TSGRP#9(00)0395

TSG-RAN Meeting #9 Hawaii, US, 20 - 22 September 2000

Title: Agreed CRs to TS 25.102

Source: TSG-RAN WG4

Agenda item: 5.4.3

Tdoc Num	TS	CR number	Title	TYPE	Status	Cur_Ver	New_Ver
R4-000604	25.102	32	Performance requirements with TFCI decoding for TDD UE	F	agreed	3.3.0	3.4.0
R4-000699	25.102	33	Performance test for UE power control in downlink	F	agreed	3.3.0	3.4.0
R4-000728	25.102	34	Definition of period for frequency error	F	agreed	3.3.0	3.4.0
R4-000776	25.102	35	Handling of measurement uncertainties in UE radio conformance testing (TDD)	F	agreed	3.3.0	3.4.0

3GPP TSG-RAN WG4 Meeting #13 Torino, Italy, September 04 - 09, 2000

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8.2 Demodulation in static propagation conditions

8.2.1 Demodulation of DCH

The performance requirement of DCH in static propagation conditions is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

8.2.1.1 Minimum requirement

For the parameters specified in Table 8.2 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.3. <u>These requirements are applicable for TFCS size 16.</u>

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{\Sigma DPCH_E_c}{I_{or}}$	dB	-6	-3	0	0
I _{oc}	dBm/3.84 MHz		-6	50	
Information Data Rate	kbps	12.2	64	144	384

Table 8.2: DCH parameters in static propagation conditions

Table 8.3: Performance requirements in AWGN channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}} [dB]$	BLER
1	0.1	10-2
2	2.3	10-1
	2.6	10-2
3	2.2	10-1
	2.4	10-2
4	1.6	10-1
	1.8	10-2

8.3 Demodulation of DCH in multipath fading conditions

8.3.1 Multipath fading Case 1

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

8.3.1.1 Minimum requirement

For the parameters specified in Table 8.4 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.5. These requirements are applicable for TFCS size 16.

Table 8.4: DCH	parameters	in multipath	Case 1	channel
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Table 8.5:	Performance	requirements	in multipath	Case 1 channel.
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Test Number	$\frac{\hat{I}_{or}}{I_{oc}} [dB]$	BLER
1	13.5	10-2
2	13.3	10-1
	19.6	10-2
3	13.3	10-1
	19.7	10-2
4	13.5	10-1
	20.2	10-2

8.3.2 Multipath fading Case 2

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

8.3.2.1 Minimum requirement

For the parameters specified in Table 8.6 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.7. <u>These requirements are applicable for TFCS size 16.</u>

Table 8.6: DCH parameters in multipath Case 2 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{\Sigma DPCH_E_c}{I_{or}}$	DB	-3	0	0	0
I _{oc}	dBm/3.84 MHz		-6	50	
Information Data Rate	kbps	12.2	64	144	384

Table 8.7: Performance	e requirements in	multipath Case	2 channel.
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Test Number	$\frac{\hat{I}_{or}}{I_{oc}} [dB]$	BLER
1	5.5	10 ⁻²
2	5.8	10-1

2	5
_	-

	9.7	10-2
3	9.5	10-1
	13.2	10-2
4	8.5	10-1
	12.6	10-2

8.3.3 Multipath fading Case 3

The performance requirement of DCH is determined by the maximum Block Error Ratio (BLER). The BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

8.3.3.1 Minimum requirement

For the parameters specified in Table 8.8 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.9. These requirements are applicable for TFCS size 16.

Parameters	Unit	Test 1	Test 2	Test 3	Test 4	
$\frac{\Sigma DPCH_E_c}{I_{or}}$	dB	-3	0	0	0	
I _{oc}	dBm/3.84 MHz	-60				
Information Data Rate	kbps	12.2	64	144	384	

Table 8.8: DCH parameters in multipath Case 3 channel

Table 8.9:	Performance	requirements in	multipath	Case 3 channel.
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Test Number	$\frac{\hat{I}_{or}}{I_{oc}} [dB]$	BLER
12.2 kbps	4.7	10-2
64 kbps	5.2	10-1
	8.4	10-2
	12.1	10-3
144 kbps	11.7	10-1
	15.2	10-2
	17.8	10-3
384 kbps	8.2	10-1
	11.3	10-2
	13.0	10-3

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8.5 Power control in downlink

Power control in the downlink is the ability of the UE receiver to converge to the required link quality set by the network while using minimum downlink power.

8.5.1 Minimum requirements

For the parameters specified in Table 8.12 the average downlink \hat{I}_{or}/I_{oc} power shall not exceed the values specified in Table 8.13. Downlink power control is ON during the test.

Parameter	Unit	Test 1	Test 2	
$\frac{DPCH_E_c}{I_{or}}$	<u>dB</u>	<u>0</u>	Ц	
I _{oc}	<u>dBm/3.84 MHz</u>	<u>-6</u>	6 <u>0</u>	
Information Data Rate	<u>kbps</u>	<u>12.2</u>		
<u>Target quality value on</u> <u>DTCH</u>	BLER	<u>0.(</u>	<u>01</u>	
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Table 8.12: Test parameters for downlink power control

Table 8.13: Requirements for downlink power control

Parameter	Unit	Test 1	Test 2	
$\frac{\hat{I}_{or}/I_{oc}}{}$	<u>dB</u>	Ц	Ц	
Measured quality on DTCH	BLER	<u>0.01±30%</u>	<u>0.01±30%</u>	

Annex B (normative): Propagation conditions

B.1 Static propagation condition

The propagation for the static performance measurement is an Additive White Gaussian Noise (AWGN) environment. No fading and multi-paths exist for this propagation model.

B.2 Multi-path fading propagation conditions

Table B2 shows propagation conditions that are used for the performance measurements in multi-path fading environment. All taps have classical Doppler spectrum.

Case 1, speed 3km/h		Case 2, speed 3 km/h		Case 3, 12	20 km/h	Case 4, 3 km/h		
Relative	Average	Relative	Average	Relative	Average	Relative	Average	
Delay	Power	Delay [ns]	Power	Delay [ns]	Power	Delay [ns]	Power	
[ns]	[dB]		[dB]		[dB]		[dB]	
0	0	0	0	0	0	<u>0</u>	<u>0</u>	
976	-10	976	0	260	-3	<u>976</u>	<u>0</u>	
		12000	0	521	-6			
				781	-9			

Table B2: Propagation Conditions for Multi path Fading Environments

3GPP TSG RAN WG4 Meeting #13 Torino, Italy, 4 – 8 Sept 2000

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6.3 UE frequency stability

The UE modulated carrier frequency shall be accurate to within ± 0.1 PPM <u>observed over a</u> <u>period of one timeslot</u> compared to carrier frequency received from the BS. These signals will have an apparent error due to BS frequency error and Doppler shift. In the later case, signals from the BS must be averaged over sufficient time that errors due to noise or interference are allowed for within the above ± 0.1 PPM figure. The UE shall use the same frequency source for both RF frequency generation and the chip clock.

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4.1 Measurement uncertaintyTest tolerances

The requirements given in the present document make no allowance for measurement uncertainty. Where the measurement uncertainty can be determined, The test specification 34.122 Annex F defines test tolerances. These test tolerances are individually calculated for each test. The test tolerances are then added to the limits in this specification to create test limits. The measurement results are compared against the test limits as defined by the shared risk principle. the test limit shall be relaxed from the value given in the present document. See Annex F of 34.122. Where the measurement uncertainty cannot reasonably be determined, the "Shared Risk" principle is applied, i.e. the test limit is not relaxed.

The Shared Risk principle is defined in ETR 273 Part 1 sub-part 2 section 6.5028.