TSG-RAN Meeting #6
Nice, France, 13 – 15 December 1999

Title: Agreed CRs of category "B" (New features) to TS 25.102

Source: TSG-RAN WG4

Agenda item: 5.4.3

TSG_DOC	SPEC	CR	REV	3G_P	SUBJECT	CAT	VERS_CU	VERS_NEW
R4-99889	25.102	006		R99	Performance Requirements	B	3.0.0	3.1.0
R4-99956	25.102	009		R99	Peak Code Domain Error	B	3.0.0	3.1.0
R4-99969	25.102	012		R99	Transmit Template, should to shall	B	3.0.0	3.1.0

CHANGE REQUEST

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25.102 CR **006**   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*
list expected approval meeting # here ↑   for information ☐   non-strategic ☐   *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: (U)SIM ☐   ME **X**   UTRAN / Radio ☐   Core Network ☐
(at least one should be marked with an X)

Source: Siemens AG   **Date:**   07/12/99

Subject: Performance Requirements

Work item:

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

Reason for change: Based on simulations performance requirements are specified.

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   Performance requirement

8.1   General

The performance requirements for the UE in this section are specified for the measurement channels specified in Annex A and the propagation condition specified in Annex B.

Table 8.1: Summary of UE performance targets

Test Chs.	Information Data Rate	Static	Multi-path Case 1	Multi-path Case 2	Multi-path Case 3
		Performance metric			
DCH	12.2 kbps	BLER<10^{-2}	BLER<10^{-2}	BLER<10^{-2}	BLER<10^{-2}
	64 kbps	BLER< 10^{-1}, 10^{-2}	BLER< 10^{-1}, 10^{-2}	BLER< 10^{-1}, 10^{-2}	BLER< 10^{-1}, 10^{-2}, 10^{-3}
	144 kbps	BLER< 10^{-1}, 10^{-2}	BLER< 10^{-1}, 10^{-2}	BLER< 10^{-1}, 10^{-2}	BLER< 10^{-1}, 10^{-2}, 10^{-3}
	384 kbps	BLER< 10^{-1}, 10^{-2}	BLER< 10^{-1}, 10^{-2}	BLER< 10^{-1}, 10^{-2}	BLER< 10^{-1}, 10^{-2}, 10^{-3}
	~~2048 kbps~~				
BCH					

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 Rate (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 ~~T~~the BLER should not exceed the piece-wise linear BLER curve ~~limit for the~~ ~~E_b/N_0~~ specified in Table 8.3~~2~~.

Table 8.2: DCH parameters in static propagation conditions

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{\Sigma DPCH \_ E_c}{I_{or}}$	dB	-6	-3	0	0
I	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.2~~3~~: Performance requirements in AWGN channel.

Test Number~~Measurement channel~~	$\frac{\hat{I}_{or}}{I_{oc}}$ **[dB]**	**BLER**

~~1~~12.2 kbps	0.1	10^{-2}
~~2~~64 kbps	2.3	10^{-1}
	2.6	10^{-2}
~~3~~144 kbps	2.2	10^{-1}
	2.4	10^{-2}
~~4~~384 kbps	1.6	10^{-1}
	1.8	10^{-2}
2048 kbps		

8.2.2   Demodulation of BCH

8.2.2.1   Minimum requirement

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 Rate (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 T~~t~~he BLER should not exceed the ~~limit for the E_b/N_0~~ piece-wise linear BLER curve specified in Table 8.5~~3~~.

Table 8.4: DCH parameters in multipath Case 1 channel

Parameters	**Unit**	**Test 1**	**Test 2**	**Test 3**	**Test 4**
$\dfrac{\Sigma DPCH \_ E_c}{I_{or}}$	dB	-6	-3	0	0
I	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.~~3~~5: Performance requirements in multipath Case 1 channel.

Test Number ~~Measurement channel~~	$\dfrac{\hat{I}_{or}}{I_{oc}}$ **[dB]**	**BLER**
~~1~~12.2 kbps	13.5	10^{-2}

264 kbps	13.3	10^{-1}
	19.6	10^{-2}
3144 kbps	13.3	10^{-1}
	19.7	10^{-2}
4384 kbps	13.5	10^{-1}
	20.2	10^{-2}
2048 kbps		

8.3.2   Multipath fading Case 2

The performance requirement of DCH is determined by the maximum Block Error Rate (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 Tthe BLER should not exceed the limit for the E_b/N_0 piece-wise linear BLER curve specified in Table 8.47.

Table 8.6: DCH parameters in multipath Case 2 channel

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

Table 8.47: Performance requirements in multipath Case 2 channel.

Test Number Measurement channel	$\dfrac{\hat{I}_{or}}{I_{oc}}$ **[dB]**	**BLER**
112.2 kbps	5.5	10^{-2}
264 kbps	5.8	10^{-1}
	9.7	10^{-2}
3144 kbps	9.5	10^{-1}
	13.2	10^{-2}
4384 kbps	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 Rate (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 Tthe BLER should not exceed the limit for the E_b/N_0 piece-wise linear BLER curve specified in Table 8.85.

Table 8.8: DCH parameters in multipath Case 3 channel

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

Table 8.5: Performance requirements in multipath Case 3 channel.

Test Number Measurement channel	$\dfrac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
112.2 kbps	4.7	10^{-2}
264 kbps	5.2	10^{-1}
	8.4	10^{-2}
	12.1	10^{-3}
3144 kbps	11.7	10^{-1}
	15.2	10^{-2}
	17.8	10^{-3}
4384 kbps	8.2	10^{-1}
	11.3	10^{-2}
	13.0	10^{-3}

CHANGE REQUEST

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25.102 CR **009**   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*
list expected approval meeting # here ↑   for information ☐   non-strategic ☐   *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: (U)SIM ☐   ME **X**   UTRAN / Radio ☐   Core Network ☐
(at least one should be marked with an X)

Source:	Siemens AG	**Date:**	07/12/99

Subject:	Peak Code Domain Error

Work item:	

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

Reason for change:	The value for peak code domain error is not specified.

Clauses affected:	6.8.3

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:	

6.8.3　Peak Code Domain Error

This specification is applicable for multi-code transmission only.

The code domain error is computed by projecting the error vector power onto the code domain at the maximum spreading factor. The error power for each code is defined as the ratio to the mean power of the reference waveform expressed in dB. And the Peak Code Domain Error is defined as the maximum value for Code Domain Error. The measurement interval is one timeslot.

6.8.3.1　Minimum Requirement

The peak code domain error shall not exceed [] -27 dB from maximum transmit output power to minimum transmit output power as specified in subclause 6.2.1 and 6.4.5, respectively.

CHANGE REQUEST

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25.102	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
list expected approval meeting # here ↑		for information		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: (U)SIM ☐   ME **X**   UTRAN / Radio ☐   Core Network ☐
(at least one should be marked with an X)

Source:	Siemens AG	**Date:**	7/12/99

Subject:	Transmit Template

Work item:	

Category:

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

Reason for change:	Inclusion of transmit ON/OFF template to avoid leakage of power into adjacent timeslots.

Clauses affected:	6.5

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:	

6.5   Transmit ON/OFF power

6.5.1   Transmit OFF power

The transmit OFF power state is when the UE does not transmit. This parameter is defined as maximum output transmit power within the channel bandwidth when the transmitter is OFF.

6.5.1.1   Minimum Requirement

The requirement of transmitOFF power shall be better than –65dBm measured with a filter that has a Root Raised Cosine (RRC) filter responcse with a roll off α=0.22 and a bandwidth equal to the chip rate.

6.5.2   Transmit ON/OFF Time mask

The time mask transmit ON/OFF defines the ramping time allowed for the UE between transmit OFF power and transmit ON power.

6.5.2.1   Minimum Requirement

The transmit power level versus time shall meet the mask specified in figure 1, where the transmission period refers to the burst without guardperiod for a single transmission slot, and to the period from the beginning of the burst in the first transmission slot to the end of the burst without guardperiod in the last transmission timeslot for consecutive transmission slots.
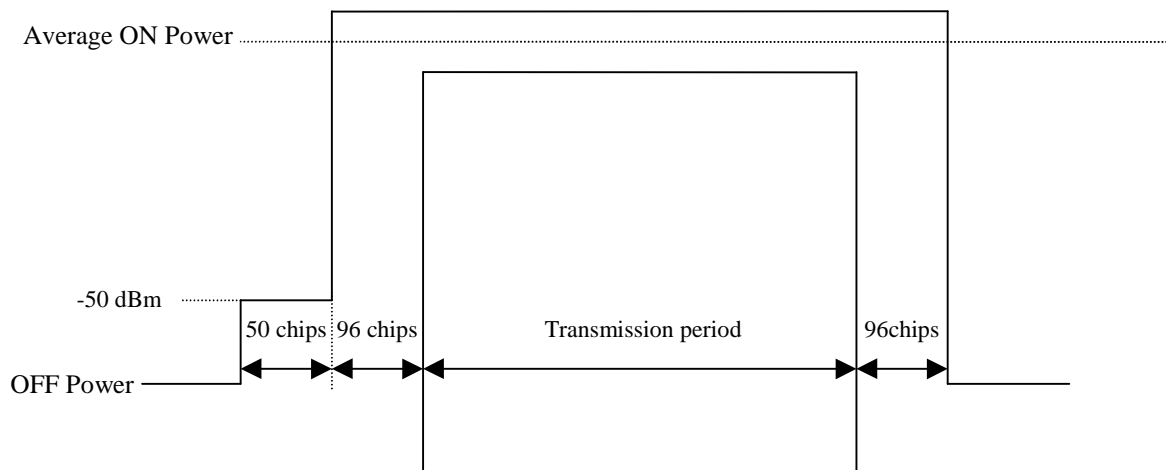

Figure 1: Transmit ON/OFF template