Agenda Item: Ad Hoc 29
Source: Siemens
Title: CR 25.221-044 Correction of beacon characteristics due to IPDLs
Document for: Decision

CR-Form-v3

CHANGE REQUEST

✎   **25.221 CR 044**   ✎ rev **-** ✎   Current version: **3.5.0** ✎

*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: ✎	CR 25.221-044 Correction of beacon characteristics due to IPDLs
Source: ✎	Siemens AG
Work item code: ✎ UE Positioning enhancements	***Date:*** ✎ 23. Feb. 2001
Category: ✎ **C**	***Release:*** ✎ REL-4

Use <u>one</u> of the following categories:	Use <u>one</u> of the following releases:
F *(essential correction)*	2 *(GSM Phase 2)*
A *(corresponds to a correction in an earlier release)*	R96 *(Release 1996)*
B *(Addition of feature),*	R97 *(Release 1997)*
C *(Functional modification of feature)*	R98 *(Release 1998)*
D *(Editorial modification)*	R99 *(Release 1999)*
Detailed explanations of the above categories can	REL-4 *(Release 4)*
be found in 3GPP TR 21.900.	REL-5 *(Release 5)*

Reason for change: ✎	A beacon channel may not be transmitted due to idle periods. In this case, the definition of the presence of beacon channels according to the actual specification does not apply.
Summary of change: ✎	Clarification that in case of IPDLs it may be possible that in the IPDL frames no beacon channel is present.
Consequences if not approved: ✎	Incorrect definition of beacon channels if a UP method with idle periods is based on beacon channels.

Clauses affected: ✎	5.5
Other specs Affected: ✎	**X** Other core specifications ✎ 25.331
	☐ 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.

5.5   Beacon characteristics of physical channels

For the purpose of measurements, physical channels at particular locations (time slot, code) shall have particular physical characteristics, called beacon characteristics. Physical channels with beacon characteristics are called beacon channels. The locations of the beacon channels are called beacon locations. The ensemble of beacon channels shall provide the beacon function, i.e. a reference power level at the beacon locations, regularly existing in each radio frame. Thus, beacon channels must be present in each radio frame, the only exception is when idle periods are used to support time difference measurements for location services [9]. Than it may be possible that the beacon channels occur in the same frame and time slot as the idle periods. In this case, the beacon channels will not be transmitted in that particular frame and time slot.

5.5.1   Location of beacon channels

The beacon locations are determined by the SCH and depend on the SCH allocation case, see 5.3.4:

Case 1)   The beacon function shall be provided by the physical channels that are allocated to channelisation code $c_{Q?16}^{(k?1)}$ and to TS#k, k=0….14.

Case 2)   The beacon function shall be provided by the physical channels that are allocated to channelisation code $c_{Q?16}^{(k?1)}$ and to TS#k and TS#k+8, k=0…6.

Note that by this definition the P-CCPCH always has beacon characteristics.

5.5.2   Physical characteristics of beacon channels

The beacon channels shall have the following physical characteristics. They:

-      are transmitted with reference power;

-      are transmitted without beamforming;

-      use burst type 1;

-      use midamble $m^{(1)}$ and $m^{(2)}$ exclusively in this time slot; and

-      midambles $m^{(9)}$ and $m^{(10)}$ are always left unused in this time slot, if 16 midambles are allowed in that cell.

Note that in the time slot where the P-CCPCH is transmitted only the midambles $m^{(1)}$ to $m^{(8)}$ shall be used, see 5.6.1. Thus, midambles $m^{(9)}$ and $m^{(10)}$ are always left unused in this time slot.

The reference power corresponds to the sum of the power allocated to both midambles $m^{(1)}$ and $m^{(2)}$. Two possibilities exist:

-      If no Block STTD antenna diversity is applied to P-CCPCH, all the reference power of any beacon channel is allocated to $m^{(1)}$.

-      If Block STTD antenna diversity is applied to P-CCPCH, for any beacon channel midambles $m^{(1)}$ and $m^{(2)}$ are each allocated half of the reference power. Midamble $m^{(1)}$ is used for the first antenna and $m^{(2)}$ is used for the diversity antenna. Block STTD encoding is used for the data in P-CCPCH, see [9]; for all other beacon channels identical data sequences are transmitted on both antennas.