3GPP TSG RAN Meeting #18 **RP-020840**
New Orleans, Louisiana, USA, 3 - 6 December, 2002

Title: **CRs (R'99) to TS 25.224**

Source: **TSG-RAN WG1**

Agenda item: **7.1.3**

Release 99 CRs
CR with no links to other specifications

TS 25.224 **(RP-020840)**

No.	Spec	CR	Rev	R1 T-doc	Subject	Phase	Cat	Workitem	V_old	V_new
1	25.224	103	-	R1-02-1387	Editorial modification to the section headings	R99	F	TEI	3.11.0	3.12.0

3GPP TSG-RAN1 Meeting #29
Shanghai, China, 3 – 8 November 2002

Tdoc R1-02-1387

CR-Form-v7

CHANGE REQUEST

⌘ **25.224** **CR** **103** ⌘ **rev** **-** ⌘ Current version: **3.11.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: UICC apps⌘ [ ] ME [X] Radio Access Network [X] Core Network [ ]

Title:	⌘	Editorial modification to the section headings
Source:	⌘	TSG RAN WG1
Work item code:	⌘	TEI
Date:	⌘	01/11/2002
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)*
Rel-6	*(Release 6)*

Reason for change:	⌘	Incorrect implementation of an approved CR (R1-02-1185), approved at RAN1#28.
Summary of change:	⌘	Two headings on TxDiversity are exchanged.
Consequences if not approved:	⌘	Incorrect headings may lead to misunderstanding of the specifications, e.g. the implementation of SCTD TxDiversity to PICH and P-CCPCH only.

Clauses affected:	⌘				
Other specs affected:	⌘	**Y**	**N**		⌘
			X	Other core specifications	
			X	Test specifications	
			X	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/specs/CR.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

4.6 Downlink Transmit Diversity

Downlink transmit diversity for PDSCH, DPCH, P-CCPCH, S-CCPCH, PICH, and SCH is optional in UTRAN. Its support is mandatory at the UE.

4.6.1 Transmit Diversity for PDSCH and DPCH~~Transmit Diversity for Beacon Channels~~

The transmitter structure to support transmit diversity for PDSCH and DPCH transmission is shown in figure 1. Channel coding, interleaving and spreading are done as in non-diversity mode. The spread complex valued signal is fed to both TX antenna branches, and weighted with antenna specific weight factors w_1 and w_2. The weight factors are complex valued signals (i.e., $w_i = a_i + jb_i$), in general. These weight factors are calculated on a per slot and per user basis.

The weight factors are determined by the UTRAN. Examples of transmit diversity schemes are given in annex B.

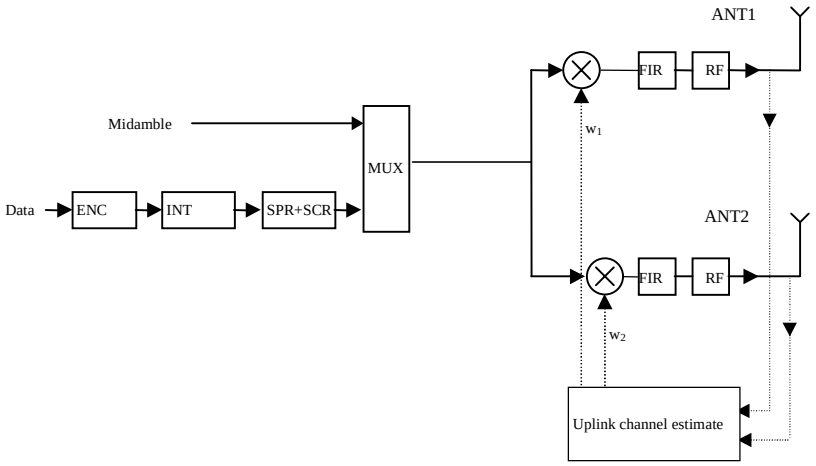

Figure 1: Downlink transmitter structure to support Transmit Diversity for PDSCH and DPCH transmission (UTRAN Access Point)

4.6.2 Transmit Diversity for SCH

Time Switched Transmit Diversity (TSTD) can be employed as transmit diversity scheme for the synchronisation channel.

4.6.2.1 SCH Transmission Scheme

The transmitter structure to support transmit diversity for SCH transmission is shown in figure 2. P-SCH and S-SCH are transmitted from antenna 1 and antenna 2 alternatively. An example for the antenna switching pattern is shown in figure 3.

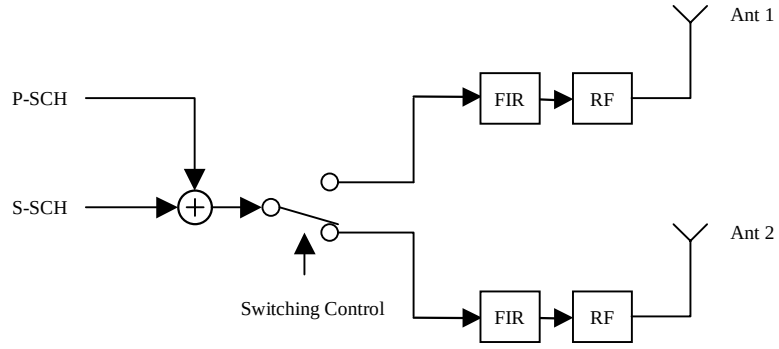

Figure 2: Downlink transmitter structure to support Transmit Diversity for SCH transmission (UTRAN Access Point)

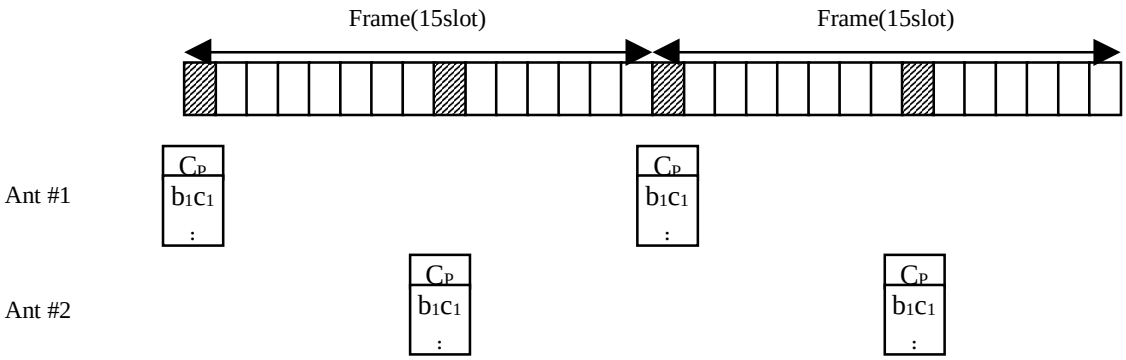

Figure 3: Antenna Switching Pattern (Case 2)

4.6.3 Transmit Diversity for Beacon Channels ~~Transmit Diversity for P-CCPCH and PICH~~

Space Code Transmit Diversity (SCTD) for beacon channels may be employed optionally in the UTRAN. The support is mandatory in the UE. The use of SCTD will be indicated by higher layers. If SCTD is active within a cell :-

- SCTD shall be applied to any beacon channel, and
- the maximum number K_{Cell} of midambles for burst type 1 that are supported in this cell may be 8 or 16, see [8]. The case of K_{Cell} = 4 midambles is not allowed for this burst type.

4.6.3.1 SCTD Transmission Scheme

The open loop downlink transmit diversity scheme for beacon channels is shown in figure 4. Channel coding, rate matching, interleaving and bit-to-symbol mapping are performed as in the non-diversity mode. In Space Code Transmit Diversity mode the data sequence is spread with the channelisation codes $c_{16}^{(k=1)}$ and $c_{16}^{(k=2)}$ and scrambled with the cell specific scrambling code. The spread sequence on code $c_{16}^{(k=2)}$ is then transmitted on the diversity antenna. The power applied to each antenna shall be equal.

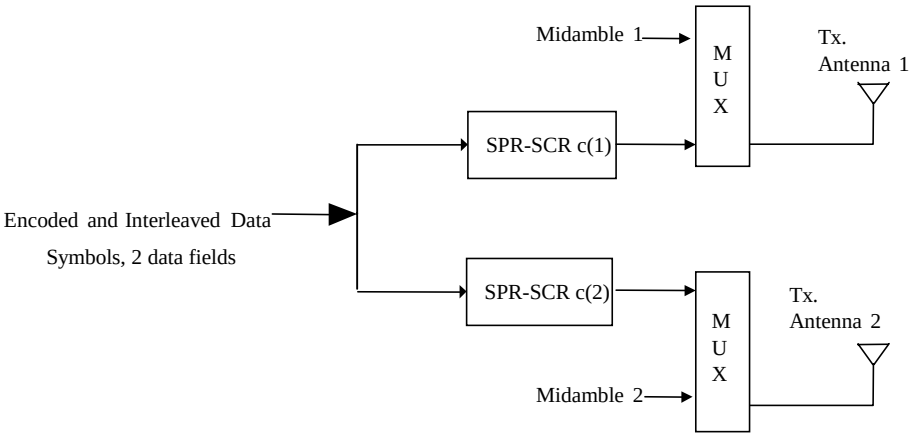

Figure 4: Block Diagram of the transmitter SCTD