TSG-RAN Meeting #12 *RP-010347*
Stockholm, Sweden, 12 - 15 June 2001

Title: **Agreed CRs (Release '99 and Rel-4 category A) to TS 25.101**

Source: **TSG-RAN WG4**

Agenda item: **8.4.3**

WG4 doc	Status WG4	Spec	CR	Phase	Title	Cat	V old	V new
R4-010526	agreed	25.101	99	R99	Correction for SSDT test parameters	F	3.6.0	3.7.0
R4-010527	agreed	25.101	100	Rel-4	Correction for SSDT test parameters	A	4.0.0	4.1.0
R4-010616	agreed	25.101	101	R99	CR for UMTS1900 operation in Rel 99	F	3.6.0	3.7.0
R4-010617	agreed	25.101	102	Rel-4	CR for UMTS1900 operation in Rel 4	A	4.0.0	4.1.0
R4-010671	agreed	25.101	103	R99	UL DPCCH slot format for performance tests	F	3.6.0	3.7.0
R4-010740	agreed	25.101	104	Rel-4	UL DPCCH slot format for performance tests	A	4.0.0	4.1.0
R4-010704	agreed	25.101	105	R99	Clarification of power definition for UE maximum output power	F	3.6.0	3.7.0
R4-010749	agreed	25.101	106	Rel-4	Clarification of power definition for UE maximum output power	A	4.0.0	4.1.0
R4-010728	agreed	25.101	107	R99	Terminology for power definition	F	3.6.0	3.7.0
R4-010750	agreed	25.101	108	Rel-4	Terminology for power definition	A	4.0.0	4.1.0
R4-010790	agreed	25.101	109	R99	out of synchronization handling	F	3.6.0	3.7.0
R4-010789	agreed	25.101	110	Rel-4	out of synchronization handling	A	4.0.0	4.1.0
R4-010747	agreed	25.101	111	R99	Clarification of limits for inner loop power control	F	3.6.0	3.7.0
R4-010748	agreed	25.101	112	Rel-4	Clarification of limits for inner loop power control	A	4.0.0	4.1.0
R4-010751	agreed	25.101	113	R99	UE EVM definition	F	3.6.0	3.7.0
R4-010752	agreed	25.101	114	Rel-4	UE EVM definition	A	4.0.0	4.1.0
R4-010715	agreed	25.101	115	R99	CR on the Modification to OCNS code channels to allow for 384 kbps allocation	F	3.6.0	3.7.0
R4-010781	agreed	25.101	116	Rel-4	CR on the Modification to OCNS code channels to allow for 384 kbps allocation	A	4.0.0	4.1.0

3GPP TSG RAN WG4 Meeting #17 **R4-010527**

Gothenburg, Sweden 21st - 25th May 2001

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CHANGE REQUEST

⌘ **25.101** **CR** **100** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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 for SSDT test parameters
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21 May 2001
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
- ***F*** *(essential 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:	⌘	Current test case on SSDT specify a feedback error rate as FBI bit error rate (4%). However current requirements have originally been derived using the code word error ratio of 1% in uplink instead of assuming 4% FBI bit error rate. Furthermore, since the FBI decoding algorithm is not specified for a tester, the output of the test measurement depends on a tester used in a test. In order to avoid this problem, code word error ratio in uplink should be specified instead of specifying FBI bit error rates.
Summary of change:	⌘	A parameter FBI bit error ratio (4%) in uplink has been replaced with code word error ratio (1%). A clarifying note have been modified explaining that code word errors are introduced independently in both uplink channels.
Consequences if not approved:	⌘	Current minimum requirements are dependent on a capability of a tester

Clauses affected:	⌘	8.6.3		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	34.121
Other comments:	⌘			

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

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

8.6.3.1 Minimum requirements

The downlink physical channels and their relative power to Ior are the same as those specified in clause C.3.2 irrespective of Node Bs and the test cases. DPCH_Ec/Ior value applies whenever DPDCH in the cell is transmitted. In Test 1 and Test 3, the received powers at UE from two Node Bs are the same, while 3dB offset is given to one that comes from one of Node Bs for Test 2 and Test 4 as specified in Table 8.23.

For the parameters specified in Table 8.23 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.24.

Table 8.23: DCH parameters in multi-path propagation conditions during SSDT mode (Propagation condition: Case 1)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
$\hat{I}_{or1}/I_{oc}$	dB	0	-3	0	0
$\hat{I}_{or2}/I_{oc}$	dB	0	0	0	-3
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	12.2	12.2	12.2
Cell ID code word error ratio in uplink~~Feedback error rate~~*	%	14	14	14	14
Number of FBI bits assigned to "S" Field		1	1	2	2
Code word Set		Long	Long	Short	Short

NOTE: The code word errors are introduced independently in both uplink channels.~~Feedback error rate is defined as FBI bit error rate~~

Table 8.24: DCH requirements in multi-path propagation conditions during SSDT Mode

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

3GPP TSG RAN WG4 Meeting #17 **R4-010616**

Gothenburg, Sweden 21st - 25th May 2001

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CHANGE REQUEST

⌘ **25.101** **CR** **101** ⌘ rev **-** ⌘ Current version: **3.6.0** ⌘

*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:	⌘	Proposed statement for UMTS1900 Operation for R99 Specification
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-17
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
F *(essential 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:	⌘	Current version of R99 specs do not take into account of following factors related to UMTS1900 operation: • Coexistence with other technologies, such as GSM1900, IS-95 and IS-136 • Spectrum availability for different operators • Necessary changes due to different TX/RX spacing
Summary of change:	⌘	Add a note reflecting this to R99 specification.
Consequences if not approved:	⌘	UMTS1900 will not be properly functioning when coexistence with the interference from NB system

Clauses affected:	⌘	4.3
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications
Other comments:	⌘	

4.1 Relationship between Minimum Requirements and Test Requirements

The Minimum Requirements given in this specification make no allowance for measurement uncertainty. The test specification 34.121 Annex F defines Test Tolerances. These Test Tolerances are individually calculated for each test. The Test Tolerances are used to relax the Minimum Requirements in this specification to create Test Requirements.

The measurement results returned by the test system are compared – without any modification - against the Test Requirements as defined by the shared risk principle.

The Shared Risk principle is defined in ETR 273 Part 1 sub-part 2 section 6.5.

4.2 Power Classes

For UE power classes 1 and 2, a number of RF parameter are not specified. It is intended that these are part of a later release.

4.3 Frequency Band

Support for operation in the frequency band defined in sub clause 5.2 (b) is not completely specified in this release. It is intended this is part of a later release.

3GPP TSG RAN WG4 Meeting #17 **R4-010617**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.101** **CR** **102** ⌘ rev **-** ⌘ Current version: **4.0.0** ⌘

*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:	⌘	Proposed the same statement as in R99 for UMTS1900 Operation for Rel.4 Specification
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-17
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
- ***F*** *(essential 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:	⌘	Current version of R99 specs do not take into account of following factors related to UMTS1900 operation: • Coexistence with other technologies, such as GSM1900, IS-95 and IS-136 • Spectrum availability for different operators • Necessary changes due to different TX/RX spacing Rel.4 specification inherits the same problem from R99 specification.
Summary of change:	⌘	Add the same note to Rel.4 specification as added to R99 specification.
Consequences if not approved:	⌘	Rel. 4 specification will not be consistent with R99 specification on UMTS1900 operation.

Clauses affected:	⌘	4.3		
Other specs affected:	⌘	☐ Other core specifications **X** Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘			

4.1 Relationship between Minimum Requirements and Test Requirements

The Minimum Requirements given in this specification make no allowance for measurement uncertainty. The test specification 34.121 Annex F defines Test Tolerances. These Test Tolerances are individually calculated for each test. The Test Tolerances are used to relax the Minimum Requirements in this specification to create Test Requirements.

The measurement results returned by the test system are compared – without any modification - against the Test Requirements as defined by the shared risk principle.

The Shared Risk principle is defined in ETR 273 Part 1 sub-part 2 section 6.5.

4.2 Power Classes

For UE power classes 1 and 2, a number of RF parameter are not specified. It is intended that these are part of a later release.

4.3 Frequency Band

Support for operation in the frequency band defined in sub clause 5.2 (b) is not completely specified in this release. It is intended this is part of a later release.

3GPP TSG RAN WG4 Meeting #17 **R4-010671**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **103** ⌘ ev **-** ⌘ Current version: **3.6.0** ⌘

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

Title:	⌘	UL DPCCH slot format for performance
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-22
Category:	⌘	**F**
Release:	⌘	R99

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:	⌘	UL DPCCH slot format specified for performance test on "DCH in Site Selection Diversity Transmission Power Control mode" should be corrected. UL DPCCH slot format specified for "'reference measurement channnels of 384kbps / 768kbps DCH" should be specified.
Summary of change:	⌘	UL slot formats specified for performance test on "DCH in SSDT mode" and reference measurement channels of 384kbps / 768kbps DCH are corrected.
Consequences if not approved:	⌘	Performance test for SSDT may not work, as specified slot format of UL DPCCH for 12.2kbps DCH has no FBI bits in it. Lack of the description of UL DPCCH in reference measurement channles of 384kbps/768kbps DCH may cause confusion in the performance test.

Clauses affected:	⌘	8.6.3, Annex 2		
Other specs Affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	TS34.121
Other comments:	⌘			

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

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

8.6.3.1 Minimum requirements

The downlink physical channels and their relative power to Ior are the same as those specified in clause C.3.2 irrespective of Node Bs and the test cases. DPCH_Ec/Ior value applies whenever DPDCH in the cell is transmitted. In Test 1 and Test 3, the received powers at UE from two Node Bs are the same, while 3dB offset is given to one that comes from one of Node Bs for Test 2 and Test 4 as specified in Table 8.23.

For the parameters specified in Table 8.23 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.24.

Table 8.23: DCH parameters in multi-path propagation conditions during SSDT mode (Propagation condition: Case 1)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
$\hat{I}_{or1}/I_{oc}$	DB	0	-3	0	0
$\hat{I}_{or2}/I_{oc}$	DB	0	0	0	-3
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	Kbps	12.2	12.2	12.2	12.2
Feedback error rate*	%	4	4	4	4
Number of FBI bits assigned to "S" Field		1	1	2	2
Code word Set		Long	Long	Short	Short
UL DPCCH slot Format		#2		#5	

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

Table 8.24: DCH requirements in multi-path propagation conditions during SSDT Mode

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

A.2.1 UL reference measurement channel (12.2 kbps)

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

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

Parameter	Unit	Level
Information bit rate	Kbps	12.2
DPDCH	Kbps	60
DPCCH	Kbps	15
DPCCH Slot Format #i	-	0
DPCCH/DPDCH power ratio	DB	-5.46
TFCI	-	On
Repetition	%	23
NOTE: Slot Format #2 is used for closed loop tests in subclause 8.6.2. Slot Format #2 and #5 are used for site selection diversity transmission tests in subclause 8.6.3		

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

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

A.2.4 UL reference measurement channel (384 kbps)

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

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

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

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

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

A.2.5 UL reference measurement channel (768 kbps)

The parameters for the UL measurement channel for 768 kbps are specified in Table A.9 and Table A.10.

Table A.9: UL reference measurement channel, physical parameters (768 kbps)

Parameter	Unit	Level
Information bit rate	Kbps	2*384
$DPDCH_1$	Kbps	960
$DPDCH_2$	Kbps	960
DPCCH	Kbps	15
DPCCH Slot Format #i	-	0
DPCCH/DPDCH power ratio	DB	-11.48
TFCI	-	On
Puncturing	%	18

Table A.10: UL reference measurement channel, transport channel parameters (768 kbps)

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

3GPP TSG RAN WG4 Meeting #17 **R4-010740**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **104** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

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

Title:	⌘	UL DPCCH slot format for performance
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-24
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:	⌘	UL DPCCH slot format specified for performance test on "DCH in Site Selection Diversity Transmission Power Control mode" should be corrected. UL DPCCH slot format specified for "'reference measurement channnels of 384kbps / 768kbps DCH" should be specified. Corresponding REL-99 CR is in R4-010671.
Summary of change:	⌘	UL slot formats specified for performance test on "DCH in SSDT mode" and reference measurement channels of 384kbps / 768kbps DCH are corrected.
Consequences if not approved:	⌘	Performance test for SSDT may not work, as specified slot format of UL DPCCH for 12.2kbps DCH has no FBI bits in it. Lack of the description of UL DPCCH in reference measurement channles of 384kbps/768kbps DCH may cause confusion in the performance test.

Clauses affected:	⌘	8.6.3, Annex 2		
Other specs Affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	TS34.121
Other comments:	⌘			

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

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

8.6.3.1 Minimum requirements

The downlink physical channels and their relative power to Ior are the same as those specified in clause C.3.2 irrespective of Node Bs and the test cases. DPCH_Ec/Ior value applies whenever DPDCH in the cell is transmitted. In Test 1 and Test 3, the received powers at UE from two Node Bs are the same, while 3dB offset is given to one that comes from one of Node Bs for Test 2 and Test 4 as specified in Table 8.23.

For the parameters specified in Table 8.23 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.24.

Table 8.23: DCH parameters in multi-path propagation conditions during SSDT mode (Propagation condition: Case 1)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
$\hat{I}_{or1}/I_{oc}$	dB	0	-3	0	0
$\hat{I}_{or2}/I_{oc}$	dB	0	0	0	-3
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	12.2	12.2	12.2
Feedback error rate*	%	4	4	4	4
Number of FBI bits assigned to "S" Field		1	1	2	2
Code word Set		Long	Long	Short	Short
UL DPCCH slot Format		#2		#5	

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

Table 8.24: DCH requirements in multi-path propagation conditions during SSDT Mode

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

A.2.1 UL reference measurement channel (12.2 kbps)

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

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

Parameter	Unit	Level
Information bit rate	kbps	12.2
DPDCH	kbps	60
DPCCH	kbps	15
DPCCH Slot Format #i	-	0
DPCCH/DPDCH power ratio	dB	-5.46
TFCI	-	On
Repetition	%	23
NOTE: Slot Format #2 is used for closed loop tests in subclause 8.6.2. Slot Format #2 and #5 are used for site selection diversity transmission tests in subclause 8.6.3		

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

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

A.2.4 UL reference measurement channel (384 kbps)

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

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

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

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

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

A.2.5 UL reference measurement channel (768 kbps)

The parameters for the UL measurement channel for 768 kbps are specified in Table A.9 and Table A.10.

Table A.9: UL reference measurement channel, physical parameters (768 kbps)

Parameter	Unit	Level
Information bit rate	kbps	2*384
$DPDCH_1$	kbps	960
$DPDCH_2$	kbps	960
DPCCH	kbps	15
DPCCH Slot Format #i	-	0
DPCCH/DPDCH power ratio	dB	-11.48
TFCI	-	On
Puncturing	%	18

Table A.10: UL reference measurement channel, transport channel parameters (768 kbps)

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

3GPP TSG RAN WG4 Meeting #17 **R4-010704**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **105** ⌘ ev **-** ⌘ Current version: **3.6.0** ⌘

*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 power definition for UE maximum output power
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	24/05/01
Category:	⌘	F
Release:	⌘	R99

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 definition does not explicitly state the measurement conditions for UE maximum output power
Summary of change:	⌘	The definition is stated as being broadband thermal power
Consequences if not approved:	⌘	Errors of up to 0.25 dB in measurement if an RRC filter is used

Clauses affected:	⌘	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.

6.2 Transmit power

6.2.1 UE maximum output power

The following Power Classes define the maximum output 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.

Table 6.1: UE Power Classes

Power Class	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 of the maximum output power is below the prescribed value even for the multi-code transmission mode.

3GPP TSG RAN WG4 Meeting #17 **R4-010749**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **106** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

*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 power definition for UE maximum output power
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	25/05/01
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 definition does not explicitly state the measurement conditions for UE maximum output power
Summary of change:	⌘	The definition is stated as being broadband thermal power
Consequences if not approved:	⌘	Errors of up to 0.25 dB in measurement if an RRC filter is used

Clauses affected:	⌘	6.2		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	34.121
Other comments:	⌘	Corresponds to Rel99 CR in R4-010704		

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6.2 Transmit power

6.2.1 UE maximum output power

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3	+24 dBm	+1/-3 dB
4	+21 dBm	± 2 dB

NOTE: The tolerance of the maximum output power is below the prescribed value even for the multi-code transmission mode.

3GPP TSG RAN WG4 Meeting #17 **R4-010728**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **107** ⌘ ev **-** ⌘ Current version: **3.6.0** ⌘

*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:	⌘	Terminology used for power definition
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	24/05/01
Category:	⌘	**F**
Release:	⌘	R99

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)*
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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:	⌘	Clarification of terms used to define power
Summary of change:	⌘	Definition of nominal maximum output power, deletion of unused terms. Modification to UE power class definition to use nominal maximum output power rather than maximum output power.
Consequences if not approved:	⌘	Possible misinterpretation of Maximum Output Power between the nominal and actual values. Possible misinterpretation of other “power” terms.

Clauses affected:	⌘	3.1, 6.2.1, 6.4.3, 6.5, 6.6
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ 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.

3 Definitions, symbols and abbreviations

3.1 Definitions

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

~~**Power Setting:** The value of the control signal, which determines the desired transmitter, output Power. Typically, the power setting would be altered in response to power control commands~~

~~**Maximum Power Setting:** The highest value of the Power control setting which can be used.~~

Maximum ~~o~~Output Power: This ~~refers to the measure of~~ is a measure of the maximum power supported by the UE (i.e. the actual power as would be measured assuming no measurement error).~~average power at the maximum power setting~~.

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

Average power: ~~(for further study)~~The thermal power as measured through a root raised cosine filter with roll-off α = 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.

~~**Peak Power:** The instantaneous power of the RF envelope which is not expected to be exceeded for 99.9% of the time~~

~~**Maximum peak power:** The peak power observed when operating at a given maximum output power.~~

~~**Average transmit power:** The average transmitter output power obtained over any specified time interval, including periods with no transmission.~~

~~**Maximum average power:** The average transmitter output power obtained over any specified time interval, including periods with no transmission, when the transmit time slots are at the maximum power setting.~~

6.2 Transmit power

6.2.1 UE maximum output power

The following Power Classes define the nominal maximum output power.

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 ~~of~~ for the nominal maximum output power applies ~~is below the prescribed value~~ even for the multi-code transmission mode.

6.4.3 Minimum ~~transmit~~ output power

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

6.4.3.1 Minimum requirement

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

6.5 Transmit ON/OFF power

6.5.1 Transmit OFF power

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

6.5.1.1 Minimum requirement

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

6.6 Output RF spectrum emissions

6.6.1 Occupied bandwidth

Occupied bandwidth is a measure of the bandwidth containing 99 % of the total integrated power of the transmitted spectrum, centered on the assigned channel frequency. The occupied channel bandwidth shall be less than 5 MHz based on a chip rate of 3.84 Mcps.

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	Minimum requirement	Measurement bandwidth
2.5 - 3.5 MHz	-35 -15*(Δf – 2.5) dBc	30 kHz *
3.5 - 7.5 MHz	-35- 1*(Δf-3.5) dBc	1 MHz *
7.5 - 8.5 MHz	-39 - 10*(Δf – 7.5) dBc	1 MHz *
8.5 - 12.5 MHz	-49 dBc	1 MHz *

Note *:

1. The first and last measurement position with a 30 kHz filter is 2.515 MHz and 3.485 MHz.
2. The first and last measurement position with a 1 MHz filter is 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.
3. The lower limit shall be –50 dBm/3.84 MHz or which ever is higher.

6.6.2.2 Adjacent Channel Leakage power Ratio (ACLR)

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the ~~transmitted~~ average power centered on the assigned channel frequency to the average power ~~measured~~ centered on ~~in~~ an adjacent channel frequency. In ~~B~~both cases the ~~transmitted power and the adjacent channel~~ average power ~~are~~ is measured with a filter that has a Root-Raised Cosine (RRC) filter response with roll-off α =0.22 and a bandwidth equal to the chip rate.

6.6.2.2.1 Minimum requirement

If the adjacent channel power is greater than –50dBm then the ACLR shall be higher than the value specified in Table 6.11.

Table 6.11: UE ACLR

Power Class	Adjacent channel frequency relative to ~~UE~~ the assigned channel frequency	ACLR limit
3	+ 5 MHz or – 5 MHz	33 dB
3	+ 10 MHz or – 10 MHz	43 dB
4	+ 5 MHz or – 5 MHz	33 dB
4	+ 10 MHz or –10 MHz	43 dB

NOTE 1: The requirement shall still be met in the presence of switching transients.

NOTE 2: The ACLR requirements reflect what can be achieved with present state of the art technology.

NOTE 3: Requirement on the UE shall be reconsidered when the state of the art technology progresses.

3GPP TSG RAN WG4 Meeting #17 **R4-010750**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **108** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

*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:	⌘	Terminology used for power definition
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	24/05/01
Category:	⌘	**A**
Release:	⌘	REL-4

Use one of the following categories:
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A *(corresponds to a correction in an earlier release)*
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R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Clarification of terms used to define power
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Clauses affected:	⌘	3.1, 6.2.1, 6.4.3, 6.5, 6.6
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications ⌘
Other comments:	⌘	Corresponds to Rel99 CR in R4-010728

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6.4.3 Minimum ~~transmit~~ output power

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6.4.3.1 Minimum requirement

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

6.5 Transmit ON/OFF power

6.5.1 Transmit OFF power

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

6.5.1.1 Minimum requirement

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6.6 Output RF spectrum emissions

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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

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Table 6.10: Spectrum Emission Mask Requirement

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Note *:

1. The first and last measurement position with a 30 kHz filter is 2.515 MHz and 3.485 MHz.
2. The first and last measurement position with a 1 MHz filter is 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.
3. The lower limit shall be –50 dBm/3.84 MHz or which ever is higher.

6.6.2.2 Adjacent Channel Leakage power Ratio (ACLR)

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6.6.2.2.1 Minimum requirement

If the adjacent channel power is greater than –50dBm then the ACLR shall be higher than the value specified in Table 6.11.

Table 6.11: UE ACLR

Power Class	Adjacent channel frequency relative to ~~UE~~ the assigned channel frequency	ACLR limit
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4	+ 10 MHz or –10 MHz	43 dB

NOTE 1: The requirement shall still be met in the presence of switching transients.

NOTE 2: The ACLR requirements reflect what can be achieved with present state of the art technology.

NOTE 3: Requirement on the UE shall be reconsidered when the state of the art technology progresses.

3GPP TSG-RAN Meeting #17
Gothenburg, Sweden, 21-25 May, 2001

Tdoc R4-010790

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **109** ⌘ ev **-** ⌘ Current version: **3.6.0** ⌘

*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:	⌘	Out-of-synchronisation handling of output power
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-24
Category:	⌘	**F**
Release:	⌘	R99

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 present minimum requirement is narrowly defined to cover only one test case.
Summary of change:	⌘	A general minimum requirement is added and the previous test is given as a “test case” in a new section
Consequences if not approved:	⌘	The requirement will be ambiguous, since the spec would not define what the actual minimum requirement is other than for the specific test case.

Clauses affected:	⌘	6.4.4, 6.4.4.1, 6.4.4.2 and C 3.2		
Other specs affected:	⌘	☐ Other core specifications **X** Test specifications ☐ O&M Specifications	⌘	TS 34.121
Other comments:	⌘			

6.4.4 Out-of-synchronization handling of output power

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

The DPCCH quality shall be monitored in the UE and compared to the thresholds Q_{out} and Q_{in} for the purpose of monitoring synchronization. The threshold Q_{out} should correspond to a level of DPCCH quality where no reliable detection of the TPC commands transmitted on the downlink DPCCH can be made. This can be at a TPC command error ratio level of e.g. 30%. The threshold Q_{in} should correspond to a level of DPCCH quality where detection of the TPC commands transmitted on the downlink DPCCH is significantly more reliable than at Q_{out}. This can be at a TPC command error ratio level of e.g. 20%.

6.4.4.1 Minimum requirement

When the UE estimates the DPCCH quality over the last 160 ms period to be worse than a threshold Q_{out}, the UE shall shut its transmitter off within 40 ms. The UE shall not turn its transmitter on again until the DPCCH quality exceeds an acceptable level Q_{in}. When the UE estimates the DPCCH quality over the last 160 ms period to be better than a threshold Q_{in}, the UE shall again turn its transmitter on within 40 ms.

The UE transmitter shall be considered "off" if the transmitted power is below the level defined in subclause 6.5.1 (Transmit off power). Otherwise the transmitter shall be considered as "on".

6.4.4.2 Test case

This subclause specifies a test case, which provides additional information for how the minimum requirement should be interpreted for the purpose of conformance testing.

The quality levels at the thresholds Q_{out} and Q_{in} correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in Table 6.6, a signal with the quality at the level Q_{out} can be generated by a DPCCH Ec/Ior ratio of –25 dB, and a signal with Q_{in} by a DPCCH Ec/Ior ratio of –21 dB. The DL reference measurement channel (12.2) kbps specified in subclause A.3.1 and with static propagation conditions. The downlink physical channels, other than those specified in Table 6.6, are as specified in Table C.3 of Annex C.

Figure 6.1 shows an example scenario where the DPCCH Ec/Ior ratio varies from a level where the DPCH is demodulated under normal conditions, down to a level below Q_{out} where the UE shall shut its power off and then back up to a level above Q_{in} where the UE shall turn the power back on.

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

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

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

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

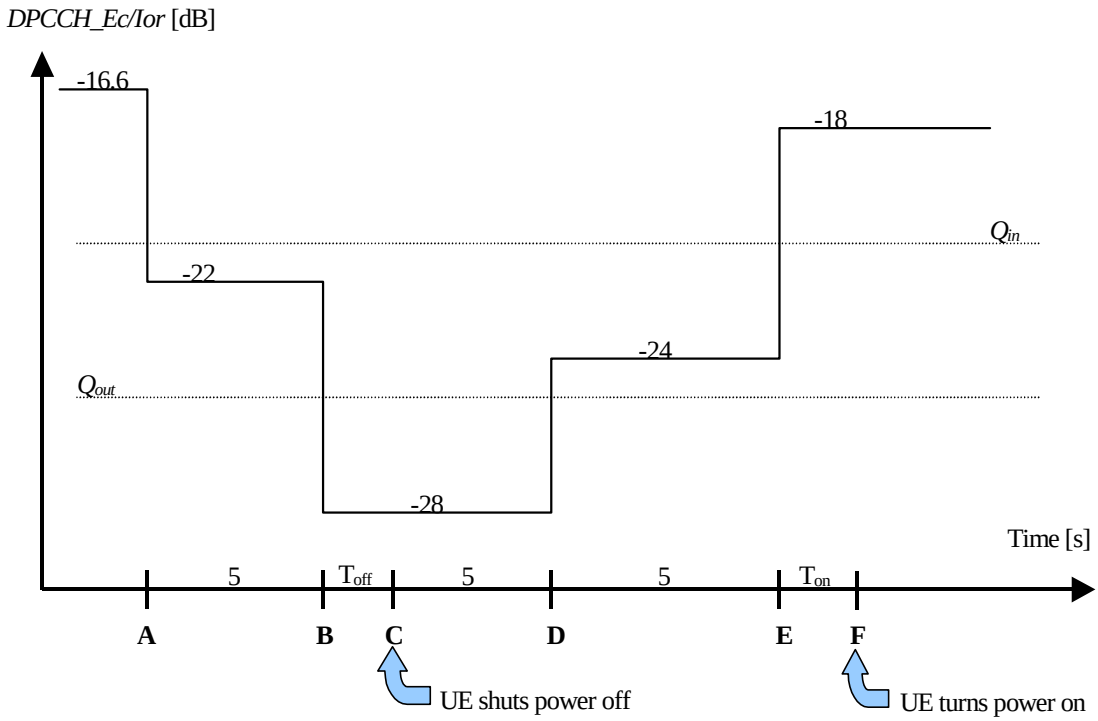

Figure 6.1: ~~Conditions~~ Test case for out-of-synch handling in the UE. ~~The indicated thresholds Q_{out} and Q_{in} are only informative~~

In this test case, ~~T~~the requirements for the UE are that:

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

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.

3GPP TSG-RAN Meeting #17
Gothenburg, Sweden, 21-25 May, 2001

Tdoc R4-010789

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **110** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

*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:	⌘	Out-of-synchronisation handling of output power
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	2001-05-30
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 present minimum requirement is narrowly defined to cover only one test case.
Summary of change:	⌘	A general minimum requirement is added and the previous test is given as a “test case” in a new section
Consequences if not approved:	⌘	The requirement will be ambiguous, since the spec would not define what the actual minimum requirement is other than for the specific test case.

Clauses affected:	⌘	6.4.4, 6.4.4.1, 6.4.4.2 and C.3.2		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	TS 34.121
Other comments:	⌘	Corresponds to the R99 CR in R4-010788.		

6.4.4 Out-of-synchronization handling of output power

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

The DPCCH quality shall be monitored in the UE and compared to the thresholds Q_{out} and Q_{in} for the purpose of monitoring synchronization. The threshold Q_{out} should correspond to a level of DPCCH quality where no reliable detection of the TPC commands transmitted on the downlink DPCCH can be made. This can be at a TPC command error ratio level of e.g. 30%. The threshold Q_{in} should correspond to a level of DPCCH quality where detection of the TPC commands transmitted on the downlink DPCCH is significantly more reliable than at Q_{out}. This can be at a TPC command error ratio level of e.g. 20%.

6.4.4.1 Minimum requirement

When the UE estimates the DPCCH quality over the last 160 ms period to be worse than a threshold Q_{out}, the UE shall shut its transmitter off within 40 ms. The UE shall not turn its transmitter on again until the DPCCH quality exceeds an acceptable level Q_{in}. When the UE estimates the DPCCH quality over the last 160 ms period to be better than a threshold Q_{in}, the UE shall again turn its transmitter on within 40 ms.

The UE transmitter shall be considered "off" if the transmitted power is below the level defined in subclause 6.5.1 (Transmit off power). Otherwise the transmitter shall be considered as "on".

6.4.4.2 Test case

This subclause specifies a test case, which provides additional information for how the minimum requirement should be interpreted for the purpose of conformance testing.

The quality levels at the thresholds Q_{out} and Q_{in} correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in Table 6.6, a signal with the quality at the level Q_{out} can be generated by a DPCCH Ec/Ior ratio of –25 dB, and a signal with Q_{in} by a DPCCH Ec/Ior ratio of –21 dB. The DL reference measurement channel (12.2) kbps specified in subclause A.3.1 and with static propagation conditions. The downlink physical channels, other than those specified in Table 6.6, are as specified in Table C.3 of Annex C.

Figure 6.1 shows an example scenario where the DPCCH Ec/Ior ratio varies from a level where the DPCH is demodulated under normal conditions, down to a level below Q_{out} where the UE shall shut its power off and then back up to a level above Q_{in} where the UE shall turn the power back on.

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

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

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

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

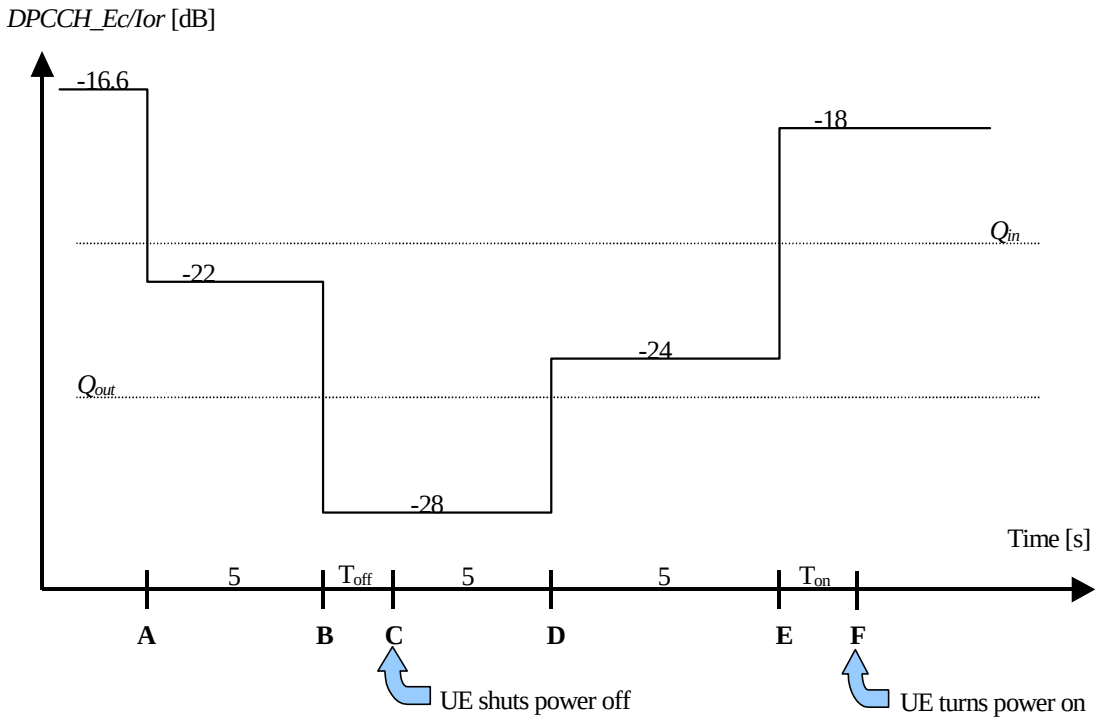

Figure 6.1: ~~Conditions~~ Test case for out-of-synch handling in the UE. ~~The indicated thresholds Q_{out} and Q_{in} are only informative~~

In this test case, ~~T~~the requirements for the UE are that:

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

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.

3GPP TSG RAN WG4 Meeting #17 R4-010747

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ 25.101 CR 111 ⌘ ev - ⌘ Current version: 3.6.0 ⌘

*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 limits for inner loop power control	
Source: ⌘	RAN WG4	
Work item code: ⌘	TEI	**Date:** ⌘ 24/05/01
Category: ⌘	F	**Release:** ⌘ R99

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: ⌘	It is unclear from the current requirements what the upper power threshold for inner loop power control should be.
Summary of change: ⌘	The inner loop power control requirements are applied over the actual operating range of the UE.
Consequences if not approved: ⌘	The test specification would have to not test behaviour above the minimum acceptable maximum power, which could leave up to several dB untested behaviour for UE that operate at the maximum power.

Clauses affected: ⌘	6.4.2		
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.

6.4 Output power dynamics

Power control is used to limit the interference level.

6.4.1 Open loop power control

Open loop power control is the ability of the UE transmitter to sets its output power to a specific value. The open loop power control tolerance is given in Table 6.3

6.4.1.1 Minimum requirement

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

Table 6.3: Open loop power control tolerance

Normal conditions	± 9 dB
Extreme conditions	± 12 dB

6.4.2 Inner loop power control in the uplink

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

6.4.2.1 Power control steps

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

6.4.2.1.1 Minimum requirement

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

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

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

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

Table 6.4: Transmitter power control range

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

Table 6.5: Transmitter average power control range

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

The UE shall meet the above requirements for inner loop power control over the power range bounded by the Minimum output power as defined in subclause 6.4.3, and the Maximum output power supported by the UE (i.e. the actual power as would be measured assuming no measurement error). This power shall be in the range specified for the power class of the UE in subclause 6.2.1.

3GPP TSG RAN WG4 Meeting #17 R4-010748

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ 25.101 CR 112 ⌘ ev - ⌘ Current version: 4.0.0 ⌘

*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 limits for inner loop power control	
Source: ⌘	RAN WG4	
Work item code: ⌘	TEI	**Date:** ⌘ 25/05/01
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: ⌘	It is unclear from the current requirements what the upper power threshold for inner loop power control should be.
Summary of change: ⌘	The inner loop power control requirements are applied over the actual operating range of the UE.
Consequences if not approved: ⌘	The test specification would have to not test behaviour above the minimum acceptable maximum power, which could leave up to several dB untested behaviour for UE that operate at the maximum power.

Clauses affected: ⌘	6.4.2		
Other specs affected: ⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	34.121
Other comments: ⌘	Copy of Rel99 CR in R4-010747		

How to create CRs using this form:

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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.

6.4 Output power dynamics

Power control is used to limit the interference level.

6.4.1 Open loop power control

Open loop power control is the ability of the UE transmitter to sets its output power to a specific value. The open loop power control tolerance is given in Table 6.3

6.4.1.1 Minimum requirement

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

Table 6.3: Open loop power control tolerance

Normal conditions	± 9 dB
Extreme conditions	± 12 dB

6.4.2 Inner loop power control in the uplink

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

6.4.2.1 Power control steps

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

6.4.2.1.1 Minimum requirement

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

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

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

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

Table 6.4: Transmitter power control range

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

Table 6.5: Transmitter average power control range

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

The UE shall meet the above requirements for inner loop power control over the power range bounded by the Minimum output power as defined in subclause 6.4.3, and the Maximum output power supported by the UE (i.e. the actual power as would be measured assuming no measurement error). This power shall be in the range specified for the power class of the UE in subclause 6.2.1.

3GPP TSG RAN WG4 Meeting #17 **R4-010751**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **113** ⌘ ev **-** ⌘ Current version: **3.6.0** ⌘

*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:	⌘	UE FDD EVM definition
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21.05.2001
Category:	⌘	**F**
Release:	⌘	R99

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 present definition of EVM is not correct and needs updating.
Summary of change:	⌘	The definition of EVM is updated to exclude errors due to frequency, phase, and amplitude, and to include a matched RRC filter in the measurement.
Consequences if not approved:	⌘	Ambiguity and errors in the EVM definition may lead to non-consistent measurement results.

Clauses affected:	⌘	6.8.2		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	TS 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.

6.8.2 Error Vector Magnitude

~~The Error Vector Magnitude is a measure of the difference between the measured waveform and the theoretical modulated waveform (the error vector). It is the square root of the ratio of the mean error vector power to the mean reference signal power expressed as a %. The measurement interval is one power control group (timeslot).~~

6.8.2 Error Vector Magnitude

The Error Vector Magnitude is a measure of the difference between the reference waveform and the measured waveform. This difference is called the error vector. Both waveforms pass through a matched Root Raised Cosine filter with bandwidth 3,84 MHz and roll-off α =0,22. Both waveforms are then further modified by selecting the frequency, absolute phase, absolute amplitude and chip clock timing so as to minimise the error vector. The EVM result is defined as the square root of the ratio of the mean error vector power to the mean reference power expressed as a %. The measurement interval is one timeslot

6.8.2.1 Minimum requirement

The Error Vector Magnitude shall not exceed 17.5 % for the parameters specified in Table 6.15.

Table 6.15: Parameters for Error Vector Magnitude/Peak Code Domain Error

Parameter	Unit	Level
UE Output Power	dBm	≥ –20
Operating conditions		Normal conditions
Power control step size	dB	1

3GPP TSG RAN WG4 Meeting #17 **R4-010752**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.101** **CR** **114** ⌘ ev **-** ⌘ Current version: **4.0.0** ⌘

*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:	⌘	UE FDD EVM definition
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	21.05.2001
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 present definition of EVM is not correct and needs updating.
Summary of change:	⌘	The definition of EVM is updated to exclude errors due to frequency, phase, and amplitude, and to include a matched RRC filter in the measurement.
Consequences if not approved:	⌘	Ambiguity and errors in the EVM definition may lead to non-consistent measurement results.

Clauses affected:	⌘	6.8.2		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	TS 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.

6.8.2 Error Vector Magnitude

~~The Error Vector Magnitude is a measure of the difference between the measured waveform and the theoretical modulated waveform (the error vector). It is the square root of the ratio of the mean error vector power to the mean reference signal power expressed as a %. The measurement interval is one power control group (timeslot).~~

6.8.2 Error Vector Magnitude

The Error Vector Magnitude is a measure of the difference between the reference waveform and the measured waveform. This difference is called the error vector. Both waveforms pass through a matched Root Raised Cosine filter with bandwidth 3,84 MHz and roll-off α=0,22. Both waveforms are then further modified by selecting the frequency, absolute phase, absolute amplitude and chip clock timing so as to minimise the error vector. The EVM result is defined as the square root of the ratio of the mean error vector power to the mean reference power expressed as a %. The measurement interval is one timeslot

6.8.2.1 Minimum requirement

The Error Vector Magnitude shall not exceed 17.5 % for the parameters specified in Table 6.15.

Table 6.15: Parameters for Error Vector Magnitude/Peak Code Domain Error

Parameter	Unit	Level
UE Output Power	dBm	≥ –20
Operating conditions		Normal conditions
Power control step size	dB	1

3GPP TSG RAN WG4 Meeting #17 R4-010715

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ 25.101 CR 115 ⌘ ev - ⌘ Current version: 3.6.0 ⌘

*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:	⌘	Modification to OCNS code channels to allow for 384 kbps allocation
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	24/05/01
Category:	⌘	F
Release:	⌘	R99

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:	⌘	There is insufficient space in the code domain fo the OCNS definition to add the 384 kbps RMC for certain tests
Summary of change:	⌘	Code channel 102 is change to 125
Consequences if not approved:	⌘	Testing with 384 kbps RMC and OCNS will not be possible

Clauses affected:	⌘	C.3.4		
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.

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. 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 Code, Timing offsets and relative level settings for OCNS signal.

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
1~~0~~25	61	-8
113	128	-6
119	143	0

Note: The DPCH Spreading Codes, Timing offsets and relative level settings are chosen for simulating a signal with realistic PAR.

Annex D (normative): Environmental conditions

D.1 General

This normative annex specifies the environmental requirements of the UE. Within these limits the requirements of the present documents shall be fulfilled.

D.2 Environmental requirements

The requirements in this clause apply to all types of UE(s).

D.2.1 Temperature

The UE shall fulfil all the requirements in the full temperature range of:

Table D.1

+15°C to +35°C	for normal conditions (with relative humidity of 25 % to 75 %)
-10°C to +55°C	for extreme conditions (see IEC publications 68-2-1 and 68-2-2)

Outside this temperature range the UE, if powered on, shall not make ineffective use of the radio frequency spectrum. In no case shall the UE exceed the transmitted levels as defined in TS 25.101 for extreme operation.

D.2.2 Voltage

The UE shall fulfil all the requirements in the full voltage range, i.e. the voltage range between the extreme voltages.

The manufacturer shall declare the lower and higher extreme voltages and the approximate shutdown voltage. For the equipment that can be operated from one or more of the power sources listed below, the lower extreme voltage shall not be higher, and the higher extreme voltage shall not be lower than that specified below.

Table D.2

Power source	Lower extreme voltage	Higher extreme voltage	Normal conditions voltage
AC mains	0,9 * nominal	1,1 * nominal	nominal
Regulated lead acid battery	0,9 * nominal	1,3 * nominal	1,1 * nominal
Non regulated batteries: Leclanché / lithium Mercury/nickel & cadmium	 0,85 * nominal 0,90 * nominal	 Nominal Nominal	 Nominal Nominal

Outside this voltage range the UE if powered on, shall not make ineffective use of the radio frequency spectrum. In no case shall the UE exceed the transmitted levels as defined in TS 25.101 for extreme operation. In particular, the UE shall inhibit all RF transmissions when the power supply voltage is below the manufacturer declared shutdown voltage.

D.2.3 Vibration

The UE shall fulfil all the requirements when vibrated at the following frequency/amplitudes.

Table D.3

Frequency	ASD (Acceleration Spectral Density) random vibration
5 Hz to 20 Hz	0,96 m^2/s^3
20 Hz to 500 Hz	0,96 m^2/s^3 at 20 Hz, thereafter –3 dB/Octave

Outside the specified frequency range the UE, if powered on, shall not make ineffective use of the radio frequency spectrum. In no case shall the UE exceed the transmitted levels as defined in TS 25.101 for extreme operation

Annex F (informative): UE capabilities (FDD)

This annex provides the UE capabilities related to TS 25.101.

NOTES:

This annex shall be aligned with TR25.926, UE Radio Access Capabilities regarding FDD RF parameters. These RF UE Radio Access capabilities represent options in the UE, that require signalling to the network.

In addition there are options in the UE that do not require any signalling. They are designated as UE baseline capabilities, according to TR 21.904, Terminal Capability Requirements.

Table F.1 provides the list of UE radio access capability parameters and possible values for TS 25.101.

Table F.1: RF UE Radio Access Capabilities

	UE radio access capability parameter	**Value range**
FDD RF parameters	UE power class (TS 25.101, subclause 6.2.1)	3, 4
	Tx/Rx frequency separation for frequency band a) (TS 25.101, subclause 5.3) Not applicable if UE is not operating in frequency band a)	190 MHz, 174.8-205.2 MHz, 134.8-245.2 MHz

Table F.2 provides the UE baseline implementation capabilities for TS 25.101.

Table F.2: UE RF Baseline Implementation Capabilities

UE implementation capability	**Value range**
Radio frequency bands (25.101 subclause 5.2)	a), b), a+b)

Annex G (informative): Change history

Table G.1: Inclusion of CRs approved by TSG-RAN#6.

RAN Doc	Spec	CR	R	Ph	Subject	Cat	Curr	New
RP-99772	25.101	001	2	R99	Correction of UE Measurement Channels Rev.2	F	3.0.0	3.1.0
RP-99772	25.101	003		R99	Modifications for Receiver Characteristics	F	3.0.0	3.1.0
RP-99772	25.101	004		R99	Corrections to Tx Diversity testing assumptions	F	3.0.0	3.1.0
RP-99771	25.101	005		R99	UE DL performance requirements	D	3.0.0	3.1.0
RP-99772	25.101	006	1	R99	Corrections to Annex C Down link Physical Channels	F	3.0.0	3.1.0
RP-99772	25.101	007		R99	Proposal for ACLR/ACS specifications for class 3	F	3.0.0	3.1.0
RP-99773	25.101	008		R99	Addition of propagation condition to inner and outer loop PC tests in downlink	B	3.0.0	3.1.0
RP-99772	25.101	009		R99	Clarification of Uplink inner loop power control requirements	C	3.0.0	3.1.0
RP-99773	25.101	010		R99	Modifications to demodulation test parameters and requirements in inter-cell soft handover	B	3.0.0	3.1.0
RP-99772	25.101	011		R99	Power setting of DPCH	C	3.0.0	3.1.0
RP-99771	25.101	012		R99	Editorial changes to 25.101v3.0.0	D	3.0.0	3.1.0
RP-99826	25.101	013		R99	Update of UE RF capabilities	F	3.0.0	3.1.0
RP-99772	25.101	014		R99	Update of ITU Region 2 Specific Specifications and proposed universal channel numbering	C	3.0.0	3.1.0
RP-99772	25.101	015		R99	Performance requirements for demodulation of DCH in Site Selection Diversity Transmission mode for Subclause 8.6.3 of 25.101v3.0.0	F	3.0.0	3.1.0
RP-99830	25.101	016	1	R99	Change of propagation conditions	F	3.0.0	3.1.0
RP-99772	25.101	017		R99	CR for minimum requirements for UE power class 1 and 2 in 25.101	F	3.0.0	3.1.0
RP-99772	25.101	018		R99	Downlink Inner loop power control	C	3.0.0	3.1.0
RP-99773	25.101	019		R99	Performance requirements in downlink compressed mode	B	3.0.0	3.1.0

Table G.2: Inclusion of CRs approved by TSG-RAN#7.

RAN Doc	Spec	CR	R	Ph	Subject	Cat	Curr	New
RP-000015	25.101	020		R99	Clarifications to measurement channels	F	3.1.0	3.2.0
RP-000015	25.101	021		R99	Power measurement definitions for wanted signal (in-channel signal)	D	3.1.0	3.2.0
RP-000015	25.101	022		R99	Change of propagation conditions for Case 2	F	3.1.0	3.2.0
RP-000015	25.101	023		R99	Editorial corrections	D	3.1.0	3.2.0
RP-000015	25.101	024		R99	Birth-Death tap delays	F	3.1.0	3.2.0
RP-000015	25.101	025		R99	Out-of-synchronization handling of the UE	C	3.1.0	3.2.0
RP-000015	25.101	026		R99	UE Modulation performance requirements	F	3.1.0	3.2.0
RP-000015	25.101	027		R99	Measurement channel for UE PCDE test	F	3.1.0	3.2.0
RP-000015	25.101	028		R99	CR for performance requirement of BTFD	F	3.1.0	3.2.0
RP-000015	25.101	029		R99	CPCH	B	3.1.0	3.2.0
RP-000015	25.101	030		R99	Clarification of ACLR	D	3.1.0	3.2.0
RP-000015	25.101	031		R99	Correction for reference measurement channel in TS 25.101	F	3.1.0	3.2.0
RP-000015	25.101	032		R99	Modifications to requirements for power control steps in uplink	F	3.1.0	3.2.0
RP-000015	25.101	033		R99	Performance requirement	F	3.1.0	3.2.0
RP-000015	25.101	034		R99	Power Control in downlink, constant BLER target	F	3.1.0	3.2.0
RP-000015	25.101	035		R99	UE Minimum TX power change	F	3.1.0	3.2.0
RP-000015	25.101	036		R99	Performance requirements for demodulation of DCH in Site Selection Diversity Transmission mode	F	3.1.0	3.2.0
RP-000015	25.101	037		R99	Reference compressed mode patterns	F	3.1.0	3.2.0
RP-000015	25.101	038		R99	384kbps measurement channel is replaced with 10ms TTI	F	3.1.0	3.2.0
RP-000015	25.101	039		R99	Modification to the handling of measurement equipment uncertainty	F	3.1.0	3.2.0
					Correction to figure A6		3.2.0	3.2.1
					Correction to version number in title/header (April 2000)		3.2.1	3.2.2

Table G.3: Inclusion of CRs approved by TSG-RAN#8.

RAN Doc	Spec	CR	R	Ph	Subject	Cat	Curr	New
RP-000204	25.101	040	1	R99	A test for UE's SIR target setting in a call set up	F	3.2.2	3.3.0
RP-000204	25.101	041	1	R99	Reception of TPC commands in a soft handover	F	3.2.2	3.3.0
RP-000204	25.101	042		R99	DCH requirement for 64 kbps measurement channel in birth-death propagation condition	F	3.2.2	3.3.0
RP-000204	25.101	043		R99	Power control in the downlink, constant BLER target	F	3.2.2	3.3.0
RP-000204	25.101	044		R99	Value update for 384 kbps measurement channel requirements	F	3.2.2	3.3.0
RP-000204	25.101	045	1	R99	CR for demodulation of DCH	F	3.2.2	3.3.0
RP-000204	25.101	046		R99	Correction for measurement channel in TS 25.101	F	3.2.2	3.3.0
RP-000204	25.101	047		R99	Editorial CR on section 8.6.3 of TS25.101 v3.2.0	D	3.2.2	3.3.0
RP-000204	25.101	048		R99	Correction of frequency numbering scheme	F	3.2.2	3.3.0
RP-000204	25.101	049		R99	Correction - Propagation conditions	F	3.2.2	3.3.0
RP-000204	25.101	050		R99	Compressed mode tests	F	3.2.2	3.3.0
RP-000204	25.101	051		R99	Correction of Out-of-sync criteria	F	3.2.2	3.3.0
RP-000204	25.101	052		R99	Editorial corrections for TS25.101.	F	3.2.2	3.3.0
RP-000204	25.101	053		R99	Clarification of the specification on Peak Code Domain Error (PCDE)	F	3.2.2	3.3.0
RP-000204	25.101	054		R99	Transients for uplink power steps	F	3.2.2	3.3.0
RP-000204	25.101	055		R99	Power setting for uplink compressed mode and RACH preambles	F	3.2.2	3.3.0
RP-000204	25.101	056		R99	UE interfering signal definition	F	3.2.2	3.3.0
RP-000204	25.101	057		R99	Downlink Power Control, wind up effects	F	3.2.2	3.3.0
RP-000204	25.101	058		R99	Use of P-CPICH and S-CPICH for performance requirements	F	3.2.2	3.3.0
RP-000204	25.101	059		R99	Performance of Closed Loop Diversity mode 2 and Mode 1	F	3.2.2	3.3.0
RP-000204	25.101	060		R99	Removal of brackets from Inter-Cell SHO test case	F	3.2.2	3.3.0
RP-000204	25.101	061		R99	Editorial corrections on moving propagation conditions	F	3.2.2	3.3.0
					Correct page numbering problem and other minor editorials		3.3.0	3.3.1

Table G.4: Inclusion of CRs approved by TSG-RAN#9.

RAN Doc	Spec	CR	R	Ph	Subject	Cat	Curr	New
RP-000394	25.101	71		R99	Downlink power control, wind up effects	F	3.3.1	3.4.0
RP-000394	25.101	72		R99	Inclusion of OCNS definition for performance tests	F	3.3.1	3.4.0
RP-000394	25.101	63		R99	Corrections to DL compressed mode tests in TS 25.101	F	3.3.1	3.4.0
RP-000394	25.101	64		R99	Combining of TPC commands in soft handover	F	3.3.1	3.4.0
RP-000394	25.101	65		R99	Clarifications for power steps in RACH/CPCH message transmission	F	3.3.1	3.4.0
RP-000394	25.101	66		R99	Editorial corrections for TS 25.101	F	3.3.1	3.4.0
RP-000394	25.101	67		R99	Corrections to power control	F	3.3.1	3.4.0
RP-000394	25.101	68		R99	Corrections for compressed mode patterns	F	3.3.1	3.4.0
RP-000394	25.101	69		R99	Editorial modification for BTFD measurement channels	F	3.3.1	3.4.0
RP-000394	25.101	75		R99	Editorial modification to Annex A.5 of TS 25.101	F	3.3.1	3.4.0
RP-000394	25.101	76		R99	Tap magnitudes and phases for Birth-Death propagation conditions	F	3.3.1	3.4.0
RP-000394	25.101	73		R99	Removal of confidence levels	F	3.3.1	3.4.0
RP-000394	25.101	74		R99	Corrections to all tests with power control ON in TS 25.101	F	3.3.1	3.4.0
RP-000394	25.101	70		R99	Definition of period for frequency error	F	3.3.1	3.4.0
RP-000394	25.101	77		R99	UE emission mask measurement filter definition correction for TS 25.101	F	3.3.1	3.4.0
RP-000394	25.101	78		R99	Handling of measurement uncertainties in UE radio conformance testing (FDD)	F	3.3.1	3.4.0
					Re-inclusion of reference [4] which had been accidentally deleted.		3.4.0	3.4.1

Table G.5: CRs approved at RAN#10

RAN Doc	Spec	CR	R	Ph	Subject	Cat	Curr	New
R4-000885	25.101	79		R99	Proposed CR to TS 25.101 on subclause 7.8 RX Intermodulation	F	3.4.1	3.5.0
R4-000901	25.101	80		R99	Corrections to DL compressed mode tests in TS 25.101	F	3.4.1	3.5.0
R4-000902	25.101	81		R99	Correction to DL 384 kbps and BTFD measurement channels	F	3.4.1	3.5.0
R4-000917	25.101	82		R99	Compressed mode, proposal for specification	F	3.4.1	3.5.0
R4-000973	25.101	82		R99	RX spurious emissions	F	3.4.1	3.5.0
R4-000982	25.101	84		R99	Correction for 25.101 concerning the channel number calculation	F	3.4.1	3.5.0
R4-000990	25.101	85		R99	Definition of multi-code OCNS signal for receiver and performance tests	F	3.4.1	3.5.0

Table G.6: CRs approved at RAN#11

RAN Doc	Spec	CR	R	Ph	Subject	Cat	Curr	New
RP-010085	25.101	86		R99	CR to 25.101 for Test Tolerances	F	3.5.0	3.6.0
RP-010085	25.101	87		R99	Proposed CR to TS 25.101 on subclause 3.2 Abbreviations	F	3.5.0	3.6.0
RP-010085	25.101	88		R99	Correction of version number of the ITU-R Recommendation SM.329	F	3.5.0	3.6.0
RP-010085	25.101	89		R99	REL 99 Corrections	F	3.5.0	3.6.0
RP-010085	25.101	90		R99	Tx power during measurement on Rx characteristics	F	3.5.0	3.6.0
RP-010085	25.101	91		R99	Removal of square brackets and TBDs from TS 25.101	F	3.5.0	3.6.0
RP-010085	25.101	92		R99	Correction of Definition of multi-code OCNS signal	F	3.5.0	3.6.0
RP-010085	25.101	93		R99	Performance requirement for 250km/h	F	3.5.0	3.6.0
RP-010085	25.101	94		R99	TS25.101 Rel 99 Clarification of UARFCN (channel number)	F	3.5.0	3.6.0

3GPP TSG RAN WG4 Meeting #17 R4-010781

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v4

CHANGE REQUEST

⌘ 25.101 CR 116 ⌘ ev - ⌘ Current version: 4.0.0 ⌘

*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:	⌘	Modification to OCNS code channels to allow for 384 kbps allocation
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	25/05/01
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:	⌘	There is insufficient space in the code domain fo the OCNS definition to add the 384 kbps RMC for certain tests
Summary of change:	⌘	Code channel 102 is change to 125
Consequences if not approved:	⌘	Testing with 384 kbps RMC and OCNS will not be possible

Clauses affected:	⌘	C.3.4		
Other specs affected:	⌘	[ ] Other core specifications [X] Test specifications [ ] O&M Specifications	⌘	34.121
Other comments:	⌘	Corresponds to Rel99 CR in R4-010715		

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.

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. 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 Code, Timing offsets and relative level settings for OCNS signal.

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
1025	61	-8
113	128	-6
119	143	0

Note: The DPCH Spreading Codes, Timing offsets and relative level settings are chosen for simulating a signal with realistic PAR.

3GPP TSG RAN WG4 Meeting #17 **R4-010526**

Gothenburg, Sweden 21st - 25th May 2001

CR-Form-v3

CHANGE REQUEST

⌘ **25.101** **CR** **99** ⌘ rev **-** ⌘ Current version: **3.6.0** ⌘

*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 for SSDT test parameters
Source:	⌘	RAN WG4
Work item code:	⌘	TEI
Date:	⌘	17 May 2001
Category:	⌘	**F**
Release:	⌘	R99

Use one of the following categories:
- ***F*** *(essential 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:	⌘	Current test case on SSDT specify a feedback error rate as FBI bit error rate (4%). However current requirements have originally been derived using the code word error ratio of 1% in uplink instead of assuming 4% FBI bit error rate. Furthermore, since the FBI decoding algorithm is not specified for a tester, the output of the test measurement depends on a tester used in a test. In order to avoid this problem, code word error ratio in uplink should be specified instead of specifying FBI bit error rates.
Summary of change:	⌘	A parameter FBI bit error ratio (4%) in uplink has been replaced with code word error ratio (1%). A clarifying note have been modified explaining that code word errors are introduced independently in both uplink channels.
Consequences if not approved:	⌘	Current minimum requirements are dependent on a capability of a tester.

Clauses affected:	⌘	8.6.3		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	34.121
Other comments:	⌘			

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

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

8.6.3.1 Minimum requirements

The downlink physical channels and their relative power to Ior are the same as those specified in clause C.3.2 irrespective of Node Bs and the test cases. DPCH_Ec/Ior value applies whenever DPDCH in the cell is transmitted. In Test 1 and Test 3, the received powers at UE from two Node Bs are the same, while 3dB offset is given to one that comes from one of Node Bs for Test 2 and Test 4 as specified in Table 8.23.

For the parameters specified in Table 8.23 the average downlink $\frac{DPCH\_E_c}{I_{or}}$ power shall be below the specified value for the BLER shown in Table 8.24.

Table 8.23: DCH parameters in multi-path propagation conditions during SSDT mode (Propagation condition: Case 1)

Parameter	Unit	Test 1	Test 2	Test 3	Test 4
Phase reference		P-CPICH			
$\hat{I}_{or1}/I_{oc}$	dB	0	-3	0	0
$\hat{I}_{or2}/I_{oc}$	dB	0	0	0	-3
I_{oc}	dBm/3.84 MHz	-60			
Information Data Rate	kbps	12.2	12.2	12.2	12.2
Cell ID code word error ratio in uplink~~Feedback error rate~~*	%	14	14	14	14
Number of FBI bits assigned to "S" Field		1	1	2	2
Code word Set		Long	Long	Short	Short

NOTE: The code word errors are introduced independently in both uplink channels.~~Feedback error rate is defined as FBI bit error rate~~

Table 8.24: DCH requirements in multi-path propagation conditions during SSDT Mode

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