TSG RAN Meeting #20 **RP-030213**
Hämeenlinna, Finland, 3 - 6 June, 2003

Title **CRs (Rel-5 and Rel-6 Category A) to TS 25.101**
Source **TSG RAN WG4**
Agenda Item **7.4.5**

RAN4 Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-020451	25.101	244		F	Rel-5	5.6.0	Correction of TPC dynamic range in tests using DPCCH as a phase reference	TEI5
R4-020452	25.101	245		A	Rel-6	6.0.0	Correction of TPC dynamic range in tests using DPCCH as a phase reference	TEI5

3GPP TSG RAN WG4 (Radio) Meeting #27 **R4-030451**

Paris, France 19 - 23 May, 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.101** **CR** **244** ⌘ **rev** ⌘ Current version: **5.6.0** ⌘

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

Title:	⌘	Correction of TPC dynamic range in tests using DPCCH as a phase reference
Source:	⌘	RAN WG4
Work item code:	⌘	TEI5
Date:	⌘	27/05/2003
Category:	⌘	**F**
Release:	⌘	Rel-5

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 definition of the upper limit for DL power allocation for UEs in tests that use DPCCH as phase reference
Summary of change:	⌘	In Tests that use DPCCH as phase reference (tests 21-25), the power that shall be allocated to a DL beam according to Annex C.3.5 is 20% of the total Node B transmit power. However the parameter "Maximum_DL_Power" is set to 7 dB (relative to P-CPICH power) for these tests. This would result in a higher maximum DL beam power. Due to TPC, a UE under test could get allocated up to 50% of the total Node B transmit power in deep fades. This is inconsistent with the simulation assumptions that were used to drive the requirement. **Isolated Impact Analysis:** This CR corrects the parameter "Maximum_DL_Power" in tests using DPCCH as a phase reference. The corrected value is in line with the simulation assumptions that were used to drive the requirement. Therefore, the CR does not have any impact on any other requirements or implementations.
Consequences if not approved:	⌘	The parameters of tests 21-25 would be inconsistent with the core requirement.

Clauses affected:	⌘	8.3.1.1			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
		X		Test specifications	34.121
			X	O&M Specifications	

Other comments: ⌘	Equivalent CRs in other Releases: CR245 cat. A to 25.101 v6.0.0

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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.

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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.

8.3 Demodulation of DCH in multi-path fading propagation conditions

8.3.1 Single Link Performance

The receive characteristics of the Dedicated Channel (DCH) in different multi-path fading environments are determined by the Block Error Ratio (BLER) values. BLER is measured for the each of the individual data rate specified for the DPCH. DCH is mapped into in Dedicated Physical Channel (DPCH).

8.3.1.1 Minimum requirement

For the parameters specified in Table 8.7, 8.9 , 8.11, 8.13 and 8.14A the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power ratio shall be below the specified value for the BLER shown in Table 8.8, 8.10, 8.12, 8.14 and 8.14B. For the parameters specified in Table 8.14C and 8.14 E the downlink $\frac{DPCH\_E_c}{I_{or}}$ power ratio measured values, which are averaged over one slot, shall be below the specified value in Table 8.14D and 8.14F more than 90% of the time. These requirements are applicable for TFCS size 16.

Table 8.7: Test Parameters for DCH in multi-path fading propagation conditions (Case 1)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	9			
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.8: Test requirements for DCH in multi-path fading propagation conditions (Case 1)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-15.0 dB	10^{-2}
2	-13.9 dB	10^{-1}
	-10.0 dB	10^{-2}
3	-10.6 dB	10^{-1}
	-6.8 dB	10^{-2}
4	-6.3 dB	10^{-1}
	-2.2 dB	10^{-2}

Table 8.9: DCH parameters in multi-path fading propagation conditions (Case 2)

Parameter	Unit	Test 5	Test 6	Test 7	Test 8
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.10: DCH requirements in multi-path fading propagation (Case 2)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
5	-7.7 dB	10^{-2}
6	-6.4 dB	10^{-1}
	-2.7 dB	10^{-2}
7	-8.1 dB	10^{-1}
	-5.1 dB	10^{-2}
8	-5.5 dB	10^{-1}
	-3.2 dB	10^{-2}

Table 8.11: DCH parameters in multi-path fading propagation conditions (Case 3)

Parameter	Unit	Test 9	Test 10	Test 11	Test 12
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.12: DCH requirements in multi-path fading propagation conditions (Case 3)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
9	-11.8 dB	10^{-2}
10	-8.1 dB	10^{-1}
	-7.4 dB	10^{-2}
	-6.8 dB	10^{-3}
11	-9.0 dB	10^{-1}
	-8.5 dB	10^{-2}
	-8.0 dB	10^{-3}
12	-5.9 dB	10^{-1}
	-5.1 dB	10^{-2}
	-4.4 dB	10^{-3}

Table 8.13: DCH parameters in multi-path fading propagation conditions (Case 1) with S-CPICH

Parameter	Unit	Test 13	Test 14	Test 15	Test 16
Phase reference		S-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	9			
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.14: DCH requirements in multi-path fading propagation conditions (Case 1) with S-CPICH

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
13	-15.0 dB	10^{-2}
14	-13.9 dB	10^{-1}
	-10.0 dB	10^{-2}
15	-10.6 dB	10^{-1}
	-6.8 dB	10^{-2}
16	-6.3 dB	10^{-1}
	-2.2 dB	10^{-2}

Table 8.14A: DCH parameters in multi-path fading propagation conditions (Case 6)

Parameter	Unit	Test 17	Test 18	Test 19	Test 20
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.14B: DCH requirements in multi-path fading propagation conditions (Case 6)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
17	-8.8 dB	10^{-2}
18	-5.1 dB	10^{-1}
	-4.4 dB	10^{-2}
	-3.8 dB	10^{-3}
19	-6.0 dB	10^{-1}
	-5.5 dB	10^{-2}
	-5.0 dB	10^{-3}
20	-2.9 dB	10^{-1}
	-2.1 dB	10^{-2}
	-1.4 dB	10^{-3}

Table 8.14C: DCH parameters in multi-path fading propagation conditions (Case 7)

Parameter	Unit	Test 21	Test 22	Test 23	Test 24
Phase reference		DPCCH			
$\hat{I}_{or}/I_{oc}$	dB	0	0	6	12
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384
Target quality value on DTCH	BLER	0.01	0.01	0.01	0.1
Maximum_DL_Power	dB	~~7~~3 (Note)			
Minimum_DL_Power	dB	-18			
DL Power Control step size, Δ_{TPC}	dB	1			
Limited Power Increase	-	"Not used"			
NOTE:The fraction of the total Node B transmit power that is transmitted in the beam used for the UE under test, is set to 20% according to Annex C.3.5					

Table 8.14D: DCH requirements in multi-path fading propagation conditions (Case 7)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$
21	-14.0 dB
22	-9.1 dB
23	-9.4 dB
24	-7.4 dB

Table 8.14E: DCH parameters in multi-path fading propagation conditions (Case 7)

Parameter	Unit	Test 25
Phase reference		DPCCH
$\hat{I}_{or}/I_{oc}$	dB	0
I_{oc}	dBm/3.84 MHz	-60
Information Data Rate	kbps	12.2
Target quality value on DTCH	BLER	0.01
Maximum_DL_Power	dB	~~7~~3 (Note)
Minimum_DL_Power	dB	-18
DL Power Control step size, Δ_{TPC}	dB	1
Limited Power Increase	-	"Not used"
NOTE:The fraction of the total Node B transmit power that is transmitted in the beam used for the UE under test, is set to 20% according to Annex C.3.5		

Table 8.14F: DCH requirements in multi-path fading propagation conditions (Case 7)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$
25	-12.5 dB

NOTE: The reference channel used for Test Number 25 is described in section A.4A

3GPP TSG RAN WG4 (Radio) Meeting #27 **R4-030452**

Paris, France 19 - 23 May, 2003

CR-Form-v7

CHANGE REQUEST

⌘ **25.101** **CR** **245** ⌘ **rev** ⌘ Current version: **6.0.0** ⌘

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

Title:	⌘	Correction of TPC dynamic range in tests using DPCCH as a phase reference
Source:	⌘	RAN WG4
Work item code:	⌘	TEI5
Date:	⌘	27/05/2003
Category:	⌘	**A**
Release:	⌘	Rel-6

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Reason for change:	⌘	Incorrect definition of the upper limit for DL power allocation for UEs in tests that use DPCCH as phase reference
Summary of change:	⌘	In Tests that use DPCCH as phase reference (tests 21-25), the power that shall be allocated to a DL beam according to Annex C.3.5 is 20% of the total Node B transmit power. However the parameter "Maximum_DL_Power" is set to 7 dB (relative to P-CPICH power) for these tests. This would result in a higher maximum DL beam power. Due to TPC, a UE under test could get allocated up to 50% of the total Node B transmit power in deep fades. This is inconsistent with the simulation assumptions that were used to drive the requirement. **Isolated Impact Analysis:** This CR corrects the parameter "Maximum_DL_Power" in tests using DPCCH as a phase reference. The corrected value is in line with the simulation assumptions that were used to drive the requirement. Therefore, the CR does not have any impact on any other requirements or implementations.
Consequences if not approved:	⌘	The parameters of tests 21-25 would be inconsistent with the core requirement.

Clauses affected:	⌘	8.3.1.1			
Other specs affected:	⌘	**Y**	**N**		
			X	Other core specifications	⌘
		X		Test specifications	34.121
			X	O&M Specifications	

Other comments: ⌘	Equivalent CRs in other Releases: CR244 cat. F to 25.101 v5.6.0

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8.3 Demodulation of DCH in multi-path fading propagation conditions

8.3.1 Single Link Performance

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8.3.1.1 Minimum requirement

For the parameters specified in Table 8.7, 8.9 , 8.11, 8.13 and 8.14A the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power ratio shall be below the specified value for the BLER shown in Table 8.8, 8.10, 8.12, 8.14 and 8.14B. For the parameters specified in Table 8.14C and 8.14 E the downlink $\frac{DPCH\_E_c}{I_{or}}$ power ratio measured values, which are averaged over one slot, shall be below the specified value in Table 8.14D and 8.14F more than 90% of the time. These requirements are applicable for TFCS size 16.

Table 8.7: Test Parameters for DCH in multi-path fading propagation conditions (Case 1)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	9			
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.8: Test requirements for DCH in multi-path fading propagation conditions (Case 1)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-15.0 dB	10^{-2}
2	-13.9 dB	10^{-1}
	-10.0 dB	10^{-2}
3	-10.6 dB	10^{-1}
	-6.8 dB	10^{-2}
4	-6.3 dB	10^{-1}
	-2.2 dB	10^{-2}

Table 8.9: DCH parameters in multi-path fading propagation conditions (Case 2)

Parameter	Unit	Test 5	Test 6	Test 7	Test 8
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.10: DCH requirements in multi-path fading propagation (Case 2)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
5	-7.7 dB	10^{-2}
6	-6.4 dB	10^{-1}
	-2.7 dB	10^{-2}
7	-8.1 dB	10^{-1}
	-5.1 dB	10^{-2}
8	-5.5 dB	10^{-1}
	-3.2 dB	10^{-2}

Table 8.11: DCH parameters in multi-path fading propagation conditions (Case 3)

Parameter	Unit	Test 9	Test 10	Test 11	Test 12
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.12: DCH requirements in multi-path fading propagation conditions (Case 3)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
9	-11.8 dB	10^{-2}
10	-8.1 dB	10^{-1}
	-7.4 dB	10^{-2}
	-6.8 dB	10^{-3}
11	-9.0 dB	10^{-1}
	-8.5 dB	10^{-2}
	-8.0 dB	10^{-3}
12	-5.9 dB	10^{-1}
	-5.1 dB	10^{-2}
	-4.4 dB	10^{-3}

Table 8.13: DCH parameters in multi-path fading propagation conditions (Case 1) with S-CPICH

Parameter	Unit	Test 13	Test 14	Test 15	Test 16
Phase reference		S-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	9			
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.14: DCH requirements in multi-path fading propagation conditions (Case 1) with S-CPICH

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
13	-15.0 dB	10^{-2}
14	-13.9 dB	10^{-1}
	-10.0 dB	10^{-2}
15	-10.6 dB	10^{-1}
	-6.8 dB	10^{-2}
16	-6.3 dB	10^{-1}
	-2.2 dB	10^{-2}

Table 8.14A: DCH parameters in multi-path fading propagation conditions (Case 6)

Parameter	Unit	Test 17	Test 18	Test 19	Test 20
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.14B: DCH requirements in multi-path fading propagation conditions (Case 6)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
17	-8.8 dB	10^{-2}
18	-5.1 dB	10^{-1}
	-4.4 dB	10^{-2}
	-3.8 dB	10^{-3}
19	-6.0 dB	10^{-1}
	-5.5 dB	10^{-2}
	-5.0 dB	10^{-3}
20	-2.9 dB	10^{-1}
	-2.1 dB	10^{-2}
	-1.4 dB	10^{-3}

Table 8.14C: DCH parameters in multi-path fading propagation conditions (Case 7)

Parameter	Unit	Test 21	Test 22	Test 23	Test 24
Phase reference		DPCCH			
$\hat{I}_{or}/I_{oc}$	dB	0	0	6	12
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384
Target quality value on DTCH	BLER	0.01	0.01	0.01	0.1
Maximum_DL_Power	dB	~~7~~3 (Note)			
Minimum_DL_Power	dB	-18			
DL Power Control step size, Δ_{TPC}	dB	1			
Limited Power Increase	-	"Not used"			
NOTE:The fraction of the total Node B transmit power that is transmitted in the beam used for the UE under test, is set to 20% according to Annex C.3.5					

Table 8.14D: DCH requirements in multi-path fading propagation conditions (Case 7)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$
21	-14.0 dB
22	-9.1 dB
23	-9.4 dB
24	-7.4 dB

Table 8.14E: DCH parameters in multi-path fading propagation conditions (Case 7)

Parameter	Unit	Test 25
Phase reference		DPCCH
$\hat{I}_{or}/I_{oc}$	dB	0
I_{oc}	dBm/3.84 MHz	-60
Information Data Rate	kbps	12.2
Target quality value on DTCH	BLER	0.01
Maximum_DL_Power	dB	~~7~~3 (Note)
Minimum_DL_Power	dB	-18
DL Power Control step size, Δ_{TPC}	dB	1
Limited Power Increase	-	"Not used"
NOTE:The fraction of the total Node B transmit power that is transmitted in the beam used for the UE under test, is set to 20% according to Annex C.3.5		

Table 8.14F: DCH requirements in multi-path fading propagation conditions (Case 7)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$
25	-12.5 dB

NOTE: The reference channel used for Test Number 25 is described in section A.4A