TSG RAN Meeting #20 **RP-030220**
Hämeenlinna, Finland, 3 - 6 June, 2003

Title **CRs (Rel-6) under WI "Technical Enhancements and Improvements"**
Source **TSG RAN WG4**
Agenda Item **8.9**

RAN4 Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-020622	25.101	234	1	F	Rel-6	6.0.0	Requirements on common channels with TX diversity	TEI6
R4-020371	25.104	185		F	Rel-6	6.1.0	Frequency error requirement correction	TEI6
R4-020562	25.133	596	1	F	Rel-6	6.1.0	Correction to CPICH_RSCP test case A.9.1.1.1	TEI6

3GPP TSG RAN WG4 (Radio) Meeting #27 **R4-030622**

Paris, France 19 - 23 May, 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.101** **CR** **234** ⌘ **rev** **1** ⌘ Current version: **6.0.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Requirements on common channels with TX diversity
Source:	⌘	RAN WG4
Work item code:	⌘	TEI6
Date:	⌘	27/05/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
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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:	⌘	Open Loop Tx diversity can be applied on all common channels and it is mandatory for the UEs to support it. However, currently there are no performance requirements on common channels when Tx diversity is applied. Thereby the performance gain from the open loop Tx diversity is specified. The performance requirement is based on simulations presented in R4-030377 and R4-030533 and an implementation margin=3.5 dB.
Summary of change:	⌘	Add a performance requirement for BCH
Consequences if not approved:	⌘	There are no performance requirements for Open loop Tx diversity on common channels.

Clauses affected:	⌘	8.11, annex C

Other specs affected: ⌘	Y	N		⌘
		X	Other core specifications	
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘

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8.11 Detection of Broadcast channel (BCH)

The receiver characteristics of Broadcast Channel (BCH) are determined by the Block Error Ratio (BLER) values. BCH is mapped into the primary common control physical channel (P-CCPCH).

8.11.1 Minimum requirement without transmit diversity

For the parameters specified in Table 8.40 the average downlink power P-CCPCH_Ec/Ior shall be below the specified value for the BLER shown in Table 8.41. (The Down link Physical channels are specified in Annex C.)

This requirement doesn't need to be tested.

Table 8.40: Parameters for BCH detection

Parameter	Unit	Test 1	Test 2
Phase reference	-	P-CPICH	
I_{oc}	dBm/3.84 MHz	-60	
$\hat{I}_{or}/I_{oc}$	dB	-1	-3
Propagation condition		Static	Case 3

Table 8.41: Test requirements for BCH detection

Test Number	P-CCPCH_Ec/Ior	BLER
1	-18.5 dB	0.01
2	-12.8 dB	0.01

8.11.1 Minimum requirement with open loop transmit diversity

For the parameters specified in Table 8.x the average downlink power P-CCPCH_Ec/Ior shall be below the specified value for the BLER shown in Table 8.y. (The Down link Physical channels are specified in Annex C.)

This requirement doesn't need to be tested.

Table 8.40: Test parameters for BCH detection in an open loop transmit diversity scheme (STTD). (Propagation condition: Case 1)

Parameter	Unit	Test 3
Phase reference	-	P-CPICH
I_{oc}	dBm/3.84 MHz	-60
$\hat{I}_{or}/I_{oc}$	dB	9

Table 8.41: Test requirements for BCH detection in open loop transmit diversity scheme

Test Number	P-CCPCH_Ec/Ior (Total power from antenna 1 and 2)	BLER
3	-18.5	0.01

****** NEW SECTION ******

C.3.2 Measurement of Performance requirements

Table C.3 is applicable for measurements on the Performance requirements (clause 8), including subclause 7.4 (Maximum input level) and subclause 6.4.4 (Out-of-synchronization handling of output power).

Table C.3: Downlink Physical Channels transmitted during a connection[1]

Physical Channel	Power ratio	NOTE
P-CPICH	P-CPICH_Ec/Ior = -10 dB	Use of P-CPICH or S-CPICH as phase reference is specified for each requirement and is also set by higher layer signalling.
S-CPICH	S-CPICH_Ec/Ior = -10 dB	When S-CPICH is the phase reference in a test condition, the phase of S-CPICH shall be 180 degrees offset from the phase of P-CPICH. When S-CPICH is not the phase reference, it is not transmitted.
P-CCPCH	P-CCPCH_Ec/Ior = -12 dB	When BCH performance is tested the P-CCPCH_Ec/Ior is test dependent
SCH	SCH_Ec/Ior = -12 dB	This power shall be divided equally between Primary and Secondary Synchronous channels
PICH	PICH_Ec/Ior = -15 dB	
DPCH	Test dependent power	When S-CPICH is the phase reference in a test condition, the phase of DPCH shall be 180 degrees offset from the phase of P-CPICH. When BCH performance is tested the DPCH is not transmitted.
OCNS	Necessary power so that total transmit power spectral density of Node B (Ior) adds to one[1]	OCNS interference consists of 16 dedicated data channels as specified in table C.6.

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

C.3.3 Connection with open-loop transmit diversity mode

Table C.4 is applicable for measurements for subclause 8.6.1 (Demodulation of DCH in open loop transmit diversity mode).

Table C.4: Downlink Physical Channels transmitted during a connection[1]

Physical Channel	Power ratio	NOTE
P-CPICH (antenna 1)	P-CPICH_Ec1/Ior = -13 dB	1. Total P-CPICH_Ec/Ior = -10 dB
P-CPICH (antenna 2)	P-CPICH_Ec2/Ior = -13 dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/Ior = -15 dB	1. STTD applied 2. Total P-CCPCH_Ec/Ior = -12 dB
P-CCPCH (antenna 2)	P-CCPCH_Ec2/Ior = -15 dB	
SCH (antenna 1 / 2)	SCH_Ec/Ior = -12 dB	1. TSTD applied. 2. This power shall be divided equally between Primary and Secondary Synchronous channels 3. When BCH performance is tested the P-CCPCH_Ec/Ior is test dependent
PICH (antenna 1)	PICH_Ec1/Ior = -18 dB	1. STTD applied 2. Total PICH_Ec/Ior = -15 dB
PICH (antenna 2)	PICH_Ec2/Ior = -18 dB	
DPCH	Test dependent power	1. STTD applied 2. Total power from both antennas
OCNS	Necessary power so that total transmit power spectral density of Node B (Ior) adds to one[1]	1.This power shall be divided equally between antennas 2.OCNS interference consists of 16 dedicated data channels as specified in Table C.6.

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

3GPP TSG RAN WG4 (Radio) Meeting #27 **R4-030371**

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CHANGE REQUEST

⌘ **25.104** **CR** **185** ⌘ **rev** ⌘ Current version: **6.1.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network ☒ Core Network ☐

Title:	⌘	Frequency error requirement correction
Source:	⌘	RAN WG4
Work item code:	⌘	TEI6
Date:	⌘	27/05/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

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R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	CR148r1 in RP-020802 was wrong implemented in 25.104 since the correct sentence “observed over a period of one timeslot” was deleted. This algins the requirement with the way it is expressed in R99, Rel-4 and Rel-5.
Summary of change:	⌘	Adding again the sentence clarifying the observation period of one timeslot.
Consequences if not approved:	⌘	Measurement time is not defined.

Clauses affected:	⌘	6.3.1

		Y	N		
Other specs affected:	⌘		X	Other core specifications	⌘
			X	Test specifications	
			X	O&M Specifications	

Other comments:	⌘	

6.3 Frequency error

The same source shall be used for RF frequency and data clock generation.

6.3.1 Minimum requirement

The modulated carrier frequency of the BS shall be accurate to within the accuracy range given in Table 6.0 observed over a period of one timeslot.

Table 6.0: Frequency error minimum requirement

BS class	Accuracy
Wide Area BS	±0.05 ppm
Medium Range BS	±0.1 ppm
Local Area BS	±0.1 ppm

3GPP TSG RAN WG4 (Radio) Meeting #27 **R4-030562**

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CHANGE REQUEST

⌘ **25.133** **CR** **596** ⌘ **rev** **1** ⌘ Current version: **6.1.0** ⌘

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Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction to CPICH_RSCP test case A.9.1.1.1
Source:	⌘	RAN WG4
Work item code:	⌘	TEI6
Date:	⌘	27/05/2003
Category:	⌘	**F**
Release:	⌘	Rel-6

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R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
Rel-4	*(Release 4)*
Rel-5	*(Release 5)*
Rel-6	*(Release 6)*

Reason for change:	⌘	The existing test case for CPICH RSCP has chosen the Io parameters to test as –94, -69 and –50. The core requirement has a spec of +/- 6 dB from –94 to –70 and +/- 8 dB for –70 to –50 (–70 is included in both ranges). It is therefore the case that the test at –69 dBm is at the easiest point in the mid range rather than the hardest. By shifting the Io down to –71 dBm a much more useful test will be created.
Summary of change:	⌘	The parameter for Io in test 1 is changed from –69 dBm to –71 dBm. Ioc and CPICH RSCP are therefore reduced by 2 dB also.
Consequences if not approved:	⌘	The test will not stress the most difficult point in the range.

Clauses affected:	⌘	A.9.1.1.1

Other specs affected: ⌘	Y	N		⌘	
		X	Other core specifications		34.121
	X		Test specifications		
		X	O&M Specifications		

Other comments:	⌘	This modified test is a correct and allowable interpretation of the core specification for this and all earlier releases.

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A.9.1 Measurement Performance for UE

A.9.1.1 CPICH RSCP

A.9.1.1.1 Test Purpose and Environment

The purpose of this test is to verify that the CPICH RSCP measurement accuracy is within the specified limits. This test will verify the requirements in section 9.1.1.

A.9.1.1.1.1 Intra frequency test parameters

In this case all cells are on the same frequency. Both CPICH RSCP intra frequency absolute and relative accuracy requirements are tested by using test parameters in Table A.9.1.

Table A.9.1: CPICH RSCP Intra frequency test parameters

Parameter	Unit	Test 1		Test 2		Test 3	
		Cell 1	Cell 2	Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1		Channel 1		Channel 1	
CPICH_Ec/Ior	dB	-10		-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12		-12	
SCH_Ec/Ior	dB	-12		-12		-12	
PICH_Ec/Ior	dB	-15		-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/ 3.84 MHz	-7~~5~~7.54		-59.98		-97.52	
Îor/Ioc	dB	4	0	9	0	0	-6.53
CPICH RSCP, Note 1	dBm	-8~~1~~3.5	-8~~5~~7.5	-60.98	-69.88	-107.5	-114.0
Io, Note 1	dBm/3.84 MHz	-~~69~~71		-50		-94	
Propagation condition	-	AWGN		AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.							
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for tests 2 and 3 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.							

A.9.1.1.1.2 Inter frequency test parameters

In this case both cells are on different frequencies and compressed mode is applied. The gap length is 7, detailed definition is in TS 25.101 annex A.5, Set 1 of Table A.22. CPICH RSCP inter frequency relative accuracy requirements are tested by using test parameters in Table A.9.2.

Table A.9.2: CPICH RSCP Inter frequency tests parameters

Parameter	Unit	Test 1		Test 2	
		Cell 1	Cell 2	Cell 1	Cell 2
UTRA RF Channel number		Channel 1	Channel 2	Channel 1	Channel 2
CPICH_Ec/Ior	dB	-10		-10	
PCCPCH_Ec/Ior	dB	-12		-12	
SCH_Ec/Ior	dB	-12		-12	
PICH_Ec/Ior	dB	-15		-15	
DPCH_Ec/Ior	dB	-15	-	-15	-
OCNS_Ec/Ior	dB	-1.11	-0.94	-1.11	-0.94
Ioc	dBm/3.84 MHz	-60.00	-60.00	-84.00	-94.46
Îor/Ioc	dB	9.54	9.54	0	-9.54
CPICH RSCP, Note 1	dBm	-60.46	-60.46	-94.0	-114.0
Io, Note 1	dBm/3.84 MHz	-50.00	-50.00	-81.0	-94.0
Propagation condition	-	AWGN		AWGN	
NOTE 1: CPICH RSCP and Io levels have been calculated from other parameters for information purposes. They are not settable parameters themselves.					
Tests shall be done sequentially. Test 1 shall be done first. After test 1 has been executed test parameters for test 2 shall be set within 5 seconds so that UE does not loose the Cell 2 in between the tests.					

A.9.1.1.2 Test Requirements

The CPICH RSCP measurement accuracy shall meet the requirements in section 9.1.1.