n*:th burst starts in the radio frame with SFN = 256×Burst_Start + *n*×256×Burst_Freq. The sequence of bursts according to this formula continues up to and including the radio frame with SFN = 4095. At the start of the radio frame with SFN = 0, the burst sequence is terminated (no idle periods are generated) and at SFN = Burst_Start the burst sequence is restarted with the first burst followed by the second burst etc., as described above.

Continuous mode is equivalent to burst mode, with only one burst spanning the whole SFN cycle of 4096 radio frames, this burst starting in the radio frame with SFN = 0.

Assume that IP_Position(*x*) is the position of idle period number *x* within a burst, where *x* = 1, 2, …, and IP_Position(*x*) is measured in number of CPICH symbols from the start of the first radio frame of the burst.

The positions of the idle periods within each burst are then given by the following equation:

$$\text{IP\_Position}(x) = (x \times \text{IP\_Spacing} \times 150) + (\text{rand}(x \bmod 64) \bmod (150 - \text{IP\_Length})) + \text{IP\_Offset};$$

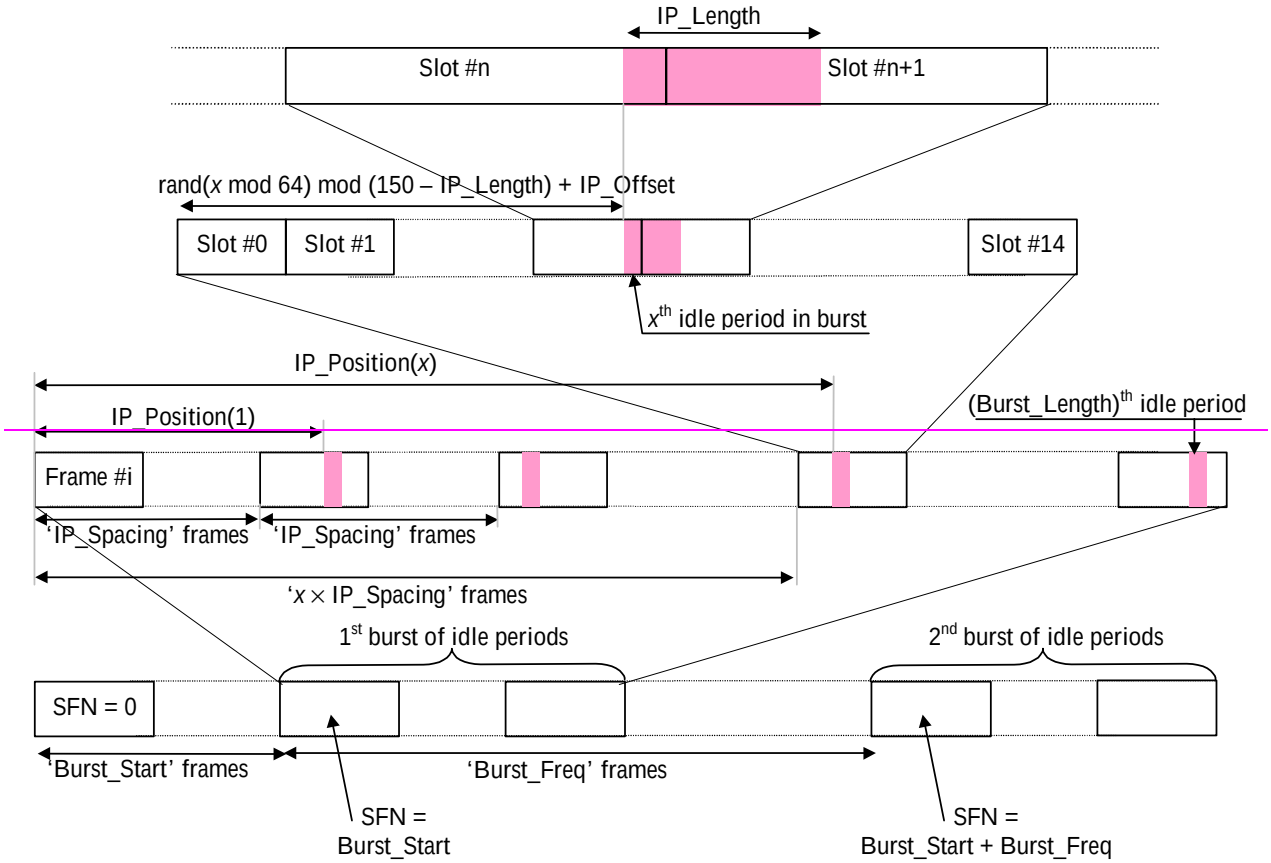
where rand(*n*) is a pseudo random generator defined as follows:

$$\text{rand}(0) = \text{Seed};$$

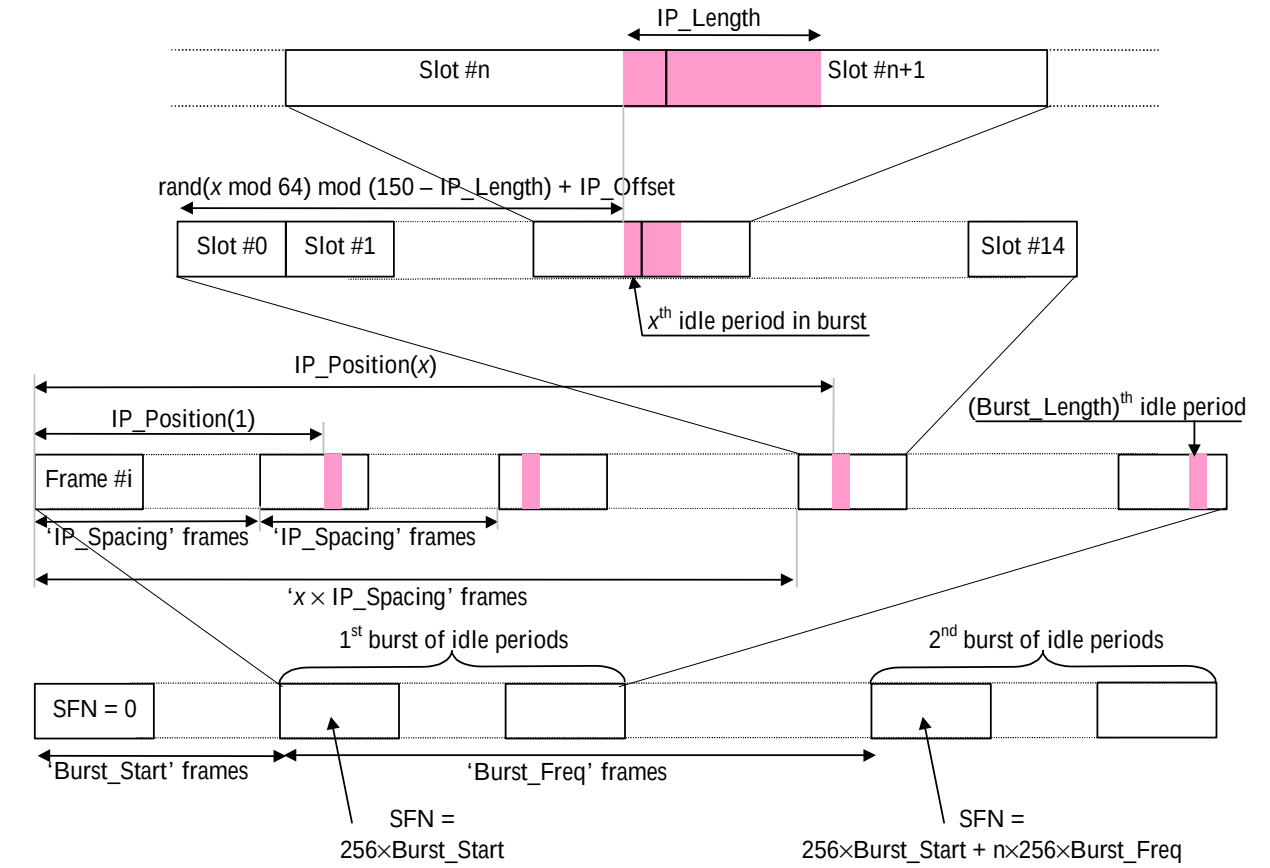
$$\text{rand}(n) = (106 \times \text{rand}(n-1) + 1283) \bmod 6075,\ n = 1, 2, 3, \ldots.$$

Note that *x* is reset to *x* = 1 for the first idle period in every burst.

Figure 6 below illustrates the idle periods for the burst mode case.



~~**Figure 6: Idle Period placement in the case of burst mode operation**~~



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