TSG-RAN Meeting #8 ***RP-000204***
Düsseldorf, Germany, 21 – 23 June 2000

Title: **Agreed CRs to TS 25.101**

Source: **TSG-RAN WG4**

Agenda item: **5.4.3**

Doc-1st-	Spec	CR	Re	Phas	Subject	Cat	Version	Version
RP-000204	25.101	040	1	R99	A test for UE's SIR target setting in a call set up	F	3.2.2	3.3.0
RP-000204	25.101	041	1	R99	Reception of TPC commands in a soft handover	F	3.2.2	3.3.0
RP-000204	25.101	042		R99	DCH requirement for 64 kbps measurement channel in birth-	F	3.2.2	3.3.0
RP-000204	25.101	043		R99	Power control in the downlink, constant BLER target	F	3.2.2	3.3.0
RP-000204	25.101	044		R99	Value update for 384 kbps measurement channel requirements	F	3.2.2	3.3.0
RP-000204	25.101	045	1	R99	CR for demodulation of DCH	F	3.2.2	3.3.0
RP-000204	25.101	046		R99	Correction for measurement channel in TS 25.101	F	3.2.2	3.3.0
RP-000204	25.101	047		R99	Editorial CR on section 8.6.3 of TS25.101 v3.2.0	D	3.2.2	3.3.0
RP-000204	25.101	048		R99	Correction of frequency numbering scheme	F	3.2.2	3.3.0
RP-000204	25.101	049		R99	Correction - Propagation conditions	F	3.2.2	3.3.0
RP-000204	25.101	050		R99	Compressed mode tests	F	3.2.2	3.3.0
RP-000204	25.101	051		R99	Correction of Out-of-sync criteria	F	3.2.2	3.3.0
RP-000204	25.101	052		R99	Editorial corrections for TS25.101.	F	3.2.2	3.3.0
RP-000204	25.101	053		R99	Clarification of the specification on Peak Code Domain Error	F	3.2.2	3.3.0
RP-000204	25.101	054		R99	Transients for uplink power steps	F	3.2.2	3.3.0
RP-000204	25.101	055		R99	Power setting for uplink compressed mode and RACH preambles	F	3.2.2	3.3.0
RP-000204	25.101	056		R99	UE interfering signal definition	F	3.2.2	3.3.0
RP-000204	25.101	057		R99	Downlink Power Control, wind up effects	F	3.2.2	3.3.0
RP-000204	25.101	058		R99	Use of P-CPICH and S-CPICH for performance requirements	F	3.2.2	3.3.0
RP-000204	25.101	059	1	R99	Performance of Closed Loop Diversity mode 2 and Mode 1	F	3.2.2	3.3.0
RP-000204	25.101	060		R99	Removal of brackets from Inter-Cell SHO test case	F	3.2.2	3.3.0
RP-000204	25.101	061		R99	Editorial corrections on moving propagation conditions	F	3.2.2	3.3.0

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**040 r1**	Current Version:	3.2.2

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

For submission to:	RAN#8	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: RAN WG4 **Date:** 2000-05-23

Subject: A test for UE's SIR target setting in a call set up

Work item:

Category:	F	Correction	X	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			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: This test is seen important by many operators but it is missing from current specification. In addition to this one general clarification is proposed to be added to Section 8.8 to quarantee meaningful DL power control tests.

Clauses affected: 8.8, 8.8.2 (NEW)

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:

8.8 Power control in downlink

Power control in the downlink is the ability of the UE receiver to converge to required link quality set by the network while using as low power as possible in downlink . If a BLER target has been assigned to a DCCH (See Annex A.3), then it has to be such that outer loop is based on DTCH and not on DCCH. ~~Additional performance requirements are expected to be added to this subclause.~~

8.8.1 Power control in the downlink, constant BLER target

8.8.1.1 Minimum requirements

For the parameters specified in Table 8.26 the downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value in Table 8.27 and the measured BLER value shall be as required in Table 8.27.

NOTE: Power control in downlink is ON during the test.

Table 8.26: Test parameter for downlink power control

Parameter	Unit	Test 1	Test 2
$\hat{I}_{or}/I_{oc}$	dB	9	-1
I_{oc}	dBm/3.84 MHz	-60	
Information Data Rate	kbps	12.2	
Target quality value on DTCH	BLER	0.01	
Propagation condition		Case 4	

Table 8.27: Requirements in downlink power control

Parameter	Unit	Test 1	Test 2
$\frac{DPCH\_E_c}{I_{or}}$	dB	-16.0	-9.0
Measured quality on DTCH	BLER	FFS	FFS
Confidence level for measured quality and $\frac{DPCH\_E_c}{I_{or}}$	%	90	

8.8.2 Power control in the downlink, initial convergence

This requirement verifies that DL power control works properly during the first seconds after DPCH connection is established

8.8.2.1 Minimum Requirements

For the parameters specified in Table 8.NEW-1 the downlink DPCH_Ec/Ior power, which is averaged over [50 ms], shall be within the range specified in Table 8.NEW-2. T1 equals to [500 ms] and it starts [10 ms] after the DPDCH connection is initiated. T2 equals to [500 ms] and it starts when T1 has expired. Power control is ON during the test.

Table 8.NEW-1: Test parameters for downlink power control

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Target quality value on DTCH	BLER	0.01	0.01	0.1	0.1
Initial DPCH_Ec/Ior	dB	-5.9~~6.6~~	-25.9~~26.6~~	-2.1~~3.1~~	-22.1~~23.1~~
Information Data Rate	kbps	12.2	12.2	64	64
$\hat{I}_{or}/I_{oc}$	dB	-1			
I_{oc}	dBm/3.84 MHz	-60			
Propagation condition		[Static]			

Table 8.NEW-2: Requirements in downlink power control

Parameter	Unit	Test 1 and Test 2	Test 3 and Test 4
$\frac{DPCH\_E_c}{I_{or}}$ during T1	dB	~~[-19.1 ≤ DPCH_Ec/Ior ≤ -13.6]~~ [-18.9 ≤ DPCH_Ec/Ior ≤ -11.9]	~~[-15.6 ≤ DPCH_Ec/Ior ≤ -10.1]~~ [-15.1 ≤ DPCH_Ec/Ior ≤ -8.1]
$\frac{DPCH\_E_c}{I_{or}}$ during T2	dB	~~[-19.1 ≤ DPCH_Ec/Ior ≤ -16.1]~~ [-18.9 ≤ DPCH_Ec/Ior ≤ -14.9]	~~[-15.6 ≤ DPCH_Ec/Ior ≤ -12.6]~~ [-15.1 ≤ DPCH_Ec/Ior ≤ -11.1]
Confidence level for measured $\frac{DPCH\_E_c}{I_{or}}$	%	[90]~~100~~	

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**041r1**	Current Version:	3.2.2

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

For submission to:	RAN#8	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: RAN WG4 **Date:** 2000-05-23

Subject: Reception of TPC commands in a soft handover

Work item:

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

F	Correction	X	**Release:**	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			Release 99	X
				Release 00	

Reason for change: A test for TPC command combining in a soft handover is missing from TS 25.101 although requirements are stated in TS 25.214.

Clauses affected: 8.7

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:

~~<--------- double-click here for help and instructions on how to create a CR.~~

8.7 Demodulation in Handover conditions

8.7.1 Demodulation of DCH in 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 10 chips.

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

8.7.1.1 Minimum requirement

For the parameters specified in Table 8.24, the BLER shall not exceed the piece-wise linear BLER curve specified by the points in Table 8.25.

Table 8.24: DCH parameters in multi-path propagation conditions during Soft Handoff (Case 3)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
$\hat{I}_{or1}/I_{oc}$ and $\hat{I}_{or2}/I_{oc}$	dB	0	0	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information data Rate	kbps	12.2	64	144	384

Table 8.25: DCH requirements in multi-path propagation conditions during Soft Handoff (Case 3)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	[-15.2 dB]	10^{-2}
2	[-11.8 dB]	10^{-1}
	[-11.3 dB]	10^{-2}
3	[-9.6 dB]	10^{-1}
	[-9.2 dB]	10^{-2}
4	[-6.0 dB]	10^{-1}
	[-5.5 dB]	10^{-2}

8.7.2 Combining of TPC commands not known to be the same

8.7.2.1. Minimum requirement

Test parameters are specified in Table 8.NEW-1. Cell1 and Cell2 TPC patterns are repeated 15 times i.e., over 4 frames. Transmitted power of UE in relative uplink slots is recorded. If the transmitted power of a given slot is increased compared to a previous slot, then a variable "Transmitted power UP" is increased by one, otherwise a variable "Transmitted power DOWN" is increased by one. The requirements for "Transmitted power UP" and "Transmitted power DOWN" are shown in Table 8.NEW-2. Note that test is done without additional noise source Ioc.

Table 8.NEW-1: Parameters for TPC command combining (Static conditions)

Parameter	Unit	Test 1
Initial power in uplink	dBm	-5
DPCH_Ec/Ior	dB	-12
I_{or1} and I_{or2}	dBm/3.84 MHz	-60
PowerControlAlgorithm	-	Algorithm 1
Cell 1 TPC commands over 4 slots	-	{0,0.1.1}
Cell 2 TPC commands over 4 slots	-	{0,1,0,1}
Information data Rate	kbps	12.2

Table 8.NEW-2: Test requirements for TPC command combining

Test Number	Transmitted power UP	Transmitted power DOWN
1	[≥15]	[≥30]

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101 CR 042 Current Version: 3.2.2

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

For submission to:	RAN#8	for approval	X	strategic	(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic	

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

Source: RAN WG4 **Date:** 2000-04-28

Subject: DCH requirement for 64 kbps measurement channel in birth-death propagation condition

Work item:

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

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

Release:

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

Reason for change: DCH requirement for 64 kbps measurement channel in birth-death propagation condition is not yet decided. This CR proposes DCH requirement for 64 kbps measurement channel in birth-death propagation condition.

Clauses affected: 8.5

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:

8.5 Demodulation of DCH in birth-death propagation conditions

8.5.1 Single link performance

The receive single link performance of the Dedicated Traffic Channel (DCH) in dynamic birth-death propagation conditions are determined by the Block Error Ratio (BLER) values. BER is measured for the each of the individual data rate specified for the DPCH. DCH is mapped into Dedicated Physical Channel (DPCH).

8.5.1.1 Minimum requirement

For the parameters specified in Table 8.16, the BLER shall not exceed the piece-wise linear BLER curve in the points in Table 8.17.

Table 8.16: DCH parameters in birth-death propagation conditions

Parameter	Unit	Test 1	Test 2
$\hat{I}_{or}/I_{oc}$	dB	-1	
I_{oc}	dBm/3.84 MHz	-60	
Information Data Rate	kbps	12.2	64

Table 8.17: DCH requirements in birth-death propagation conditions

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-12.6 dB	10^{-2}
2	-8.7 dB	10^{-2}

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**043**	Current Version:	3.2.2

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

For submission to:	RAN#8	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: (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [ ]
(at least one should be marked with an X)

Source: RAN4 **Date:** 2000-04-28

Subject: Power control in the downlink, constant BLER target

Work item:

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

F	Correction	X	**Release:**	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			Release 99	X
				Release 00	

Reason for change: A parameter "Measured quality on DTCH" was missing a value in current specification. Now the value for it is added together with some clarifications on measurement method.

Clauses affected: 8.8.1

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:

8.8 Power control in downlink

Power control in the downlink is the ability of the UE receiver to converge to required link quality set by the network while using as low power as possible in downlink . Additional performance requirements are expected to be added to this subclause.

8.8.1 Power control in the downlink, constant BLER target

8.8.1.1 Minimum requirements

For the parameters specified in Table 8.26 the downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value in Table 8.27 and the measured BLER value shall be as required in Table 8.27.

NOTE: Power control in downlink is ON during the test.

Table 8.26: Test parameter for downlink power control

Parameter	Unit	Test 1	Test 2
$\hat{I}_{or}/I_{oc}$	dB	9	-1
I_{oc}	dBm/3.84 MHz	-60	
Information Data Rate	kbps	12.2	
Target quality value on DTCH	BLER	0.01	
Propagation condition		Case 4	

Table 8.27: Requirements in downlink power control

Parameter	Unit	Test 1	Test 2
$\frac{DPCH\_E_c}{I_{or}}$	dB	-16.0	-9.0
Measured quality on DTCH	BLER	~~FFS~~0.01 ± 30%	~~FFS~~0.01 ± 30%
Confidence level for measured quality and $\frac{DPCH\_E_c}{I_{or}}$	%	90	

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101 CR 044 Current Version: 3.2.2

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

For submission to: RAN#8 for approval [X] strategic [ ] *(for SMG use only)*

list expected approval meeting # here ↑ for information [ ] non-strategic [ ]

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

Source: RAN 4 **Date:** 2000-04-28

Subject: Value update for 384 kbps measurement channel requirements

Work item:

Category:
(only one category shall be marked with an X)
- F Correction [X]
- A Corresponds to a correction in an earlier release [ ]
- B Addition of feature [ ]
- C Functional modification of feature [ ]
- D Editorial modification [ ]

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

Reason for change: 20 ms TTI for 384 kbps measurement channel has been changed to 10 ms in previous meetings. Now required DPCH_Ec/Ior values need to be updated. Also the note indication this change can now be removed.

Clauses affected: 8.2.3, 8.3.1, Annex A.2.4, Annex A.3.4

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:

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 Ratio (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 8.6 the BLER shall not exceed the piece-wise linear BLER curve specified by the points in table 8.7.

~~NOTE: The performance requirements for 384kbps will be replaced with new value using 10ms TTI measurement channel defined in subclause A.3.5.~~

Table 8.6: DCH parameters in static propagation conditions

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

Table 8.7: DCH requirements in static propagation conditions

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-16.6 dB	10^{-2}
2	-13.1 dB	10^{-1}
	-12.8 dB	10^{-2}
3	-9.9 dB	10^{-1}
	-9.8 dB	10^{-2}
4	-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 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 8.8, 8.10 and 8.12 the BLER shall not exceed the associated piece-wise linear BLER curves specified by the points in Table 8.9, 8.11 and 8.13.

~~NOTE: The performance requirements for 384kbps will be replaced with new value using 10ms TTI measurement channel defined in subclause A.3.5.~~

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

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

Table 8.9: 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 8.10: DCH parameters in multi-path fading propagation conditions (Case 2)

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

Table 8.11: 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 8.12: DCH parameters in multi-path fading propagation conditions (Case 3)

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

Table 8.13: 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~~6.0~~ dB	10^{-1}
	-5.1~~5.5~~ dB	10^{-2}
	-4.4~~5.0~~ dB	10^{-3}

~~A.2.4 UL reference measurement channel (384 kbps, 20ms TTI)~~

~~The parameters for the 384 kbps UL reference measurement channel (TTI 20ms) are specified in Table A.7 and Table A.8 The channel coding for information is shown in Figure A.4. This measurement channel is not currently used in TS 25.101 but can be used for future requirements.~~

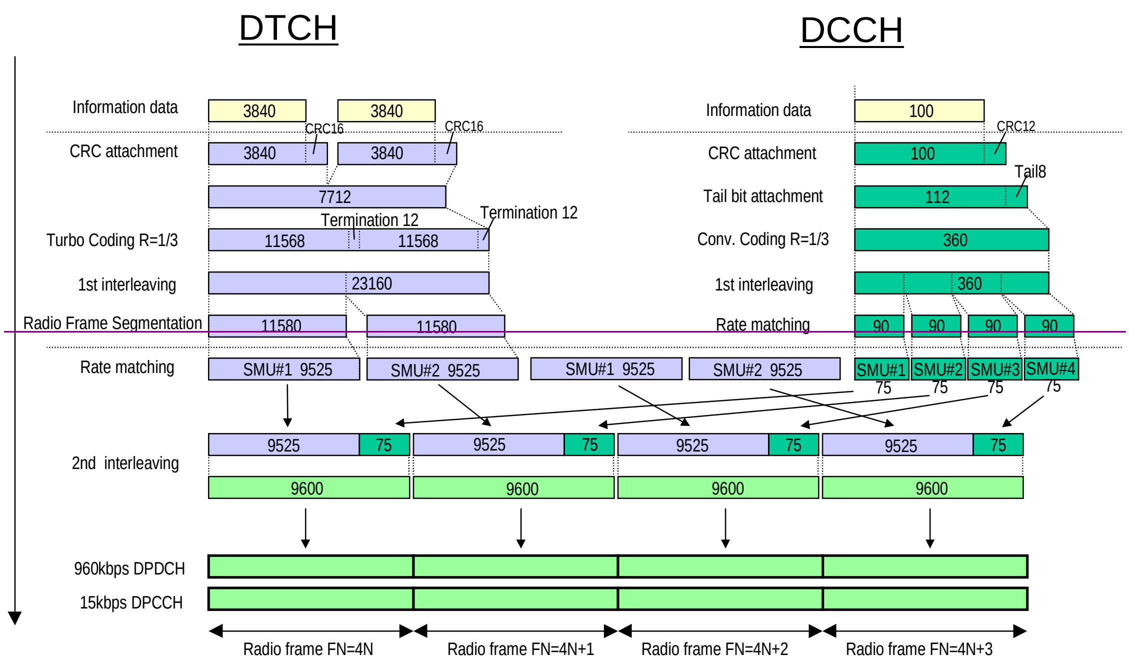
~~NOTE: The measurement channel for 384kbps with 20ms TTI will be deleted, and the new 384kbps measurement channel defined in subclause A.2.5 will be used.~~

~~Table A.7: UL reference measurement channel (384 kbps)~~

~~Parameter~~	~~Unit~~	~~Level~~
~~Information bit rate~~	~~kbps~~	~~384~~
~~DPDCH~~	~~kbps~~	~~960~~
~~DPCCH~~	~~kbps~~	~~15~~
~~DPCCH Slot Format #i~~	~~-~~	~~0~~
~~DPCCH/DPDCH power ratio~~	~~dB~~	~~-11.48~~
~~TFCI~~	~~-~~	~~On~~
~~Puncturing~~	~~%~~	~~18~~

~~Table A.8: UL reference measurement channel, transport channel parameters (384 kbps)~~

~~Parameter~~	~~DTCH~~	~~DCCH~~
~~Transport Channel Number~~	~~1~~	~~2~~
~~Transport Block Size~~	~~3840~~	~~100~~
~~Transport Block Set Size~~	~~7680~~	~~100~~
~~Transmission Time Interval~~	~~20 ms~~	~~40 ms~~
~~Type of Error Protection~~	~~Turbo Coding~~	~~Convolution Coding~~
~~Coding Rate~~	~~1/3~~	~~1/3~~
~~Static Rate Matching parameter~~	~~1.0~~	~~1.0~~
~~Size of CRC~~	~~16~~	~~12~~



~~Figure A.4 (Informative): Channel coding of UL reference measurement channel (384 kbps)~~

~~A.3.4 DL reference measurement channel (384 kbps, 20ms TTI)~~

~~The parameters for the DL measurement channel for 384 kbps (20ms TTI) are specified in Table A.19 and Table A.20. The channel coding is shown for information in Figure A.9.~~

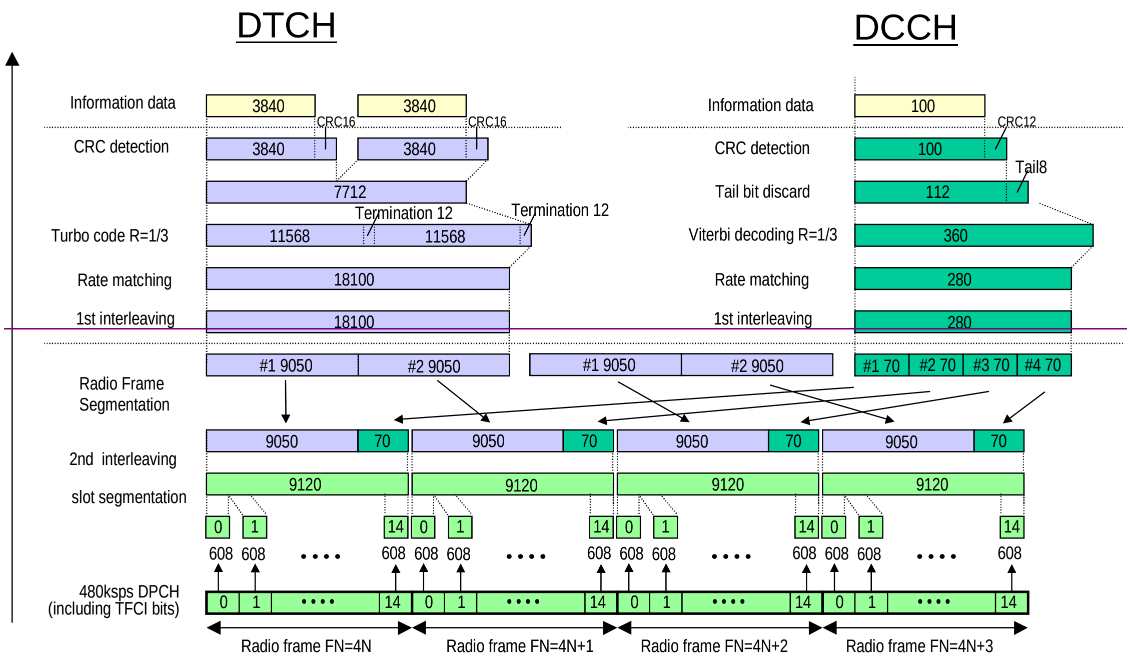
~~NOTE: The measurement channel for 384 kbps with 20ms TTI will be deleted, and new 384kbps measurement channel defined in subclause A.3.5 will be used.~~

~~Table A.19: DL reference measurement channel, physical parameters (384 kbps)~~

~~Parameter~~	~~Unit~~	~~Level~~
~~Information bit rate~~	~~kbps~~	~~384~~
~~DPCH~~	~~ksps~~	~~480~~
~~Slot Format #i~~	~~-~~	~~15~~
~~TFCI~~		~~On~~
~~Power offsets PO1, PO2 and PO3~~	~~dB~~	~~0~~
~~Puncturing~~	~~%~~	~~22~~

~~Table A.20: DL reference measurement channel, transport channel parameters (384 kbps)~~

~~Parameter~~	~~DTCH~~	~~DCCH~~
~~Transport Channel Number~~	~~1~~	~~2~~
~~Transport Block Size~~	~~3840~~	~~100~~
~~Transport Block Set Size~~	~~7680~~	~~100~~
~~Transmission Time Interval~~	~~20 ms~~	~~40 ms~~
~~Type of Error Protection~~	~~Turbo Coding~~	~~Convolution Coding~~
~~Coding Rate~~	~~1/3~~	~~1/3~~
~~Static Rate Matching parameter~~	~~1.0~~	~~1.0~~
~~Size of CRC~~	~~16~~	~~12~~
~~Position of TrCH in radio frame~~	~~fixed~~	~~fixed~~



~~Figure A.9 (Informative): Channel coding of DL reference measurement channel (384 kbps)~~

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**045r1**	Current Version:	3.2.2

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

For submission to:		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: RAN WG4 **Date:** 00.04.28

Subject: CR for demodulation of DCH

Work item:

Category:	F	Correction	X	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			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: This CR proposes to note that the requirements of demodulation of DCH are also applicable to the case with transport format detection using TFCI

Clauses affected: 8.2.3, 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:

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 Ratio (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 8.6 the BLER shall not exceed the piece-wise linear BLER curve specified by the points in table 8.7.

These requirements are applicable for TFCS size 16.

NOTE: The performance requirements for 384kbps will be replaced with new value using 10ms TTI measurement channel defined in subclause A.3.5.

Table 8.6: DCH parameters in static propagation conditions

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

Table 8.7: DCH requirements in static propagation conditions

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-16.6 dB	10^{-2}
2	-13.1 dB	10^{-1}
	-12.8 dB	10^{-2}
3	-9.9 dB	10^{-1}
	-9.8 dB	10^{-2}
4	-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 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 8.8, 8.10 and 8.12 the BLER shall not exceed the associated piece-wise linear BLER curves specified by the points in Table 8.9, 8.11 and 8.13.

These requirements are applicable for TFCS size 16.

NOTE: The performance requirements for 384kbps will be replaced with new value using 10ms TTI measurement channel defined in subclause A.3.5.

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

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

Table 8.9: 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 8.10: DCH parameters in multi-path fading propagation conditions (Case 2)

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

Table 8.11: 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 8.12: DCH parameters in multi-path fading propagation conditions (Case 3)

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

Table 8.13: 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	-6.0 dB	10^{-1}
	-5.5 dB	10^{-2}
	-5.0 dB	10^{-3}

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**046**	Current Version:	3.2.2

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

For submission to: *list expected approval meeting # here ↑*		for approval		strategic		*(for SMG use only)*
		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		UTRAN / Radio	X	Core Network	

Source:	RAN WG4	**Date:**	2000-05-22
Subject:	Editorial correction for measurement channel in TS 25.101		
Work item:			

Category:	F	Correction	X	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			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:	It is found that there are some wrong points in the current reference measurement channel in Annex A of TS25.101v3.2.2. Therefore it is proposed to correct some wrong points in the current reference measurement channels.
Clauses affected:	Annex A

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:	

Annex A (normative): Measurement channels

A.1 General

The measurement channels in this annex are defined to derive the requirements in clauses 6, 7 and 8. The measurement channels represent example configuration of radio access bearers for different data rates.

The measurement channel for 12.2 kbps shall be supported by any UE both in up- and downlink. Support for other measurement channels is depending on the UE Radio Access capabilities.

A.2 UL reference measurement channel

A.2.1 UL reference measurement channel (12.2 kbps)

The parameters for the 12.2 kbps UL reference measurement channel are specified in Table A.1 and Table A.2. The channel coding for information is shown in figure A.1.

Table A.1: UL reference measurement channel physical parameters (12.2 kbps)

Parameter	Unit	Level
Information bit rate	kbps	12.2
DPDCH	kbps	60
DPCCH	kbps	15
DPCCH Slot Format #i	-	0
DPCCH/DPDCH power ratio	dB	-5.46
TFCI	-	On
Repetition	%	23
NOTE: Slot Format #2 is used for closed loop tests in subclause 8.6.2.		

Table A.2: UL reference measurement channel, transport channel parameters (12.2 kbps)

Parameters	DTCH	DCCH
Transport Channel Number	1	2
Transport Block Size	244	100
Transport Block Set Size	244	100
Transmission Time Interval	20 ms	40 ms
Type of Error Protection	Convolution Coding	Convolution Coding
Coding Rate	1/3	1/3
~~Static~~ Rate Matching ~~parameter~~attribute	~~1.0~~256	~~1.0~~256
Size of CRC	16	12

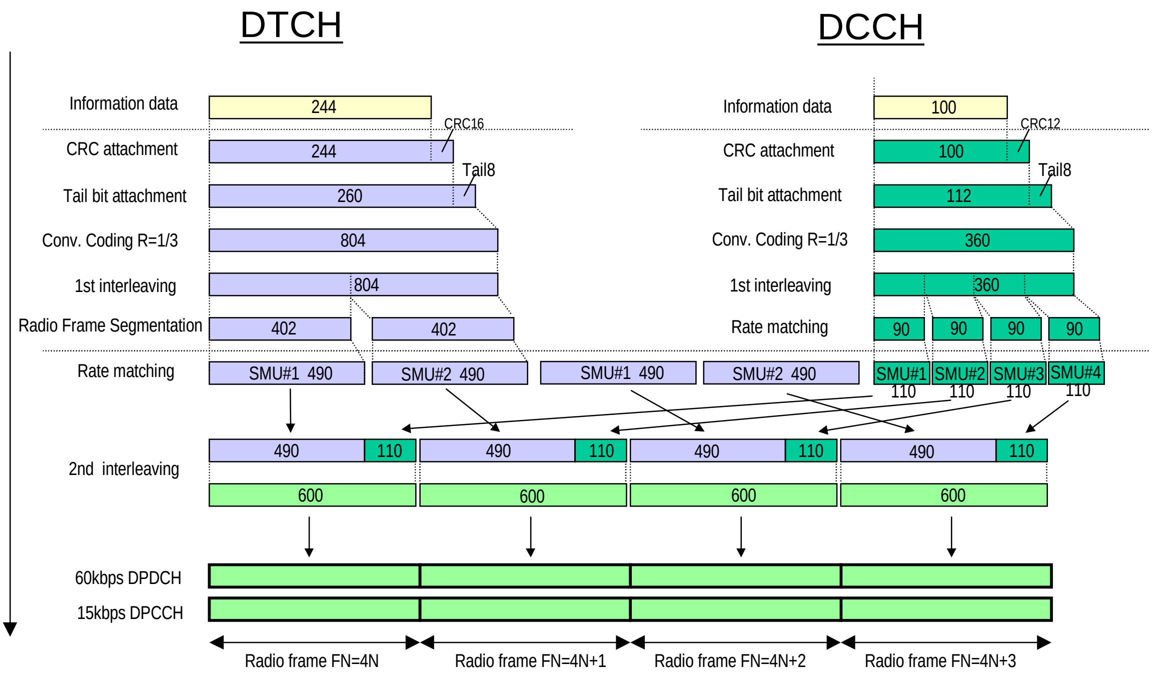


Figure A.1 (Informative): Channel coding of UL reference measurement channel (12.2 kbps)

A.2.2 UL reference measurement channel (64 kbps)

The parameters for the 64 kbps UL reference measurement channel are specified in Table A.3 and Table A.4. The channel coding for information is shown in figure A.2. This measurement channel is not currently used in TS 25.101 but can be used for future requirements.

Table A.3: UL reference measurement channel (64 kbps)

Parameter	Unit	Level
Information bit rate	kbps	64
DPDCH	kbps	240
DPCCH	kbps	15
DPCCH Slot Format #i	-	0
DPCCH/DPDCH power ratio	dB	-9.54
TFCI	-	On
Repetition	%	18

Table A.4: UL reference measurement channel, transport channel parameters (64 kbps)

Parameter	DTCH	DCCH
Transport Channel Number	1	2
Transport Block Size	1280	100
Transport Block Set Size	1280	100
Transmission Time Interval	20 ms	40 ms
Type of Error Protection	Turbo Coding	Convolution Coding
Coding Rate	1/3	1/3
~~Static~~ Rate Matching ~~parameter~~attribute	~~1.0~~256	~~1.0~~256
Size of CRC	16	12

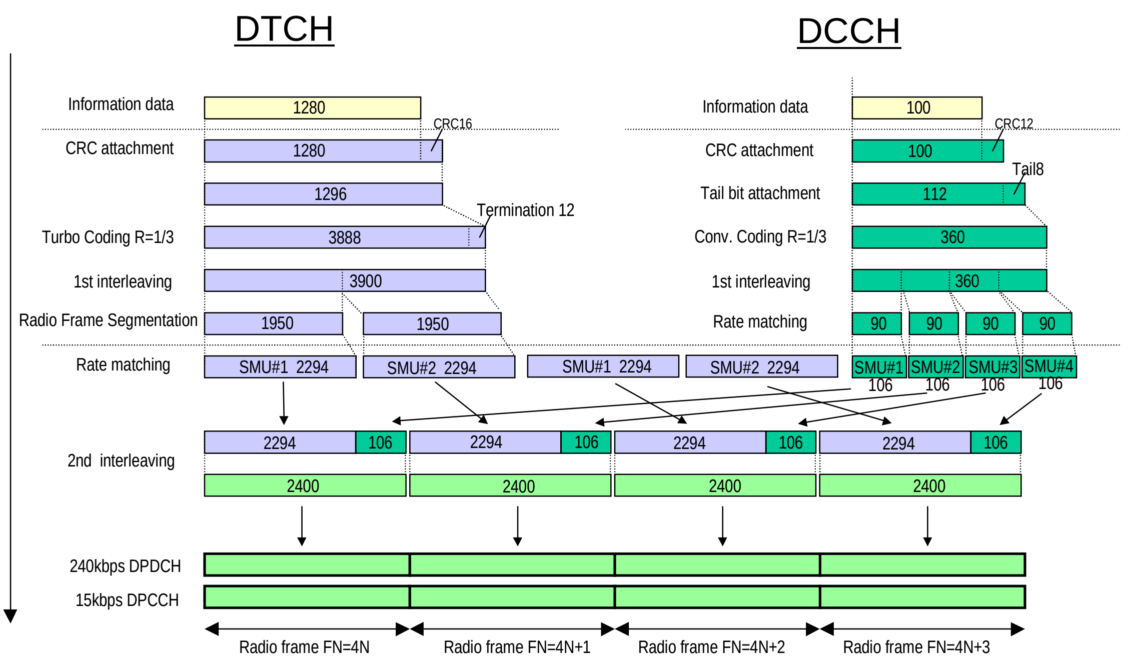


Figure A.2 (Informative): Channel coding of UL reference measurement channel (64 kbps)

A.2.3 UL reference measurement channel (144 kbps)

The parameters for the 144 kbps UL reference measurement channel are specified in Table A.5 and Table A.6. The channel coding for information is shown in Figure A.3. This measurement channel is not currently used in the present document but can be used for future requirements.

Table A.5: UL reference measurement channel (144 kbps)

Parameter	Unit	Level
Information bit rate	kbps	144
DPDCH	kbps	480
DPCCH	kbps	15
DPCCH Slot Format #i	-	0
DPCCH/DPDCH power ratio	dB	-11.48
TFCI	-	On
Repetition	%	8

Table A.6: UL reference measurement channel, transport channel parameters (144kbps)

Parameters	DTCH	DCCH
Transport Channel Number	1	2
Transport Block Size	2880	100
Transport Block Set Size	2880	100
Transmission Time Interval	20 ms	40 ms
Type of Error Protection	Turbo Coding	Convolution Coding
Coding Rate	1/3	1/3
~~Static~~ Rate Matching ~~parameter~~attribute	~~1.0~~256	~~1.0~~256
Size of CRC	16	12

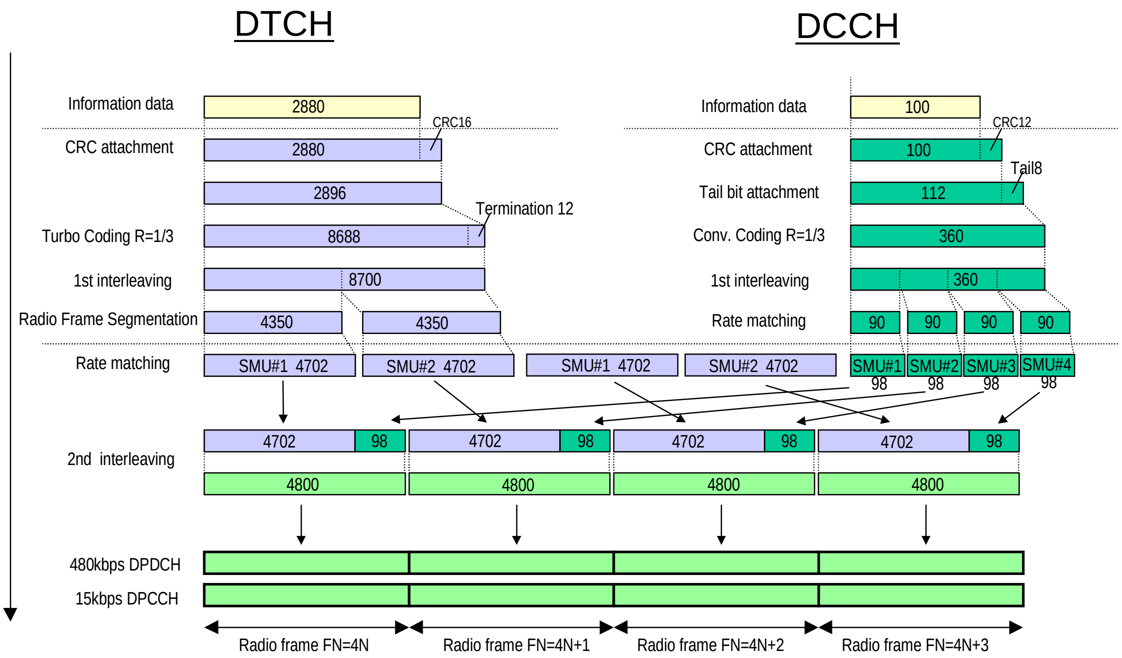


Figure A.3 (Informative): Channel coding of UL reference measurement channel (144 kbps)

A.2.4 UL reference measurement channel (384 kbps, 20ms TTI)

The parameters for the 384 kbps UL reference measurement channel (TTI-20ms) are specified in Table A.7 and Table A.8 The channel coding for information is shown in Figure A.4. This measurement channel is not currently used in TS 25.101 but can be used for future requirements.

NOTE: The measurement channel for 384kbps with 20ms TTI will be deleted, and the new 384kbps measurement channel defined in subclause A.2.5 will be used.

Table A.7: UL reference measurement channel (384 kbps)

Parameter	Unit	Level
Information bit rate	kbps	384
DPDCH	kbps	960
DPCCH	kbps	15
DPCCH Slot Format #i	-	0
DPCCH/DPDCH power ratio	dB	-11.48
TFCI	-	On
Puncturing	%	18

Table A.8: UL reference measurement channel, transport channel parameters (384 kbps)

Parameter	DTCH	DCCH
Transport Channel Number	1	2
Transport Block Size	3840	100
Transport Block Set Size	7680	100
Transmission Time Interval	20 ms	40 ms
Type of Error Protection	Turbo Coding	Convolution Coding
Coding Rate	1/3	1/3
~~Static~~ Rate Matching ~~parameter~~attribute	~~1.0~~256	~~1.0~~256
Size of CRC	16	12

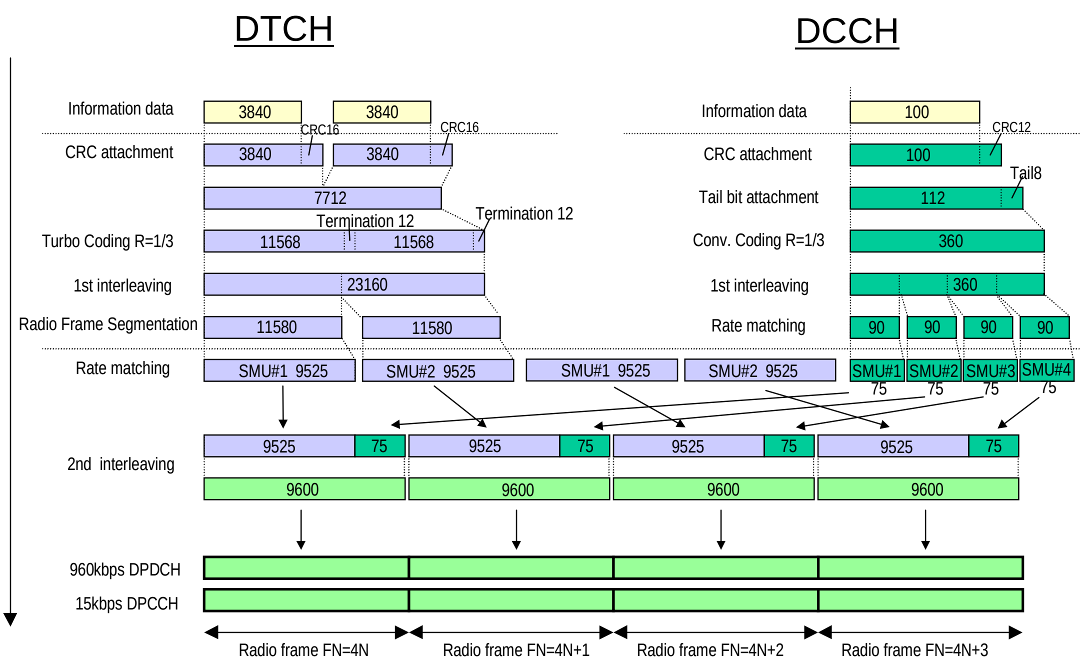


Figure A.4 (Informative): Channel coding of UL reference measurement channel (384 kbps)

A.2.5 UL reference measurement channel (384 kbps)

The parameters for the 384 kbps UL reference measurement channel are specified in Table A.9 and Table A.10. The channel coding for information is shown in Figure A.5. This measurement channel is not currently used in TS 25.101 but can be used for future requirements.

Table A.9: UL reference measurement channel (384 kbps)

Parameter	Unit	Level
Information bit rate	kbps	384
DPDCH	kbps	960
DPCCH	kbps	15
DPCCH/DPDCH power ratio	dB	-11.48
TFCI	-	On
Puncturing	%	18

Table A.10: UL reference measurement channel, transport channel parameters (384 kbps)

Parameter	DTCH	DCCH
Transport Channel Number	1	2
Transport Block Size	3840	100
Transport Block Set Size	3840	100
Transmission Time Interval	10 ms	40 ms
Type of Error Protection	Turbo Coding	Convolution Coding
Coding Rate	1/3	1/3
~~Static~~ Rate Matching ~~parameter~~attribute	~~1.0~~256	~~1.0~~256
Size of CRC	16	12

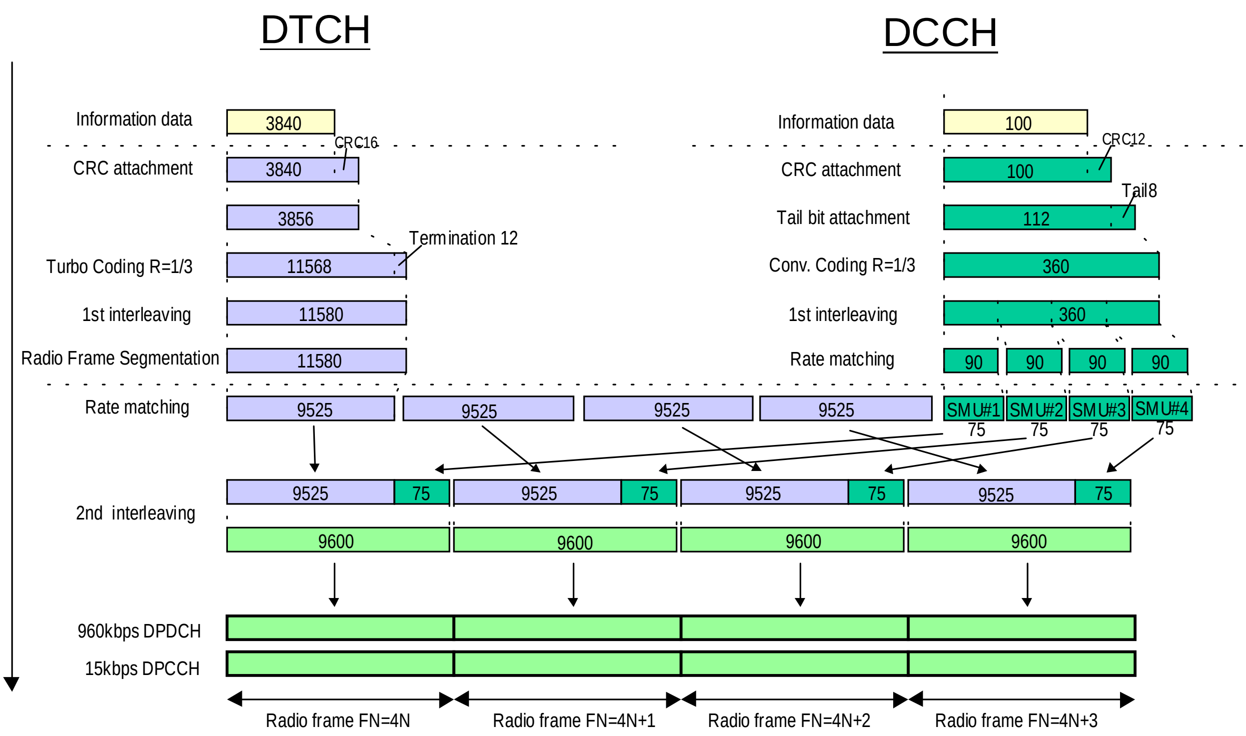


Figure A.5 (Informative): Channel coding of UL reference measurement channel (384 kbps)

A.2.6 UL reference measurement channel (768 kbps)

The parameters for the UL measurement channel for 768 kbps are specified in Table A.11 and Table A.12.

Table A.11: UL reference measurement channel, physical parameters (768 kbps)

Parameter	Unit	Level
Information bit rate	kbps	2*384
$DPDCH_1$	kbps	960
$DPDCH_2$	kbps	960
DPCCH	kbps	15
DPCCH/DPDCH power ratio	dB	-11.48
TFCI	-	On
Puncturing	%	18

Table A.12: UL reference measurement channel, transport channel parameters (768 kbps)

Parameter	DTCH	DCCH
Transport Channel Number	1	2
Transport Block Size	3840	100
Transport Block Set Size	7680	100
Transmission Time Interval	10 ms	40 ms
Type of Error Protection	Turbo Coding	Convolution Coding
Coding Rate	1/3	1/3
~~Static~~ Rate Matching ~~parameter~~attribute	~~1.0~~256	~~1.0~~256
Size of CRC	16	12

A.3 DL reference measurement channel

A.3.1 DL reference measurement channel (12.2 kbps)

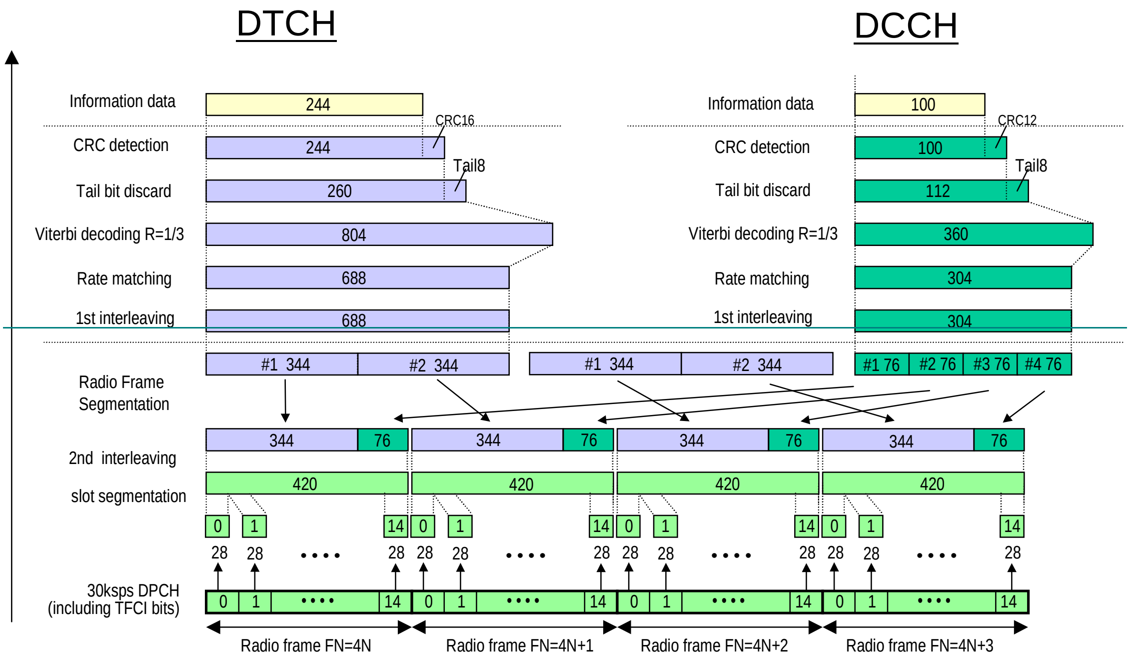
The parameters for the 12.2 Kbps DL reference measurement channel are specified in Table A.13 and Table A.14. The channel coding is shown for information in figure A.6.

Table A.13: DL reference measurement channel physical parameters (12.2 kbps)

Parameter	Unit	Level
Information bit rate	kbps	12.2
DPCH	ksps	30
Slot Format #i	-	11
TFCI	-	On
Power offsets PO1, PO2 and PO3	dB	0
Puncturing	%	~~14.5~~14.7

Table A.14: DL reference measurement channel, transport channel parameters (12.2 kbps)

Parameter	DTCH	DCCH
Transport Channel Number	1	2
Transport Block Size	244	100
Transport Block Set Size	244	100
Transmission Time Interval	20 ms	40 ms
Type of Error Protection	Convolution Coding	Convolution Coding
Coding Rate	1/3	1/3
~~Static~~ Rate Matching ~~parameter~~attribute	~~1.0~~256	~~1.0~~256
Size of CRC	16	12
Position of TrCH in radio frame	fixed	fixed



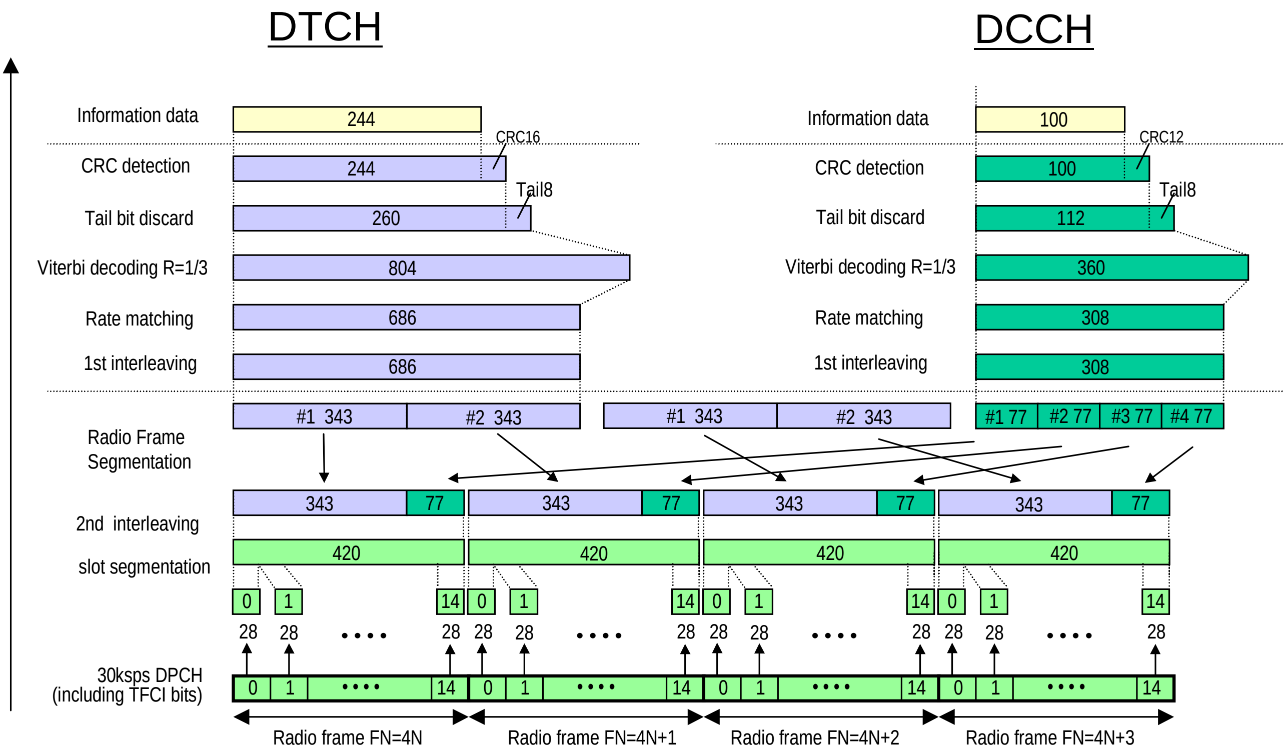


Figure A.6 (Informative): Channel coding of DL reference measurement channel (12.2 kbps)

A.3.2 DL reference measurement channel (64 kbps)

The parameters for the DL reference measurement channel for 64 kbps are specified in Table A.15 and Table A.16. The channel coding is shown for information in Figure A.7.

Table A.15: DL reference measurement channel physical parameters (64 kbps)

Parameter	Unit	Level
Information bit rate	kbps	64
DPCH	ksps	120
Slot Format #i	-	13
TFCI	-	On
Power offsets PO1, PO2 and PO3	dB	0
Repetition	%	2.9

Table A.16: DL reference measurement channel, transport channel parameters (64 kbps)

Parameter	DTCH	DCCH
Transport Channel Number	1	2
Transport Block Size	1280	100
Transport Block Set Size	1280	100
Transmission Time Interval	20 ms	40 ms
Type of Error Protection	Turbo Coding	Convolution Coding
Coding Rate	1/3	1/3
~~Static~~ Rate Matching ~~parameter~~attribute	~~1.0~~256	~~1.0~~256
Size of CRC	16	12
Position of TrCH in radio frame	fixed	fixed

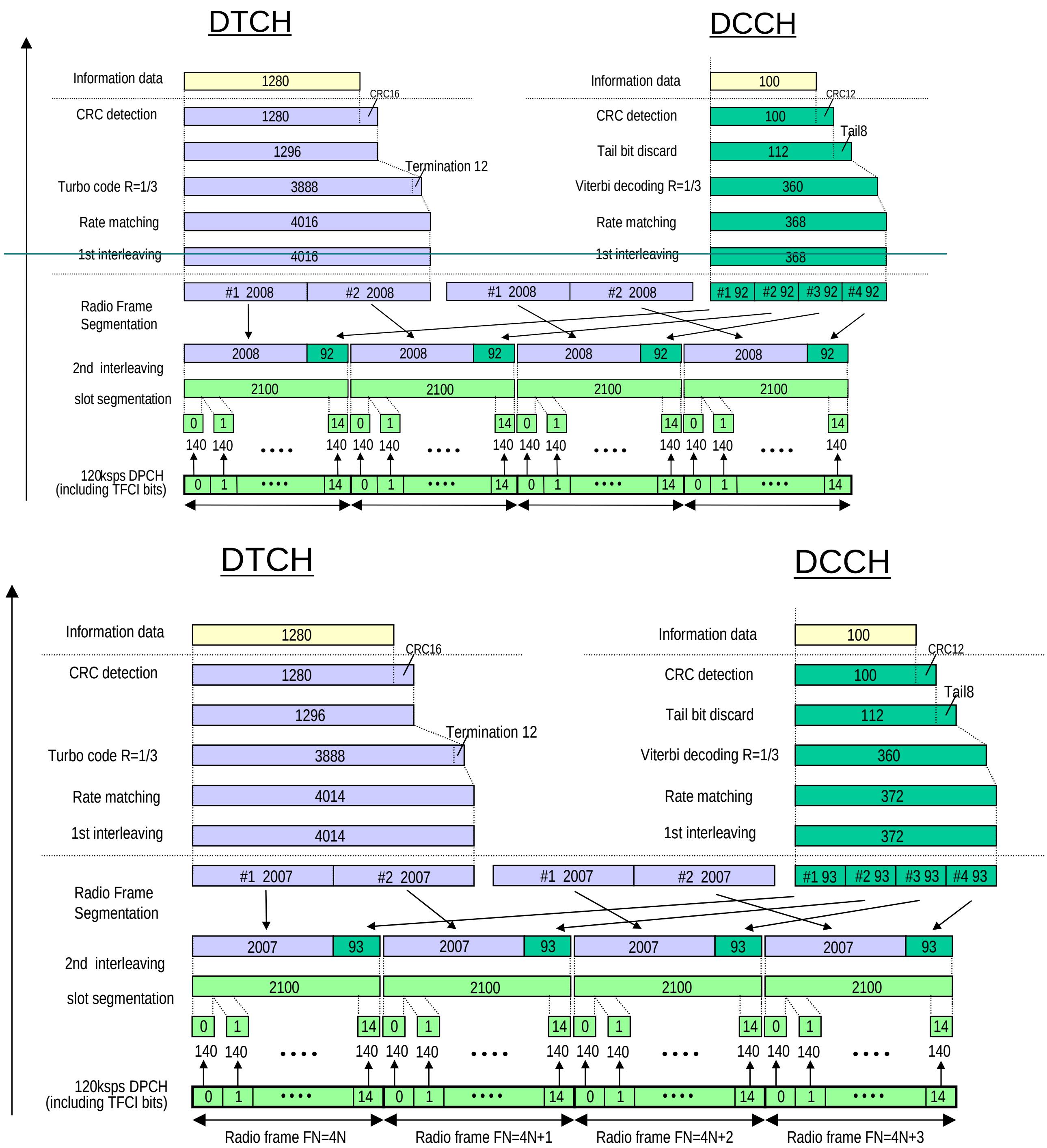


Figure A.7 (Informative): Channel coding of DL reference measurement channel (64 kbps)

A.3.3 DL reference measurement channel (144 kbps)

The parameters for the DL measurement channel for 144 kbps are specified in Table A.17 and Table A.18. The channel coding is shown for information in Figure A.8.

Table A.17: DL reference measurement channel physical parameters (144 kbps)

Parameter	Unit	Level
Information bit rate	kbps	144
DPCH	ksps	240
Slot Format #i	-	14
TFCI	-	On
Power offsets PO1, PO2 and PO3	dB	0
Puncturing	%	2.7

Table A.18: DL reference measurement channel, transport channel parameters (144 kbps)

Parameter	DTCH	DCCH
Transport Channel Number	1	2
Transport Block Size	2880	100
Transport Block Set Size	2880	100
Transmission Time Interval	20 ms	40 ms
Type of Error Protection	Turbo Coding	Convolution Coding
Coding Rate	1/3	1/3
~~Static~~ Rate Matching ~~parameter~~attribute	~~1.0~~256	~~1.0~~256
Size of CRC	16	12
Position of TrCH in radio frame	fixed	fixed

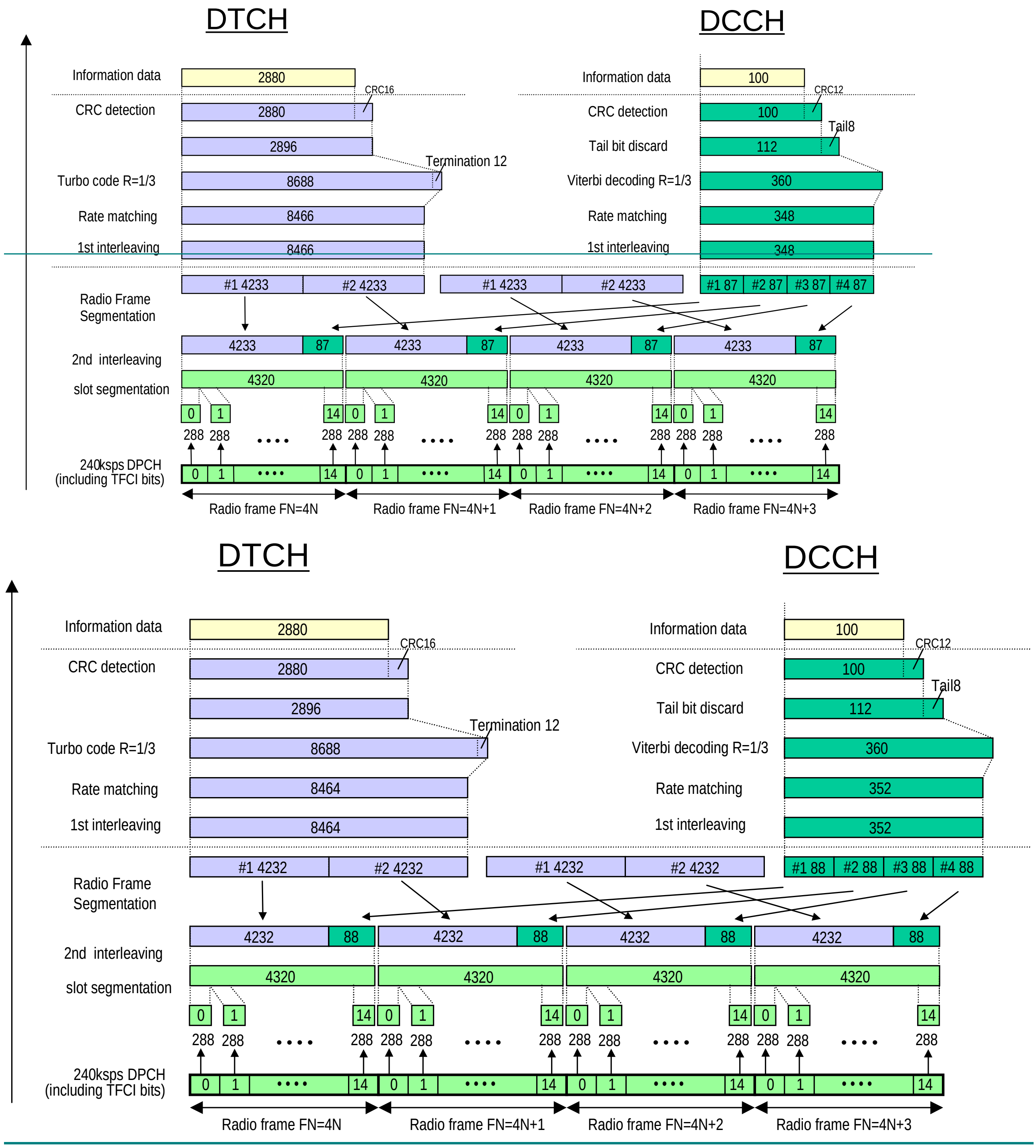


Figure A.8 (Informative): Channel coding of DL reference measurement channel (144 kbps)

A.3.4 DL reference measurement channel (384 kbps, 20ms TTI)

The parameters for the DL measurement channel for 384 kbps (20ms TTI) are specified in Table A.19 and Table A.20. The channel coding is shown for information in Figure A.9.

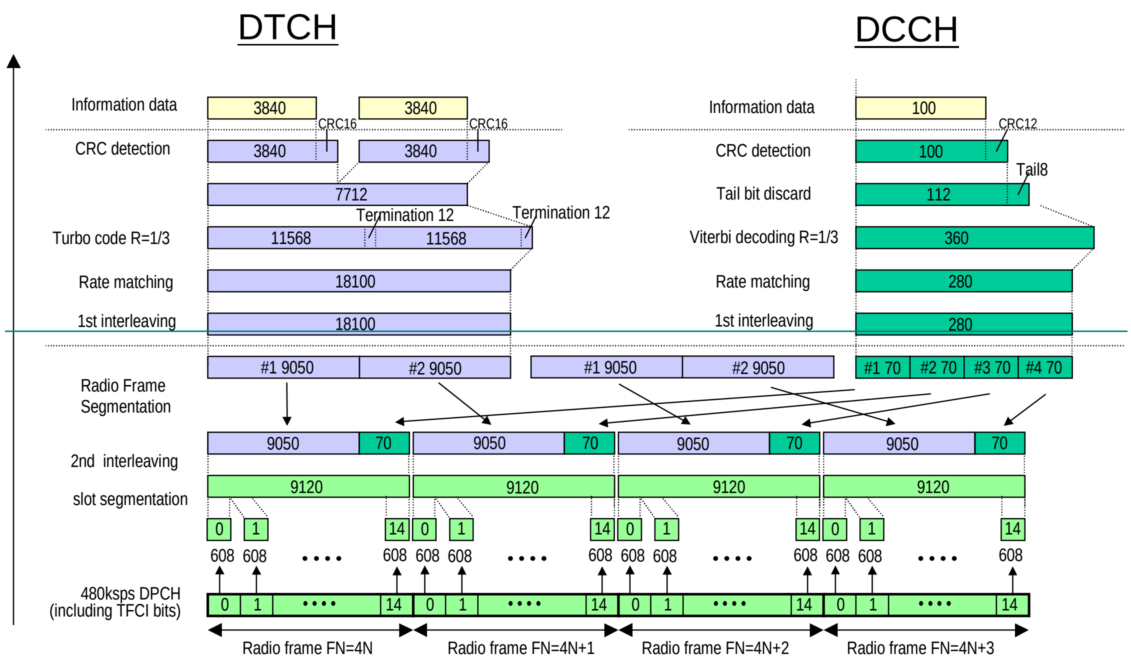
NOTE: The measurement channel for 384 kbps with 20ms-TTI will be deleted, and new 384kbps measurement channel defined in subclause A.3.5 will be used.

Table A.19: DL reference measurement channel, physical parameters (384 kbps)

Parameter	Unit	Level
Information bit rate	kbps	384
DPCH	ksps	480
Slot Format #i	-	15
TFCI		On
Power offsets PO1, PO2 and PO3	dB	0
Puncturing	%	22

Table A.20: DL reference measurement channel, transport channel parameters (384 kbps)

Parameter	DTCH	DCCH
Transport Channel Number	1	2
Transport Block Size	3840	100
Transport Block Set Size	7680	100
Transmission Time Interval	20 ms	40 ms
Type of Error Protection	Turbo Coding	Convolution Coding
Coding Rate	1/3	1/3
~~Static~~ Rate Matching ~~parameter~~attribute	~~1.0~~256	~~1.0~~256
Size of CRC	16	12
Position of TrCH in radio frame	fixed	fixed



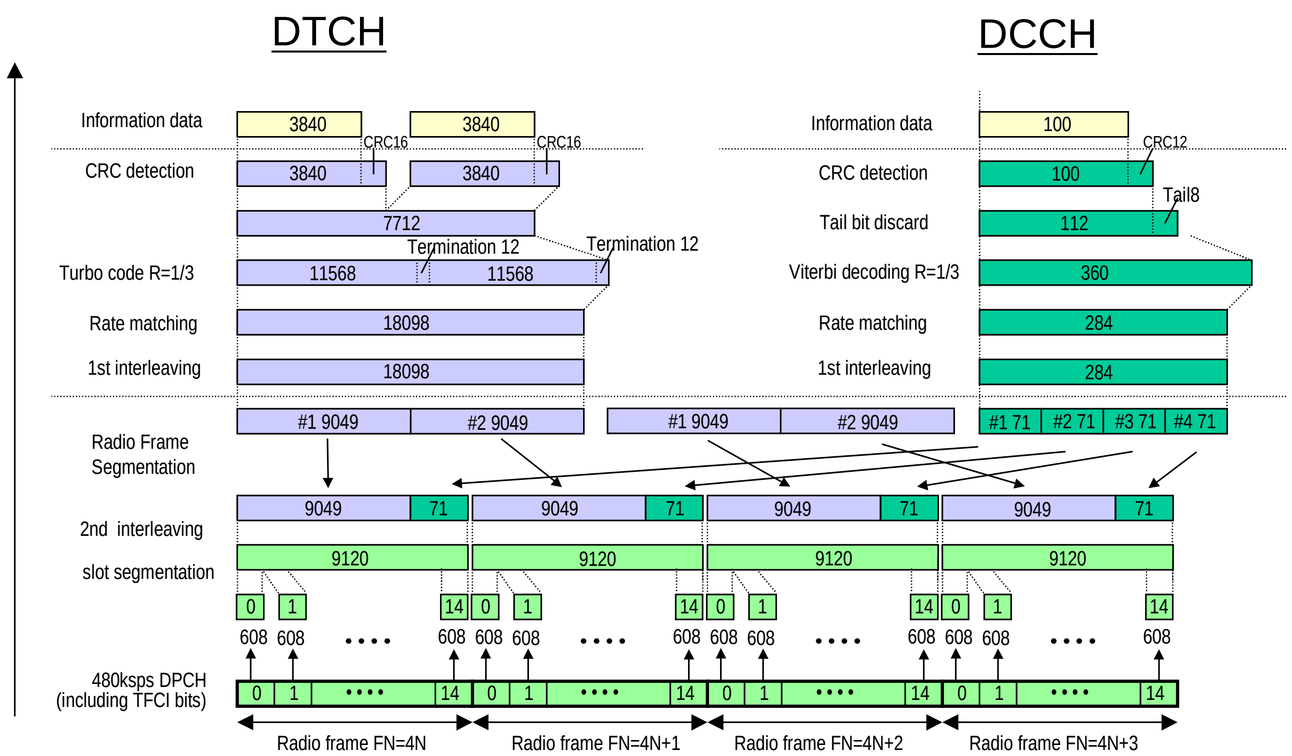


Figure A.9 (Informative): Channel coding of DL reference measurement channel (384 kbps)

A.3.5 DL reference measurement channel (384 kbps)

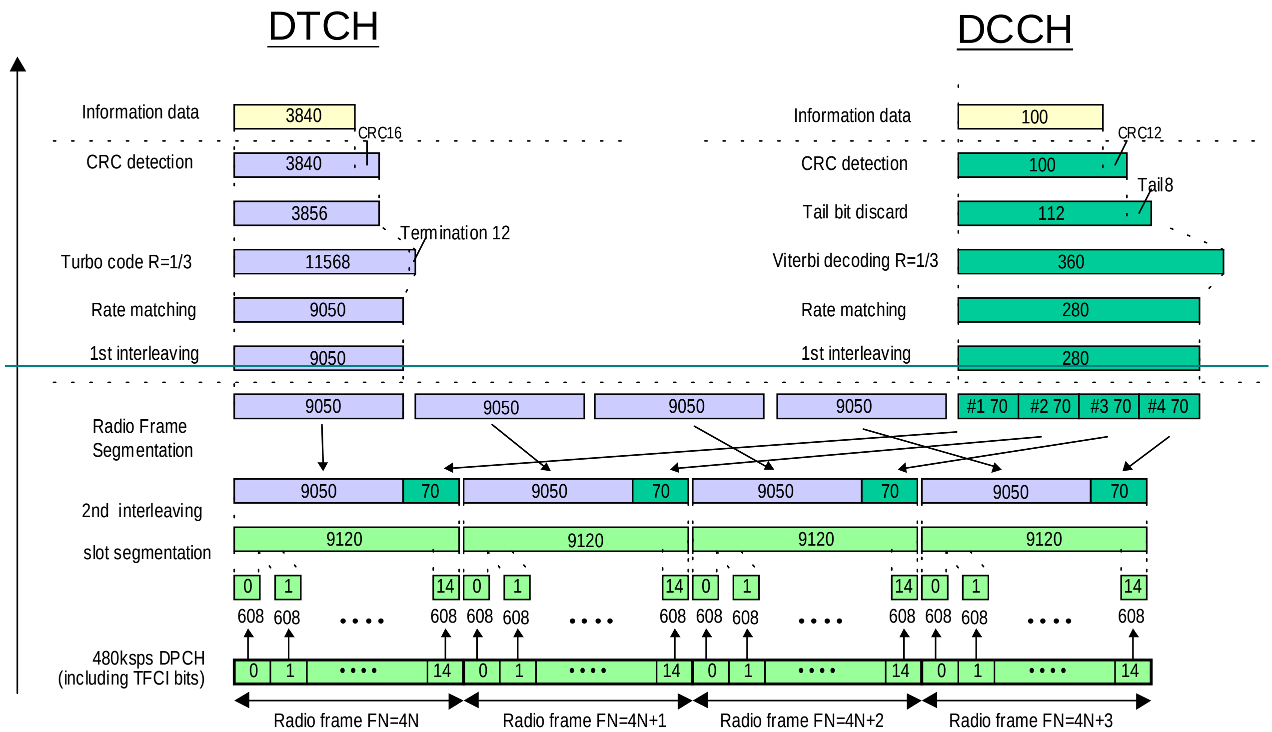
The parameters for the DL measurement channel for 384 kbps are specified in Table A.21 and Table A.22. The channel coding is shown for information in Figure A.10

Table A.21: DL reference measurement channel, physical parameters (384 kbps)

Parameter	Unit	Level
Information bit rate	kbps	384
DPCH	ksps	480
TFCI		On
Puncturing	%	22

Table A.22: DL reference measurement channel, transport channel parameters (384 kbps)

Parameter	DTCH	DCCH
Transport Channel Number	1	2
Transport Block Size	3840	100
Transport Block Set Size	3840	100
Transmission Time Interval	10 ms	40 ms
Type of Error Protection	Turbo Coding	Convolution Coding
Coding Rate	1/3	1/3
~~Static~~ Rate Matching ~~parameter~~attribute	~~1.0~~256	~~1.0~~256
Size of CRC	16	12
Position of TrCH in radio frame	fixed	Fixed



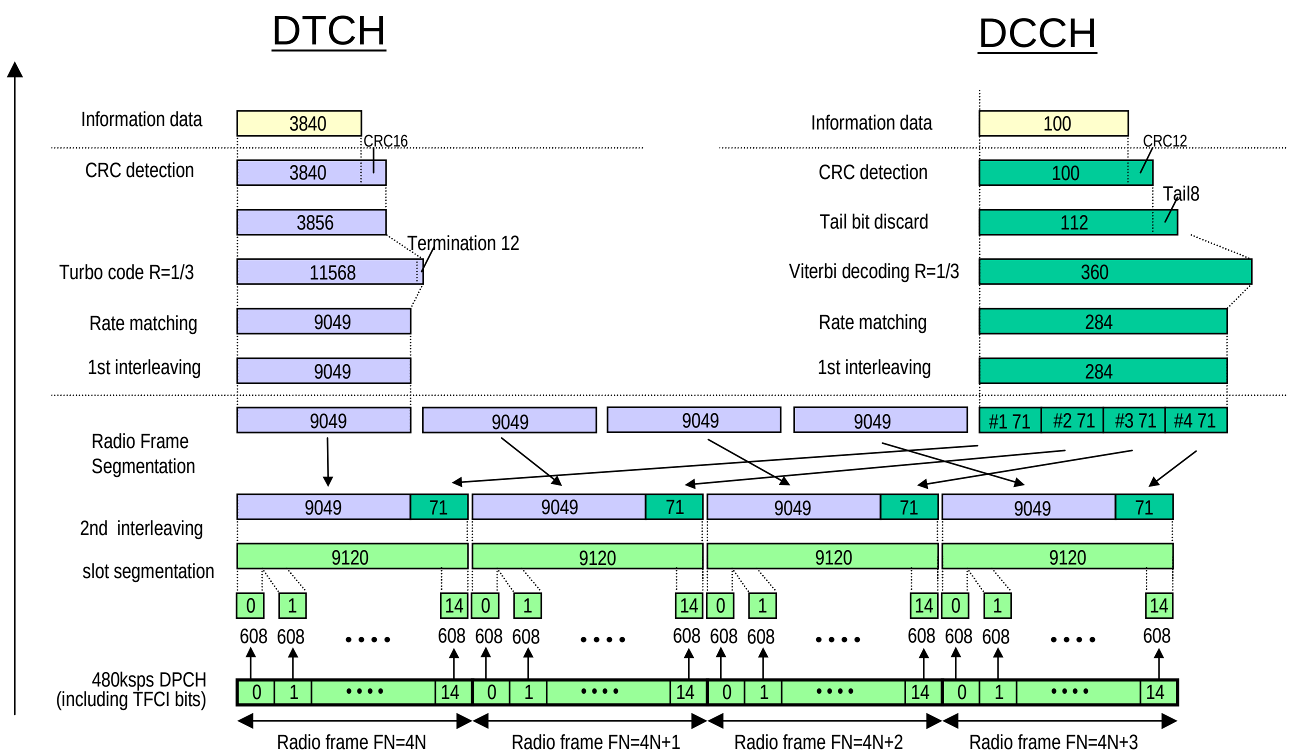


Figure A.10 (Informative): Channel coding of DL reference measurement channel (384 kbps)

A.4 DL reference measurement channel for BTFD performance requirements

The parameters for DL reference measurement channel for BTFD are specified in Table A.23 and Table A.24. The channel coding for information is shown in figures A.11, A.12, and A13.

Table A.23: DL reference measurement channel physical parameters for BTFD

Parameter	Unit	Rate 1	Rate 2	Rate 3
Information bit rate	kbps	12.2	7.95	1.95
DPCH	ksps	30		
TFCI	-	Off		
Repetition	%	5		

Table A.24: DL reference measurement channel, transport channel parameters for BTFD

Parameter	DTCH			DCCH
	Rate 1	Rate 2	Rate 3	
Transport Channel Number	1			2
Transport Block Size	244	159	39	~~96~~100
Transport Block Set Size	244	159	39	~~96~~100
Transmission Time Interval	20 ms			40 ms
Type of Error Protection	Convolution Coding			Convolution Coding
Coding Rate	1/3			1/3
~~Static~~ Rate Matching ~~parameter~~attribute	~~1.0~~256			~~1.0~~256
Size of CRC	12			~~16~~12
Position of TrCH in radio frame	fixed			fixed

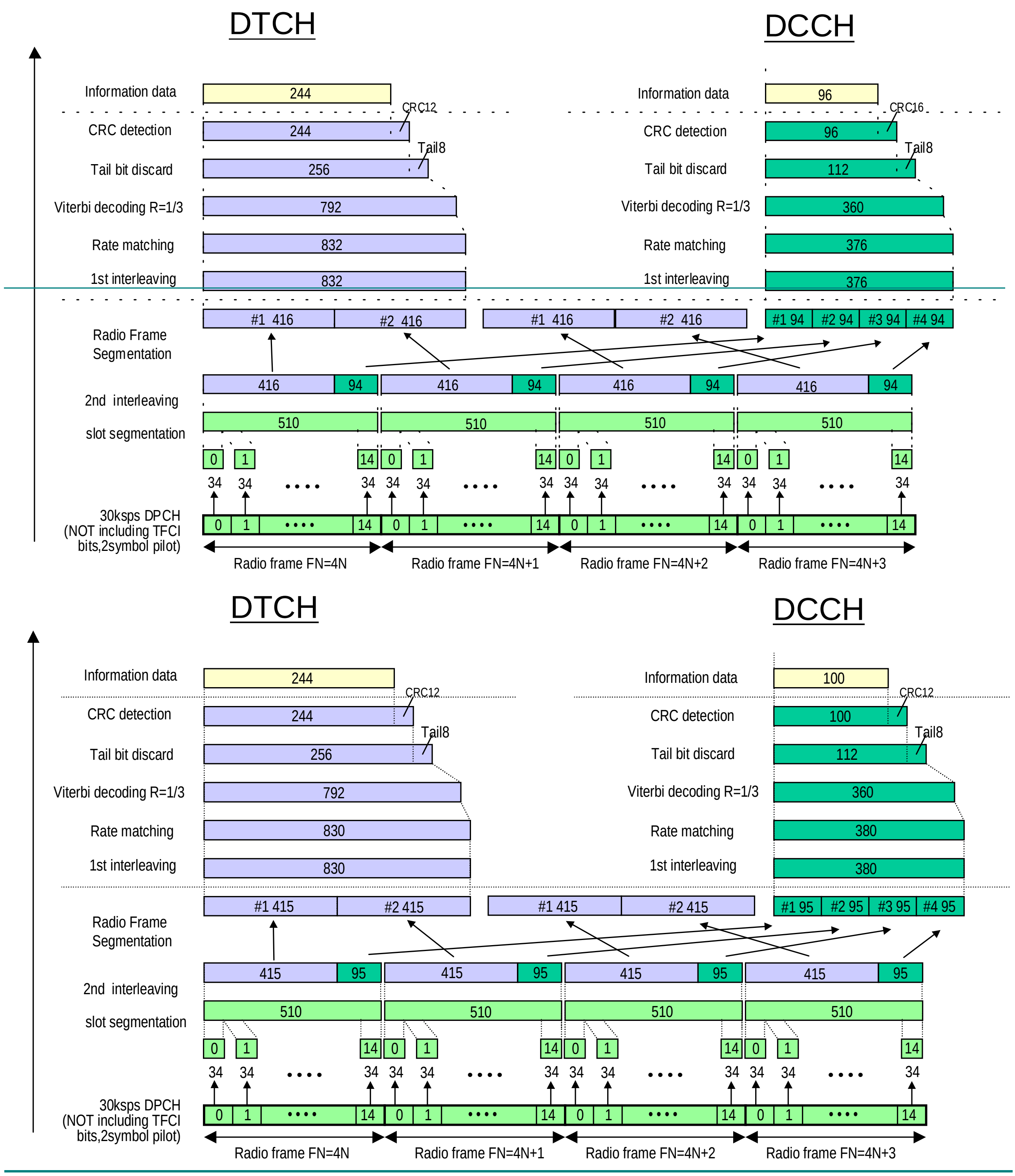


Figure A.11 (Informative): Channel coding of DL reference measurement channel for BTFD (Rate 1)

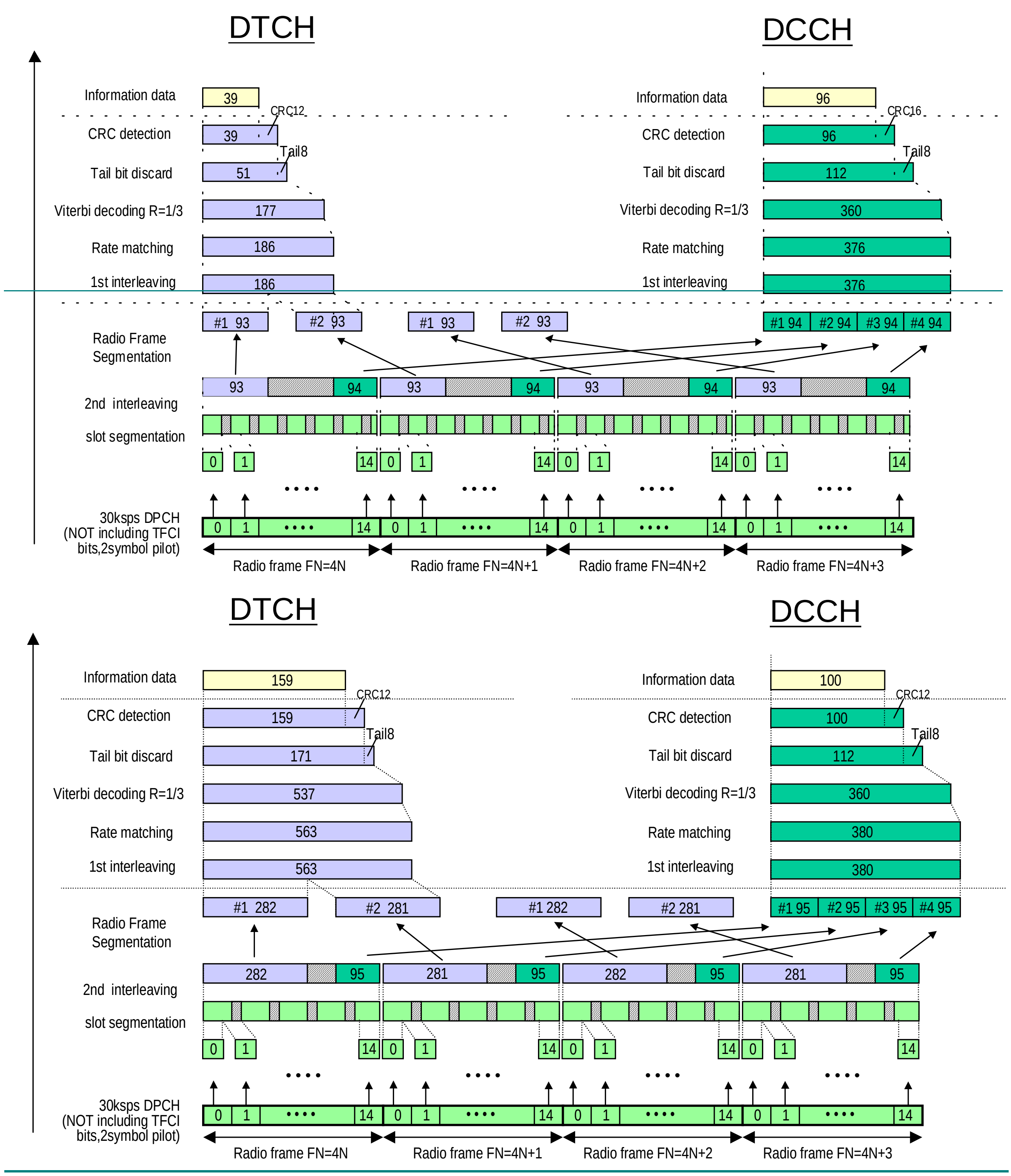


Figure A.12 (Informative): Channel coding of DL reference measurement channel for BTFD (Rate 2)

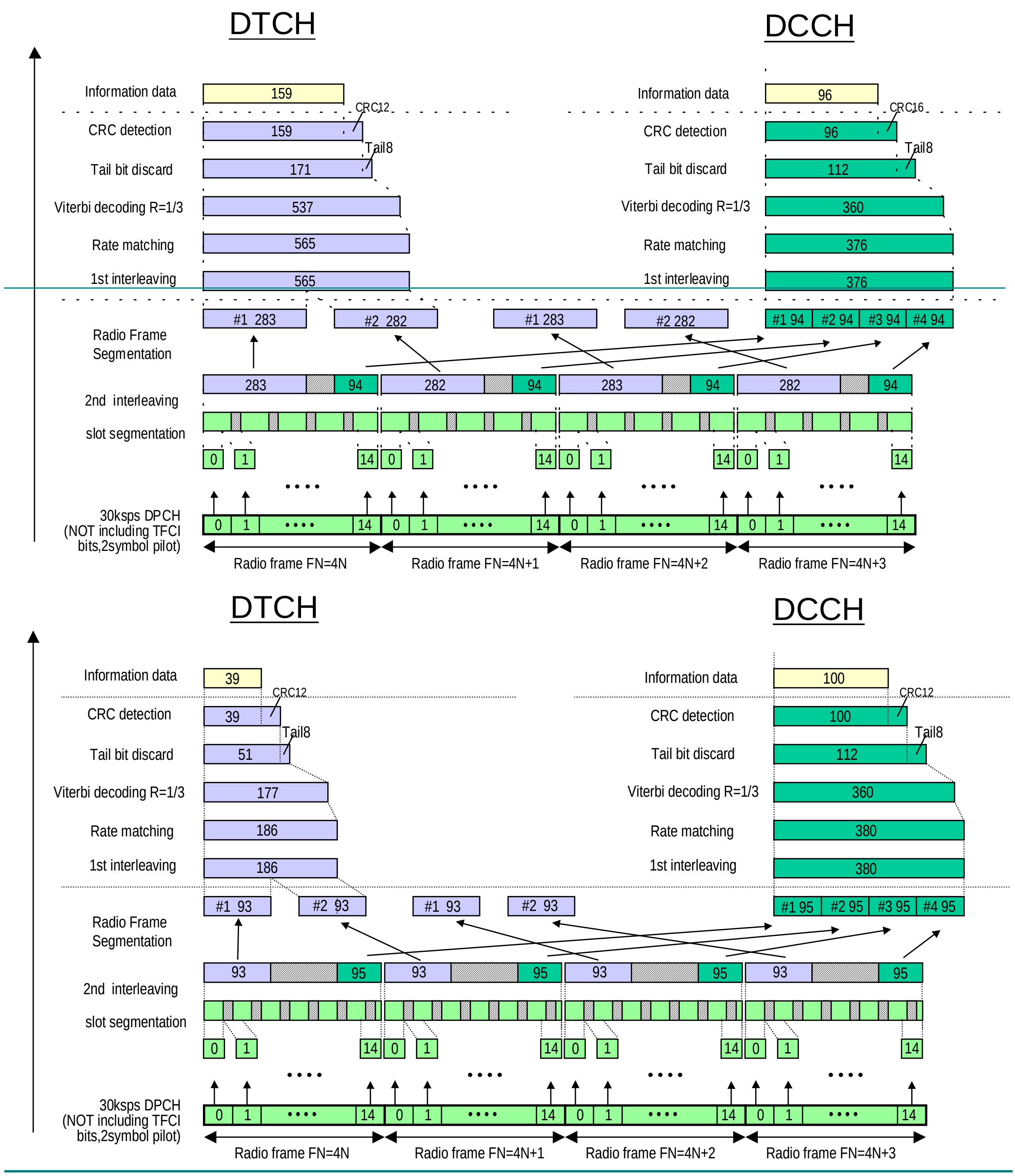


Figure A.13 (Informative): Channel coding of DL reference measurement channel for BTFD (Rate 3)

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**047**	Current Version:	3.2.2

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

For submission to:	RAN#12	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:	RAN WG4	**Date:**	17/5/00

Subject:	CR on section 8.6.3 of TS25.101 v3.2.0
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			Release 97	
Shall be marked	C	Functional modification of feature			Release 98	
With an X)	D	Editorial modification	X		Release 99	X
					Release 00	

Reason for change:	Annex C3.2 of TS25.101 specifies physical channel parameters for performance requirements specified in Chapter 8 of TS25.101. As a result some parameters currently specified in Table 8.22 of TS25.101 have become redundant. This CR removes the redundant lines and adds a missing specification of the feedback error rate in the Table 8.22.
Clauses affected:	8.6.3

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:	

8.6.3 Demodulation of DCH in Site Selection Diversity Transmission Power Control mode

The bit error characteristics of UE receiver is determined in Site Selection Diversity Transmission power control (SSDT) mode. Two BS emulators are required for this performance test. The delay profiles of signals received from different base stations are assumed to be the same but time shifted by 10 chip periods (2604 ns).

8.6.3.1 Minimum Requirements

~~DCH parameters are specified in Table 8.22.~~ The downlink physical channels and their relative power to Ior are the same as those specified in clause C.3.2 irrespective of BSs and the test cases. DPCH_Ec/Ior value applies whenever DPDCH in the cell is transmitted. In Test 1 and Test 3, the received powers at UE from two BSs are the same, while 3dB offset is given to one that comes from one of BSs for Test 2 and Test 4 as specified in Table 8.22. For the parameters specified in Table 8.22, the BLER shall not exceed the value at the DPCH_Ec/Ior specified in Table 8.23.

Table 8.22: DCH parameters in multi-path propagation conditions during SSDT mode (Propagation condition: Case 1)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
~~$\frac{CPICH\_E_c}{I_{or}}$ (for Cell 1)~~	~~DB~~	~~-10~~	~~-13~~	~~-10~~	~~-10~~
~~$\frac{CPICH\_E_c}{I_{or}}$ (for Cell 2)~~	~~DB~~	~~-10~~	~~-10~~	~~-10~~	~~-13~~
~~$\frac{DPCH\_E_{c1}}{I_{or}} / \frac{DPCH\_E_{c2}}{I_{or}}$~~ *	~~DB~~	~~0~~	~~-3~~	~~0~~	~~+3~~
$\hat{I}_{or1}/I_{oc}$	DB	0	-3	0	0
$\hat{I}_{or2}/I_{oc}$	DB	0	0	0	-3
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	Kbps	12.2	12.2	12.2	12.2
Feedback error rate*	%	4	4	4	4
Number of FBI bits assigned to "S" Field		1	1	2	2
Code word Set		Long	Long	Short	Short

~~*NOTE: DPCH_Ec/Ior value applies whenever DPDCH in the cell is transmitted.~~

*NOTE: Feedback error rate is defined as FBI bit error rate

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**048**	Current Version:	3.2.2

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

For submission to:	RAN #8	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		UTRAN / Radio	X	Core Network	

Source:	RAN WG4	**Date:**	2000-05-15
Subject:	Correction of frequency numbering scheme		
Work item:			

Category:	F	Correction	X	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			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:	Corrects an editorial error in the frequency numbering scheme.
Clauses affected:	5.4.3

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:	

5.4 Channel arrangement

5.4.1 Channel spacing

The nominal channel spacing is 5 MHz, but this can be adjusted to optimise performance in a particular deployment scenario.

5.4.2 Channel raster

The channel raster is 200 kHz, which means that the centre frequency must be an integer multiple of 200 kHz.

5.4.3 Channel number

The carrier frequency is designated by the UTRA Absolute Radio Frequency Channel Number (UARFCN). The value of the UARFCN in the IMT2000 band is defined as follows:

Table 5.1: UTRA Absolute Radio Frequency Channel Number

Uplink	$N_u = 5 * (F_{uplink}\ \mathrm{MHz})$	$0.0\ \mathrm{MHz} \le F_{uplink} \le 3276.6\ \mathrm{MHz}$ where F_{uplink} is the uplink frequency in MHz
Downlink	$N_d = 5 * (F_{downlink}\ \mathrm{MHz})$	$0.0\ \mathrm{MHz} \le \cancel{F_{uplink}}\ F_{downlink} \le 3276.6\ \mathrm{MHz}$ where $F_{downlink}$ is the downlink frequency in MHz

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**049**	Current Version:	3.2.2

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

For submission to:	TSG RAN#8	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: *(at least one should be marked with an X)*	(U)SIM		ME	X	UTRAN / Radio		Core Network	

Source:	RAN WG4	**Date:**	2000-05-22
Subject:	Corrections		
Work item:			

Category:	F	Correction	X	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			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:	Corrections to TS25.133V3.1.0 to refer the fading propagation conditions to TS25.101 where the taps delays can also specified.
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:	

Annex B (normative) :

B.1 General

B.2 Propagation Conditions

B.2.1 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.2.2 Multi-path fading propagation conditions

Table B1 shows propagation conditions that are used for the performance measurements in multi-path fading environment. All taps have classical Doppler spectrum.

Table B.1: Propagation Conditions for Multi path Fading Environments

Case 1, speed 3km/h		**Case 2, speed 3 km/h**		**Case 3, speed 120 km/h**		**Case 4, speed 3 km/h**		*** Case 5, speed 50 km/h**	
Relative Delay [ns]	Average Power [dB]	Relative Delay [ns]	Average Power [dB]	Relative Delay [ns]	Average Power [dB]	Relative Delay [ns]	Average Power [dB]	Relative Delay [ns]	Average Power [dB]
0	0	0	0	0	0	0	0	0	0
976	-10	976	0	260	-3	976	0	976	-10
		20000	0	521	-6				
				781	-9				

Note
* Case 5 is only used in TS25.133

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**050**	Current Version:	3.2.2

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

For submission to:	RAN#8	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: (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [ ]
(at least one should be marked with an X)

Source: RAN WG4 **Date:** 2000-05-17

Subject: Compressed mode tests

Work item:

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

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

Release:

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

Reason for change:

- Test parameters for compressed mode tests needs several corrections to cover two possible compressed mode patterns specified in Annex A.5.
- Some modifications are also proposed for test parameters to cover recent decisions in RAN2 dealing with DL power control in compressed mode.
- Editorial clarifications are proposed for Annex A.5

Clauses affected: 8.9, Annex A.5

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:

8.9 Downlink compressed mode

Downlink compressed mode is used to create gaps in the downlink transmission, to allow the UE to make measurements on other frequencies.

8.9.1 Single link performance

The receiver single link performance of the Dedicated Traffic Channel (DCH) in compressed mode is determined by the Block Error Ratio (BLER)~~, average~~ and transmitted DPCH_Ec/Ior power in the downlink~~and the maximum power in the uplink~~.

The compressed mode parameters are given in clause A.5. Tests 1 and 2 are using Set 1 compressed mode pattern parameters from Table A.25 in clause A.5 while tests 3 and 4 are using Set 2 compressed mode patterns from the same table.

8.9.1.1 Minimum requirements

For the parameters specified in Table 8.30 the ~~average~~ downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value ~~for the reported BLER shown~~ in Table 8.31 and the measured quality on DTCH shall be as required in Table 8.31. ~~The uplink DPDCH power shall be below the specified value.~~

~~NOTE:~~ ~~Inner loop~~ Downlink power control is ON during the test. Uplink TPC commands shall be error free. System simulator shall increase the transmitted power during compressed frames by the same amount that UE is expected to increase its SIR target during those frames.

Table 8.28: Void

Table 8.29: Void

Table 8.30: Test parameter for downlink compressed mode

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
DeltaSIR1	dB	0		0	
DeltaSIRafter1	dB	0		0	
DeltaSIR2	dB	0	0	0	0
DeltaSIRafter2	dB	0	0	0	0
$\hat{I}_{or}/I_{oc}$	dB	9			
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2			
~~TFCI~~	~~-~~	~~On~~			
Propagation condition		Case 2			
Target quality value on DTCH	BLER	0.01			

Table 8.31: Requirements in downlink compressed mode

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{DPCH\_E_c}{I_{or}}$	dB				
~~Target quality~~					
~~Downlink BLER~~Measured quality on DTCH	BLER	0.01 ± 30 %			
~~Uplink DPDCH~~	~~dBm~~	~~[Maximum power/slot]~~			
Confidence level for measured quality and DPCH_Ec/Ior	%	[90]			

A.5 DL reference compressed mode parameters

Parameters described in Table A.25 are used in some test specified in TS 25.101 while parameters described in Table A.26 are used in some tests specified in TS 25.133.

Set 1 parameters in Table A.25 are applicable when compressed mode by spreading factor reduction is used in downlink. Set 2 parameters in Table A.25 are applicable when compressed mode by puncturing is used in downlink.

Table A.25: Compressed mode reference pattern 1 parameters

Parameter	Set 1~~1.1~~	Set 2~~1.2~~	Note
TGSN (Transmission Gap Starting Slot Number)	11	11	
TGL1 (Transmission Gap Length 1)	7	7	
TGL2 (Transmission Gap Length 2)	-	-	Only one gap in use.
TGD (Transmission Gap Distance)	-	-	Only one gap in use.
TGPL1 (Transmission Gap Pattern Length)	2	4	
TGPL2 (Transmission Gap Pattern Length)	-	-	Only one pattern in use.
TGPRC (Transmission Gap Pattern Repetition Count)	NA	NA	Defined by higher layers
TGCFN (Transmission Gap Connection Frame Number):	NA	NA	Defined by higher layers
UL/DL compressed mode selection	DL & UL	DL & UL	2 configurations possible DL &UL / DL
UL compressed mode method	SF/2	SF/2	
DL compressed mode method	SF/2	Puncturing	
Downlink frame type and Slot format	11B	11A	
Scrambling code change	No	No	
RPP (Recovery period power control mode)	0	0	
ITP (Initial transmission power control mode)	0	0	

Table A.26: Compressed mode reference pattern 2 parameters

Parameter	Set 1~~2.1~~	Set 2~~2.2~~	Note
TGSN (Transmission Gap Starting Slot Number)	4	4	
TGL1 (Transmission Gap Length 1)	7	7	
TGL2 (Transmission Gap Length 2)	-	-	Only one gap in use.
TGD (Transmission Gap Distance)	-	135	
TGPL1 (Transmission Gap Pattern Length)	3	12	
TGPL2 (Transmission Gap Pattern Length)	-	-	Only one pattern in use.
TGPRC (Transmission Gap Pattern Repetition Count)	NA	NA	Defined by higher layers
TGCFN (Transmission Gap Connection Frame Number):	NA	NA	Defined by higher layers
UL/DL compressed mode selection	DL & UL	DL & UL	2 configurations possible. DL & UL / DL
UL compressed mode method	SF/2	SF/2	
DL compressed mode method	SF/2	SF/2	
Downlink frame type and Slot format	11B	11B	
Scrambling code change	No	No	
RPP (Recovery period power control mode)	0	0	
ITP (Initial transmission power control mode)	0	0	

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**051**	Current Version:	3.2.2

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

For submission to:	RAN #8	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: *(at least one should be marked with an X)*	(U)SIM		ME	X	UTRAN / Radio		Core Network	

Source:	RAN WG4	**Date:**	00-05-15
Subject:	Correction of Out-of-sync criteria in 25.101		
Work item:			

Category:	F	Correction	X	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			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 requirement for turning power back on use “shall” instead “of “may” as decided by RAN4 #11. Also, the brackets around all parameters have been removed.
Clauses affected:	6.4.4

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:	

6.4.4 Out-of-synchronisation handling of output power

The UE shall monitor the DPCCH quality in order to detect a loss of the signal on Layer 1, as specified in TS 25.214. The thresholds Q_{out} and Q_{in} specify at what DPCCH quality levels the UE shall shut its power off and when it ~~may~~ shall turn its ~~transmitter~~ power on respectively. The thresholds are not defined explicitly, but are defined by the conditions under which the UE shall shut its transmitter off and turn it on, as stated in this subclause.

6.4.4.1 Requirement

The parameters in Table 6.6 are defined using the DL reference measurement channel (12.2) kbps specified in subclause A.3.1 and with static propagation conditions.

Table 6.6: DCH parameters for test of Out-of-synch handling

Parameter	Unit	Value
$\hat{I}_{or}/I_{oc}$	dB	-1
I_{oc}	dBm/3.84 MHz	-60
$\frac{DPDCH\_E_c}{I_{or}}$	dB	See figure 6.1: Before point A -16.6 After point A Not defined
$\frac{DPCCH\_E_c}{I_{or}}$	dB	See figure 6.1
Information Data Rate	kbps	12.2
TFCI	-	on

The conditions for when the UE shall shut its transmitter on and when it ~~may~~ shall turn it on are defined by the parameters in Table 6.6 together with the DPCH power level as defined in Figure 6.1.

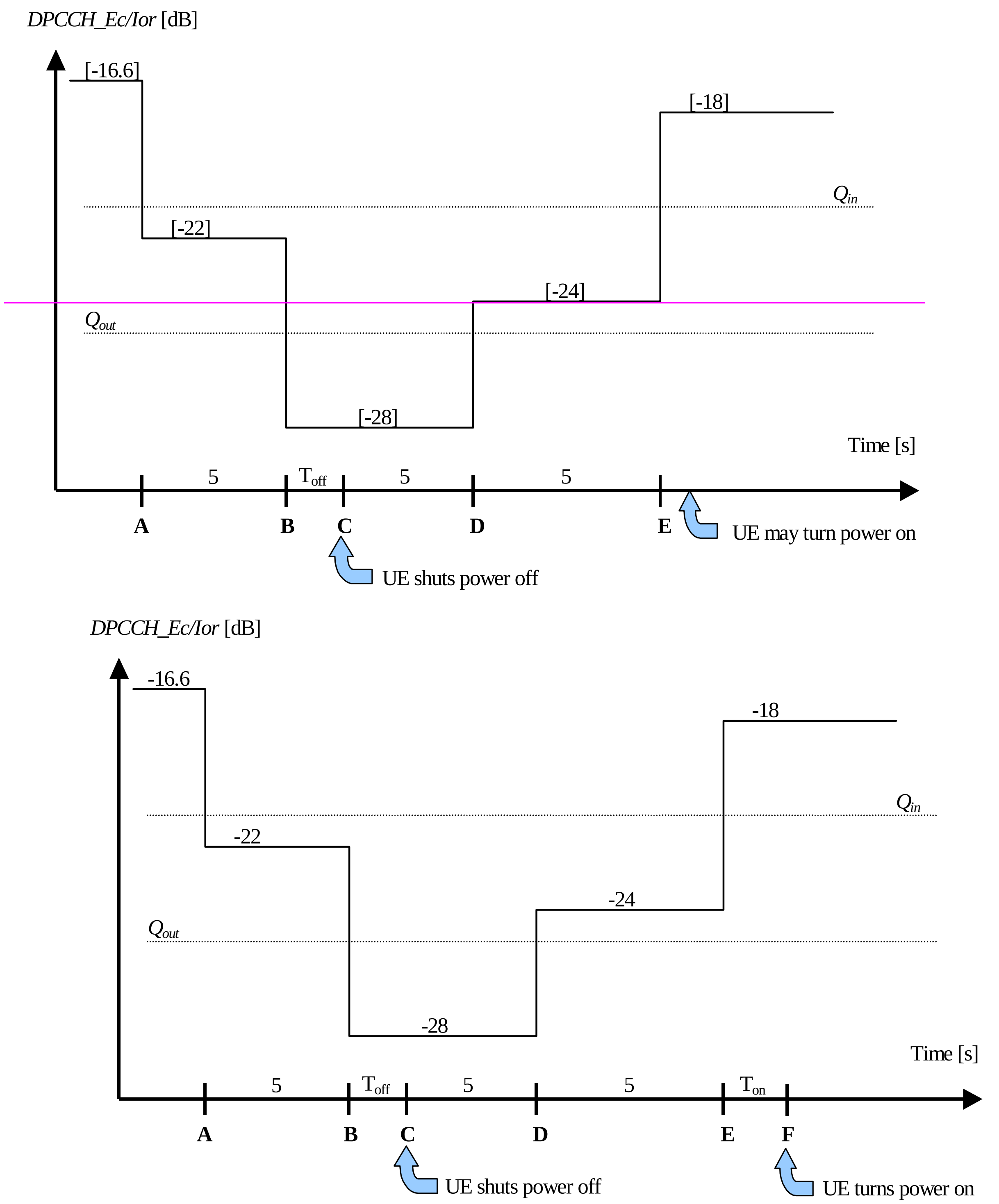


Figure 6.1: Conditions for out-of-synch handling in the UE. The indicated thresholds Q_{out} and Q_{in} are only informative

The requirements for the UE are that:

1. The UE shall not shut its transmitter off before point B.
2. The UE shall shut its transmitter off before point C, which is ~~Toff~~ T_{off} = ~~[~~200~~]~~ ms after point B.
3. The UE shall not turn its transmitter on between points C and E.
4. The UE ~~may~~ shall turn its transmitter on ~~after~~ before point ~~E~~F, which is T_{on} = 200 ms after point E.

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101 CR 052 Current Version: 3.2.2

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

For submission to: TSG RAN#8	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: (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [ ]
(at least one should be marked with an X)

Source:	RAN WG4
Date:	2000-05-22
Subject:	Corrections
Work item:	

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

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

Release:

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

Reason for change: Corrections to TS25.101v3.2.2 to correct a number of errors in the current document and to align with previous discussion and decisions in WG4

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:

6.3 Frequency stability

The UE modulated carrier frequency shall be accurate to within ± 0.1 PPM 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.

Table 6.2: Frequency stability

AFC	Frequency stability
ON	within ± 0.1 PPM

6.4.1.1 minimum requirement

The UE open loop power is defined as the average power in a timeslot or ON power duration, whichever is available, and they are measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

Table 6.3: Open loop power control tolerance

Normal conditions	± 9 dB
Extreme conditions	± 12 dB

6.5 Transmit ON/OFF power

6.5.1 Transmit OFF power

The transmit OFF power state is when the UE does not transmit except during UL ~~DTX~~ compressed mode. This parameter is defined as the maximum output transmit power within the channel bandwidth when the transmitter is OFF.

6.5.1.1 Minimum requirement

The transmit OFF power is defined as an averaged power at least in a timeslot duration measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate. The requirement for the transmit OFF power shall be better than –56 dBm.

6.5.2 Transmit ON/OFF Time mask

The time mask for transmit ON/OFF defines the ramping time allowed for the UE between transmit OFF power and transmit ON power. Possible ON/OFF scenarios are RACH ,CPCH or UL ~~slotted~~ compressed mode.

6.5.4 Power setting in uplink compressed mode

Compressed mode in uplink means that the power in uplink is changed.

6.5.4.1 Minimum requirement

A change of output power is required during uplink compressed frames since the transmission of data is performed in a shorter interval. The ratio of the amplitude between the DPDCH codes and the DPCCH code will also vary. The power step due to compressed mode shall be calculated in the UE so that the energy transmitted on the pilot bits during each transmitted slot shall follow the inner loop power control. Thereby the power step during the transmitted part of a compressed frame shall be such that the power on the DPCCH follows the inner loop power control with an additional power offset during a compressed frame of $N_{pilot,N}$ / $N_{pilot,C}$ where $N_{pilot,C}$ is the number of pilot bits per slot when in compressed mode, and $N_{pilot,N}$ is the number of pilot bits per slot in normal mode.

The power step shall then be rounded to the closest integer dB value. The accuracy of the power step, given the step size is specified in Table 6.~~6~~ 7 in subclause 6.5.3.1. The power step is defined as the relative power differences between the average power of original (reference) timeslot and the averaged power of target timeslot. During the compress mode, the average should be done in only either power ON duration. The relative power is measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

The transmit power levels versus time shall meet the mask specified in figure 6.4. When power increases the power step shall be performed before the actual slot boundary, when power decreases the power step shall be performed after the actual slot boundary.

8 Performance requirement

8.1 General

The performance requirements for the UE in this subclause are specified for the measurement channels specified in Annex A, the propagation conditions specified in Annex B and the Down link Physical channels specified in Annex C. Unless stated DL power control is OFF.

~~Table 8.1: Summary of UE performance targets~~

~~Meas. Channels~~	~~Information D Rate~~	~~Static~~	~~Multi-path Case 1~~	~~Multi-path Case 2~~	~~Multi-path Case 3~~	~~Multi-path Case 4~~	~~Moving~~	~~Birth / Death~~
		~~Propagation conditions / Performance metric~~						
~~PCH~~	~~128 kbps~~	~~MER< 10^{-2}~~	~~-~~	~~-~~	~~-~~		~~-~~	~~-~~
~~FACH~~	~~128 kbps~~	~~MER< 10^{-2}~~	~~-~~	~~-~~	~~-~~		~~-~~	~~-~~
~~DCH~~	~~12.2 kbps~~	~~BLER< 10^{-2}~~	~~BLER< 10^{-2}~~	~~BLER< 10^{-2}~~	~~BLER< 10^{-2}~~		~~BLER<~~	~~BLER<~~
	~~64 kbps~~	~~BLER< 10^{-1}, 10^{-2}~~	~~BLER< 10^{-1}, 10^{-2}~~	~~BLER< 10^{-1}, 10^{-2}~~	~~BLER< 10^{-1}, 10^{-2}, 10~~		~~BLER<~~	~~BLER<~~
	~~144 kbps~~	~~BLER< 10^{-1}, 10^{-2}~~	~~BLER< 10^{-1}, 10^{-2}~~	~~BLER< 10^{-1}, 10^{-2}~~	~~BLER< 10^{-1}, 10^{-2}, 10~~		~~-~~	~~-~~
	~~384 kbps~~	~~BLER< 10^{-1}, 10^{-2}~~	~~BLER< 10^{-1}, 10^{-2}~~	~~BLER< 10^{-1}, 10^{-2}~~	~~BLER< 10^{-1}, 10^{-2}, 10~~		~~-~~	~~-~~

8.2 Demodulation in static propagation conditions

8.2.1 Demodulation of Paging Channel (PCH)

The receive characteristics of the paging channel in the static environment is determined by the Paging Message Error Ratio (MER). MER is measured at the data rate specified for the paging channel. The UE sleep mode has an upper limit after which it must up wake up and demodulate the paging channel and associated paging messages.

8.2.1.1 Minimum requirement

For the parameters specified in Table 8.2 the MER shall not exceed the piece-wise linear MER curve specified by the points in Table 8.3.

Table 8.2: PCH parameters in static propagation conditions

Parameter	Unit	Value
$\frac{DPCH\_E_c}{I_{or}}$	dB	
$\frac{SCCPCH\_E_c}{I_{or}}$	dB	
$\hat{I}_{or}/I_{oc}$	dB	-1
I_{oc}	dBm/3.84 MHz	-60
Paging Data Rate		
$PCH \quad E_b/N_t$	dB	

Table 8.3: PCH requirement in static propagation conditions

$PCH \quad E_b/N_t$	MER
TBD	TBD
TBD	TBD
TBD	TBD

8.2.2 Demodulation of Forward Access Channel (FACH)

The receive characteristics of the Forward Access Channel (FACH) in the static environment are determined by the average message error Ratio (MER). MER is measured at the data rate specified for the FACH.

8.2.2.1 Minimum requirement

For the parameters specified in Table 8.4 the MER shall not exceed the piece-wise linear MER curve specified by the points in table 8.5.

Table 8.4: FACH parameters in static propagation conditions

Parameter	Unit	Value
$\frac{DPCH\_E_c}{I_{or}}$	dB	
$\frac{SCCPCH\_E_c}{I_{or}}$	dB	
$\hat{I}_{or}/I_{oc}$	dB	-1
I_{oc}	dBm/3.84 MHz	-60
Control Data Rate	?	
$FACH \quad E_b/N_t$	dB	

Table 8.5: FACH requirements in static propagation conditions

$FACH \quad E_b/N_t$	MER
TBD	TBD
TBD	TBD
TBD	TBD

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 Ratio (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 8.6 the BLER shall not exceed the piece-wise linear BLER curve specified by the points in table 8.7~~. For the parameters specified in Table 8.6 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.7

NOTE: The performance requirements for 384kbps will be replaced with new value using 10ms TTI measurement channel defined in subclause A.3.5.

Table 8.6: DCH parameters in static propagation conditions

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

Table 8.7: DCH requirements in static propagation conditions

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-16.6 dB	10^{-2}
2	-13.1 dB	10^{-1}
	-12.8 dB	10^{-2}
3	-9.9 dB	10^{-1}
	-9.8 dB	10^{-2}
4	-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 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 8.8, 8.10 and 8.12 the BLER shall not exceed the associated piece-wise linear BLER curves specified by the points in Table 8.9, 8.11 and 8.13~~. For the parameters specified in Table 8.8,8.10 and 8.12 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.9, 8.11 and 8.13.

NOTE: The performance requirements for 384kbps will be replaced with new value using 10ms TTI measurement channel defined in subclause A.3.5.

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

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

Table 8.9: 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 8.10: DCH parameters in multi-path fading propagation conditions (Case 2)

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

Table 8.11: 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 8.12: DCH parameters in multi-path fading propagation conditions (Case 3)

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

Table 8.13: 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	-6.0 dB	10^{-1}
	-5.5 dB	10^{-2}
	-5.0 dB	10^{-3}

8.4 Demodulation of DCH in moving propagation conditions

8.4.1 Single link performance

The receive single link performance of the Dedicated ~~Traffic~~ Channel (DCH) in dynamic moving propagation conditions 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 Dedicated Physical Channel (DPCH).

8.4.1.1 Minimum requirement

~~For the parameters specified in Table 8.14 the BLER shall not exceed the piece-wise linear BLER curve specified in points in Table 8.15~~. For the parameters specified in Table 8.14 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.15

Table 8.14: DCH parameters in moving propagation conditions

Parameter	Unit	Test 1	Test 2
$\hat{I}_{or}/I_{oc}$	dB	-1	
I_{oc}	dBm/3.84 MHz	-60	
Information Data Rate	kbps	12.2	64

Table 8.15: DCH requirements in moving propagation conditions

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-14.5 dB	10^{-2}
2	-10.9 dB	10^{-2}

8.5 Demodulation of DCH in birth-death propagation conditions

8.5.1 Single link performance

The receive single link performance of the Dedicated ~~Traffic~~ Channel (DCH) in dynamic birth-death propagation conditions are determined by the Block Error Ratio (BLER) values. BER is measured for the each of the individual data rate specified for the DPCH. DCH is mapped into Dedicated Physical Channel (DPCH).

8.5.1.1 Minimum requirement

~~For the parameters specified in Table 8.16, the BLER shall not exceed the piece-wise linear BLER curve in the points in Table 8.17~~. For the parameters specified in Table 8.16 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.17

Table 8.16: DCH parameters in birth-death propagation conditions

Parameter	Unit	Test 1	Test 2
$\hat{I}_{or}/I_{oc}$	dB	-1	
I_{oc}	dBm/3.84 MHz	-60	
Information Data Rate	kbps	12.2	64

Table 8.17: DCH requirements in birth-death propagation conditions

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-12.6 dB	10^{-2}
2		10^{-2}

8.6 Demodulation of DCH in Base Station Transmit diversity modes

8.6.1 Demodulation of DCH in open-loop transmit diversity mode

The receive characteristic of the Dedicated Channel (DCH) in open loop transmit diversity mode is determined by the Block Error Ratio (BLER). DCH is mapped into in Dedicated Physical Channel (DPCH).

8.6.1.1 Minimum requirement

~~For the parameters specified in Table 8.18 the BLER shall not exceed the associated piece-wise linear BLER curve specified by the points in Table 8.19~~For the parameters specified in Table 8.18 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.19

Table 8.18: Test parameters for DCH reception in an open loop transmit diversity scheme. (Propagation condition: Case 1)

Parameter	Unit	Test 1
$\hat{I}_{or}/I_{oc}$	dB	9
I_{oc}	dBm/3.84 MHz	-60
Information data rate	kbps	12.2

Table 8.19: Test requirements for DCH reception in open loop transmit diversity scheme

Test Number	$\frac{DPCH\_E_c}{I_{or}}$ (antenna 1/2)	BLER
1	[-16.8 dB]	10^{-2}

8.6.2 Demodulation of DCH in closed loop transmit diversity mode

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

8.6.2.1 Minimum requirement

~~For the parameters specified in Table 8.20 the BLER shall not exceed the associated piece-wise linear BLER curves specified by the points in Table 8.21.~~For the parameters specified in Table 8.20 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.21

Table 8.20: Test Parameters for DCH Reception in closed loop transmit diversity mode (Propagation condition: Case 1)

Parameter	Unit	Test 1 (Mode 1)	Test 2 (Mode 2)
$\hat{I}_{or}/I_{oc}$	dB	9	9
I_{oc}	dBm/3.84 MHz	-60	-60
Information data rate	kbps	12.2	12.2
Feedback error rate	%	4	4

Table 8.21: Test requirements for DCH reception in closed loop transmit diversity mode

Test Number	$\frac{DPCH\_E_c}{I_{or}}$ (see note)	BLER
1	-17.5 dB	10^{-2}
2	-17.8 dB	10^{-2}
NOTE: This is the total power from both antennas. Power sharing between antennas are feedback mode dependent as specified in TS25.214.		

8.6.3 Demodulation of DCH in Site Selection Diversity Transmission Power Control mode

The bit error characteristics of UE receiver is determined in Site Selection Diversity Transmission power control (SSDT) mode. Two BS emulators are required for this performance test. The delay profiles of signals received from different base stations are assumed to be the same but time shifted by 10 chip periods (2604 ns).

8.6.3.1 Minimum Requirements

DCH parameters are specified in Table 8.22. The downlink physical channels and their relative power to Ior are the same as those specified in clause C.3 irrespective of BSs and the test cases. In Test 1 and Test 3, the received powers at UE from two BSs are the same, while 3dB offset is given to one that comes from one of BSs for Test 2 and Test 4 as specified in Table 8.22.

~~For the parameters specified in Table 8.22, the BLER shall not exceed the value at the DPCH_Ec/Ior specified in Table 8.23~~. For the parameters specified in Table 8.22 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.23

Table 8.22: DCH parameters in multi-path propagation conditions during SSDT mode (Propagation condition: Case 1)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{CPICH\_E_c}{I_{or}}$ (for Cell 1)	dB	-10	-13	-10	-10
$\frac{CPICH\_E_c}{I_{or}}$ (for Cell 2)	dB	-10	-10	-10	-13
$\frac{DPCH\_E_{c1}}{I_{or}} / \frac{DPCH\_E_{c2}}{I_{or}}$ *	dB	0	-3	0	+3
$\hat{I}_{or1}/I_{oc}$	dB	0	-3	0	0
$\hat{I}_{or2}/I_{oc}$	dB	0	0	0	-3
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	12.2	12.2	12.2
Number of FBI bits assigned to "S" Field		1	1	2	2
Code word Set		Long	Long	Short	Short

*NOTE: DPCH_Ec/Ior value applies whenever DPDCH in the cell is transmitted.

Table 8.23: DCH requirements in multi-path propagation conditions during SSDT Mode

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-7.5 dB	10^{-2}
2	-6.5 dB	10^{-2}
3	-10.5 dB	10^{-2}
4	-9.2 dB	10^{-2}

8.7 Demodulation in Handover conditions

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 10 chips.

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

8.7.1.1 Minimum requirement

~~For the parameters specified in Table 8.24, the BLER shall not exceed the piece-wise linear BLER curve specified by the points in Table 8.25.~~For the parameters specified in Table 8.24 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.25

Table 8.24: DCH parameters in multi-path propagation conditions during Soft Handoff (Case 3)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
$\hat{I}_{or1}/I_{oc}$ and $\hat{I}_{or2}/I_{oc}$	dB	0	0	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information data Rate	kbps	12.2	64	144	384

Table 8.25: DCH requirements in multi-path propagation conditions during Soft Handoff (Case 3)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	[-15.2 dB]	10^{-2}
2	[-11.8 dB]	10^{-1}
	[-11.3 dB]	10^{-2}
3	[-9.6 dB]	10^{-1}
	[-9.2 dB]	10^{-2}
4	[-6.0 dB]	10^{-1}
	[-5.5 dB]	10^{-2}

8.8 Power control in downlink

Power control in the downlink is the ability of the UE receiver to converge to required link quality set by the network while using as low power as possible in downlink . Additional performance requirements are expected to be added to this subclause.

8.8.1 Power control in the downlink, constant BLER target

8.8.1.1 Minimum requirements

~~For the parameters specified in Table 8.26 the downlink~~ $\frac{DPCH\_E_c}{I_{or}}$ ~~power shall be below the specified value in Table 8.27 and the measured BLER value shall be as required in Table 8.27~~. For the parameters specified in Table 8.26 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.27

NOTE: Power control in downlink is ON during the test.

Table 8.26: Test parameter for downlink power control

Parameter	Unit	Test 1	Test 2
$\hat{I}_{or}/I_{oc}$	dB	9	-1
I_{oc}	dBm/3.84 MHz	-60	
Information Data Rate	kbps	12.2	
Target quality value on DTCH	BLER	0.01	
Propagation condition		Case 4	

Table 8.27: Requirements in downlink power control

Parameter	Unit	Test 1	Test 2
$\frac{DPCH\_E_c}{I_{or}}$	dB	-16.0	-9.0
Measured quality on DTCH	BLER	FFS	FFS
Confidence level for measured quality and $\frac{DPCH\_E_c}{I_{or}}$	%	90	

8.9 Downlink compressed mode

Downlink compressed mode is used to create gaps in the downlink transmission, to allow the UE to make measurements on other frequencies.

8.9.1 Single link performance

The receiver single link performance of the Dedicated Traffic Channel (DCH) in compressed mode is determined by the Block Error Ratio (BLER), average power in the downlink and the maximum power in the uplink.

The compressed mode parameters are given in clause A.5.

8.9.1.1 Minimum requirements

For the parameters specified in Table 8.30 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the ~~reported~~ BLER shown in Table 8.31. The uplink DPDCH power shall be below the specified value.

NOTE: Inner loop power control is ON during the test.

Table 8.28: Void

Table 8.29: Void

Table 8.30: Test parameter for downlink compressed mode

Parameter	Unit	Test 1
$\hat{I}_{or}/I_{oc}$	dB	9
I_{oc}	dBm/3.84 MHz	-60
Information Data Rate	kbps	12.2
TFCI	-	On
Propagation condition		Case 2

Table 8.31: Requirements in downlink compressed mode

Parameter	Unit	Test 1
$\frac{DPCH\_E_c}{I_{or}}$	dB	
Target quality		
Downlink BLER		
Uplink DPDCH	dBm	[Maximum power/slot]
Confidence level	%	

8.10 Blind transport format detection

Performance of Blind transport format detection is determined by the Block Error Ratio (BLER) values and by the measured average transmitted DPCH_Ec/Ior value.

8.10.1 Minimum requirement

~~For the parameters specified in Table 8.32 the BLER and FDR shall not exceed the piece-wise linear BLER curve specified by the points in table 8.33~~. For the parameters specified in Table 8.32 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER and FDR shown in Table 8.33

Table 8.32: Test parameters for Blind transport format detection

Parameter	Unit	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
$\hat{I}_{or}/I_{oc}$	dB	-1			-3		
I_{oc}	dBm/3.84 MHz	-60					
Information Data Rate	kbps	12.2 (rate 1)	7.95 (rate 2)	1.95 (rate 3)	12.2 (rate 1)	7.95 (rate 2)	1.95 (rate 3)
propagation condition	-	static			multi-path fading case 3		
TFCI	-	off					

Table 8.33: The Requirements for DCH reception in Blind transport format detection

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER	FDR
1	[-17.7dB]	10^{-2}	10^{-4}
2	[-17.8dB]	10^{-2}	10^{-4}
3	[-18.4dB]	10^{-2}	10^{-4}
4	[-13dB]	10^{-2}	10^{-4}
5	[-13.2dB]	10^{-2}	10^{-4}
6	[-13.8dB]	10^{-2}	10^{-4}

- The value of DPCH_Ec/Ior, Ioc, and Ior/Ioc are defined in case of DPCH is transmitted
-

NOTE: In this test, 9 different Transport Format Combinations (table 8.34) are sent during the call set up procedure, so that the UE has to detect the correct transport format from these 9 candidates.

Table 8.34: Transport format combinations informed during the call set up procedure in the test

	1	2	3	4	5	6	7	8	9
DTCH	12.2k	10.2k	7.95k	7.4k	6.7k	5.9k	5.15k	4.75k	1.95k
DCCH		2.4k							

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**053**	Current Version:	3.2.2

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

For submission to:	RAN #8	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		UTRAN / Radio	X	Core Network

Source:	RAN WG4	**Date:**	22.5.2000
Subject:	Clarification of the specification on Peak Code Domain Error (PCDE)		
Work item:	TS 25.101		

Category:	F	Correction	X	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			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 PCDE is strongly dependent on the spreading factor (SF); therefore, it is needed to clearly specify at which SF the PCDE is evaluated.
Clauses affected:	8

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

The code domain error is computed by projecting the error vector power onto the code domain at a specific~~the maximum~~ spreading factor. The error vector for each power code is defined as the ratio to the mean power of the reference waveform expressed in dB. The peak code domain error is defined as the maximum value for the code domain error. The measurement interval is one power control group (timeslot)

The requirement for peak code domain error is only applicable for multi-code transmission.

6.8.3.1 Minimum requirement

The peak code domain error shall not exceed -15 dB at spreading factor 4 for the parameters specified in Table 6.13. The requirements are defined using the UL reference measurement channel specified in subclause A.2.6.

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**054**	Current Version:	3.2.2

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

For submission to:	TSG-RAN #8	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	UTRAN / Radio	Core Network
	X		

Source: RAN WG4   **Date:** 2000-05-25

Subject: Transients for uplink power steps

Work item:

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

F	Correction	X	**Release:**	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			Release 99	X
				Release 00	

Reason for change:

- The timing of power step transients should be consistent for all uplink power steps.
- Some editorial corrections are also made

Clauses affected: 6.4.2.1.1, 6.5.1.1, 6.5.2.1, 6.5.3.1, 6.5.4.1

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:

6.4.2 Inner loop power control in the uplink

Inner loop power control in the Uplink is the ability of the UE transmitter to adjust its output power in accordance with one or more TPC commands received in the downlink.

6.4.2.1 Power control steps

The power control step is the change in the UE transmitter output power in response to a single TPC command, TPC_cmd, derived at the UE.

6.4.2.1.1 Minimum requirement

The UE transmitter shall have the capability of changing the output power with a step size of 1, 2 and 3 dB according to the value of Δ_{TPC} or $\Delta_{RP\text{-}TPC}$, in the slot immediately after the TPC_cmd can be derived

(a) The transmitter output power step due to inner loop power control shall be within the range shown in Table 6.4.

(b) The transmitter average output power step due to inner loop power control shall be within the range shown in Table 6.5. Here a TPC_cmd group is a set of TPC_cmd values derived from a corresponding sequence of ~~TCP~~ TPC commands of the same duration.

The inner loop power step is defined as the relative power difference~~s~~ between the average~~d~~ power of the original (reference) timeslot and the average~~d~~ power of the target timeslot, not including the ~~without~~ transient duration. ~~(Figures 6.2 and 6.3)~~ The transient duration is from 25μs before the slot boundary to 25μs after the slot boundary. ~~They~~ The power is~~are~~ measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

Table 6.4: Transmitter power control range

TPC_ cmd	Transmitter power control range					
	1 dB step size		2 dB step size		3 dB step size	
	Lower	Upper	Lower	Upper	Lower	Upper
+ 1	+0.5 dB	+1.5 dB	+1 dB	+3 dB	+1.5 dB	+4.5 dB
0	-0.5 dB	+0.5 dB	-0.5 dB	+0.5 dB	-0.5 dB	+0.5 dB
-1	-0.5 dB	-1.5 dB	-1 dB	-3 dB	-1.5 dB	-4.5 dB

Table 6.5: Transmitter average power control range

TPC_ cmd group	Transmitter power control range after 10 equal TPC_ cmd groups				Transmitter power control range after 7 equal TPC_ cmd groups	
	1 dB step size		2 dB step size		3 dB step size	
	Lower	Upper	Lower	Upper	Lower	Upper
+1	+8 dB	+12 dB	+16 dB	+24 dB	+16 dB	+26 dB
0	-1 dB	+1 dB	-1 dB	+1 dB	-1 dB	+1 dB
-1	-8 dB	-12 dB	-16 dB	-24 dB	-16 dB	-26 dB
0,0,0,0,+1	+6 dB	+14 dB	N/A	N/A	N/A	N/A
0,0,0,0,-1	-6 dB	-14 dB	N/A	N/A	N/A	N/A

6.4.3 Minimum transmit output power

The minimum controlled output power of the UE is when the power control setting is set to a minimum value. This is when both the inner loop and open loop power control indicate a minimum transmit output power is required.

6.4.3.1 Minimum requirement

The minimum transmit power is defined as an averaged power in a time slot measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate. The minimum transmit power shall be better than –50 dBm.

6.4.4 Out-of-synchronisation handling of output power

The UE shall monitor the DPCCH quality in order to detect a loss of the signal on Layer 1, as specified in TS 25.214. The thresholds Q_{out} and Q_{in} specify at what DPCCH quality levels the UE shall shut its power off and when it may turn its transmitter on respectively. The thresholds are not defined explicitly, but are defined by the conditions under which the UE shall shut its transmitter off and turn it on, as stated in this subclause.

6.4.4.1 Requirement

The parameters in Table 6.6 are defined using the DL reference measurement channel (12.2) kbps specified in subclause A.3.1 and with static propagation conditions.

Table 6.6: DCH parameters for test of Out-of-synch handling

Parameter	Unit	Value
$\hat{I}_{or}/I_{oc}$	dB	-1
I_{oc}	dBm/3.84 MHz	-60
$\frac{DPDCH\_E_c}{I_{or}}$	dB	See figure 6.1: Before point A -16.6 After point A Not defined
$\frac{DPCCH\_E_c}{I_{or}}$	dB	See figure 6.1
Information Data Rate	kbps	12.2
TFCI	-	on

The conditions for when the UE shall shut its transmitter on and when it may turn it on are defined by the parameters in Table 6.6 together with the DPCH power level as defined in Figure 6.1.

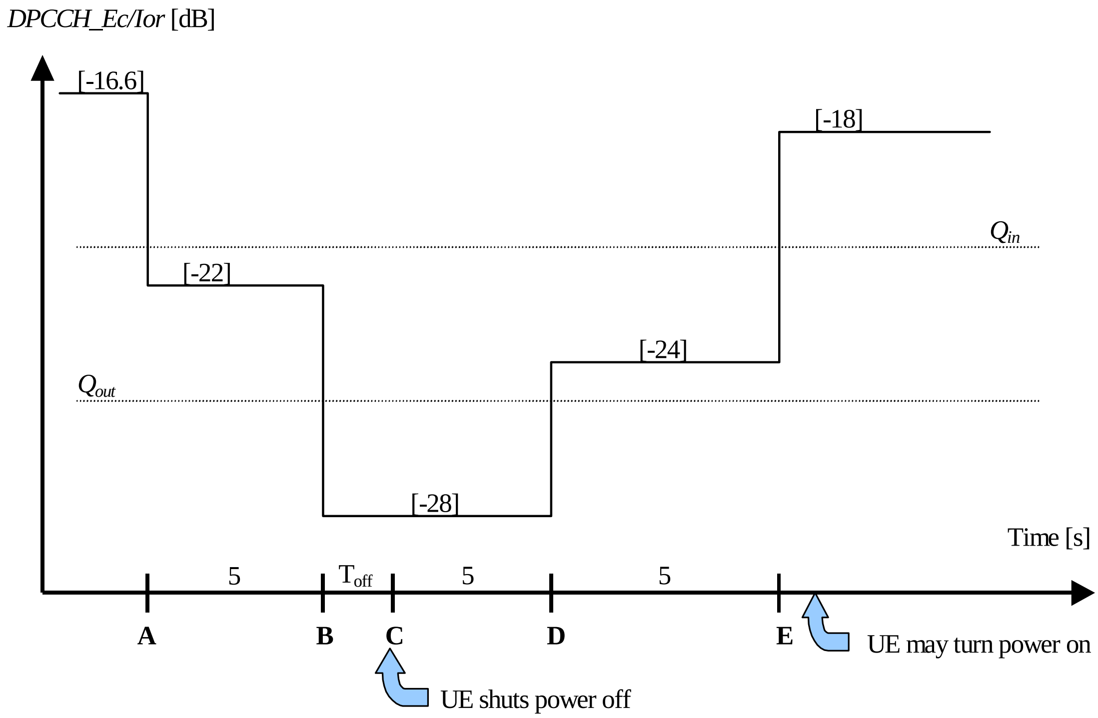


Figure 6.1: Conditions for out-of-synch handling in the UE. The indicated thresholds Q_{out} and Q_{in} are only informative

The requirements for the UE are that:

1. The UE shall not shut its transmitter off before point B.
2. The UE shall shut its transmitter off before point C, which is Toff = [200] ms after point B.
3. The UE shall not turn its transmitter on between points C and E.
4. The UE may turn its transmitter on after point E.

6.5 Transmit ON/OFF power

6.5.1 Transmit OFF power

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

6.5.1.1 Minimum requirement

The transmit OFF power is defined as an averaged power at least in a timeslot duration, excluding any transient periods, measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate. The requirement for the transmit OFF power shall be better than –56 dBm.

6.5.2 Transmit ON/OFF Time mask

The time mask for transmit ON/OFF defines the ramping time allowed for the UE between transmit OFF power and transmit ON power. Possible ON/OFF scenarios are RACH ,CPCH or UL slotted mode.

6.5.2.1 Minimum requirement

The transmit power levels versus time ~~should~~ shall meet the mask specified in figure 6.2 for PRACH preambles, and the mask in figure 6.3 for all other cases. ~~and t~~The signal is measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

On power is defined as either case as follows. The specification depends on each possible case.

- First preamble of RACH: Open loop accuracy (6.4.1).
- During preamble ramping of the RACH and compressed mode: Accuracy depending on size of the power step.(6.5.3).
- Power step to Maximum Power: Maximum power accuracy (6.2.1).

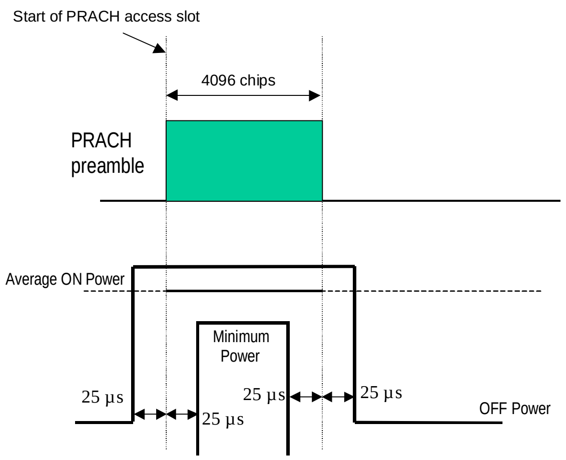


Figure 6.2: Transmit ON/OFF template for PRACH preambles

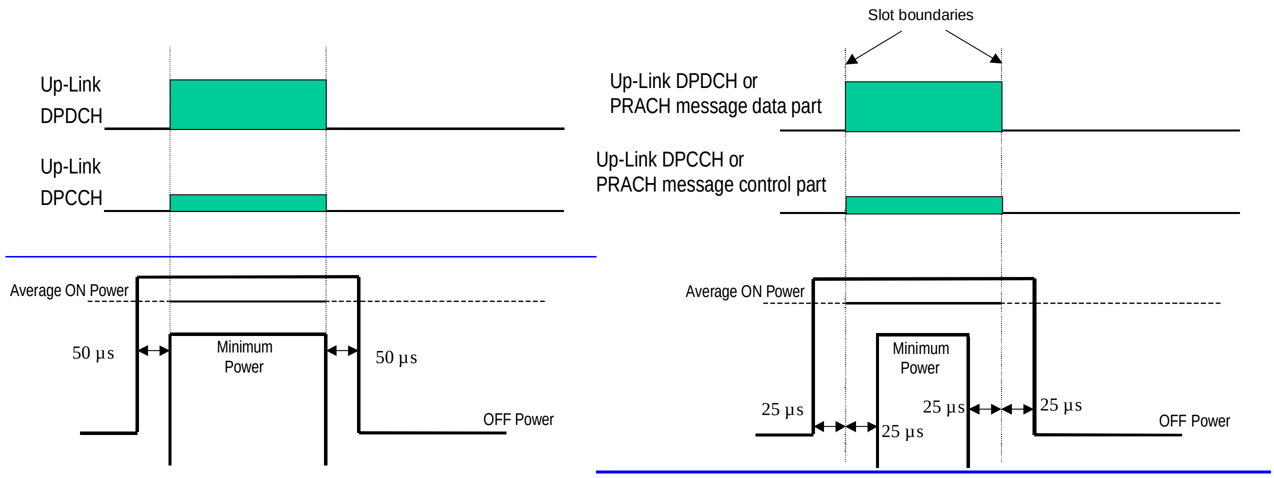


Figure 6.~~2~~3: Transmit ON/OFF template for all other On/Off cases

6.5.3 Change of TFC

A change of TFC (Transport Format Combination) in uplink means that the power in the uplink varies according to the change in data rate. DTX, where the DPCH is turned off, is a special case of variable data, which is used to minimise the interference between UE(s) by reducing the UE transmit power when voice, user or control information is not present.

6.5.3.1 Minimum requirement

A change of output power is required when the TFC, and thereby the data rate, is changed. The ratio of the amplitude between the DPDCH codes and the DPCCH code will vary. The power step due to a change in TFC shall be calculated in the UE so that the power transmitted on the DPCCH shall follow the inner loop power control. The power step shall then be rounded to the closest integer dB value. The accuracy of the power step, given the step size is specified in Table 6.7. The power change ~~by~~ due to a change in TFC is defined as the relative power difference~~s~~ between the average~~d~~ power of the original (reference) timeslot and the average~~d~~ power of the target timeslot, not including the ~~without~~ transient duration. The transient duration is from 25µs before the slot boundary to 25µs after the slot boundary. ~~And t~~They~~y~~ power is~~are~~ measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

Table 6.7: Transmitter power step tolerance

Power control step size (Up or down) ΔP [dB]	Transmitter power step tolerance [dB]
1	+/- 0.5 dB
2	+/- 1.0 dB
3	+/- 1.5 dB
$4 \leq \Delta P \leq 10$	+/- 2 dB
$11 \leq \Delta P \leq 15$	+/- 3 dB
$16 \leq \Delta P \leq 20$	+/- 4 dB
$21 \leq \Delta P$	+/- 6 dB

The transmit power levels versus time ~~should~~ shall meet the mask specified in figure 6.4~~3~~. ~~When power increases the power step shall be performed before the frame boundary, when power decreases the power step shall be performed after the frame boundary.~~

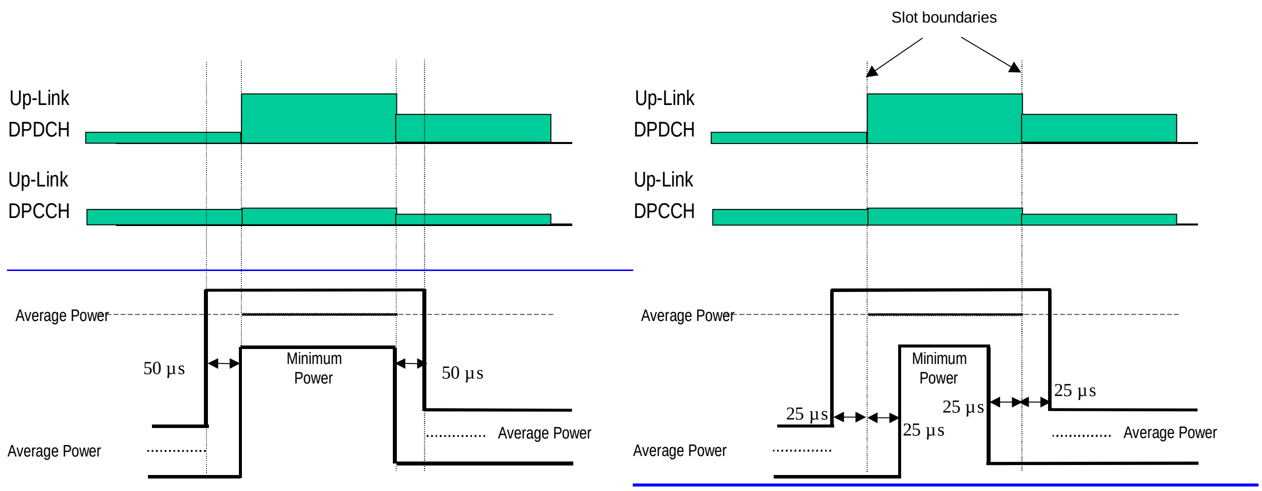


Figure 6.4~~3~~: Transmit template during TFC change

6.5.4 Power setting in uplink compressed mode

Compressed mode in uplink means that the power in uplink is changed.

6.5.4.1 Minimum requirement

A change of output power is required during uplink compressed frames since the transmission of data is performed in a shorter interval. The ratio of the amplitude between the DPDCH codes and the DPCCH code will also vary. The power step due to compressed mode shall be calculated in the UE so that the energy transmitted on the pilot bits during each transmitted slot shall follow the inner loop power control. Thereby the power step during the transmitted part of a compressed frame shall be such that the power on the DPCCH follows the inner loop power control with an additional power offset during a compressed frame of $N_{pilot,N} / N_{pilot,C}$ where $N_{pilot,C}$ is the number of pilot bits per slot when in compressed mode, and $N_{pilot,N}$ is the number of pilot bits per slot in normal mode.

The power step shall then be rounded to the closest integer dB value. The accuracy of the power step, given the step size is specified in Table 6.6 in subclause 6.5.3.1. The power step is defined as the relative power difference~~s~~ between the average power of the original (reference) timeslot and the average~~d~~ power of the target timeslot. The transient duration is not included, and is from 25µs before the slot boundary to 25µs after the slot boundary. During the compress mode, the average should be done in only either power ON duration. The relative power is measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off α = 0.22 and a bandwidth equal to the chip rate.

The transmit power levels versus time shall meet the mask specified in figure 6.~~5~~4. ~~When power increases the power step shall be performed before the actual slot boundary, when power decreases the power step shall be performed after the actual slot boundary.~~

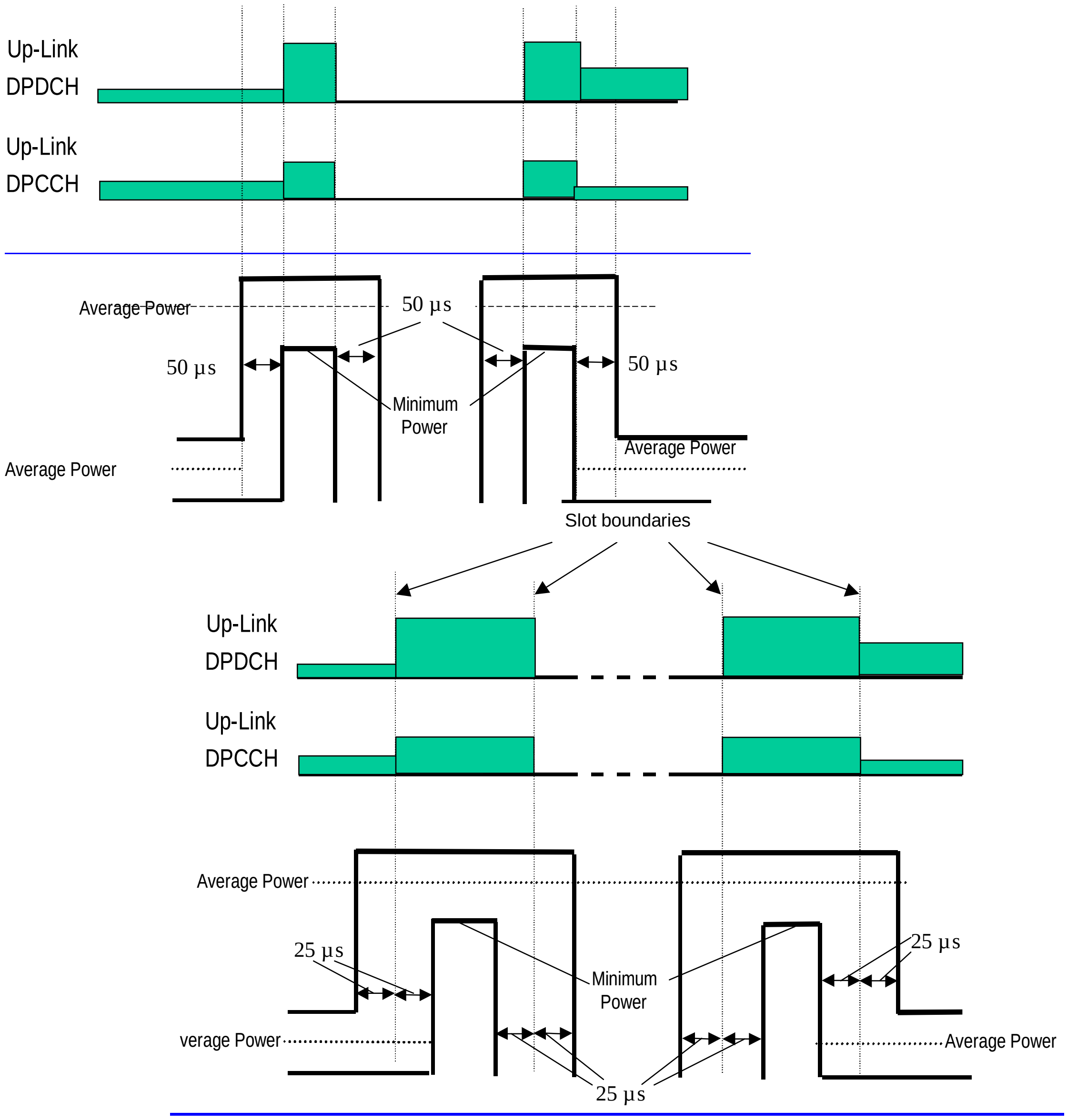


Figure 6.~~5~~4: Transmit template during Compressed mode

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101 CR 055 Current Version: 3.2.2

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

For submission to: TSG-RAN #8
list expected approval meeting # here ↑

for approval	X	strategic		*(for SMG use only)*
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: (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [ ]
(at least one should be marked with an X)

Source: RAN WG4 **Date:** 2000-05-27

Subject: Power setting for uplink compressed mode and RACH preambles

Work item:

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

			Release:	
F	Correction	X	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		Release 99	X
			Release 00	

Reason for change:

- Text relating to power control in compressed mode is not fully consistent with 25.214
- Specification of power accuracy is needed when transmission resumes after a short gap (e.g. in compressed mode)
- RACH preambles ramping tolerance must be specified.

Clauses affected: 6.5.2.1, 6.5.3.1, 6.5.4.1

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 except during UL DTX mode. This parameter is defined as the maximum output transmit power within the channel bandwidth when the transmitter is OFF.

6.5.1.1 Minimum requirement

The transmit OFF power is defined as an averaged power at least in a timeslot duration measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate. The requirement for the transmit OFF power shall be better than –56 dBm.

6.5.2 Transmit ON/OFF Time mask

The time mask for transmit ON/OFF defines the ramping time allowed for the UE between transmit OFF power and transmit ON power. Possible ON/OFF scenarios are RACH ,CPCH or UL ~~slotted~~ compressed mode.

6.5.2.1 Minimum requirement

The transmit power levels versus time should meet the mask specified in figure 6.2. and the signal is measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

On power is defined as either case as follows. The specification depends on each possible case.

- First preamble of RACH: Open loop accuracy (~~6.4.1~~Table 6.3).
- During preamble ramping of the RACH, and between final RACH preamble and RACH message part~~compressed mode~~: Accuracy depending on size of the required power difference~~step~~.(~~6.5.3~~Table 6.7~~)~~.
- After transmission gaps in compressed mode: Accuracy as in Table 6.9.
- Power step to Maximum Power: Maximum power accuracy (~~6.2.1~~Table 6.1).

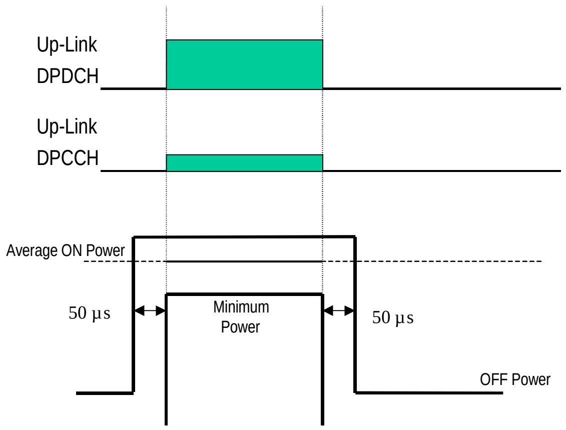


Figure 6.2: Transmit ON/OFF template

Table 6.7: Transmitter power difference tolerance for RACH preamble ramping, and between final RACH preamble and RACH message part

Power difference size ΔP [dB]	Transmitter power difference tolerance [dB]
0	+/- 1 dB
1	+/- 1 dB

2	+/- 1.5 dB
3	+/- 2 dB
4 ≤ ΔP ≤ 10	+/- 2.5 dB
11 ≤ ΔP ≤ 15	+/- 3.5 dB
16 ≤ ΔP ≤ 20	+/- 4.5 dB
21 ≤ ΔP	+/- 6.5 dB

6.5.3 Change of TFC

A change of TFC (Transport Format Combination) in uplink means that the power in the uplink varies according to the change in data rate. DTX, where the DPCH is turned off, is a special case of variable data, which is used to minimise the interference between UE(s) by reducing the UE transmit power when voice, user or control information is not present.

6.5.3.1 Minimum requirement

A change of output power is required when the TFC, and thereby the data rate, is changed. The ratio of the amplitude between the DPDCH codes and the DPCCH code will vary. The power step due to a change in TFC shall be calculated in the UE so that the power transmitted on the DPCCH shall follow the inner loop power control. The ~~power~~ step in total transmitted power (DPCCH +DPDCH) shall then be rounded to the closest integer dB value. A power step exactly half-way between two integer values shall be rounded to the closest integer of greatest magnitude. The accuracy of the power step, given the step size, is specified in Table 6.~~7~~8. The power change by TFC is defined as the relative power differences between the averaged power of original (reference) timeslot and the averaged power of target timeslot without transient duration. And they are measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

Table 6.~~7~~8: Transmitter power step tolerance

Power ~~control~~ step size (Up or down) ΔP [dB]	Transmitter power step tolerance [dB]
0	+/- 0.5 dB
1	+/- 0.5 dB
2	+/- 1.0 dB
3	+/- 1.5 dB
4 ≤ ΔP ≤ 10	+/- 2 dB
11 ≤ ΔP ≤ 15	+/- 3 dB
16 ≤ ΔP ≤ 20	+/- 4 dB
21 ≤ ΔP	+/- 6 dB

The transmit power levels versus time should meet the mask specified in figure 6.3. When power increases the power step shall be performed before the frame boundary, when power decreases the power step shall be performed after the frame boundary.

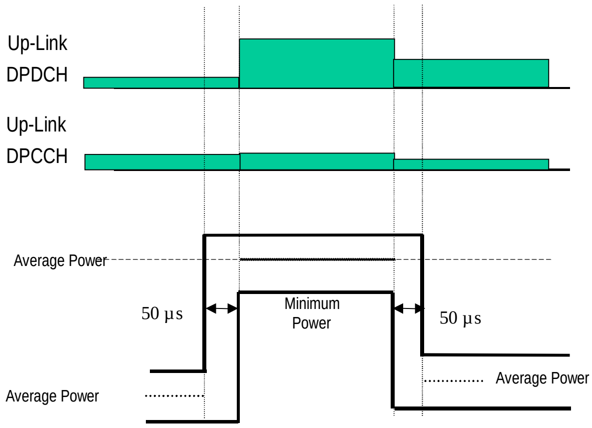


Figure 6.3: Transmit template during TFC change

6.5.4 Power setting in uplink compressed mode

Compressed mode in uplink means that the power in uplink is changed.

6.5.4.1 Minimum requirement

A change of output power is required during uplink compressed frames since the transmission of data is performed in a shorter interval. The ratio of the amplitude between the DPDCH codes and the DPCCH code will also vary. The power step due to compressed mode shall be calculated in the UE so that the energy transmitted on the pilot bits during each transmitted slot shall follow the inner loop power control. ~~Thereby the power step during the transmitted part of a compressed frame shall be such that the power on the DPCCH follows the inner loop power control with an additional power offset during a compressed frame of $N_{pilot,N}$ / $N_{pilot,C}$ where $N_{pilot,C}$ is the number of pilot bits per slot when in compressed mode, and $N_{pilot,N}$ is the number of pilot bits per slot in normal mode.~~

Thereby, the power during compressed mode, and immediately afterwards, shall be such that the power on the DPCCH follows the steps due to inner loop power control combined with additional steps of $10\text{Log}_{10}(N_{pilot.prev} / N_{pilot.curr})$ dB where $N_{pilot.prev}$ is the number of pilot bits in the previously transmitted slot, and $N_{pilot.curr}$ is the current number of pilot bits per slot.

The resulting step in total transmitted power (DPCCH +DPDCH)~~step~~ shall then be rounded to the closest integer dB value. A power step exactly half-way between two integer values shall be rounded to the closest integer of greatest magnitude. The accuracy of the power step, given the step size, is specified in Table 6.~~6~~ 8 in subclause 6.5.3.1. The power step is defined as the relative power differences between the average power of original (reference) timeslot and the averaged power of target timeslot, when neither the original timeslot nor the reference timeslot are in a transmission gap~~. During the compress mode, the average should be done in only either power ON duration~~. The relative power is measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

In addition to any power change due to the ratio $N_{pilot.prev}$ / $N_{pilot.curr}$, the average power of the DPCCH in the first slot after a compressed mode transmission gap shall differ from the average power in the last slot before the transmission gap by an amount Δ_{RESUME}, where Δ_{RESUME} is calculated as described in clause 5.1.2.3 of TS 25.214.

The resulting difference in the total transmitted power (DPCCH + DPDCH) shall then be rounded to the closest integer dB value. A power difference exactly half-way between two integer values shall be rounded to the closest integer of greatest magnitude. The accuracy of the resulting difference in the total transmitted power (DPCCH + DPDCH) after a transmission gap of up to 14 slots shall be as specified in Table 6.9.

Table 6.9: Transmitter power difference tolerance after a transmission gap of up to 14 slots

Tolerance on required difference in total transmitter power after a transmission gap
+/- 3 dB

The power difference is defined as the relative power difference between the average power of the original (reference) timeslot before the transmission gap and the average power of the target timeslot after the transmission gap, not including the transient durations. The transient durations at the start and end of the transmission gaps are each from 25µs before the slot boundary to 25µs after the slot boundary. The relative power is measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

The transmit power levels versus time shall meet the mask specified in figure 6.4. When power increases the power step shall be performed before the actual slot boundary, when power decreases the power step shall be performed after the actual slot boundary.

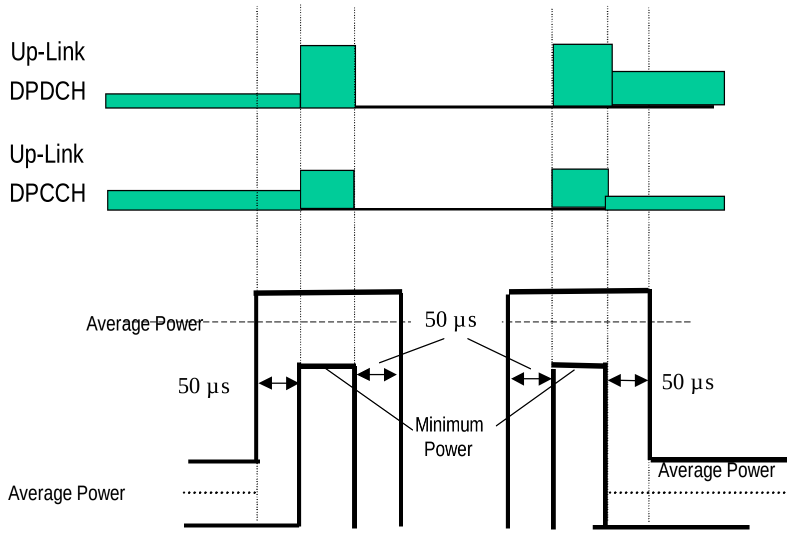


Figure 6.4: Transmit template during Compressed mode

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**056**	Current Version:	3.2.2

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

For submission to: RAN#8	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: (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [ ]
(at least one should be marked with an X)

Source: RAN WG4 **Date:** 2000-15-05

Subject: UE interfering signal definition

Work item:

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

F	Correction	X	**Release:**	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			Release 99	X
				Release 00	

Reason for change: The detailled definition of WCDMA modulated interferer was missing.

Clauses affected: 7.4.1, 7.5.1, 7.6.1, 7.8.1

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:

7.4 Maximum input level

This is defined as the maximum receiver input power at the UE antenna port, which does not degrade the specified BER performance.

7.4.1 Minimum requirement

The BER shall not exceed 0.001 for the parameters specified in Table 7.3.

Table 7.3: Maximum input level

Parameter	Unit	Level
$\frac{DPCH\_Ec}{I_{or}}$	dB	-19
$\hat{I}_{or}$	dBm/3.84 MHz	-25

NOTE: Since the spreading factor is large (10log(SF)=21dB), the majority of the total input signal consists of the OCNS interference. The OCNS interference consist of 16 dedicated data channel. The channelisation codes for data channels are chosen optimally to reduce peak to average ratio (PAR). All dedicated channels user data is uncorrelated to each other.

7.5 Adjacent Channel Selectivity (ACS)

Adjacent Channel Selectivity (ACS) is a measure of a receiver's ability to receive a W-CDMA signal at its assigned channel frequency in the presence of an adjacent channel signal at a given frequency offset from the centre frequency of the assigned channel. ACS is the ratio of the receive filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s).

7.5.1 Minimum requirement

The ACS shall be better than the value indicated in Table 7.4 for the test parameters specified in Table 7.5 where the BER shall not exceed 0.001.

Table 7.4: Adjacent Channel Selectivity

Power Class	Unit	ACS
3	dB	33
4	dB	33

Table 7.5: Test parameters for Adjacent Channel Selectivity

Parameter	Unit	Level
DPCH_Ec	dBm/3.84 MHz	-103
$\hat{I}_{or}$	dBm/3.84 MHz	-92.7
I_{oac} (modulated)	dBm/3.84 MHz	-52
F_{uw} (offset)	MHz	+5 or -5

Note The I_{oac} (modulated) signal consist of common channels needed for tests and 16 dedicated data channel. The channelisation codes for data channels are chosen optimally to reduce peak to average ratio (PAR). All dedicated channels user data is uncorrelated to each other.

7.6 Blocking characteristics

The blocking characteristic is a measure of the receiver's ability to receive a wanted signal at its assigned channel frequency in the presence of an unwanted interferer on frequencies other than those of the spurious response or the adjacent channels, without this unwanted input signal causing a degradation of the performance of the receiver beyond a specified limit. The blocking performance shall apply at all frequencies except those at which a spurious response occur.

7.6.1 Minimum requirement

The BER shall not exceed 0.001 for the parameters specified in Table 7.6 and Table 7.7. For Table 7.7 up to (24) exceptions are allowed for spurious response frequencies in each assigned frequency channel when measured using a 1 MHz step size.

Table 7.6: In-band blocking

Parameter	Unit	Offset	Offset
DPCH_Ec	dBm/3.84 MHz	-114	-114
$\hat{I}_{or}$	dBm/3.84 MHz	-103.7	-103.7
$I_{blocking}$ (modulated)	dBm/3.84 MHz	-56	-44
F_{uw} (offset)	MHz	+10 or –10	+15 or –15

Note: $I_{blocking}$ (modulated) consist of common channels and 16 dedicated data channel. The channelisation codes for data channels are chosen optimally to reduce peak to average ratio (PAR). All dedicated channels user data is uncorrelated to each other.

Table 7.7: Out of band blocking

Parameter	Unit	Band 1	Band 2	Band 3
DPCH_Ec	dBm/3.84 MHz	-114	-114	-114
$\hat{I}_{or}$	dBm/3.84 MHz	-103.7	-103.7	-103.7
$I_{blocking}$ (CW)	dBm	-44	-30	-15
F_{uw} For operation in frequency bands as defined in subclause 5.2(a)	MHz	2050<f <2095 2185<f <2230	2025 <f <2050 2230 <f <2255	1< f <2025 2255<f<12750
F_{uw} For operation in frequency bands as defined in subclause 5.2(b)	MHz	1870<f <1915 2005<f <2050	1845 <f <1870 2050 <f <2075	1< f <1845 2075<f<12750

Note:

1. For operation in bands referenced in 5.2(a), from 2095<f<2110 MHz and 2170<f<2185 MHz, the appropriate in-band blocking or adjacent channel selectivity in subclause 7.5.1 shall be applied.

2. For operation in bands referenced in 5.2(b), 1915<f<1930 MHz and 1990<f<2005 MHz, the appropriate in-band blocking or adjacent channel selectivity in subclause 7.5.1 shall be applied.

7.8 Intermodulation characteristics

Third and higher order mixing of the two interfering RF signals can produce an interfering signal in the band of the desired channel. Intermodulation response rejection is a measure of the capability of the receiver to receiver a wanted signal on its assigned channel frequency in the presence of two or more interfering signals which have a specific frequency relationship to the wanted signal.

7.8.1 Minimum requirement

The BER shall not exceed 0.001 for the parameters specified in Table 7.9.

Table 7.9: Receive intermodulation characteristics

Parameter	Unit	Level
DPCH_Ec	dBm/3.84 MHz	-114
$\hat{I}_{or}$	dBm/3.84 MHz	-103.7
I_{ouw1} (CW)	dBm	-46
I_{ouw2} (modulated)	dBm/3.84 MHz	-46
F_{uw1} (offset)	MHz	10
F_{uw2} (offset)	MHz	20

Note: I_{ouw2} (modulated) consist of common channels and 16 dedicated data channel. The channelisation codes for data channels are chosen optimally to reduce peak to average ratio (PAR). All dedicated channels user data is uncorrelated to each other.

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101 CR 057 Current Version: 3.2.2

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

For submission to:	TSG RAN#8	for approval	X	strategic	(for SMG use only)
list expected approval meeting # here ↑		for information		non-strategic	

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

Source: RAN WG4 **Date:** 2000-05-23

Subject: Downlink Power Control, wind up effects

Work item:

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

Reason for change: Introduction of a test for windup effects is needed based on contributions from Nokia, Motorola, Alcatel and Ericsson. The behaviour of a UE shall be specified in case the base station does not respond to power control commands. This CR is the conclusion between interested companies.

Clauses affected: New section 8.8.3 Power control in downlink, wind up effects.

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:

8.8.1 Power control in the downlink, constant BLER target

8.8.1.1 Minimum requirements

For the parameters specified in Table 8.26 the downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value in Table 8.27 and the measured BLER value shall be as required in Table 8.27.

NOTE: Power control in downlink is ON during the test.

Table 8.26: Test parameter for downlink power control

Parameter	Unit	Test 1	Test 2
$\hat{I}_{or}/I_{oc}$	DB	9	-1
I_{oc}	dBm/3.84 MHz	-60	
Information Data Rate	Kbps	12.2	
Target quality value on DTCH	BLER	0.01	
Propagation condition		Case 4	

Table 8.27: Requirements in downlink power control

Parameter	Unit	Test 1	Test 2
$\frac{DPCH\_E_c}{I_{or}}$	DB	-16.0	-9.0
Measured quality on DTCH	BLER	FFS	FFS
Confidence level for measured quality and $\frac{DPCH\_E_c}{I_{or}}$	%	90	

8.8.3 Power control in downlink, wind up effects

8.8.3.1 Minimum requirements

This test is run in three stages where stage 1 is for convergence of the power control loop, in stage two the maximum downlink power for the dedicated channel is limited not to be higher than the parameter specified in Table NEW1. All parameters used in the three stages are specified in Table NEW1. The $\frac{DPCH\_E_c}{I_{or}}$ during stage 3 shall during 90 % of the time be lower than the value specified in Table NEW2.

Power control of the UE is ON during the test.

Table NEW1: Test parameter for downlink power control, wind-up effects

Parameter	Unit	Test 1		
		Stage 1	Stage 2	Stage 3

Time in each stage	s	>15	5	0.5
$\hat{I}_{or}/I_{oc}$	dB	5		
I_{oc}	dBm/3.84 MHz	-60		
Information Data Rate	kbps	12.2		
Max downlink $\frac{DPCH\_E_c}{I_{or}}$	dB	No limitation	[-15.7]	No limitation
Quality target on DTCH	BLER	0.01		
Propagation condition		Case 4		

Table NEW2: Requirements in downlink power control, wind-up effects

Parameter	**Unit**	**Test 1, stage 3**
$\frac{DPCH\_E_c}{I_{or}}$	dB	[-12.9]
Confidence level for $\frac{DPCH\_E_c}{I_{or}}$	%	[90]

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**058**	Current Version:	3.2.2

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

For submission to:	RAN #8	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:	RAN WG4	**Date:**	
Subject:	Use of P-CPICH and S-CPICH for performance requirements in 25.101		
Work item:			

Category:	F	Correction	X	**Release:**	Phase 2	
	A	Corresponds to a correction in an earlier release			Release 96	
(only one category	B	Addition of feature			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 present version of TS 25.101 does not specify whether P-CPICH or S-CPICH is intended as phase reference. The CR clarifies this and defines a test with S-CPICH as phase reference.
Clauses affected:	8.2, 8.3, 8.4, 8.5, 8.6, 8.7, C.3.2

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:	

8 Performance requirement

8.1 General

The performance requirements for the UE in this subclause are specified for the measurement channels specified in Annex A, the propagation conditions specified in Annex B and the Down link Physical channels specified in Annex C. Unless stated DL power control is OFF.

Table 8.1: Summary of UE performance targets

Meas. Channels	Information Data Rate	Static	Multi-path Case 1	Multi-path Case 2	Multi-path Case 3	Multi-path Case 4	Moving	Birth / Death
		Propagation conditions / Performance metric						
PCH	128 kbps	MER< 10^{-2}	-	-	-		-	-
FACH	128 kbps	MER< 10^{-2}	-	-	-		-	-
DCH	12.2 kbps	BLER< 10^{-2}	BLER< 10^{-2}	BLER< 10^{-2}	BLER< 10^{-2}		BLER<	BLER<
	64 kbps	BLER< 10^{-1}, 10^{-2}	BLER< 10^{-1}, 10^{-2}	BLER< 10^{-1}, 10^{-2}	BLER< 10^{-1}, 10^{-2}, 10^{-3}		BLER<	BLER<
	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}		-	-

8.2 Demodulation in static propagation conditions

8.2.1 Demodulation of Paging Channel (PCH)

The receive characteristics of the paging channel in the static environment is determined by the Paging Message Error Ratio (MER). MER is measured at the data rate specified for the paging channel. The UE sleep mode has an upper limit after which it must up wake up and demodulate the paging channel and associated paging messages.

8.2.1.1 Minimum requirement

For the parameters specified in Table 8.2 the MER shall not exceed the piece-wise linear MER curve specified by the points in Table 8.3.

Table 8.2: PCH parameters in static propagation conditions

Parameter	Unit	Value
Phase reference		P-CPICH
$\frac{DPCH\_E_c}{I_{or}}$	dB	
$\cancel{SCCPCH\_E_c}$	dB	
$\hat{I}_{or}/I_{oc}$	dB	-1
I_{oc}	dBm/3.84 MHz	-60
Paging Data Rate		
$PCH\ \ E_b/N_t$	dB	

Table 8.3: PCH requirement in static propagation conditions

$PCH\ \ E_b/N_t$	MER
TBD	TBD
TBD	TBD
TBD	TBD

8.2.2 Demodulation of Forward Access Channel (FACH)

The receive characteristics of the Forward Access Channel (FACH) in the static environment are determined by the average message error Ratio (MER). MER is measured at the data rate specified for the FACH.

8.2.2.1 Minimum requirement

For the parameters specified in Table 8.4 the MER shall not exceed the piece-wise linear MER curve specified by the points in table 8.5.

Table 8.4: FACH parameters in static propagation conditions

Parameter	Unit	Value
Phase reference		P-CPICH
$\frac{DPCH\_E_c}{I_{or}}$	dB	
$\frac{SCCPCH\_E_c}{I_{or}}$	dB	
$\hat{I}_{or}/I_{oc}$	dB	-1
I_{oc}	dBm/3.84 MHz	-60
Control Data Rate	?	
$FACH\ \ E_b/N_t$	dB	

Table 8.5: FACH requirements in static propagation conditions

$FACH\ \ E_b/N_t$	MER
TBD	TBD
TBD	TBD
TBD	TBD

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 Ratio (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 8.6 the BLER shall not exceed the piece-wise linear BLER curve specified by the points in table 8.7.

NOTE: The performance requirements for 384kbps will be replaced with new value using 10ms TTI measurement channel defined in subclause A.3.5.

Table 8.6: DCH parameters in static propagation conditions

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

Table 8.7: DCH requirements in static propagation conditions

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-16.6 dB	10^{-2}
2	-13.1 dB	10^{-1}
	-12.8 dB	10^{-2}
3	-9.9 dB	10^{-1}
	-9.8 dB	10^{-2}
4	-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 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 8.8, 8.10 and 8.12 the BLER shall not exceed the associated piece-wise linear BLER curves specified by the points in Table 8.9, 8.11 and 8.13.

NOTE: The performance requirements for 384kbps will be replaced with new value using 10ms TTI measurement channel defined in subclause A.3.5.

Table 8.8: 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 8.9: 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 8.10: 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 8.11: 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 8.12: 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 8.13: 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	-6.0 dB	10^{-1}
	-5.5 dB	10^{-2}
	-5.0 dB	10^{-3}

Table 8.13A: 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 8.13B: 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}

8.4 Demodulation of DCH in moving propagation conditions

8.4.1 Single link performance

The receive single link performance of the Dedicated Traffic Channel (DCH) in dynamic moving propagation conditions 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 Dedicated Physical Channel (DPCH).

8.4.1.1 Minimum requirement

For the parameters specified in Table 8.14 the BLER shall not exceed the piece-wise linear BLER curve specified in points in Table 8.15.

Table 8.14: DCH parameters in moving propagation conditions

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

Table 8.15: DCH requirements in moving propagation conditions

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-14.5 dB	10^{-2}
2	-10.9 dB	10^{-2}

8.5 Demodulation of DCH in birth-death propagation conditions

8.5.1 Single link performance

The receive single link performance of the Dedicated Traffic Channel (DCH) in dynamic birth-death propagation conditions are determined by the Block Error Ratio (BLER) values. BER is measured for the each of the individual data rate specified for the DPCH. DCH is mapped into Dedicated Physical Channel (DPCH).

8.5.1.1 Minimum requirement

For the parameters specified in Table 8.16, the BLER shall not exceed the piece-wise linear BLER curve in the points in Table 8.17.

Table 8.16: DCH parameters in birth-death propagation conditions

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

Table 8.17: DCH requirements in birth-death propagation conditions

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-12.6 dB	10^{-2}
2		10^{-2}

8.6 Demodulation of DCH in Base Station Transmit diversity modes

8.6.1 Demodulation of DCH in open-loop transmit diversity mode

The receive characteristic of the Dedicated Channel (DCH) in open loop transmit diversity mode is determined by the Block Error Ratio (BLER). DCH is mapped into in Dedicated Physical Channel (DPCH).

8.6.1.1 Minimum requirement

For the parameters specified in Table 8.18 the BLER shall not exceed the associated piece-wise linear BLER curve specified by the points in Table 8.19

Table 8.18: Test parameters for DCH reception in an open loop transmit diversity scheme. (Propagation condition: Case 1)

Parameter	Unit	Test 1
Phase reference		P-CPICH
$\hat{I}_{or}/I_{oc}$	dB	9
I_{oc}	dBm/3.84 MHz	-60
Information data rate	kbps	12.2

Table 8.19: Test requirements for DCH reception in open loop transmit diversity scheme

Test Number	$\frac{DPCH\_E_c}{I_{or}}$ (antenna 1/2)	BLER
1	[-16.8 dB]	10^{-2}

8.6.2 Demodulation of DCH in closed loop transmit diversity mode

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

8.6.2.1 Minimum requirement

For the parameters specified in Table 8.20 the BLER shall not exceed the associated piece-wise linear BLER curves specified by the points in Table 8.21.

Table 8.20: Test Parameters for DCH Reception in closed loop transmit diversity mode (Propagation condition: Case 1)

Parameter	Unit	Test 1 (Mode 1)	Test 2 (Mode 2)
$\hat{I}_{or}/I_{oc}$	dB	9	9
I_{oc}	dBm/3.84 MHz	-60	-60
Information data rate	kbps	12.2	12.2
Feedback error rate	%	4	4

Table 8.21: Test requirements for DCH reception in closed loop transmit diversity mode

Test Number	$\frac{DPCH\_E_c}{I_{or}}$ (see note)	BLER
1	-17.5 dB	10^{-2}
2	-17.8 dB	10^{-2}
NOTE: This is the total power from both antennas. Power sharing between antennas are feedback mode dependent as specified in TS25.214.		

8.6.3 Demodulation of DCH in Site Selection Diversity Transmission Power Control mode

The bit error characteristics of UE receiver is determined in Site Selection Diversity Transmission power control (SSDT) mode. Two BS emulators are required for this performance test. The delay profiles of signals received from different base stations are assumed to be the same but time shifted by 10 chip periods (2604 ns).

8.6.3.1 Minimum Requirements

DCH parameters are specified in Table 8.22. The downlink physical channels and their relative power to Ior are the same as those specified in clause C.3 irrespective of BSs and the test cases. In Test 1 and Test 3, the received powers at UE from two BSs are the same, while 3dB offset is given to one that comes from one of BSs for Test 2 and Test 4 as specified in Table 8.22. For the parameters specified in Table 8.22, the BLER shall not exceed the value at the DPCH_Ec/Ior specified in Table 8.23.

Table 8.22: DCH parameters in multi-path propagation conditions during SSDT mode (Propagation condition: Case 1)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
$\frac{CPICH\_E_c}{I_{or}}$ (for Cell 1)	dB	-10	-13	-10	-10
$\frac{CPICH\_E_c}{I_{or}}$ (for Cell 2)	dB	-10	-10	-10	-13
$\frac{DPCH\_E_{c1}}{I_{or}} / \frac{DPCH\_E_{c2}}{I_{or}}$ *	dB	0	-3	0	+3
$\hat{I}_{or1}/I_{oc}$	dB	0	-3	0	0
$\hat{I}_{or2}/I_{oc}$	dB	0	0	0	-3
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	12.2	12.2	12.2
Number of FBI bits assigned to "S" Field		1	1	2	2
Code word Set		Long	Long	Short	Short

*NOTE: DPCH_Ec/Ior value applies whenever DPDCH in the cell is transmitted.

Table 8.23: DCH requirements in multi-path propagation conditions during SSDT Mode

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	-7.5 dB	10^{-2}
2	-6.5 dB	10^{-2}
3	-10.5 dB	10^{-2}
4	-9.2 dB	10^{-2}

8.7 Demodulation in Handover conditions

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 10 chips.

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

8.7.1.1 Minimum requirement

For the parameters specified in Table 8.24, the BLER shall not exceed the piece-wise linear BLER curve specified by the points in Table 8.25.

Table 8.24: DCH parameters in multi-path propagation conditions during Soft Handoff (Case 3)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
$\hat{I}_{or1}/I_{oc}$ and $\hat{I}_{or2}/I_{oc}$	dB	0	0	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information data Rate	kbps	12.2	64	144	384

Table 8.25: DCH requirements in multi-path propagation conditions during Soft Handoff (Case 3)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	[-15.2 dB]	10^{-2}
2	[-11.8 dB]	10^{-1}
	[-11.3 dB]	10^{-2}
3	[-9.6 dB]	10^{-1}
	[-9.2 dB]	10^{-2}
4	[-6.0 dB]	10^{-1}
	[-5.5 dB]	10^{-2}

8.8 Power control in downlink

Power control in the downlink is the ability of the UE receiver to converge to required link quality set by the network while using as low power as possible in downlink . Additional performance requirements are expected to be added to this subclause.

8.8.1 Power control in the downlink, constant BLER target

8.8.1.1 Minimum requirements

For the parameters specified in Table 8.26 the downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value in Table 8.27 and the measured BLER value shall be as required in Table 8.27.

NOTE: Power control in downlink is ON during the test.

Table 8.26: Test parameter for downlink power control

Parameter	Unit	Test 1	Test 2
$\hat{I}_{or}/I_{oc}$	dB	9	-1
I_{oc}	dBm/3.84 MHz	-60	
Information Data Rate	kbps	12.2	
Target quality value on DTCH	BLER	0.01	
Propagation condition		Case 4	

Table 8.27: Requirements in downlink power control

Parameter	Unit	Test 1	Test 2
$\frac{DPCH\_E_c}{I_{or}}$	dB	-16.0	-9.0
Measured quality on DTCH	BLER	FFS	FFS
Confidence level for measured quality and $\frac{DPCH\_E_c}{I_{or}}$	%	90	

8.9 Downlink compressed mode

Downlink compressed mode is used to create gaps in the downlink transmission, to allow the UE to make measurements on other frequencies.

8.9.1 Single link performance

The receiver single link performance of the Dedicated Traffic Channel (DCH) in compressed mode is determined by the Block Error Ratio (BLER), average power in the downlink and the maximum power in the uplink.

The compressed mode parameters are given in clause A.5.

8.9.1.1 Minimum requirements

For the parameters specified in Table 8.30 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the reported BLER shown in Table 8.31. The uplink DPDCH power shall be below the specified value.

NOTE: Inner loop power control is ON during the test.

Table 8.28: Void

Table 8.29: Void

Table 8.30: Test parameter for downlink compressed mode

Parameter	Unit	Test 1
$\hat{I}_{or}/I_{oc}$	dB	9
I_{oc}	dBm/3.84 MHz	-60
Information Data Rate	kbps	12.2
TFCI	-	On
Propagation condition		Case 2

Table 8.31: Requirements in downlink compressed mode

Parameter	Unit	Test 1
$\frac{DPCH\_E_c}{I_{or}}$	dB	
Target quality		
Downlink BLER		
Uplink DPDCH	dBm	[Maximum power/slot]
Confidence level	%	

8.10 Blind transport format detection

Performance of Blind transport format detection is determined by the Block Error Ratio (BLER) values and by the measured average transmitted DPCH_Ec/Ior value.

8.10.1 Minimum requirement

For the parameters specified in Table 8.32 the BLER and FDR shall not exceed the piece-wise linear BLER curve specified by the points in table 8.33.

Table 8.32: Test parameters for Blind transport format detection

Parameter	Unit	Test 1	Test 2	Test 3	Test 4	Test 5	Test 6
$\hat{I}_{or}/I_{oc}$	dB	-1			-3		
I_{oc}	dBm/3.84 MHz	-60					
Information Data Rate	kbps	12.2 (rate 1)	7.95 (rate 2)	1.95 (rate 3)	12.2 (rate 1)	7.95 (rate 2)	1.95 (rate 3)
propagation condition	-	static			multi-path fading case 3		
TFCI	-	off					

Table 8.33: The Requirements for DCH reception in Blind transport format detection

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER	FDR
1	[-17.7dB]	10^{-2}	10^{-4}
2	[-17.8dB]	10^{-2}	10^{-4}
3	[-18.4dB]	10^{-2}	10^{-4}
4	[-13dB]	10^{-2}	10^{-4}
5	[-13.2dB]	10^{-2}	10^{-4}
6	[-13.8dB]	10^{-2}	10^{-4}

* The value of DPCH_Ec/Ior, Ioc, and Ior/Ioc are defined in case of DPCH is transmitted

NOTE: In this test, 9 different Transport Format Combinations (table 8.34) are sent during the call set up procedure, so that the UE has to detect the correct transport format from these 9 candidates.

Table 8.34: Transport format combinations informed during the call set up procedure in the test

	1	2	3	4	5	6	7	8	9
DTCH	12.2k	10.2k	7.95k	7.4k	6.7k	5.9k	5.15k	4.75k	1.95k
DCCH	2.4k								

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).

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

Physical Channel	Power	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.
PCCPCH	PCCPCH_Ec/Ior = -12 dB	
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.
OCNS	Necessary power so that total transmit power spectral density of BS (Ior) adds to one	

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	NOTE
P-CPICH (antenna 1) P-CPICH (antenna 2)	P-CPICH_Ec1/Ior = -13 dB P-CPICH_Ec2/Ior = -13 dB	1. Total P-CPICH_Ec/Ior = -10 dB
PCCPCH (antenna 1) PCCPCH (antenna 2)	PCCPCH_Ec1/Ior = -15 dB PCCPCH_Ec2/Ior = -15 dB	1. STTD applied 2. Total PCCPCH_Ec/Ior = -12 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
PICH (antenna 1) PICH (antenna 2)	PICH_Ec1/Ior = -18 dB PICH_Ec2/Ior = -18 dB	1. STTD applied 2. Total PICH_Ec/Ior = -15 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 BS (Ior) adds to one	1. This power shall be divided equally between antennas

C.3.4 Connection with closed loop transmit diversity mode

Table C.5 is applicable for measurements for subclause 8.6.2 (Demodulation of DCH in closed loop transmit diversity mode).

Table C.5: Downlink Physical Channels transmitted during a connection[1]

Physical Channel	Power	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	
PCCPCH (antenna 1)	PCCPCH_Ec1/Ior = -15 dB	1. STTD applied
PCCPCH (antenna 2)	PCCPCH_Ec2/Ior = -15 dB	1. STTD applied, total 1. PCCPCH_Ec/Ior = -12 dB
SCH (antenna 1 / 2)	SCH_Ec/Ior = -12 dB	1. TSTD applied
PICH (antenna 1)	PICH_Ec1/Ior = -18 dB	1. STTD applied
PICH (antenna 2)	PICH_Ec2/Ior = -18 dB	2. STTD applied, total PICH_Ec/Ior = -15 dB
DPCH	Test dependent power	1. Total power from both antennas
OCNS	Necessary power so that total transmit power spectral density of BS (Ior) adds to one	1. This power shall be divided equally between antennas

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**059r1**		Current Version:	3.2.2

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

For submission to:	TSG RAN#8	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: (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [ ]
(at least one should be marked with an X)

Source: RAN WG4 **Date:** 2000-05-22

Subject: Closed loop diversity mode 1 & 2

Work item:

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

Reason for change: Corrections to TS25.101V3.2.2 to the performance requirements for closed loop transmit diversity modes – clause 8.6.2

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:

8.6.2 Demodulation of DCH in closed loop transmit diversity mode

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

8.6.2.1 Minimum requirement

For the parameters specified in Table 8.20 the BLER shall not exceed the associated piece-wise linear BLER curves specified by the points in Table 8.21.

Table 8.20: Test Parameters for DCH Reception in closed loop transmit diversity mode (Propagation condition: Case 1)

Parameter	Unit	Test 1 (Mode 1)	Test 2 (Mode 2)
$\hat{I}_{or}/I_{oc}$	dB	9	9
I_{oc}	dBm/3.84 MHz	-60	-60
Information data rate	kbps	12.2	12.2
Feedback error rate	%	4	4

Table 8.21: Test requirements for DCH reception in closed loop transmit diversity mode

Test Number	$\frac{DPCH\_E_c}{I_{or}}$ (see note)	BLER
1	dB –18.0 dB	10^{-2}
2	–18.3 dB	10^{-2}
NOTE: This is the total power from both antennas. Power sharing between antennas are feedback mode dependent as specified in TS25.214.		

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101 CR 060 Current Version: 3.2.2

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

For submission to: RAN#8	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: (U)SIM [ ] ME [X] UTRAN / Radio [ ] Core Network [ ]
(at least one should be marked with an X)

Source: RAN WG4 **Date:** 2000-05-25

Subject: Removal of brackets from inter-cell SHO test case

Work item:

Category:				**Release:**	
	F	Correction	X	Phase 2	
	A	Corresponds to a correction in an earlier release		Release 96	
(only one category	B	Addition of feature		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: Brackets are not necessary any more.

Clauses affected: 8.9, Annex A.5

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:

8.7 Demodulation in Handover conditions

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 10 chips.

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

8.7.1.1 Minimum requirement

For the parameters specified in Table 8.24, the BLER shall not exceed the piece-wise linear BLER curve specified by the points in Table 8.25.

Table 8.24: DCH parameters in multi-path propagation conditions during Soft Handoff (Case 3)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
$\hat{I}_{or1}/I_{oc}$ and $\hat{I}_{or2}/I_{oc}$	dB	0	0	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information data Rate	kbps	12.2	64	144	384

Table 8.25: DCH requirements in multi-path propagation conditions during Soft Handoff (Case 3)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
1	~~[~~-15.2 dB~~]~~	10^{-2}
2	~~[~~-11.8 dB~~]~~	10^{-1}
	~~[~~-11.3 dB~~]~~	10^{-2}
3	~~[~~-9.6 dB~~]~~	10^{-1}
	~~[~~-9.2 dB~~]~~	10^{-2}
4	~~[~~-6.0 dB~~]~~	10^{-1}
	~~[~~-5.5 dB~~]~~	10^{-2}

CHANGE REQUEST

Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.

25.101	**CR**	**061**	Current Version: 3.2.2

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

For submission to:	RAN#8	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:	RAN WG4	**Date:**	2000-05-23
Subject:	Editorial corrections on moving propagation conditions		
Work item:			

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

F	Correction	X	**Release:**	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			Release 99	X
				Release 00	

Reason for change: Remove ambiguity on unit

Clauses affected: B.2.3

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:

B.2.3 Moving propagation conditions

The dynamic propagation conditions for the test of the baseband performance are non fading channel models with two taps. The moving propagation condition has two tap, one static, Path0, and one moving, Path1. The time difference between the two paths is according Equation (B.1). The taps have equal strengths and equal phases.

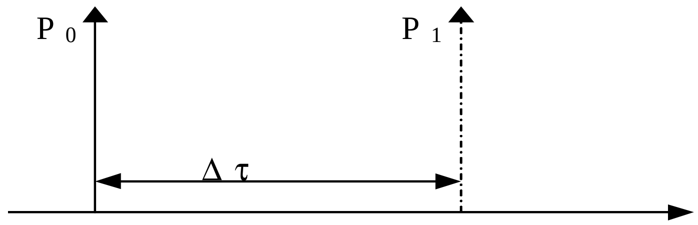


Figure B.1: The moving propagation conditions

$$\Delta\tau = B + \frac{A}{2}\left(1+\sin(\Delta\omega\cdot t)\right) \cancel{\Delta\tau = \left(1+\frac{A}{2}\left(1+\sin(\Delta\omega\cdot t)\right)\right)\mu s}$$

Equation B.1

The parameters in the equation are shown in.

A	5 μs
B	1 μs
Δω	$40 \cdot 10^{-3}$ s^{-1}