

TSG RAN Meeting #25
Palm Springs, CA USA, 7 - 9 September 2004

RP-040316

Title CRs (Rel-4 and Rel-5/Rel-6 Category A) to TS25.224 for transmit diversity usage for beacon channels in LCR TDD
Source TSG RAN WG1
Agenda Item 7.2.4

RAN1 Tdoc	Spec	CR	Rev	Phase	Cat	Current Version	Subject	Workitem	Remarks
R1-040883	25.224	132	-	Rel-4	F	4.10.0	Transmit diversity usage for beacon channels in LCR TDD	TEI 4	
R1-040883	25.224	133	-	Rel-5	A	5.7.0	Transmit diversity usage for beacon channels in LCR TDD	TEI 4	
R1-040883	25.224	134	-	Rel-6	A	6.1.0	Transmit diversity usage for beacon channels in LCR TDD	TEI 4	

CHANGE REQUEST

25.224 CR CR132 # rev **-** # Current version: **4.10.0**

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 Radio Access Network Core Network

Title:	# Transmit diversity usage for beacon channels in LCR TDD		
Source:	# RAN WG1		
Work item code:	# TEI 4	Date:	# 27/7/04
Category:	# F	Release:	# Rel-4
	<i>Use <u>one</u> of the following categories:</i> 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 .		<i>Use <u>one</u> of the following releases:</i> 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:	# P-CCPCH in LCR TDD may be configured to use either TSTD or SCTD transmit diversity schemes. However, it is not clearly stated what diversity scheme should be applied to other beacon channels when P-CCPCH uses TSTD.
Summary of change:	# Text is added to state that: “ If TSTD is applied to P-CCPCH, it shall also be applied to other beacon channels.” Also, in 5.5.4 the implication that SCTD is the only open loop transmit diversity scheme for beacon channels is corrected. <u>Impact assessment towards the previous version of the specification (same release):</u> This CR has isolated impact towards the previous version of the specification (same release). This CR has an impact under functional point of view. The impact can be considered isolated because it only affects the use of transmit diversity for beacon channels in LCR TDD mode.
Consequences if not approved:	# It will not be clear which form of transmit diversity should be applied for beacon channels when the P-CCPCH uses TSTD in LCR TDD.

Clauses affected: # 5.5.3.1, 5.5.4

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:

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- 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.

5.5.3 Transmit Diversity for P-CCPCH

TSTD or Space Code Transmit Diversity (SCTD) can be employed as transmit diversity scheme for the Primary Common Control Physical Channel (P-CCPCH)

5.5.3.1 TSTD Transmission Scheme for P-CCPCH

A block diagram of an example of a TSTD transmitter is shown in figure 6. Channel coding, rate matching, interleaving, bit-to-symbol mapping, spreading, and scrambling are performed as in the non-diversity mode. Then the data is time multiplexed with the midamble sequence. Then, after pulse shaping and modulation and amplification, P-CCPCH is transmitted from antenna 1 and antenna 2 alternately every sub-frame. If there is a DPCH that uses TSTD, TSTD is also applied to P-CCPCH. An example of the antenna-switching pattern is shown in figure 7. [If TSTD is applied to P-CCPCH, it shall also be applied to other beacon channels.](#)

5.5.4 SCTD Transmission Scheme for Beacon Channels

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.

The [SCTD](#) open loop downlink transmit diversity scheme for beacon channels is shown in figure 10, exemplary for the P-CCPCH. Channel coding, rate matching, interleaving and bit-to-symbol mapping are performed as in the non-diversity mode. In TxDiversity mode the beacon channel that is allocated to code $c_{16}^{(k=1)}$ is spread with the channelisation codes $c_{16}^{(k=1)}$ and $c_{16}^{(k=3)}$ and scrambled with the cell specific scrambling code. The beacon channel that is allocated to code $c_{16}^{(k=2)}$ is spread with the channelisation codes $c_{16}^{(k=2)}$ and $c_{16}^{(k=4)}$ and scrambled with the cell specific scrambling code. The spread sequences on code $c_{16}^{(k=3)}$ and code $c_{16}^{(k=4)}$ are then transmitted on the diversity antenna. The power applied to each antenna shall be equal.

The use of SCTD will be indicated by higher layers.

CHANGE REQUEST

25.224 CR CR133 # rev - # Current version: 5.7.0

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Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	# Transmit diversity usage for beacon channels in LCR TDD		
Source:	# RAN WG1		
Work item code:	# TEI 4	Date:	# 27/7/04
Category:	# A	Release:	# Rel-5
	<i>Use <u>one</u> of the following categories:</i> 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 .		<i>Use <u>one</u> of the following releases:</i> 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)

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Clauses affected:	# 5.5.3.1, 5.5.4
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Other specs affected:		Y	N		
	⌘		X	Other core specifications	⌘
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			X	O&M Specifications	
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CHANGE REQUEST

25.224 CR CR134 # rev - # Current version: 6.1.0

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Work item code:	# TEI 4	Date:	# 27/7/04
Category:	# A	Release:	# Rel-6
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