TSG RAN Meeting #13 **RP-010614**
Beijing, China, 18-21 September 2001

Title: **CRs (R'99 and Rel-4 Category A) to TS 25.101**

Source **TSG RAN WG4**

Agenda item: **8.4.3**

RAN4 Tdoc	Spec	CR	Title	Cat	Phase	Curr Ver	New Ver
R4-010845	25.101	118	Compressed mode, correction of reference pattern 1, Set1	F	Rel99	3.7.0	3.8.0
R4-011049	25.101	119	Compressed mode, correction of reference pattern 1, Set1	A	Rel-4	4.1.0	4.2.0
R4-010975	25.101	120	DL Power Control Step Size in performance requirements	F	Rel99	3.7.0	3.8.0
R4-011050	25.101	121	DL Power Control Step Size in performance requirements	A	Rel-4	4.1.0	4.2.0
R4-011188	25.101	122	Correction for test numbers in fading propagation tests	F	Rel99	3.7.0	3.8.0
R4-011246	25.101	123	Correction for test numbers in fading propagation tests	A	Rel-4	4.1.0	4.2.0
R4-011206	25.101	124	Correction of frequency range for receiver spurious emission requirements	F	Rel99	3.7.0	3.8.0
R4-011245	25.101	125	Correction of frequency range for receiver spurious emission requirements	A	Rel-4	4.1.0	4.2.0
R4-011238	25.101	126	UE Maximum Output Power	F	Rel99	3.7.0	3.8.0
R4-011247	25.101	127	UE Maximum Output Power	A	Rel-4	4.1.0	4.2.0
R4-011299	25.101	128	Clarification of definition of Df	F	Rel99	3.7.0	3.8.0
R4-011286	25.101	129	Clarification of definition of Df	A	Rel-4	4.1.0	4.2.0
R4-011318	25.101	130	CR to TS25.101 for clarification of modulated interferer	F	Rel99	3.7.0	3.8.0
R4-011329	25.101	131	CR to TS25.101 for clarification of modulated interferer	A	Rel-4	4.1.0	4.2.0

3GPP TSG RAN WG4 Meeting #19 **R4-010845**

Edinburgh, Great Britain, 3rd - 7th September 2001

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CHANGE REQUEST

⌘ **25.101** **CR** **118** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Compressed mode, correction of pattern
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 2001-06-29
Category:	⌘	**F** ***Release:*** ⌘ Rel99

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The current compressed mode setup is not valid anymore and the old test of DeltaSIR would not work
Summary of change:	⌘	Change reference compressed mode pattern 1, Set 1, to TGP=4 frames instead of TGP=2
Consequences if not approved:	⌘	The test setup for compressed mode with SF/2, having compressed gaps in every frame is not an allowed setup.

Clauses affected:	⌘	8.9.1.1, A.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

How to create CRs using this form:

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.9 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) and transmitted DPCH_Ec/Ior power in the downlink.

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.21 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 8.35 the downlink $\frac{DPCH\_E_c}{I_{or}}$ power measured values, which are averaged over one slot, shall be below the specified value in Table 8.36 more than 90% of the time. The measured quality on DTCH shall be as required in Table 8.36.

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 8.35: Test parameter for downlink compressed mode

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Delta SIR1	dB	0	3	0	3
Delta SIR after1	dB	0	3	0	3
Delta SIR2	dB	0	0	0	0
Delta SIR after2	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			
Propagation condition		Case 2			
Target quality value on DTCH	BLER	0.01			
Maximum_DL_Power	dB	7			
Minimum_DL_Power	dB	-18			
Limited_Power_Raise _Used	-	"Not used"			

Table 8.36: Requirements in downlink compressed mode

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{DPCH\_E_c}{I_{or}}$	dB	-15.4 ~~14.8~~	No requirements	-15.4	No requirements
Measured quality of compressed and recovery frames	BLER	No requirements	<0.001	No requirements	<0.001
Measured quality on DTCH	BLER	0.01 ± 30 %			

A.5 DL reference compressed mode parameters

Parameters described in Table A.21 are used in some test specified in TS 25.101 while parameters described in Table A.22 are used in some tests specified in TS 25.133.

Set 1 parameters in Table A.21 are applicable when compressed mode by spreading factor reduction is used in downlink. Set 2 parameters in Table A.21 are applicable when compressed mode by puncturing is used in downlink.

Table A.21: Compressed mode reference pattern 1 parameters

Parameter	Set 1	Set 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)	0	0	Only one gap in use.
TGPL1 (Transmission Gap Pattern Length)	~~2~~ 4	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.22: Compressed mode reference pattern 2 parameters

Parameter	Set 1	Set 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)	0	0	
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	

3GPP TSG RAN WG4 Meeting #19 **R4-011049**

Edinburgh, Great Britain, 3rd - 7th September 2001

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CHANGE REQUEST

⌘ **25.101** **CR** **119** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Compressed mode, correction of pattern
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 2001-08-26
Category:	⌘	**A** ***Release:*** ⌘ Rel-4

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The current compressed mode setup is not valid anymore and the old test of DeltaSIR would not work
Summary of change:	⌘	Change reference compressed mode pattern 1, Set 1, to TGP=4 frames instead of TGP=2
Consequences if not approved:	⌘	The test setup for compressed mode with SF/2, having compressed gaps in every frame is not an allowed setup.

Clauses affected:	⌘	8.9.1.1, A.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	Rel-4 CR of R4-010845

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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.9 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) and transmitted DPCH_Ec/Ior power in the downlink.

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.21 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 8.35 the downlink $\frac{DPCH\_E_c}{I_{or}}$ power measured values, which are averaged over one slot, shall be below the specified value in Table 8.36 more than 90% of the time. The measured quality on DTCH shall be as required in Table 8.36.

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 8.35: Test parameter for downlink compressed mode

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Delta SIR1	dB	0	3	0	3
Delta SIR after1	dB	0	3	0	3
Delta SIR2	dB	0	0	0	0
Delta SIR after2	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			
Propagation condition		Case 2			
Target quality value on DTCH	BLER	0.01			
Maximum_DL_Power	dB	7			
Minimum_DL_Power	dB	-18			
Limited_Power_Raise _Used	-	"Not used"			

Table 8.36: Requirements in downlink compressed mode

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{DPCH\_E_c}{I_{or}}$	dB	-15.4~~14.8~~	No requirements	-15.4	No requirements
Measured quality of compressed and recovery frames	BLER	No requirements	<0.001	No requirements	<0.001
Measured quality on DTCH	BLER	0.01 ± 30 %			

A.5 DL reference compressed mode parameters

Parameters described in Table A.21 are used in some test specified in TS 25.101 while parameters described in Table A.22 are used in some tests specified in TS 25.133.

Set 1 parameters in Table A.21 are applicable when compressed mode by spreading factor reduction is used in downlink. Set 2 parameters in Table A.21 are applicable when compressed mode by puncturing is used in downlink.

Table A.21: Compressed mode reference pattern 1 parameters

Parameter	Set 1	Set 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)	0	0	Only one gap in use.
TGPL1 (Transmission Gap Pattern Length)	~~2~~4	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.22: Compressed mode reference pattern 2 parameters

Parameter	Set 1	Set 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)	0	0	
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	

3GPP TSG RAN WG4 Meeting #19 **R4-010975**

Edinburgh, Great Britain, 3rd - 7th September 2001

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CHANGE REQUEST

⌘ **25.101** **CR** **120** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	DL Power Control Step Size in performance requirements
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 2001-07-09
Category:	⌘	**F** ***Release:*** ⌘ Rel99

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The power control step size in the Node B is not specified in the test setup. The step size affects the performance therefore it is essential to have it specified. The 1 dB step size is mandatory for the Node B to support and it was used for the simulations, therefore this step size should be used in the requirements and in the tests on the UE as well. The parameter Limited Power Raise Used has changed name to Limited Power Increase.
Summary of change:	⌘	The parameter DL power control step size is included in the testcase and The parameter Limited Power Raise Used has been changed to Limited Power Increase..
Consequences if not approved:	⌘	The requirement on the UE is not clear

Clauses affected:	⌘	8.8.1.1, 8.8.2.1, 8.8.3.1, 8.9.1.1		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	34.121
Other comments:	⌘			

How to create CRs using this form:

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.8 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.

8.8.1 Power control in the downlink, constant BLER target

8.8.1.1 Minimum requirements

For the parameters specified in Table 8.29 the downlink $\frac{DPCH\_E_c}{I_{or}}$ power measured values, which are averaged over one slot, shall be below the specified value in Table 8.30 more than 90% of the time. BLER shall be as shown in Table 8.30. Power control in downlink is ON during the test.

Table 8.29: 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	
Maximum_DL_Power *	dB	7	
Minimum_DL_Power *	dB	-18	
DL Power Control step size, Δ_{TPC}	dB	1	
Limited Power Increase ~~Limited_Power_Raise_Used~~	-	"Not used"	

NOTE: Power is compared to P-CPICH as specified in [4].

Table 8.30: 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	0.01±30%	0.01±30%

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 8.31 the downlink DPCH_Ec/Ior power measured values, which are averaged over 50 ms, shall be within the range specified in Table 8.32 more than 90% of the time. 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 8.31: 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	-25.9	-2.1	-22.1
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			
Maximum_DL_Power	dB	7			
Minimum_DL_Power	dB	-18			
DL Power Control step size, Δ_{TPC}	dB	1			
Limited Power Increase ~~Limited_Power_Raise_Used~~	-	"Not used"			

Table 8.32: 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	-18.9 ≤ DPCH_Ec/Ior ≤ -11.9	-15.1 ≤ DPCH_Ec/Ior ≤ -8.1
$\frac{DPCH\_E_c}{I_{or}}$ during T2	dB	-18.9 ≤ DPCH_Ec/Ior ≤ -14.9	-15.1 ≤ DPCH_Ec/Ior ≤ -11.1

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 8.33. All parameters used in the three stages are specified in Table 8.33. The downlink $\frac{DPCH\_E_c}{I_{or}}$ power measured values, which are averaged over one slot, during stage 3 shall be lower than the value specified in Table 8.34 more than 90% of the time.

Power control of the UE is ON during the test.

Table 8.33: 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		
Quality target on DTCH	BLER	0.01		
Propagation condition		Case 4		
Maximum_DL_Power	dB	7	-6.2	7
Minimum_DL_Power	dB	-18		
DL Power Control step size, Δ_{TPC}	dB	1		
Limited Power Increase ~~Limited_Power_Raise_Used~~	-	"Not used"		

Table 8.34: Requirements in downlink power control, wind-up effects

Parameter	Unit	Test 1, stage 3
$\frac{DPCH\_E_c}{I_{or}}$	dB	-13.3

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) and transmitted DPCH_Ec/Ior power in the downlink.

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.21 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 8.35 the downlink $\frac{DPCH\_E_c}{I_{or}}$ power measured values, which are averaged over one slot, shall be below the specified value in Table 8.36 more than 90% of the time. The measured quality on DTCH shall be as required in Table 8.36.

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 8.35: Test parameter for downlink compressed mode

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Delta SIR1	dB	0	3	0	3
Delta SIR after1	dB	0	3	0	3
Delta SIR2	dB	0	0	0	0
Delta SIR after2	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			
Propagation condition		Case 2			
Target quality value on DTCH	BLER	0.01			
Maximum_DL_Power	dB	7			
Minimum_DL_Power	dB	-18			
DL Power Control step size, Δ_{TPC}	dB	1			
Limited Power Increase ~~Limited_Power_Raise_Used~~	-	"Not used"			

Table 8.36: Requirements in downlink compressed mode

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{DPCH\_E_c}{I_{or}}$	dB	-14.8	No requirements	-15.4	No requirements
Measured quality of compressed and recovery frames	BLER	No requirements	<0.001	No requirements	<0.001
Measured quality on DTCH	BLER	0.01 ± 30 %			

3GPP TSG RAN WG4 Meeting #19 **R4-011050**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **121** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	DL Power Control Step Size in performance requirements
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 2001-08-30
Category:	⌘	**A** ***Release:*** ⌘ Rel-4

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The power control step size in the Node B is not specified in the test setup. The step size affects the performance therefore it is essential to have it specified. The 1 dB step size is mandatory for the Node B to support and it was used for the simulations, therefore this step size should be used in the requirements and in the tests on the UE as well. The parameter Limited Power Raise Used has changed name to Limited Power Increase.
Summary of change:	⌘	The parameter DL power control step size is included in the testcase and The parameter Limited Power Raise Used has been changed to Limited Power Increase..
Consequences if not approved:	⌘	The requirement on the UE is not clear

Clauses affected:	⌘	8.8.1.1, 8.8.2.1, 8.8.3.1, 8.9.1.1		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	34.121
Other comments:	⌘	Rel-4 CR of R4-010975		

How to create CRs using this form:

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.8 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.

8.8.1 Power control in the downlink, constant BLER target

8.8.1.1 Minimum requirements

For the parameters specified in Table 8.29 the downlink $\frac{DPCH\_E_c}{I_{or}}$ power measured values, which are averaged over one slot, shall be below the specified value in Table 8.30 more than 90% of the time. BLER shall be as shown in Table 8.30. Power control in downlink is ON during the test.

Table 8.29: 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	
Maximum_DL_Power *	dB	7	
Minimum_DL_Power *	dB	-18	
DL Power Control step size, Δ_{TPC}	dB	1	
Limited Power Increase ~~Limited_Power_Raise_Used~~	-	"Not used"	

NOTE: Power is compared to P-CPICH as specified in [4].

Table 8.30: 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	0.01±30%	0.01±30%

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 8.31 the downlink DPCH_Ec/Ior power measured values, which are averaged over 50 ms, shall be within the range specified in Table 8.32 more than 90% of the time. 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 8.31: 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	-25.9	-2.1	-22.1
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			
Maximum_DL_Power	dB	7			
Minimum_DL_Power	dB	-18			
DL Power Control step size, Δ_{TPC}	dB	1			
Limited Power Increase ~~Limited_Power_Raise_Used~~	-	"Not used"			

Table 8.32: 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	-18.9 ≤ DPCH_Ec/Ior ≤ -11.9	-15.1 ≤ DPCH_Ec/Ior ≤ -8.1
$\frac{DPCH\_E_c}{I_{or}}$ during T2	dB	-18.9 ≤ DPCH_Ec/Ior ≤ -14.9	-15.1 ≤ DPCH_Ec/Ior ≤ -11.1

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 8.33. All parameters used in the three stages are specified in Table 8.33. The downlink $\frac{DPCH\_E_c}{I_{or}}$ power measured values, which are averaged over one slot, during stage 3 shall be lower than the value specified in Table 8.34 more than 90% of the time.

Power control of the UE is ON during the test.

Table 8.33: 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		
Quality target on DTCH	BLER	0.01		
Propagation condition		Case 4		
Maximum_DL_Power	dB	7	-6.2	7
Minimum_DL_Power	dB	-18		
DL Power Control step size, Δ_{TPC}	dB	1		
Limited Power Increase ~~Limited_Power_Raise_Used~~	-	"Not used"		

Table 8.34: Requirements in downlink power control, wind-up effects

Parameter	Unit	Test 1, stage 3
$\frac{DPCH\_E_c}{I_{or}}$	dB	-13.3

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) and transmitted DPCH_Ec/Ior power in the downlink.

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.21 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 8.35 the downlink $\frac{DPCH\_E_c}{I_{or}}$ power measured values, which are averaged over one slot, shall be below the specified value in Table 8.36 more than 90% of the time. The measured quality on DTCH shall be as required in Table 8.36.

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 8.35: Test parameter for downlink compressed mode

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Delta SIR1	dB	0	3	0	3
Delta SIR after1	dB	0	3	0	3
Delta SIR2	dB	0	0	0	0
Delta SIR after2	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			
Propagation condition		Case 2			
Target quality value on DTCH	BLER	0.01			
Maximum_DL_Power	dB	7			
Minimum_DL_Power	dB	-18			
DL Power Control step size, Δ_{TPC}	dB	1			
Limited Power Increase ~~Limited_Power_Raise_Used~~	-	"Not used"			

Table 8.36: Requirements in downlink compressed mode

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
$\frac{DPCH\_E_c}{I_{or}}$	dB	-14.8	No requirements	-15.4	No requirements
Measured quality of compressed and recovery frames	BLER	No requirements	<0.001	No requirements	<0.001
Measured quality on DTCH	BLER	0.01 ± 30 %			

3GPP TSG RAN WG4 Meeting #19 **R4-011188**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **122** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction for test numbers in fading propagation tests
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 2001-08-27
Category:	⌘	**F** ***Release:*** ⌘ Rel99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	Different tests with multi-path fading propagation conditions have the same test numbers
Summary of change:	⌘	Tests 9, 10 11 and 12 of Table 8.14A and Table 8.14B have been corrected to be Tests 17, 18, 19 and 20.
Consequences if not approved:	⌘	Test numbers for different tests are overlapping within one section. This may create confusion when tests are performed.

Clauses affected:	⌘	8.3
Other specs affected:	⌘	☐ Other core specifications ⌘ **X** Test specifications 34.121 ☐ O&M Specifications
Other comments:	⌘	

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3 Demodulation of DCH in multi-path fading propagation conditions

8.3.1 Single Link Performance

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

8.3.1.1 Minimum requirement

For the parameters specified in Table 8.7, 8.9 , 8.11, 8.13 and 8.14A the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.8, 8.10, 8.12, 8.14 and 8.14B. These requirements are applicable for TFCS size 16.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Parameter	Unit	Test 1~~7~~9	Test 1~~8~~0	Test 1~~9~~1	Test 2~~0~~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 8.14B: DCH requirements in multi-path fading propagation conditions (Case 6)

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
~~9~~17	-8.8 dB	10^{-2}
~~10~~18	-5.1 dB	10^{-1}
	-4.4 dB	10^{-2}
	-3.8 dB	10^{-3}
~~11~~19	-6.0 dB	10^{-1}
	-5.5 dB	10^{-2}
	-5.0 dB	10^{-3}
~~12~~20	-2.9 dB	10^{-1}
	-2.1 dB	10^{-2}
	-1.4 dB	10^{-3}

3GPP TSG RAN WG4 Meeting #19 **R4-011246**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **123** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction for test numbers in fading propagation tests
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 2001-09-04
Category:	⌘	**A** ***Release:*** ⌘ Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:
2 (GSM Phase 2)
R96 (Release 1996)
R97 (Release 1997)
R98 (Release 1998)
R99 (Release 1999)
REL-4 (Release 4)
REL-5 (Release 5)

Reason for change:	⌘	Different tests with multi-path fading propagation conditions have the same test numbers
Summary of change:	⌘	Tests 9, 10 11 and 12 of Table 8.14A and Table 8.14B have been corrected to be Tests 17, 18, 19 and 20.
Consequences if not approved:	⌘	Test numbers for different tests are overlapping within one section. This may create confusion when tests are performed.

Clauses affected:	⌘	8.3
Other specs affected:	⌘	☐ Other core specifications ⌘ ☒ Test specifications 34.121 ☐ O&M Specifications
Other comments:	⌘	

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

8.3 Demodulation of DCH in multi-path fading propagation conditions

8.3.1 Single Link Performance

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

8.3.1.1 Minimum requirement

For the parameters specified in Table 8.7, 8.9 , 8.11, 8.13 and 8.14A the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.8, 8.10, 8.12, 8.14 and 8.14B. These requirements are applicable for TFCS size 16.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Parameter	Unit	Test 179	Test 1810	Test 1911	Test 2012
Phase reference		P-CPICH			
$\hat{I}_{or}/I_{oc}$	dB	-3	-3	3	6
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	64	144	384

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

Test Number	$\frac{DPCH\_E_c}{I_{or}}$	BLER
179	-8.8 dB	10^{-2}
1810	-5.1 dB	10^{-1}
	-4.4 dB	10^{-2}
	-3.8 dB	10^{-3}
1911	-6.0 dB	10^{-1}
	-5.5 dB	10^{-2}
	-5.0 dB	10^{-3}
2012	-2.9 dB	10^{-1}
	-2.1 dB	10^{-2}
	-1.4 dB	10^{-3}

3GPP TSG RAN WG4 Meeting #19 **R4-011206**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **124** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

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Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction of freqeuncy range for receiver spurious emission requirements
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 2001-09-03
Category:	⌘	**F** ***Release:*** ⌘ Rel99

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The current frequency range for receiver spurious emission requirements is inconsistence with is proposed in ITU-R M.[UNWANT-MS].
Summary of change:	⌘	The starting frequency for receiver spurious emission requirements is changed from 9kHz to 30MHz as proposed in ITU-R M.[UNWANT-MS].
Consequences if not approved:	⌘	There will be inconsistency with ITU-R recommendation M.[UNWANT]. It will casue further inconsistency with each regulations those follow the recommendation.

Clauses affected:	⌘	7.9.1		
Other specs Affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	34.121
Other comments:	⌘			

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

7.9 Spurious emissions

The spurious emissions power is the power of emissions generated or amplified in a receiver that appear at the UE antenna connector.

7.9.1 Minimum requirement

The power of any narrow band CW spurious emission shall not exceed the maximum level specified in Table 7.10 and Table 7.11

Table 7.10: General receiver spurious emission requirements

Frequency Band	Measurement Bandwidth	Maximum level	Note
30MHz~~9kHz~~ ≤ f < 1GHz	100 kHz	-57 dBm	
1GHz ≤ f ≤ 12.75 GHz	1 MHz	-47 dBm	

Table 7.11: Additional receiver spurious emission requirements

	Frequency Band	Measurement Bandwidth	Maximum level	Note
For operation in frequency bands as defined in subclause 5.2(a)	1920 MHz ≤ f ≤ 1980 MHz	3.84 MHz	-60 dBm	Mobile transmit band in URA_PCH, Cell_PCH and idle state
	2110 MHz ≤ f ≤ 2170 MHz	3.84 MHz	-60 dBm	Mobile receive band

3GPP TSG RAN WG4 Meeting #19 **R4-011245**

Edinburgh, Great Britain, 3rd - 7th September 2001

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CHANGE REQUEST

⌘ **25.101** **CR** **125** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Correction of frequency range for receiver spurious emission requirements
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 2001-09-03
Category:	⌘	**A** ***Release:*** ⌘ Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The current frequency range for receiver spurious emission requirements is inconsistence with what is proposed in ITU-R M.[UNWANT-MS].
Summary of change:	⌘	The starting frequency for receiver spurious emission requirements is changed from 9kHz to 30MHz as proposed in ITU-R M.[UNWANT-MS].
Consequences if not approved:	⌘	There will be inconsistency with ITU-R recommendation M.[UNWANT]. It will cause further inconsistency with each regulations those follow the recommendation.

Clauses affected:	⌘	7.9.1		
Other specs Affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	34.121
Other comments:	⌘			

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

7.9 Spurious emissions

The spurious emissions power is the power of emissions generated or amplified in a receiver that appear at the UE antenna connector.

7.9.1 Minimum requirement

The power of any narrow band CW spurious emission shall not exceed the maximum level specified in Table 7.10 and Table 7.11

Table 7.10: General receiver spurious emission requirements

Frequency Band	Measurement Bandwidth	Maximum level	Note
~~9kHz~~ 30MHz ≤ f < 1GHz	100 kHz	-57 dBm	
1GHz ≤ f ≤ 12.75 GHz	1 MHz	-47 dBm	

Table 7.11: Additional receiver spurious emission requirements

	Frequency Band	Measurement Bandwidth	Maximum level	Note
For operation in frequency bands as defined in subclause 5.2(a)	1920 MHz ≤ f ≤ 1980 MHz	3.84 MHz	-60 dBm	Mobile transmit band in URA_PCH, Cell_PCH and idle state
	2110 MHz ≤ f ≤ 2170 MHz	3.84 MHz	-60 dBm	Mobile receive band

3GPP TSG RAN WG4 Meeting #19 **R4-011238**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **126** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	UE Maximum output power
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 2001-09-03
Category:	⌘	**F** ***Release:*** ⌘ Rel99

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The conditions under which the UE maximum output power should be measured have led to considerable confusion and discussion. This CR proposes to remove any uncertainty.
Summary of change:	⌘	The UE maximum output power is defined as being the broadband power. Measurement conditions are not specified as there are several valid ways of measuring the total power and the core specifications should not otherwise restrict the conformance specifications or implementation unless one method is considered essential.
Consequences if not approved:	⌘	Different interpretations of the existing specification would have led to different measurement results of approximately one quarter of a dB.

Clauses affected:	⌘	3.1, 6.2		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	34.121
Other comments:	⌘			

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downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/. For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following definitions apply:

Maximum Output Power: This s a measure of the maximum power ~~supported by~~ the UE can transmit (i.e. the actual broadband power as would be measured assuming no measurement error).~~.~~

Nominal Maximum Output Power: This is the nominal power defined by the UE power class.

Average power: The thermal power as measured through a root raised cosine filter with roll-off $\alpha = 0.22$ and a bandwidth equal to the chip rate of the radio access mode. The period of measurement shall be one power control group (timeslot) unless otherwise stated.

6 Transmitter characteristics

6.1 General

Unless detailed the transmitter characteristic are specified at the antenna connector of the UE. For UE with integral antenna only, a reference antenna with a gain of 0 dBi is assumed. Transmitter characteristics for UE(s) with multiple antennas/antenna connectors are FFS.

The UE antenna performance has a significant impact on system performance, and minimum requirements on the antenna efficiency are therefore intended to be included in future versions of the present document. It is recognised that different requirements and test methods are likely to be required for the different types of UE.

All the parameters in clause 6 are defined using the UL reference measurement channel (12.2 kbps) specified in subclause A.2.1 and unless stated with the UL power control ON

6.2 Transmit power

6.2.1 UE maximum output power

The following Power Classes define the nominal maximum output power. The nominal power defined is the broadband transmit power of the UE.

Table 6.1: UE Power Classes

Power Class	Nominal maximum output power	Tolerance
1	+33 dBm	+1/-3 dB
2	+27 dBm	+1/-3 dB
3	+24 dBm	+1/-3 dB
4	+21 dBm	± 2 dB

NOTE: The tolerance allowed for the nominal maximum output power applies even for the multi-code transmission mode.

3GPP TSG RAN WG4 Meeting #19 **R4-011247**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **127** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	UE Maximum output power
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 2001-09-05
Category:	⌘	**A** ***Release:*** ⌘ Rel-4

Use one of the following categories:
F *(correction)*
A *(corresponds to a correction in an earlier release)*
B *(addition of feature),*
C *(functional modification of feature)*
D *(editorial modification)*
Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The conditions under which the UE maximum output power should be measured have led to considerable confusion and discussion. This CR proposes to remove any uncertainty.
Summary of change:	⌘	The UE maximum output power is defined as being the broadband power. Measurement conditions are not specified as there are several valid ways of measuring the total power and the core specifications should not otherwise restrict the conformance specifications or implementation unless one method is considered essential.
Consequences if not approved:	⌘	Different interpretations of the existing specification would have led to different measurement results of approximately one quarter of a dB.

Clauses affected:	⌘	3.1, 6.2		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	34.121
Other comments:	⌘			

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following definitions apply:

Maximum Output Power: This s a measure of the maximum power ~~supported by~~ the UE can transmit (i.e. the actual broadband power as would be measured assuming no measurement error).~~.~~

Nominal Maximum Output Power: This is the nominal power defined by the UE power class.

Average power: The thermal power as measured through a root raised cosine filter with roll-off $\alpha = 0.22$ and a bandwidth equal to the chip rate of the radio access mode. The period of measurement shall be one power control group (timeslot) unless otherwise stated.

6 Transmitter characteristics

6.1 General

Unless detailed the transmitter characteristic are specified at the antenna connector of the UE. For UE with integral antenna only, a reference antenna with a gain of 0 dBi is assumed. Transmitter characteristics for UE(s) with multiple antennas/antenna connectors are FFS.

The UE antenna performance has a significant impact on system performance, and minimum requirements on the antenna efficiency are therefore intended to be included in future versions of the present document. It is recognised that different requirements and test methods are likely to be required for the different types of UE.

All the parameters in clause 6 are defined using the UL reference measurement channel (12.2 kbps) specified in subclause A.2.1 and unless stated with the UL power control ON

6.2 Transmit power

6.2.1 UE maximum output power

The following Power Classes define the nominal maximum output power. The nominal power defined is the broadband transmit power of the UE.

Table 6.1: UE Power Classes

Power Class	Nominal maximum output power	Tolerance
1	+33 dBm	+1/-3 dB
2	+27 dBm	+1/-3 dB
3	+24 dBm	+1/-3 dB
4	+21 dBm	± 2 dB

NOTE: The tolerance allowed for the nominal maximum output power applies even for the multi-code transmission mode.

3GPP TSG RAN WG4 Meeting #19 **R4-011299**

Edinburgh, Great Britain, 3rd - 7th September 2001

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CHANGE REQUEST

⌘ **25.101** **CR** **128** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM [ ] ME/UE [X] Radio Access Network [ ] Core Network [ ]

Title:	⌘	Clarification of definition of Δf
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 5 September 2001
Category:	⌘ **F**	***Release:*** ⌘ Rel99

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Ambiguity in definition of Δf.
Summary of change:	⌘	Clarify definition of Δf.
Consequences if not approved:	⌘	UE emission mask requirement is subject to interpretation of Δf.

Clauses affected:	⌘	6.6.2.1		
Other specs affected:	⌘	[ ] Other core specifications [X] Test specifications [ ] O&M Specifications	⌘	TS34.121
Other comments:	⌘			

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2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.6.2 Out of band emission

Out of band emissions are unwanted emissions immediately outside the nominal channel resulting from the modulation process and non-linearity in the transmitter but excluding spurious emissions. This out of band emission limit is specified in terms of a spectrum emission mask and Adjacent Channel Leakage power Ratio.

6.6.2.1 Spectrum emission mask

The spectrum emission mask of the UE applies to frequencies, which are between 2.5 MHz and 12.5 MHz away from the UE centre carrier frequency. The out of channel emission is specified relative to the UE output power measured in a 3.84 MHz bandwidth.

6.6.2.1.1 Minimum requirement

The power of any UE emission shall not exceed the levels specified in Table 6.10

Table 6.10: Spectrum Emission Mask Requirement

~~Frequency offset from carrier~~ Δf* in MHz	Minimum requirement	Measurement bandwidth
2.5 - 3.5 ~~MHz~~	~~-35 -15*(Δf – 2.5)~~ ~~dBc~~ $\left\{-35-15\cdot\left(\frac{\Delta f}{MHz}-2.5\right)\right\}dBc$	30 kHz **
3.5 - 7.5 ~~MHz~~	~~-35 -1*(Δf-3.5)~~ ~~dBc~~ $\left\{-35-1\cdot\left(\frac{\Delta f}{MHz}-3.5\right)\right\}dBc$	1 MHz ***
7.5 - 8.5 ~~MHz~~	~~-39 - 10*(Δf – 7.5)~~ ~~dBc~~ $\left\{-39-10\cdot\left(\frac{\Delta f}{MHz}-7.5\right)\right\}dBc$	1 MHz ***
8.5 - 12.5 MHz	-49 dBc	1 MHz ***
* Δf is the separation between the carrier frequency and the centre of the measuring filter.		
** The first and last measurement position with a 30 kHz filter is at Δf equals to 2.515 MHz and 3.485 MHz.		
*** The first and last measurement position with a 1 MHz filter is at Δf equals to 4 MHz and 12 MHz. As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. To improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth can be different from the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth.		
The lower limit shall be –50 dBm/3.84 MHz or which ever is higher.		

3GPP TSG RAN WG4 Meeting #19 **R4-011286**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **129** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	Clarification of definition of Δf
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 5 September 2001
Category:	⌘	**F** ***Release:*** ⌘ Rel-4

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Ambiguity in definition of Δf.
Summary of change:	⌘	Clarify definition of Δf.
Consequences if not approved:	⌘	UE emission mask requirement is subject to interpretation of Δf.

Clauses affected:	⌘	6.6.2.1		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	TS34.121
Other comments:	⌘			

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.6.2 Out of band emission

Out of band emissions are unwanted emissions immediately outside the nominal channel resulting from the modulation process and non-linearity in the transmitter but excluding spurious emissions. This out of band emission limit is specified in terms of a spectrum emission mask and Adjacent Channel Leakage power Ratio.

6.6.2.1 Spectrum emission mask

The spectrum emission mask of the UE applies to frequencies, which are between 2.5 MHz and 12.5 MHz away from the UE centre carrier frequency. The out of channel emission is specified relative to the UE output power measured in a 3.84 MHz bandwidth.

6.6.2.1.1 Minimum requirement

The power of any UE emission shall not exceed the levels specified in Table 6.10

Table 6.10: Spectrum Emission Mask Requirement

~~Frequency offset from carrier~~ **Δf* in MHz**	**Minimum requirement**	**Measurement bandwidth**
2.5 - 3.5 ~~MHz~~	~~-35 -15*(Δf – 2.5)~~ ~~dBc~~ $\left\{-35-15\cdot\left(\frac{\Delta f}{MHz}-2.5\right)\right\}dBc$	30 kHz **
3.5 - 7.5 ~~MHz~~	~~-35 -1*(Δf-3.5)~~ ~~dBc~~ $\left\{-35-1\cdot\left(\frac{\Delta f}{MHz}-3.5\right)\right\}dBc$	1 MHz ***
7.5 - 8.5 ~~MHz~~	~~-39 - 10*(Δf – 7.5)~~ ~~dBc~~ $\left\{-39-10\cdot\left(\frac{\Delta f}{MHz}-7.5\right)\right\}dBc$	1 MHz ***
8.5 - 12.5 MHz	-49 dBc	1 MHz ***
* Δf is the separation between the carrier frequency and the centre of the measuring filter.		
** The first and last measurement position with a 30 kHz filter is at Δf equals to 2.515 MHz and 3.485 MHz.		
*** The first and last measurement position with a 1 MHz filter is at Δf equals to 4 MHz and 12 MHz. As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. To improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth can be different from the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth.		
The lower limit shall be –50 dBm/3.84 MHz or which ever is higher.		

3GPP TSG RAN WG4 Meeting #19 **R4-011318**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **130** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE **X** Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to TS25.101 specification for clarification of modulated interferer and definition of OCNS
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 5 September 2001
Category:	⌘	**F** ***Release:*** ⌘ Rel99

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The text defining the WCDMA modulated interferer is currently ambiguous and the OCNS definition as inherited from Test Model 1 is unnecessarily complicated.
Summary of change:	⌘	The WCDMA modulated interferer is defined more thoroughly and the timing offset information for the OCNS definition is removed.
Consequences if not approved:	⌘	Some test descriptions will remain ambiguous and the complexity of equipment required for OCNS and modulated interferer generation would be unnecessarily complex.

Clauses affected:	⌘	7.5.1, 7.6.1, 7.8.1, Annex C		
Other specs affected:	⌘	☐ Other core specifications **X** Test specifications ☐ O&M Specifications	⌘	34.121
Other comments:	⌘			

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3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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
1. For Power class 3 the average transmit output power shall be +20 dBm 2. For Power class 4 the average transmit output power shall be +18 dBm		

NOTE: The I_{oac} (modulated) signal consist of the common channels needed for tests as specified in Table C.7 and 16 dedicated data channels as specified in Table C.6.~~. The channelization 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
1. For Power class 3 the average transmit output power shall be +20 dBm 2. For Power class 4 the average transmit output power shall be +18 dBm			

Note: $I_{blocking}$ (modulated) consist of the common channels needed for tests as specified in Table C.7 and 16 dedicated data channels as specified in Table C.6. ~~The channelization 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
1. For Power class 3 the average transmit output power shall be +20 dBm 2. For Power class 4 the average transmit output power shall be +18 dBm				
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 and table 7.6 shall be applied.				
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 and table 7.6 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	-10
F_{uw2} (offset)	MHz	20	-20
1. For Power class 3 the average transmit output power shall be +20 dBm 2. For Power class 4 the average transmit output power shall be +18 dBm			

NOTE: I_{ouw2} (modulated) consist of the common channels needed for tests as specified in Table C.7 and 16 dedicated data channels as specified in Table C.6.~~. The channelization codes for data channels are chosen optimally to reduce peak to average ratio (PAR). All dedicated channels user data is uncorrelated to each other.~~

Annex C (normative): Downlink Physical Channels

C.1 General

This annex specifies the downlink physical channels that are needed for setting a connection and channels that are needed during a connection.

C.2 Connection Set-up

Table C.1 describes the downlink Physical Channels that are required for connection set up.

Table C.1. Downlink Physical Channels required for connection set-up

Physical Channel
P-CPICH
P-CCPCH
SCH
S-CCPCH
PICH
AICH
DPCH

C.3 During connection

The following clauses, describes the downlink Physical Channels that are transmitted during a connection i.e., when measurements are done. For these measurements the offset between DPCH and SCH shall be zero chips at Node B meaning that SCH is overlapping with the first symbols in DPCH in the beginning of DPCH slot structure.

C.3.1 Measurement of Rx Characteristics

Table C.2 is applicable for measurements on the Receiver Characteristics (clause 7) with the exception of subclause 7.4 (Maximum input level).

Table C.2: Downlink Physical Channels transmitted during a connection

Physical Channel	Power
P-CPICH	P-CPICH_Ec / DPCH_Ec = 7 dB
P-CCPCH	P-CCPCH_Ec / DPCH_Ec = 5 dB
SCH	SCH_Ec / DPCH_Ec = 5 dB
PICH	PICH_Ec / DPCH_Ec = 2 dB
DPCH	Test dependent power

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) and subclause 6.4.4 (Out-of-synchronization handling of output power).

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.
P-CCPCH	P-CCPCH_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 Node B (Ior) adds to one[1]	~~1.~~ OCNS interference consists of 16 dedicated data channels~~. The channelization codes, level settings and timing offsets for data channels are chosen~~ as specified in table C.6. ~~2. All dedicated channels user data is uncorrelated to each other and the measurement channel during the BER/BLER measurement period.~~

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

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_Ec1/Ior = -13 dB	1. Total P-CPICH_Ec/Ior = -10 dB
P-CPICH (antenna 2)	P-CPICH_Ec2/Ior = -13 dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/Ior = -15 dB	1. STTD applied 2. Total P-CCPCH_Ec/Ior = -12 dB
P-CCPCH (antenna 2)	P-CCPCH_Ec2/Ior = -15 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_Ec1/Ior = -18 dB	1. STTD applied 2. Total PICH_Ec/Ior = -15 dB
PICH (antenna 2)	PICH_Ec2/Ior = -18 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 Node B (Ior) adds to one[1]	1. This power shall be divided equally between antennas 2. OCNS interference consists of 16 dedicated data channels~~. The channelization codes, level settings and timing offsets for data channels are chosen~~ as specified in Table C.6. ~~3.All dedicated channels user data is uncorrelated to each other and the measurement channel during the BER/BLER measurement period.~~ ~~3.~~

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

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	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/Ior = -15 dB	1. STTD applied
P-CCPCH (antenna 2)	P-CCPCH_Ec2/Ior = -15 dB	1. STTD applied, 2. total P-CCPCH_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 Node B (Ior) adds to one[1]	1. This power shall be divided equally between antennas ~~2.~~OCNS interference consists of 16 dedicated data channels~~. The channelization codes, level settings and timing offsets for data channels are chosen~~ as specified in Table C.6. 2. ~~All dedicated channels user data is uncorrelated to each other and the measurement channel during the BER/BLER measurement period.~~

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

Table C.6: DPCH ~~Spreading~~ Channelization Code~~, Timing offsets~~ and relative level settings for OCNS signal.

Channelization Code at SF=128	Relative Level setting (dB)	DPCH Data
2	-1	The DPCH data for each channelization code shall be uncorrelated with each other and with any wanted signal over the period of any measurement.
11	-3	
17	-3	
23	-5	
31	-2	
38	-4	
47	-8	
55	-7	
62	-4	
69	-6	
78	-5	
85	-9	
94	-10	
125	-8	
113	-6	
119	0	

~~Channelization Code~~	~~Timing offset ($x256T_{chip}$)~~	~~Level setting (dB)~~
~~2~~	~~86~~	~~-1~~
~~11~~	~~134~~	~~-3~~
~~17~~	~~52~~	~~-3~~
~~23~~	~~45~~	~~-5~~
~~31~~	~~143~~	~~-2~~
~~38~~	~~112~~	~~-4~~
~~47~~	~~59~~	~~-8~~
~~55~~	~~23~~	~~-7~~
~~62~~	~~1~~	~~-4~~
~~69~~	~~88~~	~~-6~~
~~78~~	~~30~~	~~-5~~
~~85~~	~~18~~	~~-9~~
~~94~~	~~30~~	~~-10~~
~~125~~	~~61~~	~~-8~~
~~113~~	~~128~~	~~-6~~
~~119~~	~~143~~	~~0~~

Note: The DPCH ~~Spreading~~ Channelization Codes~~, Timing offsets~~ and relative level settings are chosen ~~for simulating~~ to simulate a signal with realistic Peak to Average Ratio.

C.4 W-CDMA Modulated Interferer

Table C.7 describes the downlink Physical Control Channels that are transmitted as part of the W-CDMA modulated interferer.

Table C.7: Spreading Code, Timing offsets and relative level settings for W-CDMA Modulated Interferer signal control channels.

Channel Type	Spreading Factor	Channelization Code	Timing offset ($x256T_{chip}$)	Relative level setting (dB)	NOTE
P-CCPCH	256	1	0	-1	
SCH	256	-	0	-1	The SCH power shall be divided equally between Primary and Secondary Synchronous channels
P-CPICH	256	0	0	-1	
PICH	256	16	16	-6	

See table C.6 for the definition of the 16 DPCH portion of the W-CDMA modulated interferer.

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Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **131** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

*For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.*

Proposed change affects: ⌘ (U)SIM ☐ ME/UE ☒ Radio Access Network ☐ Core Network ☐

Title:	⌘	CR to TS25.101 specification for clarification of modulated interferer and definition of OCNS
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 6 September 2001
Category:	⌘	**A** ***Release:*** ⌘ Rel-4

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The text defining the WCDMA modulated interferer is currently ambiguous and the OCNS definition as inherited from Test Model 1 is unnecessarily complicated.
Summary of change:	⌘	The WCDMA modulated interferer is defined more thoroughly and the timing offset information for the OCNS definition is removed.
Consequences if not approved:	⌘	Some test descriptions will remain ambiguous and the complexity of equipment required for OCNS and modulated interferer generation would be unnecessarily complex.

Clauses affected:	⌘	7.5.1, 7.6.1, 7.8.1, Annex C		
Other specs Affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	34.121
Other comments:	⌘			

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at: http://www.3gpp.org/3G_Specs/CRs.htm. Below is a brief summary:

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

2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be

downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.

3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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
1. For Power class 3 the average transmit output power shall be +20 dBm 2. For Power class 4 the average transmit output power shall be +18 dBm		

NOTE: The I_{oac} (modulated) signal consist of the common channels needed for tests as specified in Table C.7 and 16 dedicated data channels as specified in Table C.6. ~~The channelization 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
1. For Power class 3 the average transmit output power shall be +20 dBm 2. For Power class 4 the average transmit output power shall be +18 dBm			

NOTE: $I_{blocking}$ (modulated) consist of the common channels needed for tests as specified in Table C.7 and 16 dedicated data channels as specified in Table C.6. ~~The channelization 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
1. For Power class 3 the average transmit output power shall be +20 dBm 2. For Power class 4 the average transmit output power shall be +18 dBm				
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 and table 7.6 shall be applied.				
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 and table 7.6 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	-10
F_{uw2} (offset)	MHz	20	-20
1. For Power class 3 the average transmit output power shall be +20 dBm 2. For Power class 4 the average transmit output power shall be +18 dBm			

NOTE: I_{ouw2} (modulated) consist of the common channels needed for tests as specified in Table C.7 and 16 dedicated data channels as specified in Table C.6. ~~The channelization codes for data channels are chosen optimally to reduce peak to average ratio (PAR). All dedicated channels user data is uncorrelated to each other.~~

Annex C (normative): Downlink Physical Channels

C.1 General

This annex specifies the downlink physical channels that are needed for setting a connection and channels that are needed during a connection.

C.2 Connection Set-up

Table C.1 describes the downlink Physical Channels that are required for connection set up.

Table C.1. Downlink Physical Channels required for connection set-up

Physical Channel
P-CPICH
P-CCPCH
SCH
S-CCPCH
PICH
AICH
DPCH

C.3 During connection

The following clauses, describes the downlink Physical Channels that are transmitted during a connection i.e., when measurements are done. For these measurements the offset between DPCH and SCH shall be zero chips at Node B meaning that SCH is overlapping with the first symbols in DPCH in the beginning of DPCH slot structure.

C.3.1 Measurement of Rx Characteristics

Table C.2 is applicable for measurements on the Receiver Characteristics (clause 7) with the exception of subclause 7.4 (Maximum input level).

Table C.2: Downlink Physical Channels transmitted during a connection

Physical Channel	Power
P-CPICH	P-CPICH_Ec / DPCH_Ec = 7 dB
P-CCPCH	P-CCPCH_Ec / DPCH_Ec = 5 dB
SCH	SCH_Ec / DPCH_Ec = 5 dB
PICH	PICH_Ec / DPCH_Ec = 2 dB
DPCH	Test dependent power

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) and subclause 6.4.4 (Out-of-synchronization handling of output power).

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.
P-CCPCH	P-CCPCH_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 Node B (Ior) adds to one[1]	~~1.~~ OCNS interference consists of 16 dedicated data channels~~. The channelization codes, level settings and timing offsets for data channels are chosen~~ -as specified in table C.6. ~~2. All dedicated channels user data is uncorrelated to each other and the measurement channel during the BER/BLER measurement period.~~

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

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_Ec1/Ior = -13 dB	1. Total P-CPICH_Ec/Ior = -10 dB
P-CPICH (antenna 2)	P-CPICH_Ec2/Ior = -13 dB	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/Ior = -15 dB	1. STTD applied 2. Total P-CCPCH_Ec/Ior = -12 dB
P-CCPCH (antenna 2)	P-CCPCH_Ec2/Ior = -15 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_Ec1/Ior = -18 dB	1. STTD applied 2. Total PICH_Ec/Ior = -15 dB
PICH (antenna 2)	PICH_Ec2/Ior = -18 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 Node B (Ior) adds to one[1]	1. This power shall be divided equally between antennas 2. OCNS interference consists of 16 dedicated data channels~~. The channelization codes, level settings and timing offsets for data channels are chosen~~ as specified in Table C.6. ~~3. All dedicated channels user data is uncorrelated to each other and the measurement channel during the BER/BLER measurement period.~~

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

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	
P-CCPCH (antenna 1)	P-CCPCH_Ec1/Ior = -15 dB	1. STTD applied
P-CCPCH (antenna 2)	P-CCPCH_Ec2/Ior = -15 dB	1. STTD applied, 2. total P-CCPCH_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 2. STTD applied, total PICH_Ec/Ior = -15 dB
PICH (antenna 2)	PICH_Ec2/Ior = -18 dB	
DPCH	Test dependent power	1. Total power from both antennas
OCNS	Necessary power so that total transmit power spectral density of Node B (Ior) adds to one[1]	1. This power shall be divided equally between antennas 2. OCNS interference consists of 16 dedicated data channels~~.~~ ~~The channelization codes, level settings and timing offsets for data channels are chosen~~ as specified in Table C.6. ~~3. All dedicated channels user data is uncorrelated to each other and the measurement channel during the BER/BLER measurement period.~~

NOTE 1 For dynamic power correction required to compensate for the presence of transient channels, e.g. control channels, a subset of the DPCH channels may be used.

Table C.6: DPCH ~~Spreading~~ Channelization Code~~, Timing offsets~~ and relative level settings for OCNS signal.

Channelization Code at SF=128	Relative Level setting (dB)	DPCH Data
2	-1	The DPCH data for each channelization code shall be uncorrelated with each other and with any wanted signal over the period of any measurement.
11	-3	
17	-3	
23	-5	
31	-2	
38	-4	
47	-8	
55	-7	
62	-4	
69	-6	
78	-5	
85	-9	
94	-10	
125	-8	
113	-6	
119	0	

~~Channelization Code~~	~~Timing offset ($x256T_{chip}$)~~	~~Level setting (dB)~~
~~2~~	~~86~~	~~-1~~
~~11~~	~~134~~	~~-3~~
~~17~~	~~52~~	~~-3~~
~~23~~	~~45~~	~~-5~~
~~31~~	~~143~~	~~-2~~
~~38~~	~~112~~	~~-4~~
~~47~~	~~59~~	~~-8~~
~~55~~	~~23~~	~~-7~~
~~62~~	~~1~~	~~-4~~
~~69~~	~~88~~	~~-6~~
~~78~~	~~30~~	~~-5~~
~~85~~	~~18~~	~~-9~~
~~94~~	~~30~~	~~-10~~
~~125~~	~~61~~	~~-8~~
~~113~~	~~128~~	~~-6~~
~~119~~	~~143~~	~~0~~

Note: The DPCH ~~Spreading~~ Channelization Codes~~, Timing offsets~~ and relative level settings are chosen ~~for simulating~~ to simulate a signal with realistic Peak to Average Ratio.

C.4 W-CDMA Modulated Interferer

Table C.7 describes the downlink Physical Control Channels that are transmitted as part of the W-CDMA modulated interferer.

Table C.7: Spreading Code, Timing offsets and relative level settings for W-CDMA Modulated Interferer signal control channels.

Channel Type	Spreading Factor	Channelization Code	Timing offset ($x256T_{chip}$)	Relative level setting (dB)	NOTE
P-CCPCH	256	1	0	-1	
SCH	256	-	0	-1	The SCH power shall be divided equally between Primary and Secondary Synchronous channels
P-CPICH	256	0	0	-1	
PICH	256	16	16	-6	

See table C.6 for the definition of the 16 DPCH portion of the W-CDMA modulated interferer.