TSG-RAN Meeting #6 *TSGRP#6(99)771*
Nice, France, 13 – 15 December 1999

Title: **Agreed CRs of category "D" (Editorial) to TS 25.101**

Source: **TSG-RAN WG4**

Agenda item: **5.4.3**

TSG_DOC	SPEC	CR	RE	3G_P	SUBJECT	CAT	VERS_CUR	VERS_NEW
R4-99855	25.101	005		R99	UE DL performance requirements	D	3.0.0	3.1.0
R4-99935	25.101	012		R99	Editorial changes to 25.101v3.0.0	D	3.0.0	3.1.0

3GPP TSG RAN WG4 Meeting #9
Bath, UK, 7-10 December 1999

Document
e.g. for 3GPP use the format TP-99xxx
or for SMG, use the format P-99-xxx

CHANGE REQUEST

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25.101	**CR**	**005**	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to: RAN#6 *list expected approval meeting # here ↑*

for approval [X] for information [ ]

strategic [ ] non-strategic [ ] *(for SMG use only)*

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)* (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [ ]

Source: TSG RAN WG4 **Date:** 3/12/99

Subject: Performance requirements for demodulation of DCH in the Static, multi-path case 1/2/3 for Section 8 of 25.101v3.0.0

Work item:

Category: *(only one category shall be marked with an X)*

F	Correction	[ ]
A	Corresponds to a correction in an earlier release	[ ]
B	Addition of feature	[ ]
C	Functional modification of feature	[ ]
D	Editorial modification	[X]

Release:

Phase 2	[ ]
Release 96	[ ]
Release 97	[ ]
Release 98	[ ]
Release 99	[X]
Release 00	[ ]

Reason for change: This contributions provides the performance limits to be specified for Table 24, Table 26, Table 28 and Table 30 based on simulation results provided by various companies. No values existed in these table prior to this CR

Clauses affected:

Other specs affected:

Other 3G core specifications	[ ]	→ List of CRs:
Other GSM core specifications	[ ]	→ List of CRs:
MS test specifications	[ ]	→ List of CRs:
BSS test specifications	[ ]	→ List of CRs:
O&M specifications	[ ]	→ List of CRs:

Other comments:

8.2.3 Demodulation of Dedicated Channel (DCH)

The receive characteristic of the Dedicated Channel (DCH) in the static environment is determined by the Block Error Rate (BLER). BLER is specified for each individual data rate of the DCH. DCH is mapped into the Dedicated Physical Channel (DPCH).

8.2.3.1 Minimum requirement

For the parameters specified in Table 23 the BLER shall not exceed the piece-wise linear BLER curve specified by the points in table 24

Table 23: DCH parameters in static propagation conditions

Parameter	Unit	Test 1	Test 2	Test 3	Test 4	Test 5
$\hat{I}_{or}/I_{oc}$	dB	-1				
I_{oc}	dBm/3.84 MHz	-60				
Information Data Rate	kbps	12.2	12.2	64	144	384
TFCI	-	off	on	on	on	on

Table 24: DCH requirements in static propagation conditions

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1		10^{-2}
2	-16.6 dB	10^{-2}
3	-13.1 dB	10^{-1}
	-12.8 dB	10^{-2}
4	-9.9 dB	10^{-1}
	-9.8 dB	10^{-2}
5	-5.6 dB	10^{-1}
	-5.5 dB	10^{-2}

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 Rate (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 25, 27 and 29 the BLER shall not exceed the associated piece-wise linear BLER curves specified by the points in Table 26, 28 and 30

Table 25: Test Parameters for DCH in multi-path fading propagation conditions (Case 1)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4	Test 5
$\hat{I}_{or}/I_{oc}$	dB	9				
I_{oc}	dBm/3.84 MHz	-60				
Information Data Rate	kbps	12.2	12.2	64	144	384
TFCI	-	off	on	on	on	on

Table 26: Test requirements for DCH in multi-path fading propagation conditions (Case 1)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1		10^{-2}
2	-15.0 dB	10^{-2}
3	-13.9 dB	10^{-1}
	-10.0 dB	10^{-2}
4	-10.6 dB	10^{-1}
	-6.8 dB	10^{-2}
5	-6.3 dB	10^{-1}
	-2.2 dB	10^{-2}

Table 27: DCH parameters in multi-path fading propagation conditions (Case 2)

Parameter	Unit	Test 6	Test 7	Test 8	Test 9	Test 10
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60				
Information Data Rate	kbps	12.2	12.2	64	144	384
TFCI	-	off	on	on	on	on

Table 28: DCH requirements in multi-path fading propagation (Case 2)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
6		10^{-2}
7	-7.7 dB	10^{-2}
8	-6.4 dB	10^{-1}
	-2.7 dB	10^{-2}
9	-8.1 dB	10^{-1}
	-5.1 dB	10^{-2}
10	-5.5 dB	10^{-1}
	-3.2 dB	10^{-2}

Table 29: DCH parameters in multi-path fading propagation conditions (Case 3)

Parameter	Unit	Test 11	Test 12	Test 13	Test 14	Test 15
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60				
Information Data Rate	kbps	12.2	12.2	64	144	384
TFCI	-	off	on	on	on	on

Table 30: DCH requirements in multi-path fading propagation conditions (Case 3)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
11		10^{-2}
12	-11.8 dB	10^{-2}
13	-8.1 dB	10^{-1}
	-7.4 dB	10^{-2}
	-6.8 dB	10^{-3}
14	-9.0 dB	10^{-1}
	-8.5 dB	10^{-2}
	-8.0 dB	10^{-3}
15	-6.0 dB	10^{-1}
	-5.5 dB	10^{-2}
	-5.0 dB	10^{-3}

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25.101	**CR**	**012**	Current Version:	3.0.0

GSM (AA.BB) or 3G (AA.BBB) specification number ↑ *↑ CR number as allocated by MCC support team*

For submission to:	RAN#6	for approval	X	strategic		*(for SMG use only)*
list expected approval meeting # here ↑		for information		non-strategic		

Form: CR cover sheet, version 2 for 3GPP and SMG *The latest version of this form is available from: ftp://ftp.3gpp.org/Information/CR-Form-v2.doc*

Proposed change affects: *(at least one should be marked with an X)*	(U)SIM		ME	X	UTRAN / Radio		Core Network	

Source:	Motorola	**Date:** 10/12/99
Subject:	Editorial changes to 25.101v3.0.0	
Work item:		

Category: *(only one category shall be marked with an X)*				**Release:**		
	F	Correction			Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
	B	Addition of feature			Release 97	
	C	Functional modification of feature			Release 98	
	D	Editorial modification	X		Release 99	X
					Release 00	

Reason for change:

- This contributions provides a number of editorial changes to the specification . There are no changes proposed in terms of the requirement.
- Open item list is shifted to 30.504 “Workplan” and therefore deleted in 25.101

Clauses affected:

Other specs affected:			
Other 3G core specifications		→ List of CRs:	
Other GSM core specifications		→ List of CRs:	
MS test specifications	X	→ List of CRs:	
BSS test specifications		→ List of CRs:	
O&M specifications		→ List of CRs:	

Other comments:

3.1 Definitions

I_{or}	The total transmit power spectral density of the ~~forward~~ down link at the base station antenna connector.
$\hat{I}_{or}$	The received power spectral density of the ~~forward~~ down-link as measured at the UE antenna connector.

F_{uw}	Frequency of unwanted signal. *This is specified in bracket in terms of an absolute frequency(s) or frequecny offset from the assigned channel frequency.*

~~6.4.4 Power control cycles per second~~

~~The maximum rate of change for the UL/DL transmitter power control step.~~

~~Up link (UL) 1.5 kHz~~

~~Down link (DL) 1.5 kHz~~

Table 14b: Test parameters for Adjacent Channel Selectivity

Parameter	Unit	Level
$\frac{PCCPCH\_Ec}{I_{or}}$	dB	-0.46
$\frac{DPCH\_Ec}{I_{or}}$	dB	-10
$\hat{I}_{or}$	dBm/3.84 MHz	-93
I_{oac} (modulated)	dBm/3.84 MHz	-52
F_{uw} ~~(modulated)~~ (offset)	MHz	+5 or -5

Table 15: In-band blocking

Parameter	Unit	Offset	Offset
$\frac{PCCPCH\_Ec}{I_{or}}$	dB	-1	-1
$\frac{DPCH\_Ec}{I_{or}}$	dB	-7	-7
$\hat{I}_{or}$	dBm/3.84 MHz	-107	-107
$I_{blocking}$ (modulated)	dBm/3.84 MHz	-56	-44
~~Blocking offset~~ F_{uw} (offset)	MHz	~~10<|f-fo|<15~~ +10 or –10	~~|f-fo| ≥15~~ +15 or -15

Table 16: Out of band blocking

Parameter	Unit	Band 1	Band 2	Band 3
$\frac{PCCPCH\_Ec}{I_{or}}$	dB	-1	-1	-1
$\frac{DPCH\_Ec}{I_{or}}$	dB	-7	-7	-7
$\hat{I}_{or}$	dBm/3.84 MHz	-107	-107	-107
$I_{blocking}$ (CW)	dBm	-44	-30	-15
~~Blocking offset~~ F_{uw}	MHz	2050<f <2095 2185<f <2230	2025 <f <2050 2230 <f <2255	1< f <2025 2255<f<12750

Table 17: Spurious Response

Parameter	Unit	Level
$\frac{PCCPCH\_Ec}{I_{or}}$	dB	-1
$\frac{DPCH\_Ec}{I_{or}}$	dB	-7
$\hat{I}_{or}$	dBm/3.84 MHz	-107
$I_{blocking}$ (CW)	dBm	-44
~~fcw~~ F_{uw}	MHz	Spurious response frequencies

Table 18: Receive intermodulation characteristics

Parameter	Unit	Level
$\frac{PCCPCH\_Ec}{I_{or}}$	dB	-1
$\frac{DPCH\_Ec}{I_{or}}$	dB	-7
$\hat{I}_{or}$	dBm/3.84 MHz	-107
I_{ouw1} (CW)	dBm	-46
I_{ouw2} (modulated)	dBm/3.84 MHz	-46
Fuw1 ~~(CW)~~ (offset)	MHz	10
Fuw2 ~~(Modulated)~~(offset)	MHz	20

8.6.2 Demodulation of DCH in ~~feedback~~ closed loop transmit diversity mode

The receive characteristic of the dedicated channel (DCH) in ~~feedback~~ closed loop transmit diversity mode is determined by the Block Error Rate (BLER). DCH is mapped into in Dedicated Physical Channel (DPCH).

Table 37: Test Parameters for DCH Reception in ~~feedback~~ closed loop transmit diversity mode (Propagation condition: Case 1)

Parameter	Unit	Test 1 (Mode 1)	Test 2 (Mode 2)
$\frac{PCCPCH\_E_c}{I_{or}}$ (Antenna 1)	dB	-10	-10
$\frac{PCCPCH\_E_c}{I_{or}}$ (Antenna 2)	dB	-10	-10
$\frac{DPCH\_E_c}{I_{or}}$ (1)	dB	[ ]	[ ]
$\hat{I}_{or}/I_{oc}$	dB	[ ]	[ ]
I_{oc}	dBm/3.84 MHz	-60	-60
Information data rate	kbps	12.2	12.2
$DCH \quad E_b/N_t$	dB	[ ]	[ ]

Table 38: Test requirements for DCH reception in ~~feedback~~ closed loop transmit diversity mode.

8.7.1 Inter-Cell Soft Handover Performance

The bit error rate characteristics of UE is determined during an inter-cell soft handover. During the soft handover a UE receives signals from different Base Stations. A UE has to be able to demodulate two PCCPCH channels and to combine the energy of DCH channels. Delay profiles of signals received from different Base Stations are assumed to be the same but time shifted by ~~2440 ns (~~10 chips~~)~~.

The receive characteristics of the different channels during inter-cell handover are determined by the average Block Error Rate (BLER) values.

~~Annex E (Informative): Open items~~

~~Section number~~	~~Section description~~	~~Status~~
~~3.1~~	~~Definitions~~	~~Definition of average power ….~~
~~5.2~~	~~Frequency bands~~	~~The deployment of TDD in the 1920 MHz to 1980 MHz band is an open item~~
~~6.6.2.2~~	~~Adjacent Channel Leakage power Ratio (ACLR)~~	~~The possibility is being considered of dynamically relaxing the ACLR requirements for User Equipment(s) under conditions when this would not lead to significant interference (with respect to other system scenario or UMTS operators). This would be carried out under network control, primarily to facilitate reduction in UE power consumption~~.
~~6.4.2.1.1~~	~~Power control steps minimum requirement~~	~~The timing requirement for power control steps is FFS~~
~~6.4.2.1.1~~	~~Power control steps minimum requirement~~	~~The current text does not cover the case where a power command is a multiple of the step size defined in~~

1 This is the total power from both antennas. Power sharing between antennas are feedback mode dependent as specified in TS25.214

		~~6.4.3~~ ~~RAN WG1 is currently;~~ ~~• Analyzing the benefits of introduction of smaller step sizes (<1 dB>as an option~~ • ~~Investigating the benefits of emulated step size which imply that changes in the output power occurs at a rate lower than the one defined in 6.4.5~~
~~6.8.3~~	~~Peak code domain error~~	~~Outstanding~~
~~7~~	~~Receiver characteristic~~	~~All tables need change due to harmonization and changes to the downlink measurement channels in measurement. Note that the requirements are unchanged.~~