Source: **T1**

Title: **CR's to TS 34.122 v3.2.0 for approval**

Agenda item: **6.1**

Document for: **Approval**

This document contains 24 CRs to TS 34.122 v3.2.0. These CRs have been agreed by T1 and are put forward to TSG T for approval.

CRs due to the test tolerance issue:

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level
34.122	009		R99	Test tolerance for 5.7.1 TDD EVM	F	3.2.0	3.3.0	T1-010048
34.122	010		R99	Test tolerance for 5.7.2 TDD PCDE	F	3.2.0	3.3.0	T1-010049
34.122	011		R99	Test tolerance for 5.2 Maximum Output Power test case	F	3.2.0	3.3.0	T1-010050
34.122	012		R99	Test tolerance for 5.3 Frequency Stability	F	3.2.0	3.3.0	T1-010051
34.122	013		R99	Test tolerance for 5.4.2 Minimum Transmit Output Power	F	3.2.0	3.3.0	T1-010052
34.122	014		R99	Test Tolerance for 5.4.3 Transmit OFF power	F	3.2.0	3.3.0	T1-010053
34.122	015		R99	Test tolerance for 5.4.5 Out-of-synchronisation handling of output power	F	3.2.0	3.3.0	T1-010054
34.122	016		R99	Test tolerance for 5.5.1 Occupied Bandwidth	F	3.2.0	3.3.0	T1-010055
34.122	017		R99	Test tolerance for 5.5.2.1 Spectrum Emission Mask	F	3.2.0	3.3.0	T1-010056
34.122	018		R99	Test tolerance for 5.5.2.2 ACLR test case	F	3.2.0	3.3.0	T1-010057
34.122	019		R99	Test Tolerance for 5.5.3 Spurious emissions	F	3.2.0	3.3.0	T1-010058
34.122	020		R99	Test Tolerance for 5.6 Transmit Intermodulation	F	3.2.0	3.3.0	T1-010059
34.122	021		R99	Test Tolerance for 6.2 Reference Sensitivity Level	F	3.2.0	3.3.0	T1-010060
34.122	022		R99	Test Tolerance for 6.4 Adjacent Channel Selectivity	F	3.2.0	3.3.0	T1-010061
34.122	023		R99	Test tolerances to 6.5 Blocking Characteristics	F	3.2.0	3.3.0	T1-010062
34.122	024		R99	Test tolerances to 6.6 Spurious Response	F	3.2.0	3.3.0	T1-010063
34.122	025		R99	Test tolerances to 6.7 Intermodulation Characteristics	F	3.2.0	3.3.0	T1-010064
34.122	026		R99	Test Tolerance for 6.5 RX Spurious Emissions	F	3.2.0	3.3.0	T1-010065
34.122	027		R99	Test tolerance for Annex F in TS34.122	F	3.2.0	3.3.0	T1-010068

CRs with routine updates:

Spec	CR	Rev	Phase	Subject	Cat	Version-Current	Version-New	Doc-2nd-Level
34.122	028		R99	Correction concerning the coexistence of TDD and FDD in the same band	F	3.2.0	3.3.0	T1-010045
34.122	029		R99	Clarification of the mentioned parameter alpha	F	3.2.0	3.3.0	T1-010046
34.122	030		R99	Correction concerning the channel number calculation	F	3.2.0	3.3.0	T1-010047
34.122	031		R99	Correction concerning UE maximum output power classes	F	3.2.0	3.3.0	T1-010066
34.122	032		R99	Correction of Out-of-Sync criteria	F	3.2.0	3.3.0	T1-010067

CHANGE REQUEST

⌘ **34.122** **CR** 028 ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

*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 concerning the coexistence of TDD and FDD in the same band following RAN4 CR37**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	TDD and FDD in the same band is not supported in release 99.
Summary of change:	⌘	Deletion of the final sentence in 4.2.
Consequences if not approved:	⌘	Specification is self-inconsistent

Clauses affected:	⌘	4.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

4.2 Frequency bands

UTRA/TDD is designed to operate in the following bands;

a) 1900 – 1920 MHz: Uplink and downlink transmission
   2010 – 2025 MHz Uplink and downlink transmission

b)* 1850 – 1910 MHz: Uplink and downlink transmission
   1930 – 1990 MHz: Uplink and downlink transmission

c)* 1910 – 1930 MHz: Uplink and downlink transmission

* Used in ITU Region 2.

Additional allocations in ITU region 2 are for further study.
Deployment in existing or other frequency bands is not precluded.
~~The co-existence of TDD and FDD in the same bands is still under study in RAN WG4.~~

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CHANGE REQUEST

⌘ **34.122** **CR** **029** ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

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

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

Title:	⌘	Clarification of the mentioned parameter α following RAN 4 CR 39
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ -2001-02-02
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:	⌘	Clarification of the definition of parameter α
Summary of change:	⌘	Avoidance of irritation with roll off α
Consequences if not approved:	⌘	Could lead to problems in implementation

Clauses affected:	⌘	5.4.1; 5.4.1.2.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

5.4.1 Uplink power control

Uplink power control is the ability of the UE transmitter to sets its output power in accordance with measured downlink path loss, values determined by higher layer signalling and path loss weighting parameter α as defined in TS 25.331 [9]. The output power is defined as the average power of the transmit timeslot, and 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.

5.4.1.1 Initial accuracy

5.4.1.1.1 Definition and applicability

Initial Uplink power control is the ability of the UE transmitter to sets its output power in accordance with measured downlink path loss, and signalling values: I_{BTS} and Constant value, received from the BCH and applicable for the PRACH
The requirements and this test apply to all types of UTRA - UEs.

5.4.1.1.2 Conformance requirements

The UE power control, initial accuracy, is given in Table 5.4.1.1.2.

Table 5.4.1.1.2: Initial uplink power control tolerance

Normal conditions	± 9 dB
Extreme conditions	± 12 dB

The reference for this requirement is [1] TS 25.102 clause 6.4.1.1.

5.4.1.1.3 Test purpose

The power of the received signal at the UE and the BCCH information control the power of the transmitted UE signal with the target to transmit at lowest power, acceptable for proper communication.
The test stresses the ability of the receiver to measure the received power over the receiver dynamic range and to derive from this correct transmitter-power

5.4.1.1.4 Method of test

5.4.1.1.4.1 Initial conditions

Connect the SS to the MS antenna connector as shown in Figure A.1.
A call is set up according to the generic call setup procedure [3] using parameters as specified in Table 5.4.1.1.4.
The RACH procedure within the call setup is used for the test.

Table 5.4.1.1.4: Test parameters for uplink Power Control

	RX-Upper dynamic end	RX-middle	RX-Sensitivity level
SS transmit power	-25 dBm/3.84 MHz	-65 dBm/3.84 MHz	-105 dBm/3.84 MHz
Broadcasted transmit-power CCPCH	35 dBm	35 dBm	24 dBm
Simulated path loss = Broadcasted TX – SS TX Power	60 dB	100 dB	129 dB
I_{BTS} (UL interference)	-75 dBm	-100 dBm	-110 dBm
Constant value	-10 dB	-10 dB	-10 dB
Nominal expected UE TX power	-25 dBm	-10 dBm	+9 dBm[2)]

Note 1: While the SS transmit power shall cover the UE receiver input dynamic range, the logical parameters: broadcasted transmit power, I_{BTS}, and RACH constant value are chosen to achieve a UE TX power, located within the TX output power dynamic range of a class 3 UE.

Note 2: Nominal TX output power 9 dBm allows to check the uplink power control algorithm within the entire tolerance range (9 dBm +-12 dB: 9 dBm +12 dB =21 dBm = max power class 3).

5.4.1.1.4.2 Procedure

1) Set the SS transmit power according to table 5.4.1.1.4.
2) Measure the RACH output power of the UE according to Annex B.
3) Repeat the test for all SS transmit powers and parameters in table 5.4.1.1.4.

5.4.1.1.5 Test requirements

The deviation with respect to the nominal expected UE TX power (table 5.4.1.1.2.) , derived in step 2, shall not exceed the prescribed tolerance in Table 5.4.1.1.2.

5.4.1.2 Differential accuracy, controlled input

5.4.1.2.1 Definition and applicability

Uplink power control, differential accuracy, is the ability of the UE transmitter to sets its output power in accordance with measured downlink path loss, and the signalling values: I_{BTS}, SIR_{Target}, Constant Value, received from higher layers and applicable for the DPCH.
Specifically, the uplink power control, differential accuracy, controlled input, is defined as the error in the UE transmitter power step as a result of a step in SIR_{TARGET} when the path loss weighting parameter $\alpha=0$, α calculated in the UE.

CR-Form-v3

CHANGE REQUEST

⌘ **34.122** **CR** **030** ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

*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:	⌘	Correction concerning the channel number calculation following RAN4 CR 40
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	Obvious error in the calculation formula for the channel number
Summary of change:	⌘	Deletion of the unit MHz
Consequences if not approved:	⌘	Incorrect channel number

Clauses affected:	⌘	4.4.3
Other specs Affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

4.4 Channel arrangement

4.4.1 Channel spacing

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

4.4.2 Channel raster

The channel raster is 200 kHz, which means that the carrier frequency must be a multiple of 200 kHz.

4.4.3 Channel number

The carrier frequency is designated by the UTRA absolute radio frequency channel number (UARFCN). The value of the UARFCN in the IMT2000 band is defined as follows:

$N_t = 5 * (F - \text{MHz})$ 0.0 MHz ≤ F ≤ 3276.6 MHz where F is the carrier frequency in MHz

CR-Form-v3

CHANGE REQUEST

⌘ **TS 34.122 CR 009** ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

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

Title:	⌘	Test tolerance for 5.7.1 TDD EVM
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-06
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:	⌘	Test tolerance should be introduced into this test case.
Summary of change:	⌘	- Introduce test tolerance into the test requirements - Change the terminology, from "conformance requirements" to "minimum requirements". - Level-unit sequence inverted
Consequences if not approved:	⌘	Test tolerance is not applied to this test case.

Clauses affected:	⌘	5.7.1
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	This CR is the revision of the CR draft in T1R010053

5.7.1 Error Vector Magnitude

5.7.1.1 Definition and applicability

The Error Vector Magnitude (EVM) 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 timeslot.

The requirement of this subclause shall apply to all types of UTRA-UE.

5.7.1.2 ~~Conformance~~ Minimum R~~r~~equirements

The Error Vector Magnitude shall not exceed 17.5 % for the parameters specified in Table 5.7.2.1.

Table 5.7.1.2 ~~2.1~~.: Test parameters for Error Vector Magnitude/Peak Code Domain Error

Parameter	~~Unit~~ Level	~~Level~~ Unit
UE Output Power	~~DBm~~ ≥-20	≥ ~~-20~~ dBm
Operating conditions	Normal conditions	~~Normal conditions~~
Power control step size	~~DB~~ 1	~~1~~ dB

The normative reference for this requirement is TS 25.102 [1] subclause 6.8.2.

5.7.1.3 Test purpose

The transmitter shall generate a sufficient precise waveform, to enable the receiver to achieve the specified receiver performances.

5.7.1.4 Method of test

5.7.1.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.1.
2) A call is set up according to the generic call setup procedure using parameters as specified in table E.3.1.2.
3) Enter the UE into loopback test mode and start the loopback test.

5.7.1.4.2 Procedure

1) Starting from the initial conditions, measure EVM (Error Vector Magnitude) of the UE according to annex B.
2) Set SS-level and signalling values such that the power level of the UE is between –20 and –19 dBm
3) Measure EVM of the UE according to annex B.

5.7.1.5 Test requirements

The results in step 1) and 2) shall not exceed 17.5% ~~the predescribed tolerance in 5.7.1.2.~~ for parameters specified in table 5.7.1.2.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

CR-Form-v3

CHANGE REQUEST

⌘ **TS 34.122 CR 010** ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

*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:	⌘	Test tolerance for 5.7.2 TDD PCDE in TS34.122
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-06
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:	⌘	Test tolerance should be introduced into this test case.
Summary of change:	⌘	- Introduce test tolerance into the test requirements - Change the terminology, from "conformance requirements" to "minimum requirements".
Consequences if not approved:	⌘	Test tolerance is not applied to this test case.

Clauses affected:	⌘	5.7.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	This CR is the revision of the CR draft in T1R010053

5.7.2 Peak code domain error

5.7.2.1 Definition and applicability

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

This specification is applicable for multi-code transmission only.

The requirement of this test applies to all UTRA-UE, applicable for multi-code transmission.

5.7.2.2 ~~Conformance~~ Minimum Requirement

The peak code domain error shall not exceed -21dB at spreading factor 16.

The normative reference for this requirement is TS 25.102 [1] subclause 6.8.3.1.

5.7.2.3 Test purpose

It is the purpose of this test to limit crosstalk among codes.

5.7.2.4 Method of test

5.7.2.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.1.
2) A call is set up according to the generic call setup procedure using parameters as specified in table 5.7.2.4.1.
3) Enter the UE into loopback test mode and start the loopback test.

Table 5.7.2.4.1: Test parameters for Peak code Domain Error

Parameter	Value/description
Reference measurement channel	Multicode 12.2kbps, according to annex C.2.2
Uplink Power Control	SS level and signalling values such that UE transmits maximum power
Data content	real life (sufficient irregular)

5.7.2.4.2 Procedure

1) Starting from the initial conditions, measure peak code error(PCDE)of the UE according to annex B.
2) Set SS-level and signalling values such that the power level of the UE is between –20 and –19 dBm
3) Measure PCDE of the UE according to annex B.

5.7.2.5 Test requirements

The results in step 1) and 2) shall nor exceed –20 dB ~~the predescribed tolerance in 5.7.2.2~~. for parameters specified in table 5.7.1.2.

Note: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

CR-Form-v3

CHANGE REQUEST

⌘	34.122	CR	011	⌘	rev	-	⌘	Current version:	3.2.0 see other comments below	⌘

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

Title:	⌘	**Test tolerance for 5.2 Maximum Output Power test case**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	.Test tolerance shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 5.2.2 Incorporation of test tolerances in 5.2.5
Consequences if not approved:	⌘	missing test tolerances

Clauses affected:	⌘	5.4.5		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
Other comments:	⌘	Pay attention, when incorporating this CR into 34.122: This CR deals with the same subclause as the CR in T1R010058r1		

5.2 User Equipment maximum output power

5.2.1 Definition and applicability

The maximum output power and its tolerance are defined according to the Power Class of the UE.

The **output power**, Pout, of the UE is the power when averaged (in the sense of thermal power) over the useful part of the TS at the maximum power control setting delivered in to a load with resistance equal to the nominal load impedance.

The requirements in this test apply to all UTRA – TDD- UEs

Notes copied from TS 25.102 clause 6.2.1 :

1. The maximum output power refers to.....
2. For multi-code operation the maximum output power will be reduced by the difference of peak to average ratio between single and multi-code transmission.
3. The tolerance of the maximum power is below the prescribed value even at the multi-code transmission mode
4. For UE using directive antennas for transmission, a class dependent limit will be placed on the maximum EIRP (Equivalent Isotropic Radiated Power).

5.2.2 ~~Conformance~~ Minimum R~~r~~equirements

The error of the UE maximum output power shall not exceed the tolerance shown in Tables 5.2.2 a and b for single and multi-code.

Table 5.2.2.a: Maximum Output Power single code

Power Class	Maximum output power	Tolerance
1		
2	+24 dBm	+1dB /-3dB
3	+21 dBm	+2dB /-2dB
4		

Table 5.2.2.b: Maximum Output Power multi code

Power Class	Maximum output power	Tolerance
1		
2	[21 [1)]] dBm	+1dB /-3dB
3	[18 [1)]] dBm	+2dB /-2dB
4		

Note 1: These figures are not mentioned in 25.102. Instead there is a note, saying:
"For multi-code operation the maximum output power will be reduced by the difference of peak to average ratio between single and multi-code transmission."
The figures are calculated from maximum output power single code (table 5.2.2.a) and UL multicode reference measurement channel (12.2 kbit/s)(annec C.2.2.) containing two code signals with equal level.

The normative reference for this requirement is 25.102 clause 6.2.

5.2.3 Test purpose

For the following reasons:

Limit interference.

Verify that the maximum output power is achievable.

It is the purpose of the test to verify that the UE's maximum output power is within its tolerance limits under all environmental conditions.

5.2.4 Method of test

5.2.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.1.

2) Calls are set up according to the Generic call setup procedure using parameters as specified in Tables 5.2.4.a and b

3) Enter the UE into loopback test mode and start the loopback test.

Table 5.2.4.a: Test parameters for Maximum Output Power single code

Parameter	Value/description
UL Reference measurement channel	12.2kbps, according to annex C.2.1
Uplink Power Control	SS level and signalling values such that UE transmits maximum power.
Data content	real life (sufficient irregular)

Table 5.2.4.b: Test parameters for Maximum Output Power multicode

Parameter	Value/description
Reference measurement channel	Multicode 12.2kbps, according to annex C.2.2
Uplink Power Control	SS level and signalling values such that UE transmits maximum power
Data content	real life (sufficient irregular)

5.2.4.2 Procedure

1) Measure thermal power over the useful part of the burst.

with a measurement bandwidth of at least 5 MHz.

2) Average over TBD time slots.

3) Run step 1) and 2) for RF channels Low / Mid / High

5.2.5 Test Requirements

The output power, measured in step 2) of subclause 5.2.4.2, shall not exceed the prescribed tolerance in Table 5.2.5~~2~~ a and b.

Table 5.2.5.a: Maximum Output Power single code

Power Class	Maximum output power	Tolerance
1		
2	+24 dBm	+1.7dB /-3.7dB
3	+21 dBm	+2.7dB /-2.7dB
4		

Table 5.2.5.b: Maximum Output Power multi code

Power Class	Maximum output power	Tolerance
1		
2	[21] dBm	+1.7dB /-3.7dB
3	[18] dBm	+2.7dB /-2.7dB
4		

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

CR-Form-v3

CHANGE REQUEST

⌘ **34.122** **CR** **012** ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

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

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

Title:	⌘	**CR 34.122: Test tolerance for 5.3 Frequency Stability**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	Test tolerances shall be incorporared into 34.122
Summary of change:	⌘	Editorial corrections in 5.3.2 Test tolerance in 5.3.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	5.3.2 5.3.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

5.3 UE frequency stability

5.3.1 Definition and applicability

The frequency stability is the difference of the modulated carrier frequency between the RF transmission from the UE and the RF transmission from the BS. The UE shall use the same frequency source for both RF frequency generation and chip clocking.

The requirements of this test apply to all types of UTRA- UE.

5.3.2 ~~Conformance~~ Minimum R~~r~~equirements

The UE frequency stability, observed over a period of one timeslot, shall be within ±0.1 ppm compared to signals received from the BS.

The normative reference for this requirement is [1] TS 25.102 subclause 6.3.

5.3.3 Test purpose

Reliable frequency stability of the UE's transmitter in certain tolerance limits is prerequisite for connectivity.

This test stresses the ability of the UE's receiver to derive correct frequency information from the received signal for the transmitter.

5.3.4 Method of test

5.3.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.1.
2) A call is set up according to the Generic call setup procedure using parameters as specified in table 5.3.4.1.
3) Enter the UE into loopback test mode and start the loopback test.

Table 5.3.4.1: Test parameters for Frequency Stability

Parameter	Value/description
SS level	–105 dBm (reference sensitivity)
UL reference measurement channel	12.2kbps according to annex C.2.1.
Data content	real life (sufficient irregular)

5.3.4.2 Procedure

1) Measure the frequency error delta f across the TS according to annex B.
2) Repeat step 1) for 200 bursts (time slots).
3) Run Step 1) and 2) for RF channels Low /Mid/ High.

5.3.5 Test Requirements

For all measured bursts (time slots) , the frequency error, derived in subclause 5.3.4.2, shall not exceed- ± (0.1 ppm~~10E-7~~+10Hz)

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4

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CHANGE REQUEST

⌘ **34.122** **CR** 013 ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

*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:	⌘	**Test tolerance for 5.4.2 Minimum Transmit Output Power**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	Test tolerances shall be incorporared into 34.122
Summary of change:	⌘	Editorial corrections in the header (according to corespecs 25.102) Editorial corrections in 5.4.2.2 Test tolerance in 5.4.2.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	5.4.2.2 5.4.2.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

5.4.2 Minimum transmit output power

5.4.2.1 Definition and applicability

The minimum controlled output power of the UE is when the power control setting is set to a minimum value. This is when the uplink power control indicates a minimum transmit output power is required.

The requirements of this test apply to all types of UTRA- UE.

5.4.2.2 ~~Conformance~~Minimum ~~r~~Requirements

The minimum transmit power shall be lower than or equal to –44 dBm

The normative reference for this requirement is TS 25.102 [1] subclause 6.4.5.1.

5.4.2.3 Test purpose

The test purpose is to verify the ability of the UE to reduce its output power to a specified value.

5.4.2.4 Method of test

5.4.2.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.1.
2) A call is set up according to the Generic call setup procedure using parameters as specified in table E.3.1.2
3) Enter the UE into loopback test mode and start the loopback test.

5.4.2.4.2 Procedure

1) Configure the UE transmitter to enable power control steps of size 1 dB.
2) Measure power of the UE output signal over the useful part of the active time slot according to annex B.

NOTE: Annex B returns the power in the decision points (displayed as reference power and power offset). This is equivalent to thermal power at the air-interface. Insofar 5.4.2 minimum output power is consistent with 5.2 maximum output power.

3) Average over TBD time slots.
4) Configure the UE transmitter to enable power control steps of 2 dB and of 3 dB, respectively, and repeat steps 2) to 3).
5) Run step 2) to 3) for RF channels Low Mid and High.

5.4.2.5 Test requirements

For all measurements, the minimum transmit power derived in step 3), 4) and 5) of 5.4.2.4.2 shall be below –43 dBm~~the predescribed value in subclause 5.4.2.2.~~

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

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CHANGE REQUEST

⌘ **34.122** **CR** 014 ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

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

Title:	⌘	**Test Tolerance for 5.4.3 Transmit OFF power**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	Test tolerances shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 5.4.3.2 Test tolerance in 5.4.3.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	5.4.3.2 5.4.3.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

5.4.3 Transmit OFF power

5.4.3.1 Definition and applicability

The transmit OFF power state is when the UE does not transmit. This parameter is defined as the maximum output transmit power within the channel bandwidth when the transmitter is OFF.
The requirements of this test apply to all types of UTRA-UE.

5.4.3.2 ~~Conformance~~ Minimum R~~r~~equirements

The transmit OFF power shall be below −65 dBm.
The normative reference for this requirement is TS 25.102 subclause 6.5.1.

5.4.3.3 Test purpose

refer clause 5.4.4.3.

5.4.3.4 Method of test

refer clause 5.4.4.4

5.4.3.5 Test requirements

~~refer clause 5.4.4.5~~. The transmit OFF power shall be below −63.5 dBm.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4

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CHANGE REQUEST

⌘ **34.122** **CR** **015** ⌘ rev **-** ⌘ Current version: **3.2.0** see other comments below ⌘

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

Title:	⌘	**CR34.122: Test tolerance for 5.4.5 Out-of-synchronisation handling of output power**
Source:	⌘	Rohde & Schwarz
Work item code:	⌘	***Date:*** ⌘ 2001-02-06
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:	⌘	.Test tolerance shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 5.4.5.2 Incorporation of test tolerances in 5.4.5.4.2 and 5.4.5.5
Consequences if not approved:	⌘	missing test tolerances

Clauses affected:	⌘	5.4.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	Pay attention, when incorporating this CR into 34.122: This CR deals with the same subclause as the CR in T1R010060r1

5.4.5 Out-of-synchronisation handling of output power

5.4.5.1 Definition and applicability

The UE shall monitor the DPCH quality in order to detect a loss of the signal on Layer 1, as specified in TS 25.224. [5] The thresholds Q_{out} and Q_{in} specify at what DPCH quality levels the UE shall shut its power off and when it may turn its transmitter on, respectively. The thresholds are not defined explicitly, but are defined by the conditions under which the UE shall shut its transmitter off and turn it on, as stated in this clause.

The requirement of this subclause shall apply to all types of UTRA-UE.

5.4.5.2 ~~Conformance~~ Minimum R~~r~~equirement

The parameters in Table 5.4.5.1 are defined using the DL reference measurement channel (12.2) kbps specified in Annex C where the CRC bits are replaced by data bits, and with static propagation conditions.

Table 5.4.5.1: DCH parameters for test of Out-of-synch handling

Parameter	Unit	Value
$\hat{I}_{or}/I_{oc}$	dB	-1
I_{oc}	dBm/3.84 MHz	-60
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	dB	See figure yy
Information Data Rate	kbps	13
TFCI	-	On

The conditions for when the UE shall shut its transmitter on and when it may turn it on are defined by the parameters in Table 5.4.5.1 together with the DPCH power level as defined in Figure 5.4.5.1.

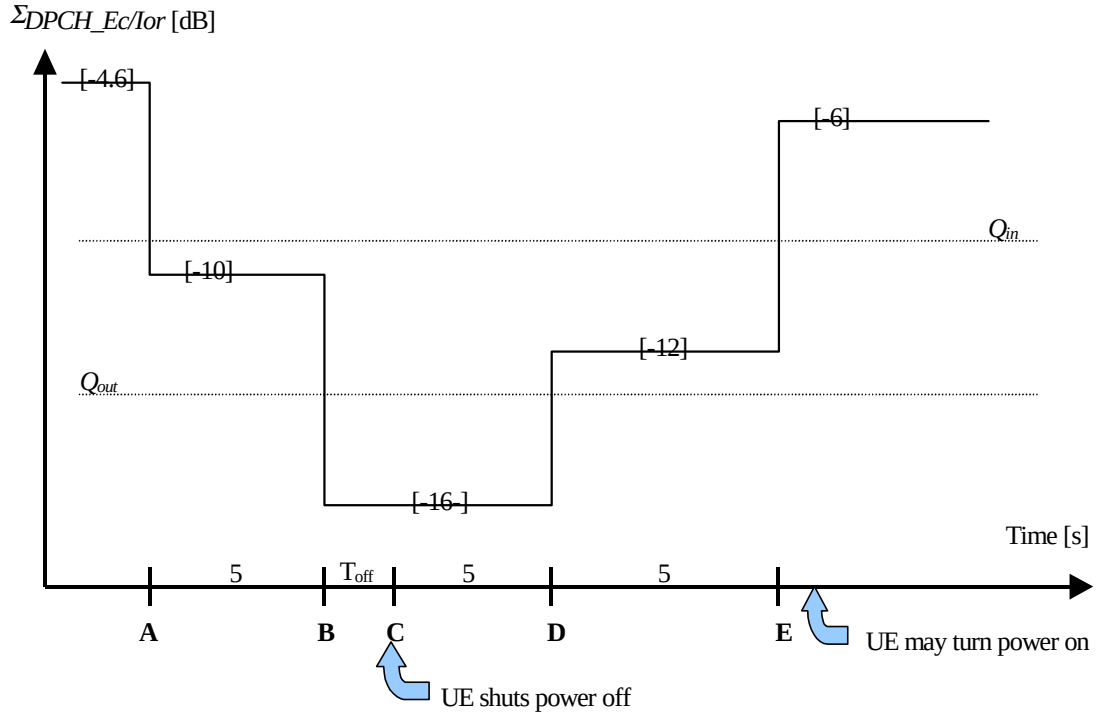

Figure 5.4.5.1. Conditions for out-of-synch handling in the UE. The indicated thresholds Q_{out} andQ_{in} are only informative.

The requirements for the UE are that:

The UE shall not shut its transmitter off before point B.

The UE shall shut its transmitter off before point C, which is Toff = [200] ms after point B

The UE shall not turn its transmitter on between points C and E.

The UE may turn its transmitter on after point E.

The normative reference for this test is 25.102 clause 6.4.3.

5.4.5.3 Test purpose

To verify that the UE monitors the DPCH quality and turns its transmitter on or off according to DPCH level diagram specified in figure5.4.5.1

5.4.5.4 Method of test

5.4.5.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.1.
2) Calls are set up according to the Generic call setup procedure using parameters as specified in table 5.4.5.1
3) Enter the UE into loopback test mode and start the loopback test.

5.4.5.4.2 Procedure

1) The SS sends continuously Up power control commands to the UE until the UE transmitter power reaches maximum level

2) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -4.6+[0.3] dB and verify that the UE TX signal is on.

3) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -10 +[0.3] dB and verify that the UE TX signal remains on continuously for at least 5 seconds.

4) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -16-[0.3] dB and verify that the UE TX signal turns off [200] ms or earlier with respect to that instant.

5) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -12-[0.3] dB and verify that the UE TX signal remains off continuously for at least 5 seconds.

6) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -6+[0.3] dB and verify that the UE TX signal remains off at least[200] ms with respect to this instant and is switched on [tbd 400] ms with respect to the same instant.

5.4.5.5 Test Requirements

The UE TX on-criterion including tolerance window is derived from the initial conditions and is verified with the method of 5.4.2 minimum transmit power.The UE transmitter is considered to be on if the UE transmitted power is higher than the minimum output power.

The UE TX off criterion including tolerance is ~~defined in~~ verified according to clause 5.4.3 of this TS (Transmit off power)

To pass the test, steps 1 through 6~~5~~ of the procedure must be fulfilled.

TSG-T WG1/RF SWG meeting #17 *T1010055*
Copenhagen, Denmark, 5th-7th February, 2001

CR-Form-v3

CHANGE REQUEST

⌘ **34.122** **CR** 016 ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

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

Title:	⌘	**Test tolerance for 5.5.1 Occupied Bandwidth**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	Test tolerances shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 5.5.1.2 Test tolerance in 5.5.1.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	5.5.1.2 5.5.1.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

5.5.1 Occupied bandwidth

5.5.1.1 Definition and applicability

Occupied bandwidth is a measure of the bandwidth containing 99% of the total integrated power for transmitted spectrum and is centered on the assigned channel frequency.

The requirements in this subclause shall apply to all types of UTRA - UE.

5.5.1.2 ~~Conformance~~ Minimum R~~r~~equirements

The occupied bandwidth shall be less than 5 MHz based on a chip rate of 3,84 Mcps.

The normative reference for this requirement is TS 25.102 [1] subclause 6.6.1.

5.5.1.3 Test purpose

The occupied bandwidth, defined in the Radio Regulations of the International Telecommunication Union ITU, is a useful concept for specifying the spectral properties of a given emission in the simplest possible manner; see also ITU-R Recommendation SM.328-9 [8].

The test purpose is to verify that the emission of the UE is sufficiently concentrated in the bandwidth for the service to be provided and is, therefore, not likely to create interference to other users of the spectrum beyond undue limits.

5.5.1.4 Method of test

5.5.1.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.1.
2) A call is set up according to the generic call setup procedure using parameters as specified in table E.3.1.2.
3) Enter the UE into loopback test mode and start the loopback test.

5.5.1.4.2 Procedure

1) Measure the power of the transmitted signal with a measurement filter of bandwidth [30 kHz]. The characteristic of the filter shall be approximately Gaussian (typical spectrum analyzer filter). The center frequency of the filter shall be stepped in contiguous 30 kHz steps from a minimum frequency, which shall be [7,5 – 0,015] MHz below the assigned channel frequency of the transmitted signal, up to a maximum frequency, which shall be [7,5 – 0,015] MHz above the assigned channel frequency of the transmitted signal. The step duration shall be sufficient slow to capture the active TS. The measured power shall be recorded for each step.
2) Determine the total transmitted power by accumulating the recorded power measurements results of all steps.
3) Sum up the power upward from the lower boundary of the measured frequency range in ‘(2)’ and seek the limit frequency point by which this sum becomes 0.5 % of "Total Power" and save this point as "Lower Frequency".
4) Sum up the power downward from the upper boundary of the measured frequency range in ‘(2)’ and seek the limit frequency point by which this sum becomes 0.5 % of "Total Power" and save this point as "Upper Frequency".
5) Calculate the difference ("Upper Frequency" – "Lower Frequency" = "Occupied Bandwidth") between two limit frequencies obtained in ‘(4)’ and ‘(5)’.

5.5.1.5 Test requirements

The measured Occupied Bandwidth, derived in step 5), shall not exceed 5 MHz.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

CR-Form-v3

CHANGE REQUEST

⌘	34.122	CR	017	⌘	rev	-	⌘	Current version:	3.2.0 see other comments below	⌘

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

Title:	⌘	**Test tolerance for 5.5.2.1 Spectrum Emission Mask**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	Test tolerances shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 5.5.2.1.2 Test tolerance in 5.5.2.1.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	5.5.2.1.2 5.5.2.1.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	Pay attention, when incorporating this CR into 34.122: This CR deals with the same subclause as the CR in T1R010058r1

5.5.2.1 Spectrum emission mask

5.5.2.1.1 Definition and applicability

The spectrum emission mask of the UE is a requirement that applies to frequencies which are between 2.5 and 12.5MHz to both sides of the carrier frequency. The out of channel emission is specified relative to the UE output power in a 3.84 MHz bandwidth.

The requirements of this test apply to all types of UTRA-UE.

5.5.2.1.2 ~~Conformance~~ Minimum ~~r~~Requirements

The power of the 21dBm power class 3 UE emission shall not exceed the levels specified in table 5.5.2.1.2.

The normative reference for this requirement is 3G TS 25.102 clause 6.6.2.1.1

Table 5.5.2.1.2: Spectrum Emission Mask Requirement

Frequency offset from carrier ?f	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.
3. The lower limit shall be –50dBm/3.84 MHz or which ever is higher

5.5.2.1.3 Test purpose

This test supplements Occupied Bandwidth (verifying the spectral concentration of the UE's emissions) and Adjacent Channel Leakage Ratio (simulating the perception of other UTRA receivers) in a system independent way. It is the purpose of this test to limit interferences to other systems (wideband or narrowband).

5.5.2.1.4 Method of test

5.5.2.1.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.1.
2) A call is set up according to the generic call setup procedure using parameters as specified in table E.3.1.2.
3) Enter the UE into loopback test mode and start the loopback test.

5.5.2.1.4.2 Procedure

1) Measure the power of the transmitted signal with a measurement filter of bandwidths according to table 5.5..2.1.2. The characteristic of the filter shall be approximately Gaussian (typical spectrum analyzer filter). The center frequency of the filter shall be stepped in contiguous steps according to table 5.5.2.1.2. The step duration shall be sufficient slow to capture the active TS. The measured power shall be recorded for each step.
2) Measure the wanted output power according to annex B.
3) Display the results of 1) in dBc with respect to 2).

5.5.2.1.5 Test requirements

The result 5.5.2.1.4.2. step 3) shall fulfil the requirements of table 5.5.2.1.5~~2~~.

Table 5.5.2.1.5: Spectrum Emission Mask Requirement

Frequency offset from carrier ?f	Minimum requirement	Measurement bandwidth
2.5 - 3.5 MHz	-33.5 -15*(Δf – 2.5) dBc	30 kHz
3.5 - 7.5 MHz	-33.5- 1*(Δf-3.5) dBc	1 MHz
7.5 - 8.5 MHz	-37.5 - 10*(Δf – 7.5) dBc	1 MHz
8.5 - 12.5 MHz	-47.5 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.

3. The lower limit shall be –48.5~~50~~dBm/3.84 MHz or which ever is higher

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

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CHANGE REQUEST

⌘ **34.122** **CR** 018 ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

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

Title:	⌘	**Test tolerance for 5.5.2.2 ACLR test case**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-01
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:	⌘	Test tolerances shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 5.5.2.2.2 Test tolerance in 5.5.2.2.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	5.5.2.2.2 5.5.2.2.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

5.5.2.2 Adjacent Channel Leakage power Ratio (ACLR)

5.5.2.2.1 Definition and applicability

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the wanted power to the power in an adjacent channel. Both the wanted power and adjacent channel power are measured with a Root-Raised Cosine (RRC) filter with roll-off $\alpha = 0.22$ and a bandwidth equal to the chip rate.

The requirements in this subclause shall apply to all types of UTRA-UE.

5.5.2.2.2 ~~Conformance~~ Minimum rRequirements

If the adjacent channel power is greater than –50dBm then the ACLR shall be better than the value specified in table 5.5.2.2.2.

The normative reference for this requirement is 3G TS 25.102 clause 6.6.2.2.1

Table 5.5.2.2.2: UE ACLR

Power Class	Adjacent channel	ACLR limit
2, 3	UE-channel ± 5 MHz	-33 dB
2, 3	UE-Channel ± 10 MHz	-43 dB

5.5.2.2.3 Test purpose

The test purpose is to verify the ability of the UE to limit the interference produced by the transmitted signal to other UTRA receivers operating at the first or second adjacent RF channel.

5.5.2.2.4 Method of test

5.5.2.2.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.1.
2) A call is set up according to the generic call setup procedure using parameters as specified in table E.3.1.2.
3) Enter the UE into loopback test mode and start the loopback test.

5.5.2.2.4.2 Procedure

1) Measure the wanted transmitted power of the active timeslot using the method in annex B.
2) Average over TBD time slots.
3) Measure interference power at the first lower adjacent RF channel (center frequency 5 MHz below the assigned channel frequency of the transmitted signal) over the useful part of the active TS with a measurement filter that has a RRC filter response with a roll off $\alpha = 0,22$ and a bandwidth equal to the chip rate.
4) Average over TBD time slots.
5) Calculate the ACLR by

Transmitted power acc. to 2) / interference power acc. to 4).

6) Repeat steps 3), 4) and 5) for the second lower adjacent RF channel (center frequency 10 MHz below the assigned channel frequency of the transmitted signal) and also for the first and second upper adjacent RF channel (center frequency 5 MHz and 10 MHz, respectively).

5.5.2.2.5 Test requirements

The ACLR calculated in steps 5) and 6) of subclause 5.5.2.2.4.2 shall be equal or greater than the limits given in table 5.5.2.2.5~~2~~.

Table 5.5.2.2.5: UE ACLR

Power Class	Adjacent channel	ACLR limit
2, 3	UE-channel ± 5 MHz	-32.2 dB
2, 3	UE-Channel ± 10 MHz	-42.2 dB

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F

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CHANGE REQUEST

⌘ **34.122** **CR** 019 ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

*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:	⌘	**Test Tolerance for 5.5.3 Spurious emissions**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	Test tolerances shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 5.5.3.2 Test tolerance in 5.5.3.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	5.5.3.2 5.5.3.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

5.5.3 Spurious emissions

5.5.3.1 Definition and applicability

Spurious emissions are emissions which are caused by unwanted transmitter effects such as harmonics emission, parasitic emission, intermodulation products and frequency conversion products, but exclude out of band emissions. The frequency boundary and the detailed transitions of the limits between the requirement for out band emissions and spectrum emissions are based on ITU-R Recommendations SM.329 [8].

5.5.3.2 ~~Conformance~~ Minimum R~~r~~equirements

These requirements are only applicable for frequencies which are greater than 12.5 MHz away from the UE center carrier frequency.

The normative reference for this requirement is 3G TS 25.102 clause 6.6.3.1.

Table 5.5.3.2a: General Spurious emissions requirements

Frequency Bandwidth	Resolution Bandwidth	Minimum requirement
9 kHz ≤ f < 150 kHz	1 kHz	-36 dBm
150 kHz ≤ f < 30 MHz	10 kHz	-36 dBm
30 MHz ≤ f < 1000 MHz	100 kHz	-36 dBm
1 GHz ≤ f < 12.75 GHz	1 MHz	-30 dBm

Table 5.5.3.2b: Additional Spurious emissions requirements

Frequency Bandwidth	Resolution Bandwidth	Minimum requirement
925 MHz ≤ f ≤ 935 MHz	100 ~~K~~kHz	-67 dBm*
935 MHz < f ≤ 960 MHz	100 ~~K~~kHz	-79 dBm*
1805 MHz ≤ f ≤ 1880 MHz	100 ~~K~~kHz	-71 dBm*

NOTE: The measurements are made on frequencies which are integer multiples of 200 kHz. As exceptions, up to five measurements with a level up to the applicable requirements defined in table 5.5.3.2b~~2.2.2~~. are permitted for each UARFCN used in the measurement.

5.5.3.3 Test purpose

The test purpose is to verify the ability of the UE to limit the interference caused by unwanted transmitter effects to other systems operating at frequencies which are more than 12,5 MHz away from of the UE's carrier frequency.

5.5.3.4 Method of test

5.5.3.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.1.

2) A call is set up according to the generic call setup procedure using parameters as specified in table E.3.1.2.

3) Enter the UE into loopback test mode and start the loopback test.

5.5.3.4.2 Procedure

Measure the power of the spurious emissions applying measurement filters with bandwidths as specified in the relevant tables of 5.5.3.2. The characteristic of the filters shall be approximately Gaussian (typical spectrum analyzer filters). The center frequency of the filter shall be swept over the frequency bands as given in the tables. The sweep time shall be sufficiently low to capture the active time slots.

5.5.3.5 Test requirements

The spurious emissions measured according to subclause 5.5 .3.4.2 shall not exceed the limits specified in the relevant tables of 5.5.3.5~~2~~. a and 5.5.3.5.b

Table 5.5.3.5a: General Spurious emissions requirements

Frequency Bandwidth	Resolution Bandwidth	Test requirement
9 kHz ≤ f < 150 kHz	1 kHz	-36 dBm
150 kHz ≤ f < 30 MHz	10 kHz	-36 dBm
30 MHz ≤ f < 1000 MHz	100 kHz	-36 dBm
1GHz ≤ f < 12.75GHZ	1MHz	-30 dBm

Table 5.5.3.5b: Additional Spurious emissions requirements

Frequency Bandwidth	Resolution Bandwidth	Test requirement
925 MHz ≤ f ≤ 935 MHz	100 k~~K~~Hz	-67 dBm*
935 MHz < f ≤ 960 MHz	100 k~~K~~Hz	-79 dBm*
1805 MHz ≤ f ≤ 1880 MHz	100 k~~K~~Hz	-71 dBm*

NOTE: The measurements are made on frequencies which are integer multiples of 200 k~~H~~z. As exceptions, up to five measurements with a level up to the applicable requirements defined in table 5.5.3.5b~~2.2.2~~. are permitted for each UARFCN used in the measurement.

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

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CHANGE REQUEST

⌘ **34.122** **CR** 020 ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

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

Title:	⌘	**Test Tolerance for 5.6 Transmit Intermodulation**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	Test tolerances shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 5.6.2 Test tolerance in 5.6.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	5.6.2 5.6.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

5.6 Transmit Intermodulation

5.6.1 Definition and applicability

The transmit intermodulation performance is a measure of the capability of the transmitter to inhibit the generation of signals in its non linear elements caused by the presence of the wanted signal and an interfering signal reaching the transmitter via the antenna.

The UE intermodulation attenuation is defined by the ratio of the output power of the wanted signal to the output power of the intermodulation product when an interfering CW signal is added at a level below the wanted signal. Both the wanted signal power and the intermodulation product power are measured with a filter response that is root-raised cosine (RRC) with roll-off α=0.22 and with a bandwidth equal to the chip rate.

The requirements of this test shall apply for all UTRA-UE.

5.6.2 ~~Conformance~~ Minimum R~~r~~equirements

The requirement of transmitting intermodulation for carrier spacing 5 MHz is prescribed in the table below.

The normative reference for this requirement is 3G TS 25.102 clause 6.7.1

Table 5.6.2: Transmit Intermodulation

Interference Signal Frequency Offset	5MHz	10MHz
Interference Signal Level	-40 dBc	
Interferer Modulation	CW Note: BS Test uses a CDMA modulated signal	
Conformance Requirement	-31dBc	-41dBc

5.6.3 Test purpose

User Equipment(s) transmitting in close vicinity of each other can produce intermodulation products, which can fall into other UE, or BS receive band as an unwanted interfering signal.

It is the purpose of this test to limit interferences to the own and other systems due to intermodulation products.

5.6.4 Method of test

5.6.4.1 Initial conditions

1) Connect the SS and the interferer to the UE antenna connector as shown in Figure A.2.
2) A call is set up according to the generic call setup procedure using parameters as specified in table E.3.1.2.
3) Enter the UE into loopback test mode and start the loopback test.

Parameters of the interferer according to table 5.6.2.

5.6.4.2 Procedure

1) Measure the unwanted emissions according to 5.6.2. in a carrier offset spacing of 5 MHz and in a frequency range [5 MHz to 12.75 GHz], using an interferer +5MHz offset.

   The frequency occupied by the interferer is excluded from the measurement.
2) Repeat 1) with the other 3 interferer-configurations (-5Mz. +10 MHz, -10 MHz).
3) Measure the wanted power according to annex B.

4) Display 1) and 2) in dBc with respect to 3).

5.6.5 Test requirements

The results in 4) from subclause 5.6.~~.~~4.2 shall not exceed the predescribed values in table 5.6.5~~2~~.

Table 5.6.5: Transmit Intermodulation

Interference Signal Frequency Offset	5MHz	10MHz
Interference Signal Level	-40 dBc	
Interferer Modulation	CW Note: BS Test uses a CDMA modulated signal	
Conformance Requirement	[-31+TT] dBc	[-41+TT] dBc

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

CR-Form-v3

CHANGE REQUEST

⌘ **34.122** **CR** 021 ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

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

Title:	⌘	**Test Tolerance for 6.2 Reference Sensitivity Level**
Source:	⌘	Rohde & Schwarz
Work item code:	⌘	***Date:*** ⌘ 2001-02-07
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:	⌘	Test tolerances shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 6.2.2 Test tolerance in 6.2.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	6.2.2 6.2.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

6.2 Reference sensitivity level

6.2.1 Definition and applicability

The reference sensitivity is the minimum receiver input power measured at the antenna connector at which the BER does not exceed the specific value.
The requirements in this subclause shall apply to all types of UTRA UE.

6.2.2 ~~Conformance~~ Minimum R~~r~~equirements

For the DL reference measurement channel 12.2 kBit/s specified in annex C, the BER shall not exceed 0.001 for the parameters specified in Table 6.2.2.

Table 6.2.2. Test parameters for reference sensitivity

Parameter	Level	Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	0	dB
$\hat{I}_{or}$	-105	dBm/3.84 MHz

The normative reference for this requirement is TS 25.102 [1] subclause 7.3.

6.2.3 Test purpose

The test purpose is to verify the ability of the UE to receive a prescribed test signal at the lower end of the dynamic range under defined conditions (no interference, no multipath propagation) with a BER not exceeding a specified level. This test is also used as a reference case for other tests to allow the assessment of degradations due to various sources of interference.

6.2.4 Method of test

6.2.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.3.
2) A call is set up according to the Generic call setup procedure..
3) Enter the UE into loopback test mode and start the loopback test.
4) The level of SS output signal measured at the UE antenna connector shall be –105 dBm.

6.2.4.2 Procedure

1) Measure the BER of DCH received from the UE at the SS.

6.2.5 Test requirements

The measured BER, derived in step 1), shall not exceed 0.001 under conditions described in Table 6.2.5.

Table 6.2.5. Test parameters for reference sensitivity

Parameter	Level	Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	0	dB
$\hat{I}_{or}$	-104.3	dBm/3.84 MHz

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

CR-Form-v3

CHANGE REQUEST

⌘ **34.122** **CR** 022 ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

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

Title:	⌘	**Test Tolerance for 6.4 Adjacent Channel Selectivity**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	Test tolerances shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 6.4.2 Test tolerance in 6.4.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	6.4.2 6.4.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

6.4 Adjacent Channel Selectivity (ACS)

6.4.1 Definition and applicability

Adjacent Channel Selectivity is a measure of a receiver's ability to receive a wanted signal at its assigned channel frequency in the presence of an adjacent channel signal.
The requirements of this test apply to all UTRA UE.

6.4.2 ~~Conformance~~ Minimum R~~r~~equirements

For the UE of power class 2 and 3, the BER shall not exceed 0,001 for parameters specified in table 6.4.2. This test condition is equivalent to the ACS value 33 dB.

Table 6.4.2: Test parameters for Adjacent Channel Selectivity

Parameter	Unit	Level
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	dB	0
$\hat{I}_{or}$	dBm/3.84 MHz	-91
I_{oac}	dBm/3.84 MHz	-52
F_{uw} offset	MHz	+5 or -5

Explanatory note:
Within the reference sensitivity BER= 0.001 corresponds to a testsignal = -105 dBm/3.84 MHz and a noise level –99 dBm /3.84 MHz BW (S/I -6 dB)
Within ACS BER=0.001 is directly verified
Known from the reference sensitivity, this corresponds to S/I –6dB in the wanted BW.
As a wanted signal of –91 dBm applied, an in-channel-interfering-signal of –85 dBm can be assumed.
Verifying a filter suppression of 33 dB indirectly, an adjacent-channel-interferer of –52 dBm is needed

The normative reference of this requirement is TS 25.102 [1] subclause 7.5.

6.4.3 Test purpose

The test purpose is to verify the ability of the UE-receiver to sufficiently suppress the interfering signal in the channel adjacent to the wanted channel.

6.4.4 Method of test

6.4.4.1 Initial conditions

1) Connect the SS and the interferer to the UE antenna connector as shown in Figure A.4.
2) A call is set up according to the Generic call setup procedure.
3) Enter the UE into loopback test mode and start the loopback test.
4) Set the signal generator to produce an interference signal. The interference signal shall be equivalent to a continuously running wideband CDMA signal with one code and chip frequency 3.84 Mchip/s and rolloff 0.22.

6.4.4.2 Procedure

1) Set the interference signal 5 MHz above the assigned channel frequency of the wanted signal.
2) Measure the BER of the wanted signal received from the UE at the SS.
3) Set the interference signal 5 MHz below the assigned channel frequency of the wanted signal and repeat 2).

6.4.5 Test Requirements

The measured BER, derived in step 2), shall not exceed 0,001 under conditions described in table 6.4.5.

Table 6.4.5: Test parameters for Adjacent Channel Selectivity

Parameter	Unit	Level
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	dB	0
$\hat{I}_{or}$	dBm/3.84 MHz	-91
I_{oac}	dBm/3.84 MHz	-52
F_{uw} offset	MHz	+5 or -5

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

3Gpp TSG T WG1 meeting #10
Copenhagen, Denmark, 8-9 February, 2001

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CHANGE REQUEST

⌘ **34.122** **CR** **023** ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

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

Title:	⌘	**Test tolerances to 6.5 Blocking Characteristics**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	Test tolerances shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 6.5.2 Test tolerance in 6.5.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	6.5.2 6.5.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

6.5 Blocking Characteristics

6.5.1 Definition and applicability

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

The requirements of this test apply to all UTRA UE

6.5.2 ~~Conformance~~ Minimum R~~r~~equirements

The BER shall not exceed 0,001 for the parameters specified in table 6.5.2a and table 6.5.2b. For table 6.5.2b up to 24 exceptions are allowed for spurious response frequencies in each assigned frequency channel when measured using a 1MHz step size for the interference signal.

The normative reference for this requirement is 3G TS 25.102 clause 7.6.1

Table 6.5.2a: In-band blocking

Parameter	Offset 1	Offset 2	Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	**0**	0	dB
$\hat{I}_{or}$	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
$I_{blocking}$ (modulated)	-56	-44	dBm/3.84 MHz
F_{uw} offset	+10 or -10	+15 or -15	MHz

Table 6.5.2b: Out of band blocking

Parameter	Band 1	Band 2	Band 3	Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	0	0	0	dB

$\hat{I}_{or}$	<REFSENS> + 3 dB	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
$I_{blocking}$ (CW)	-44	-30	-15	dBm
F_{uw} For operation in frequency bands as defined in subclause 4.2(a)	1840 <f <1885 1935 <f <1995 2040 <f <2085	1815 <f <1840 2085 <f <2110	1< f <1815 2110< f <12750	MHz
F_{uw} For operation in frequency bands as defined in subclause 4.2(b)	1790 < f < 1835 2005 < f < 2050	1765 < f < 1790 2050 < f < 2075	1 < f < 1765 2075 < f < 12750	MHz
F_{uw} For operation in frequency bands as defined in subclause 4.2(c)	1850 < f < 1895 1945 < f < 1990	1825 < f < 1850 1990 < f < 2015	1 < f < 1825 2015 < f < 12750	MHz

Note: 1. For operation referenced in 4.2(a), from 1885 <f< 1900 MHz, 1920 <f< 1935 MHz, 1995 <f< 2010 MHz and 2025<f< 2040 MHz , the appropriate in-band blocking or adjacent channel selectivity in section 6.5.2. shall be applied.

2. For operation referenced in 4.2(b), from 1835 < f < 1850 MHz and 1990< f < 2005 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 6.5.2. shall be applied.

3. For operation referenced in 4.2(c), from 1895 < f < 1910 MHz and 1930< f < 1945 MHz, the appropriate in-band blocking or adjacent channel selectivity in section 6.5.2. shall be applied.

6.5.3 Test purpose

"The test stresses the ability of the UE receiver to withstand high-level interference from unwanted signals at frequency offsets of 10 MHz or more, without undue degradation of its sensitivity."

6.5.4 Method of test

6.5.4.1 Initial conditions

1) Connect the SS and the interfering Signal generator to the antenna connector as shown in Figure A.5.

2) A call is set up according to the Generic call setup procedure

3) Enter the UE into loopback test mode and start the loopback test.

6.5.4.2 Procedure

1) The wanted signal frequency channel is set into the middle of the band.

2) The interfering Signal Generator is stepped through the frequency range indicated in table 6.5.2.a. with a step size of 1 MHz.

3) The interference signal shall be equivalent to a continuously running wideband CDMA signal with one code and chip frequency 3.84 Mchip/s and rolloff 0.22.

4) Measure the BER of the wanted signal received from the UE at the SS for each step of the interferer.

5) Repeat the inband blocking for wanted frequency channels low–band and high-band.

6) The wanted signal frequency channel is set into the middle of the band.

7) The interfering Signal Generator is stepped through the frequency range indicated in table 6.4.2.b. with a step size of 1 MHz.

8) The interference signal is a CW signal.

9) Measure the BER of the wanted signal received from the UE at the SS for each step of the interferer.

NOTE: Due to the large amount of time-consuming BER tests it is recommended to speed up a single BER test by reducing the 0.001-BER confidence level [10 000 bits under test or 10 errors] for screening the critical frequencies. Critical frequencies must be identified using standard BER confidence level. [30 000 bits or 30 errors].

6.5.5 Test requirements

The measured BER, derived in step 4) and 5), shall not exceed 0,001 (without exception). under test conditions described in table 6.5.5a.

The measured BER, derived in step 9), shall not exceed 0,001 except for up to 24 different frequencies of the interfering signal. under test conditions described in table 6.5.5b.

These frequencies are further processed in subclause 5.6 Spurious response.

Table 6.5.5a: Test conditions In-band blocking

Parameter	Offset 1	Offset 2	Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	**0**	0	dB
$\hat{I}_{or}$	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
$I_{blocking}$ (modulated)	-56	-44	dBm/3.84 MHz

Table 6.5.5b: Test conditions Out of band blocking

Parameter	Band 1	Band 2	Band 3	Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	0	0	0	dB
$\hat{I}_{or}$	<REFSENS> + 3 dB	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
$I_{blocking}$ (CW)	-44	-30	-15	dBm

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4

3Gpp TSG T1 WG meeting #10
Copenhagen, Denmark, 8-9 February, 2001

TSG T1#10(01)0063

CR-Form-v3

CHANGE REQUEST

⌘ **34.122** **CR** 024 ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

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

Title:	⌘	**Test tolerances to 6.6 Spurious Response**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	Test tolerances shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 6.6.2 Test tolerance in 6.6.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	6.6.2 6.6.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

6.6 Spurious Response

6.6.1 Definition and applicability

Spurious response is a measure of the receiver's ability to receive a wanted signal on its assigned channel frequency without exceeding a given degradation due to the presence of an unwanted CW interfering signal at any other frequency at which a response is obtained i.e. for which the blocking limit is not met.

The requirements of this test apply to all types of UTRA for the UE.

6.6.2 ~~Conformance~~ Minimum R~~r~~equirements

The BER shall not exceed 0,001 for the parameters specified in table 6.6.2.

The normative reference for this requirement is 3G TS 25.102 clause 7.7.1

Table 6.6.2: Spurious Response

Parameter	Value	Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	0 ~~dB~~	dB
$\hat{I}_o$	<REFSENS> + 3 ~~dB~~	dBm/3.84 MHz
$I_{blocking}$ (CW)	-44	dBm
F_{uw}	Spurious response frequencies	MHz

6.6.3 Test purpose

Spurious response frequencies, identified in the blocking test, are measured against a less stringent test requirement. The test stresses the ability of the receiver to withstand high level interference signals without undue degradation of its sensitivity due to the receiver's frequency conversion concept.

6.6.4 Method of test

6.6.4.1 Initial conditions

1) Connect the SS and the unwanted signal to the UE antenna connector as shown in Figure A.6.

2) A call is set up according to the Generic call setup procedure.

3) Enter the UE into loopback test mode and start the loopback test.

6.6.4.2 Procedure

1) Repeat the wanted signal frequency setting from the blocking test. Set the level according to table 6.6.2.

2) Repeat the frequency settings of the interferer signal, at which the blocking test failed. Set the level according to table 6.6.5~~2~~.

3) Measure the BER of DCH received from the UE at the SS for each of the settings 1) and 2).

6.6.5 Test requirements

The measured BER, derived in step 3), shall not exceed 0,001 under~~,~~ test conditions described in Table 6.6.5.

Table 6.6.5: Test Parameters Spurious Response

Parameter	Value	Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	0	dB
$\hat{I}_{o}$	<REFSENS> + 3	dBm/3.84 MHz
$I_{blocking}$ (CW)	-44	dBm
F_{uw}	Spurious response frequencies	MHz

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

3Gpp TSG T1 WG meeting #10
Copenhagen, Denmark, 8-9 February, 2001

TSG T1#10(01)0064

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CHANGE REQUEST

⌘ **34.122** **CR** 025 ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

*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:	⌘	**Test tolerances to 6.7 Intermodulation Characteristics**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-01
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:	⌘	Test tolerances shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 6.7.2 Test tolerance in 6.7.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	6.7.2 6.7.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

6.7 Intermodulation Characteristics

6.7.1 Definition and applicability

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

The requirements of this test shall apply to all UTRA UE.

6.7.2 ~~Conformance~~ Minimum R~~r~~equirements

The BER shall not exceed 0,001 for the parameters specified in table 6.7.2

The normative reference for this requirement is 3G TS 25.102 subclause 7.8.1.

Table 6.7.2: Receive intermodulation characteristics

Parameter	Value	Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	0	dB
$\hat{I}_{or}$ Wanted Signal Level	<REFSENS> + 3 dB	dBm/3.84 MHz
$I_{ouw1(CW)}$	-46	dBm
$I_{ouw2(modulated)}$	-46	dBm/3.84 MHz
F_{uw1} (CW)	|10|	MHz
F_{uw2} (Modulated)	|20|	MHz

6.7.3 Test purpose

The test stresses the ability of the receiver to withstand two or more high level interference signals without undue degradation of its sensitivity due to the receiver's non-linear elements.

6.7.4 Method of test

6.7.4.1 Initial conditions

1) Connect the SS and the unwanted signals to the UE antenna connector as shown in Figure A.7.
2) A call is set up according to the Generic call setup procedure.
3) Enter the UE into loopback test mode and start the loopback test.

6.7.4.2 Procedure

1) Set the interfering signals as indicated in table 6.7.2. with positive offset with respect to the wanted signal.
2) Measure the BER of DCH received from the UE at the SS.
3) Set the interfering signals as indicated in table 6.7.2. with negative offset with respect to the wanted signal and repeat 2).

6.7.5 Test requirements

The measured BER, derived in step 2) and 3), shall not exceed 0,001 under test conditions described in Table 6.7.5.

Table 6.7.5: Test parameters Receive intermodulation characteristics

Parameter	Value	Unit
$\frac{\Sigma DPCH\_Ec}{I_{or}}$	0	dB
$\hat{I}_{or}$ Wanted Signal Level	<REFSENS> + 3 dB	dBm/3.84 MHz
$I_{ouw1(CW)}$	-46	dBm
$I_{ouw2(modulated)}$	-46	dBm/3.84 MHz
F_{uw1} (CW)	|10|	MHz
F_{uw2} (Modulated)	|20|	MHz

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

CR-Form-v3

CHANGE REQUEST

⌘ **34.122** **CR** 026 ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

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

Title:	⌘	**Test Tolerance for 6.5 RX Spurious Emissions**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	Test tolerances shall be incorporated into 34.122
Summary of change:	⌘	Editorial corrections in 6.8.2 Test tolerance in 6.8.5
Consequences if not approved:	⌘	Missing test tolerances

Clauses affected:	⌘	6.8.2 6.8.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	

6.8 Spurious Emissions

6.8.1 Definition and applicability

The Spurious Emissions Power is the power of emissions generated or amplified in a receiver that appear at the UE antenna connector.
The requirements of this test are applicable for all UTRA UE.

6.8.2 ~~Conformance~~ Minimum R~~r~~equirements

The power of any spurious emission shall not exceed:

Table 6.8.2.: Receiver spurious emission requirements

Band	Maximum level	Measurement Bandwidth	Note
9 kHz – 1 GHz	-57 dBm	100 kHz	
1 GHz – 1.9 GHz and 1.92 GHz – 2.01 GHz and 2.025 GHz – 2.11 GHz	-47 dBm	1 MHz	With the exception of frequencies between 12.5MHz below the first carrier frequency and 12.5MHz above the last carrier frequency used by the UE.
1.9 GHz – 1.92 GHz and 2.01 GHz – 2.025 GHz and 2.11 GHz – 2.170 GHz	-60 dBm	3.84 MHz	With the exception of frequencies between 12.5MHz below the first carrier frequency and 12.5MHz above the last carrier frequency used by the UE.
2.170 GHz – 12.75 GHz	-47 dBm	1 MHz	

The normative reference for this requirement is TS 25.102 [1] subclause 7.9.

6.8.3 Test purpose

The test purpose is to verify the UE's ability to limit interference caused by receiver spurious emissions to the own and the other systems. The test requirements are tighter than in 5.5.3 ((TX) Spurious Emissions) because the time of Receive–Only-Operation is generally much longer than RX-TX-Operation.

6.8.4 Method of test

6.8.4.1 Initial conditions

1) Connect the measurement equipment to the UE antenna connector according to figure A.8.
2) The measurement equipment shall measure power through

   a 100 kHz filter with a approximately gaussian filter-characteristic (typical spectrum analyzer), or

   a 1MHz filter with a approximately gaussian filter-characteristic (typical spectrum analyzer), or

   a matched filter with a bandwidth equal to the chip frequency 3.84 Mchip/s and rolloff 0.22.
3) Enable the UE receiver and set Cell Search Mode on a PCCPCH. Since there is no down link signal, the UE should not pass the Cell Search mode.

<Editor's Note: The method to set Cell Search Mode should be defined.>

6.8.4.2 Procedure

Measure the power of spurious emissions by covering the frequency ranges of table 6.8.2. Cover the UTRA/TDD and UTRA/FDD UE receive band in contiguous steps of [200 kHz]. Cover the other frequency ranges in contiguous steps of

100 kHz. Apply the corresponding filters of table 6.8.2.. The step duration shall be sufficient slow to capture intermittent spurious emissions.

6.8.5 Test requirements

The spurious emissions shall be according to table 6.8.5.~~subclause 6.8.2.~~

Table 6.8.5.: Receiver spurious emission test requirements

Band	Maximum level	Measurement Bandwidth	Note
9 kHz – 1 GHz	-57 dBm	100 kHz	
1 GHz – 1.9 GHz and 1.92 GHz – 2.01 GHz and 2.025 GHz – 2.11 GHz	-47 dBm	1 MHz	With the exception of frequencies between 12.5MHz below the first carrier frequency and 12.5MHz above the last carrier frequency used by the UE.
1.9 GHz – 1.92 GHz and 2.01 GHz – 2.025 GHz and 2.11 GHz – 2.170 GHz	-60 dBm	3.84 MHz	With the exception of frequencies between 12.5MHz below the first carrier frequency and 12.5MHz above the last carrier frequency used by the UE.
2.170 GHz – 12.75 GHz	-47 dBm	1MHz	

NOTE: If the above Test Requirement differs from the Minimum Requirement then the Test Tolerance applied for this test is non-zero. The Test Tolerance for this test is defined in Annex F.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.4.

CR-Form-v3

CHANGE REQUEST

⌘	34.122	CR	031	⌘	rev	-	⌘	Current version:	3.2.0 see other comments below	⌘

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

Title:	⌘	**Correction concerning UE maximum output power classes following RAN4CR36**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-01
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:	⌘	Reintroduction of UE power classes for consistency between FDD and TDD specifications.
Summary of change:	⌘	Reintroduction of UE power classes for TDD
Consequences if not approved:	⌘	No consistency for specifications within RAN4 and T1RF.

Clauses affected:	⌘	5.2.2 5.5.2.1.2
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	Pay attention, when incorporating this CR into 34.122: This CR deals with the same subclauses as the CR in T1R010023r1 and T1R010029r1

5.2 User Equipment maximum output power

5.2.1 Definition and applicability

The maximum output power and its tolerance are defined according to the Power Class of the UE.
The **output power**, Pout, of the UE is the power when averaged (in the sense of thermal power) over the useful part of the TS at the maximum power control setting delivered in to a load with resistance equal to the nominal load impedance.
The requirements in this test apply to all UTRA – TDD- UEs
Notes copied from TS 25.102 clause 6.2.1 :

1. The maximum output power refers to.....
2. For multi-code operation the maximum output power will be reduced by the difference of peak to average ratio between single and multi-code transmission.
3. The tolerance of the maximum power is below the prescribed value even at the multi-code transmission mode
4. For UE using directive antennas for transmission, a class dependent limit will be placed on the maximum EIRP (Equivalent Isotropic Radiated Power).

5.2.2 Conformance requirements

The error of the UE maximum output power shall not exceed the tolerance shown in Tables 5.2.2 a and b for single and multi-code.

Table 5.2.2.a: Maximum Output Power single code

Power Class	Maximum output power	Tolerance
1	+30 dBm	+1dB/-3dB
2	+24 dBm	+1dB /-3dB
3	+21 dBm	+2dB /-2dB
4	+10 dBm	+4dB/-4dB

Table 5.2.2.b: Maximum Output Power multi code

Power Class	Maximum output power	Tolerance
1	[+27 [1)]]dBm	+1dB/-3dB
2	[21 [1)]] dBm	+1dB /-3dB
3	[18 [1)]] dBm	+2dB /-2dB
4	[+7 [1)]]dBm	+4dB/-4dB

Note 1: These figures are not mentioned in 25.102. Instead there is a note, saying:
"For multi-code operation the maximum output power will be reduced by the difference of peak to average ratio between single and multi-code transmission."
The figures are calculated from maximum output power single code (table 5.2.2.a) and UL multicode reference measurement channel (12.2 kbit/s)(annex~~e~~ C.2.2.) containing two code signals with equal level.

The reference for this requirement is 25.102 clause 6.2.

5.2.3 Test purpose

For the following reasons:
Limit interference.
Verify that the maximum output power is achievable.
It is the purpose of the test to verify that the UE's maximum output power is within its tolerance limits under all environmental conditions.

5.2.4 Method of test

5.2.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.1.

2) Calls are set up according to the Generic call setup procedure using parameters as specified in Tables 5.2.4.a and b

3) Enter the UE into loopback test mode and start the loopback test.

Table 5.2.4.a: Test parameters for Maximum Output Power single code

Parameter	Value/description
UL Reference measurement channel	12.2kbps, according to annex C.2.1
Uplink Power Control	SS level and signalling values such that UE transmits maximum power.
Data content	real life (sufficient irregular)

Table 5.2.4.b: Test parameters for Maximum Output Power multicode

Parameter	Value/description
Reference measurement channel	Multicode 12.2kbps, according to annex C.2.2
Uplink Power Control	SS level and signalling values such that UE transmits maximum power
Data content	real life (sufficient irregular)

5.2.4.2 Procedure

1) Measure thermal power over the useful part of the burst.

with a measurement bandwidth of at least 5 MHz.

2) Average over TBD time slots.

3) Run step 1) and 2) for RF channels Low / Mid / High

5.2.5 Test Requirements

The output power, measured in step 2) of subclause 5.2.4.2, shall not exceed the prescribed tolerance in Table 5.2.2 a and b.

5.5.2.1 Spectrum emission mask

5.5.2.1.1 Definition and applicability

The spectrum emission mask of the UE is a requirement that applies to frequencies which are between 2.5 and 12.5MHz to both sides of the carrier frequency. The out of channel emission is specified relative to the UE output power in a 3.84 MHz bandwidth.
The requirements of this test apply to all types of UTRA-UE.

5.5.2.1.2 Conformance requirements

The power of ~~the 21dBm power class 3~~ any UE emission shall not exceed the levels specified in table 5.5.2.1.2.
The reference for this requirement is 3G TS 25.102 clause 6.6.2.1.1

Table 5.5.2.1.2: Spectrum Emission Mask Requirement

Frequency offset from carrier ?f	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.
3. The lower limit shall be –50dBm/3.84 MHz or which ever is higher.

5.5.2.1.3 Test purpose

This test supplements Occupied Bandwidth (verifying the spectral concentration of the UE's emissions) and Adjacent Channel Leakage Ratio (simulating the perception of other UTRA receivers) in a system independent way. It is the purpose of this test to limit interferences to other systems (wideband or narrowband).

5.5.2.1.4 Method of test

5.5.2.1.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.1.
2) A call is set up according to the generic call setup procedure using parameters as specified in table E.3.1.2.
3) Enter the UE into loopback test mode and start the loopback test.

5.5.2.1.4.2 Procedure

1) Measure the power of the transmitted signal with a measurement filter of bandwidths according to table 5.5..2.1.2. The characteristic of the filter shall be approximately Gaussian (typical spectrum analyzer filter). The center frequency of the filter shall be stepped in contiguous steps according to table 5.5.2.1.2. The step duration shall be sufficient slow to capture the active TS. The measured power shall be recorded for each step.
2) Measure the wanted output power according to annex B.
3) Display the results of 1) in dBc with respect to 2).

5.5.2.1.5 Test requirements

The result 5.5.2.1.4.2. step 3) shall fulfil the requirements of table 5.5.2.1.2.

3GPP TSG T WG1 WG meeting#10 *TSG T1#10(01)0067*

Copenhagen, Denmark, 8-9 February, 2001

CR-Form-v3

CHANGE REQUEST

⌘	34.122	CR	032	⌘	rev	-	⌘	Current version:	3.2.0 see other comments below	⌘

*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:	⌘	**Correction of Out-of-Sync criteria following RAN4 CR 38**
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 2001-02-02
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:	⌘	.Maintenance according to core specification 25.102
Summary of change:	⌘	As decided in RAN4#11 for FDD, the UE "shall" turn its power on after time instant F, i.e. "may" is changed to "shall". Also the related Figure is corrected and the brackets around the timing parameters have been removed
Consequences if not approved:	⌘	Incorrect behaviour of the UE.

Clauses affected:	⌘	5.4.5
Other specs affected:	⌘	☐ Other core specifications ⌘ ☐ Test specifications ☐ O&M Specifications
Other comments:	⌘	Pay attention, when incorporating this CR into 34.122: This CR deals with the same subclause as the CR in T1R010027r1

5.4.5 Out-of-synchronisation handling of output power

5.4.5.1 Definition and applicability

The UE shall monitor the DPCH quality in order to detect a loss of the signal on Layer 1, as specified in TS 25.224. [5] The thresholds Q_{out} and Q_{in} specify at what DPCH quality levels the UE shall shut its power off and when it shall ~~may~~ turn its power ~~transmitter~~ on, respectively. The thresholds are not defined explicitly, but are defined by the conditions under which the UE shall shut its transmitter off and turn it on, as stated in this clause.
The requirement of this subclause shall apply to all types of UTRA-UE.

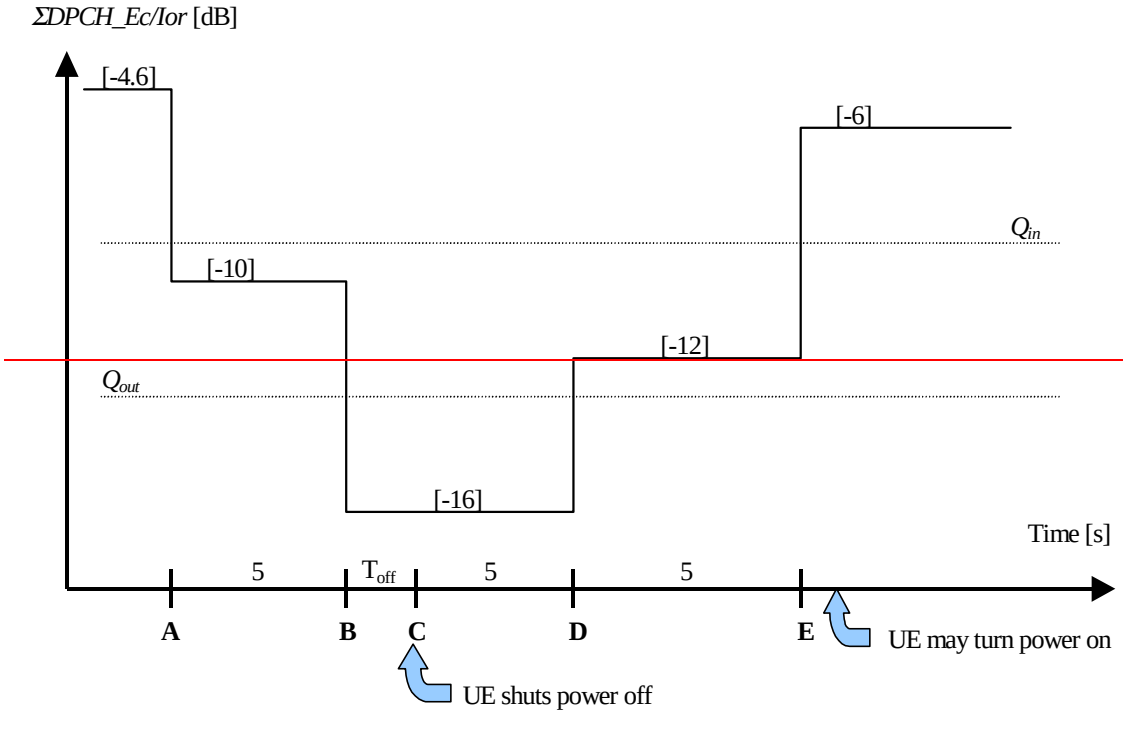
5.4.5.2 Conformance requirement

The parameters in Table 5.4.5.1 are defined using the DL reference measurement channel (12.2) kbps specified in Annex C where the CRC bits are replaced by data bits, and with static propagation conditions.

Table 5.4.5.1: DCH parameters for test of Out-of-synch handling

Parameter	Unit	Value
$\hat{I}_{or}/I_{oc}$	dB	-1
I_{oc}	dBm/3.84 MHz	-60
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	dB	See figure yy
Information Data Rate	kbps	13
TFCI	-	On

The conditions for when the UE shall shut its transmitter off ~~on~~ and when it shall ~~may~~ turn it on are defined by the parameters in Table 5.4.5.1 together with the DPCH power level as defined in Figure 5.4.5.1.



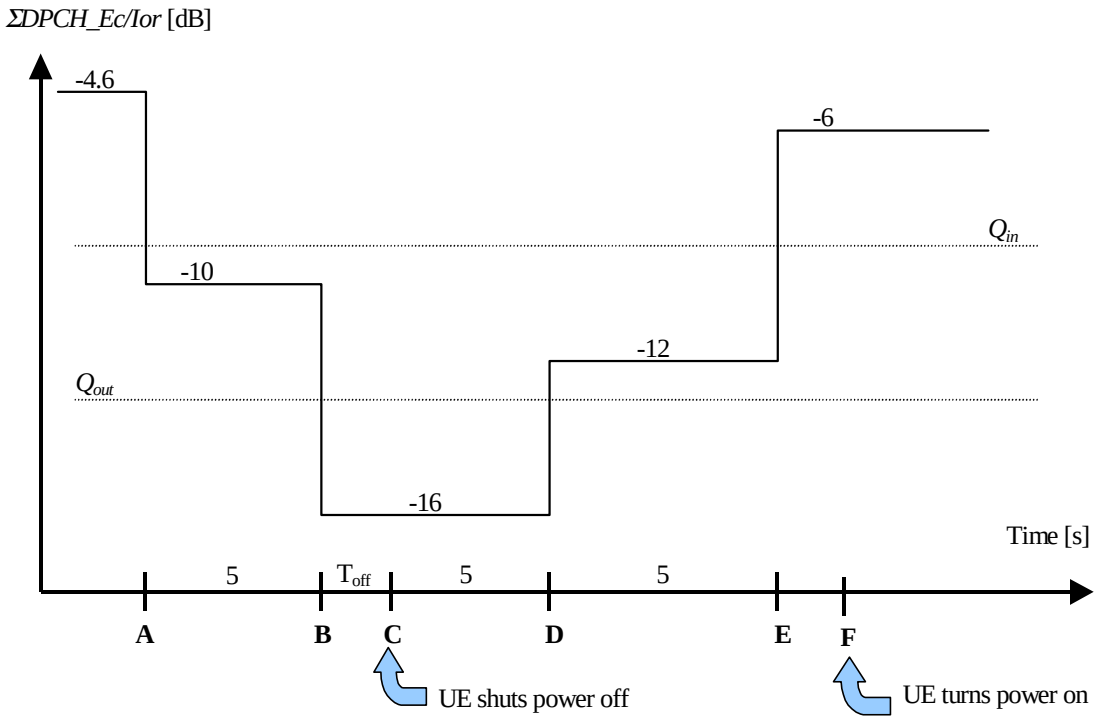


Figure 5.4.5.1. Conditions for out-of-synch handling in the UE. The indicated thresholds Q_{out} and Q_{in} are only informative.

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

The reference for this test is 25.102 clause 6.4.3.

5.4.5.3 Test purpose

To verify that the UE monitors the DPCH quality and turns its transmitter on or off according to DPCH level diagram specified in figure5.4.5.1

5.4.5.4 Method of test

5.4.5.4.1 Initial conditions

1) Connect the SS to the UE antenna connector as shown in Figure A.1.
2) Calls are set up according to the Generic call setup procedure using parameters as specified in table 5.4.5.1
3) Enter the UE into loopback test mode and start the loopback test.

5.4.5.4.2 Procedure

1) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -4.6 dB and verify that the UE TX signal is on.
2) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -10 dB and verify that the UE TX signal remains on.

3) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -16 dB and verify that the UE TX signal turns off ~~[~~200~~]~~ ms or earlier with respect to that instant.

4) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -12 dB and verify that the UE TX signal remains off.

5) Set the SS TX signal quality to $\frac{\Sigma DPCH\_E_c}{I_{or}}$ = -6 dB and verify that the UE TX signal ~~remains off at least[200] ms with respect to this instant and~~ is switched on ~~[tbd~~ 42~~00]~~ ms or earlier with respect to ~~the same~~ that instant.

5.4.5.5 Test Requirements

The UE TX on-criterion including tolerance window is derived from the initial conditions.
The UE TX off criterion is defined in clause 5.4.3 of this TS (Transmit off power)
To pass the test, steps 1 through 5 of the procedure must be fulfilled.

3Gpp TSG T1 WG meeting #10
Copenhagen, Denmark, 8-9 February, 2001

TSG T1#10(01)0068

CR-Form-v3

CHANGE REQUEST

⌘ **TS 34.122 CR 027** ⌘ rev **-** ⌘ Current version: **3.2.0** ⌘

*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:	⌘	Test tolerance for Annex F in TS34.122
Source:	⌘	T1/RF
Work item code:	⌘	***Date:*** ⌘ 6 February 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:	⌘	Test tolerance should be introduced into test cases
Summary of change:	⌘	Updating of AnnexF according to E-mail discussion, RAN4#15 decisions and T1-RF discussion
Consequences if not approved:	⌘	Inconsistency with core spec and other paragraphs of test spec

Clauses affected:	⌘	Annex F		
Other specs affected:	⌘	☐ Other core specifications ☐ Test specifications ☐ O&M Specifications	⌘	
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://www.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2000-09 contains the specifications resulting from the September 2000 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.

Annex F (normative): General test conditions and declarations

The requirements of this clause apply to all applicable tests in this specification~~the present document, when applicable~~.

Many of the tests in this specification ~~e present~~ document measure a parameter relative to a value ~~which~~ that is not fully specified in the UE specifications. For these tests, the ~~conformance~~ Minimum R~~r~~equirement is determined relative to a nominal value specified by the manufacturer.

When specified in a test, the manufacturer shall declare the nominal value of a parameter, or whether an option is supported.

~~In order to be consistent with industry practise, the shared risk principle should be used for all tests. It may be decided to relax the core specification value by a certain relaxation value (hereby named "Test Tolerance") that should be evaluated on a case per case basis taking into account different factors such as test equipment uncertainty, mismatch, and criticality for system performance .~~In all the relevant subclauses in this clause all Bit Error Ratio (BER), Block Error Ratio (BLER) measurements shall be carried out according to the general rules for statistical testing in annex F.~~4~~6.

F.1 Acceptable uncertainty of ~~measurement equipment~~Test System

The maximum acceptable uncertainty of ~~measurement equipment~~ the Test Systemis specified ~~separately~~ below for each test, where appropriate. The ~~measurement equipment~~Test System shall enable the stimulus signals in the test case to be adjusted to within the specified range, and the ~~conformance requirement~~equipment under test to be measured with an uncertainty not exceeding the specified values. All ~~ranges~~ tolerances and uncertainties are absolute values, and are valid for a confidence level of 95 %, unless otherwise stated.

A confidence level of 95% is the measurement uncertainty tolerance interval for a specific measurement that contains 95% of the performance of a population of test equipment.

For RF tests ~~I~~it should be noted that the ~~stated~~ uncertainties in subclause F.1 apply to the ~~test equipment~~Test System ~~only~~ operating into a nominal 50 ohm load and do not include system effects due to mismatch between the DUT and the ~~test~~ Test ~~equipment~~System.

F.1.1 Measurement of test environments

The measurement accuracy of the UE test environments defined in Annex G, Test environments shall be.

- Pressure ±5 kPa.
- Temperature ±2 degrees.
- Relative Humidity ±5 %.
- DC Voltage ±1,0 %.
- AC Voltage ±1,5 %.
- Vibration 10 %.
- Vibration frequency 0,1 Hz.

The above values shall apply unless the test environment is otherwise controlled and the specification for the control of the test environment specifies the uncertainty for the parameter.

F.1.~~1~~2 Measurement of ~~T~~transmitter

Table F.1.2 Maximum Test System Uncertainty for transmitter tests

Subclause	**Maximum Test System Uncertainty**
5.2 UE Maximum Output Power	±0.7 dB
5.3 Frequency Stability	± 10Hz
5.4.1 Uplink power control	**Relative** ±[0.3] dB
5.4.2 Minimum Transmit Power	±1.0 dB
5.4.3 Transmit OFF Power	±1.5 dB
5.4.4 Transmit ON/OFF Power	TBD
5.4.5 Out-of-synchronisation handling of output power	TBD
5.5.1 Occupied Bandwidth	±100 kHz
5.5.2.1 Spectrum emission mask	±1.5 dB
5.5.2.2 ACLR	5 MHz offset: ± 0.8 dB 10 MHz offset: ± 0.8 dB
5.5.3 Spurious emissions	± 2.0 dB for UE and coexistenece bands for results > -60 dBm ± 3.0 dB for results < -60 dBm Outside above: f≤2.2GHz : ± 1.5 dB 2.2 GHz < f ≤ 4 GHz : ± 2.0 dB f > 4 GHz : ±4.0 dB
5.6 Transmit intermodulation:	Will be based on BS, need to work out freq and level ranges.
5.7.1 Transmit modulation: EVM	±2.5 %
5.7.2 Transmit modulation: peak code domain error	±1 dB

~~Subclause 5.2, UE maximum output power:~~

~~UE maximum output power ±[] dB.~~

~~Subclause 5.3, Frequency stability:~~

~~carrier frequency ±[] Hz.~~

~~Subclause 5.4.1, Uplink power control:~~

~~— UE output power ±[] dB.~~

~~Subclause 5.4.2, Minimum Transmit Power:~~

~~— UE minimum output power ±[] dB.~~

~~Subclause 5.4.3, Transmit OFF Power:~~

~~— UE minimum output power ±[] dB.~~

~~— transmit ON/OFF time ±[] s.~~

~~Subclause 5.4.4, Transmit ON/OFF Time mask:~~

~~— UE minimum output power ±[] dB.~~

~~— transmit ON/OFF time ±[] s.~~

~~Subclause 5.4.5, Out-of-synchronisation handling of output power:~~

~~— $\frac{DPDCH\_E_c}{I_{or}}$ ±[] dB.~~

~~— transmit ON/OFF time ±[] s.~~

~~Subclause 5.5.1, Occupied bandwidth:~~

~~— occupied channel bandwidth ±[] kHz.~~

~~Subclause 5.5.2.1, Spectrum emission mask:~~

~~— emission power:~~

~~Table F.1: Uncertainty for Spectrum emission mask measurement~~

~~Frequency offset from carrier Δf~~	~~Uncertainty~~
~~2.5 - 3.5 MHz~~	~~±[] dB~~
~~3.5 - 7.5 MHz~~	~~±[] dB~~
~~7.5 - 8.5 MHz~~	~~±[] dB~~
~~8.5 - 12.5 MHz~~	~~±[] dB~~

~~Subclause 5.5.2.2, Adjacent Channel Leakage power Ratio (ACLR):~~

~~— ACLR ± 5 MHz (Relative carrier power) ±[] dB;~~

~~— ACLR ± 10 MHz (Relative carrier power) ±[] dB.~~

~~Subclause 5.5.3, Spurious emissions:~~

~~— emission power:~~

~~Table F.2: Uncertainty for General spurious emissions requirements~~

~~Frequency Bandwidth~~	~~Uncertainty~~
~~9 kHz ≤ f < 150 kHz~~	~~±[] dB~~
~~150 kHz ≤ f < 30 MHz~~	~~±[] dB~~
~~30 MHz ≤ f < 1000 MHz~~	~~±[] dB~~
~~1 GHz ≤ f < 12.75 GHz~~	~~±[] dB~~

~~**Table F.3: Uncertainty for Additional spurious emissions requirements**~~

~~**Frequency Bandwidth**~~	~~**Uncertainty**~~
~~925 MHz ≤ f ≤ 935 MHz~~	~~±[ ] dB~~
~~935 MHz < f ≤ 960 MHz~~	~~±[ ] dB~~
~~1805 MHz ≤ f ≤ 1880 MHz~~	~~±[ ] dB~~

~~Subclause 5.6, Transmit intermodulation:~~

~~**Table F.4: Uncertainty for Transmit Intermodulation**~~

~~**CW Signal Frequency Offset from Transmitting Carrier**~~	~~**5MHz**~~	~~**10MHz**~~
~~Interference CW Signal Level~~	~~±[ ] dB~~	
~~Intermodulation Product~~	~~±[ ] dB~~	~~±[ ] dB~~

~~Subclause 5.7, Transmit modulation:~~

- ~~modulation accuracy (EVM) ±[] % RMS.~~
- ~~peak code domain error ±[] dB.~~

F.1.~~2~~3 Measurement of ~~R~~receiver

Table F.1.3 Maximum Test System Uncertainty for receiver tests

Subclause	**Maximum Test System Uncertainty**
6.2 Reference Sensitivity Level	± 0.7 dB
6.3 maximum input level:	TBD
6.4 Adjacent Channel Selectivity (ACS)	Overall system uncertainty ± 1.1 dB
6.5 Blocking Characteristics	Using ± 0.7 dB for signal and interferer as currently defined, and 68 dB ACLR @ 10 MHz. System error with f <15 MHz offset: ± 1.4 dB f >= 15 MHz offset and f ≤ 2.2 GHz: ± [1.0] dB 2.2 GHz < f ≤ 4 GHz : ±[1.7] dB f > 4 GHz: ±[3.1] dB

6.6 Spurious Response	f < 2.2 GHz: ±1.0dB 2.2 < f < 4GHz: ±1.7dB f > 4 GHz: ±3.1dB
6.7 Intermodulation Characteristics	Assume ± 0.7 dB for all signals. Overall uncertainty = ± [0.6] dB Needs further analysis
6.8 Spurious Emissions	± 3.0 dB for UE receive band (-78 dBm) Outside above: f≤2.2GHz : ± 2.0dB (-57 dBm) 2.2 GHz < f ≤ 4 GHz : ± 2.0 dB (-47 dBm) f > 4 GHz : ±4.0 dB (-47 dBm)

~~Subclause 6.2, Reference sensitivity level:~~

~~— test signal power ±[] dB;~~

~~Subclause 6.3, Maximum input level:~~

~~— test signal power ±[] dB.~~

~~Subclause 6.4, Adjacent Channel Selectivity (ACS):~~

~~— test signal power ±[] dB;~~

~~— interfering signal power (Relative to the test signal) ±[] dB;~~

~~Subclause 6.5, Blocking characteristics:~~

~~Table F.5: Uncertainty for In-band blocking characteristics~~

~~Parameter~~	~~10 MHz offset~~	~~15 MHz offset~~	~~Unit~~
~~DPCH_Ec~~	~~±[]~~	~~±[]~~	~~dB~~
~~$\hat{I}_{or}$~~	~~±[]~~	~~±[]~~	~~dB~~
~~$I_{blocking}$ (modulated)~~	~~±[]~~	~~±[]~~	~~dB~~
~~F_{uw} (offset)~~	~~+10 or -10~~	~~+15 or -15~~	~~MHz~~

Table F.6: Uncertainty for Out of band blocking characteristics

Parameter	Band 1	Band 2	Band 3	Unit
DPCH_Ec	±[ ]	±[ ]	±[ ]	dB
$\hat{I}_{or}$	±[ ]	±[ ]	±[ ]	dB
$I_{blocking}$ (CW)	±[ ]	±[ ]	±[ ]	dB
Fuw For operation in frequency bands as definded in subclause 4.2(a)	1840 <f <1885 1935 <f <1995 2040 <f <2085	1815 <f <1840 2085 <f 2110	1< f <1815 2110< f <12750	MHz
Fuw For operation in frequency bands as definded in subclause 4.2(b)	1790 < f < 1835 2005 < f < 2050	1765 < f < 1790 2050 < f < 2075	1 < f < 1765 2075 < f < 12750	MHz
Fuw For operation in frequency bands as definded in subclause 4.2(c)	1850 < f < 1895 1945 < f < 1990	1825 < f < 1850 1990 < f < 2015	1 < f < 1825 2015 < f < 12750	MHz

Subclause 6.6, Spurious response:

- test signal power ±[] dB;
- interfering signal power (Relative to the test signal) ±[] dB;

Subclause 6.7, Intermodulation characteristics:

- test signal power ±[] dB;
- interfering signals power ±[] dB;

Subclause 6.8, Spurious emissions:

- emission power:

Table F.7: Uncertainty for Spurious emissions

Frequency Bandwidth	Uncertainty
9 kHz – 1 GHz	±[ ] dB
1 GHz – 1.9 GHz and 1.92 GHz – 2.01 GHz and 2.025 GHz – 2.11 GHz	±[ ] dB
1.9 GHz – 1.92 GHz and 2.01 GHz – 2.025 GHz and 2.11 GHz – 2.170 GHz	±[ ] dB
2.170 GHz – 12.75 GHz	±[ ] dB

F.1.34 Performance requirement

Table F.1.4 Maximum Test System Uncertainty for Performance Requirements

Subclause	Maximum Test System Uncertainty
TBD	TBD

Subclause 7.2, Demodulation in Static Propagation Conditions:

- $\hat{I}_{or}/I_{oc}$ ±[] dB;

~~I_{oc} ±[] dB;~~

~~$\frac{\Sigma DPCH\_E_c}{I_{or}}$ ±[] dB.~~

~~Subclause 7.3, Demodulation of DCH in Multiplath Fading conditions:~~

~~$\hat{I}_{or}/I_{oc}$ ±[] dB;~~

~~I_{oc} ±[] dB;~~

~~$\frac{\Sigma DPCH\_E_c}{I_{or}}$ ±[] dB.~~

~~Subclause 7.4, Base Station Transmit diversity modes:~~

~~$\hat{I}_{or}/I_{oc}$ ±[] dB;~~

~~I_{oc} ±[] dB;~~

~~$\frac{PCCPCH\_E_c}{I_{or}}$ ±[] dB.~~

F.1.45 Requirements for support of RRM

TBD

F.2 Test tTolerances (This subclause is informative)

The Test Tolerances defined in this subclause have been used to relax the Minimum Requirements in this specification to derive the Test Requirements.

The Test Tolerances are derived from Test System uncertainties, regulatory requirements and criticality to system performance. As a result, the Test Tolerances may sometimes be set to zero.

~~The following values may be increased only on a test by test basis.~~ The test tolerances should not be ~~increased~~ modified for any reason e.g. to take account of commonly known test system errors (such as mismatch, cable loss, etc.).

F.2.1 Transmitter

Table F.2.1 Test Tolerances for transmitter tests.

Subclause	**Test Tolerance**
5.2 Maximum Output Power	0.7 dB
5.3 UE Frequency Stability	10 Hz
5.4.2 Minimum Transmit Power	1.0 dB
5.4.5 Out-of-synchronisation handling of output power: $\frac{DPCCH\_E_c}{I_{or}}$	[0.3] dB
5.4.5 Out-of-synchronisation handling of output power: transmit ON/OFF time	0 ms
5.5.1 Transmit OFF power	1.5 dB

5.5.1 Occupied Bandwidth	0 kHz
5.5.2.1 Spectrum emission mask	1.5 dB
5.5.2.2 Adjacent Channel Leakage Power Ratio (ACLR)	0.8 dB
5.5.3 Spurious Emissions	0 dB
5.6 Transmit Intermodulation	0 dB
5.7.1 Error Vector Magnitude	0%
5.7.2 Peak code domain error	1.0 dB

~~Subclause 5.2, UE maximum output power:~~

~~— UE maximum output power ±[] dB.~~

~~Subclause 5.3, Frequency stability:~~

~~— carrier frequency ±[] Hz.~~

~~Subclause 5.4.1, Uplink power control in the uplink:~~

~~— UE output power ±[] dB.~~

~~Subclause 5.4.2, Minimum Transmit Power:~~

~~— UE minimum output power ±[] dB.~~

~~Subclause 5.4.3, Transmit OFF Power:~~

~~— UE minimum output power ±[] dB.~~

~~— transmit ON/OFF time ±[] s.~~

~~Subclause 5.4.4, Transmit ON/OFF Time mask:~~

~~— UE minimum output power ±[] dB.~~

~~— transmit ON/OFF time ±[] s.~~

~~Subclause 5.4.5, Out-of-synchronisation handling of output power:~~

~~— transmit ON/OFF time ±[] s.~~

~~Subclause 5.5.1, Occupied bandwidth:~~

~~— occupied channel bandwidth ±[] kHz.~~

~~Subclause 5.5.2.1, Spectrum emission mask:~~

~~— emission power:~~

~~Table F.8: Tolerance for Spectrum emission mask measurement~~

~~Frequency offset from carrier Δf~~	~~Tolerance~~
~~2.5 - 3.5 MHz~~	~~±[] dB~~
~~3.5 - 7.5 MHz~~	~~±[] dB~~
~~7.5 - 8.5 MHz~~	~~±[] dB~~
~~8.5 - 12.5 MHz~~	~~±[] dB~~

~~Subclause 5.5.2.2, Adjacent Channel Leakage power Ratio (ACLR):~~

~~- ACLR ± 5 MHz (Relative carrier power) ±[] dB;~~

~~- ACLR ± 10 MHz (Relative carrier power) ±[] dB.~~

~~Subclause 5.5.3, Spurious emissions:~~

~~- emission power:~~

~~**Table F.9: Tolerance for General spurious emissions requirements**~~

~~Frequency Bandwidth~~	~~Tolerance~~
~~9 kHz ≤ f < 150 kHz~~	~~±[0] dB~~
~~150 kHz ≤ f < 30 MHz~~	~~±[0] dB~~
~~30 MHz ≤ f < 1000 MHz~~	~~±[0] dB~~
~~1 GHz ≤ f < 12.75 GHz~~	~~±[0] dB~~

~~**Table F.10: Tolerance for Additional spurious emissions requirements**~~

~~Frequency Bandwidth~~	~~Tolerance~~
~~925 MHz ≤ f ≤ 935 MHz~~	~~±[0] dB~~
~~935 MHz < f ≤ 960 MHz~~	~~±[0] dB~~
~~1805 MHz ≤ f ≤ 1880 MHz~~	~~±[0] dB~~

~~Subclause 5.6, Transmit intermodulation:~~

~~**Table F.11: Tolerance for Transmit Intermodulation**~~

~~CW Signal Frequency Offset from Transmitting Carrier~~	~~5MHz~~	~~10MHz~~
~~Intermodulation Product~~	~~±[ ] dB~~	~~±[ ] dB~~

~~Subclause 5.7, Transmit modulation:~~

~~- modulation accuracy (EVM) ±[] % RMS.~~

~~- peak code domain error ±[] dB.~~

F.2.2 Receiver

Table F.2.2 Test Tolerances for receiver tests.

Subclause	**Test Tolerance**
6.2 Reference sensitivity level	0.7 dB
6.4 Adjacent channel selectivity	0 dB
6.5 Blocking characteristics	0 dB
6.6 Spurious Response	0 dB
6.7 Intermodulation Characteristics	0 dB
6.8 Spurious emissions	0 dB

~~Subclause 6.2, Reference sensitivity level:~~

~~UE BER ±[] %.~~

~~Subclause 6.3, maximum input level:~~

~~UE BER ±[] %.~~

~~Subclause 6.4, Adjacent Channel Selectivity (ACS):~~

~~UE BER ±[] %.~~

~~Subclause 6.5, Blocking characteristics:~~

~~UE BER ±[] %.~~

~~Subclause 6.6, Spurious response:~~

~~UE BER ±[] %.~~

~~Subclause 6.7, Intermodulation characteristics:~~

~~UE BER ±[] %.~~

~~Subclause 6.8, Spurious emissions:~~

~~emission power:~~

~~Table F.12: Tolerance for Spurious emissions~~

~~Frequency Bandwidth~~	~~Uncertainty~~
~~9 kHz – 1 GHz~~	~~±[0] dB~~
~~1 GHz – 1.9 GHz and 1.92 GHz – 2.01 GHz and 2.025 GHz – 2.11 GHz~~	~~±[0] dB~~
~~1.9 GHz – 1.92 GHz and 2.01 GHz – 2.025 GHz and 2.11 GHz – 2.170 GHz~~	~~±[0] dB~~
~~2.170 GHz – 12.75 GHz~~	~~±[0] dB~~

F.2.3 Performance requirements

Table F.2.3 Test Tolerances for Performance Requirements.

Subclause	**Test Tolerance**
7.2, Demodulation in Static Propagation Condition	
7.3, Demodulation of DCH in Multiplath Fading conditions	
7.4, Base Station Transmit diversity modes	

~~Subclause 7.2, Demodulation in Static Propagation Condition:~~

~~UE BLER ±[] %.~~

~~Subclause 7.3, Demodulation of DCH in Multiplath Fading conditions:~~

~~UE BLER ±[] %.~~

~~Subclause 7.4, Base Station Transmit diversity modes:~~

~~UE BLER ±[] %.~~

F.2.4 Requirements for support of RRM

TBD

F.3 Interpretation of measurement results

~~Compliance with the requirement is determined by comparing the measured value (or derived value from the measured one) with the test limit. The test limit shall be calculated by relaxing the specified limit in the core requirement using only the test tolerance as specified in subclause F.2 [see section 4.1 in TS25.102].~~ 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.

The actual measurement uncertainty of the T~~t~~est ~~equipment~~ System for the measurement of each parameter shall be included in the test report.

The recorded value for the T~~t~~est ~~equipment~~ System uncertainty shall be, for each measurement, equal to or lower than the appropriate figure in subclause F.1 of this specification~~the present document~~.

If the ~~t~~Test ~~equipment~~System for a test is known to have a measurement uncertainty greater than that specified in subclause F.1, it is still permitted to use this apparatus provided that an adjustment is made ~~to the measured~~ value as follows.

~~The initial test limit is derived as above.~~ Any additional uncertainty in the T~~t~~est ~~equipment~~ System over and above that specified in subclause F.1 shall be used to tighten the T~~t~~est Requirement – making the test harder to pass. (For some tests e.g. receiver tests, this may require modification of stimulus signals).~~limit.~~ This procedure will ensure that a ~~t~~Test ~~equipment~~ System not compliant with subclause F.1does not increase the chance of passing a device under test where that device would otherwise have failed the test if a T~~t~~est ~~equipment~~ System compliant with subclause F.1 had been used.

F.4 Derivation of Test Requirements (This subclause is informative)

The Test Requirements in this specification have been calculated by relaxing the Minimum Requirements of the core specification using the Test Tolerances defined in subclause F.2. When the Test Tolerance is zero, the Test Requirement will be the same as the Minimum Requirement. When the Test Tolerance is non-zero, the Test Requirements will differ from the Minimum Requirements, and the formula used for this relaxation is given in table F.4.

Table F.4. Derivation of Test Requirements

Test	**Minimum Requirement in TS 25.102**	**Test Tolerance (TT)**	**Test Requirement in TS 34.122**

5.2 Maximum Output Power	Power single code Power class 2 (24 dBm) Tolerance = +1/-3 dB Power class 3 (21 dBm) Tolerance = +2/-2 dB Power multi code Power class 2 (21 dBm) Tolerance = +1/-3 dB Power class 3 (18 dBm) Tolerance = ±2 dB	0.7 dB	Formula: Upper Tolerance limit + TT Lower Tolerance limit – TT For power classes 2 (single and multi): Upper Tolerance limit = +1.7 dB Lower Tolerance limit = -3.7 dB For power class 3 (single and milti): Upper Tolerance limit = +2.7 dB Lower Tolerance limit = -2.7 dB
5.3 UE Frequency Stability	The UE modulated carrier frequency shall be accurate to within ±0.1 ppm compared to the carrier frequency received from the Node B.	10 Hz	Formula: modulated carrier frequency error + TT modulated carrier frequency error = ±(0.1 ppm + 10 Hz).
5.4.2 Minimum Transmit Power	UE minimum transmit power shall be less than –44 dBm	1.0 dB	Formula: UE minimum transmit power + TT UE minimum transmit power = –43 dBm
5.4.5 Out-of-synchronisation handling of output power:	$\frac{DPCCH\_E_c}{I_{or}}$ levels before A –4.6 dB AB: -10 dB BD: -16 dB DE: -12 dB EF: -6 dB transmit ON/OFF time 200ms	[0.3] dB for $\frac{DPCCH\_E}{I_{or}}$ 0 ms for timing measurement	Formulas: Ratio between A and B + TT Ratio between B and D - TT Ratio between D and E - TT Ratio between E and F + TT transmit ON/OFF time + TT timing $\frac{DPCCH\_E_c}{I_{or}}$ levels: Before A: -4.6 AB: -10 + [0.3] dB BD: -16 – [0.3] dB DE: -12 - [0.3] dB EF: -6 + [0.3] dB Uncertainty of OFF power measurement is handled by Transmit OFF power test and uncertainty of ON power measurement is handled by Minimum output power test. transmit ON/OFF time 200ms
5.5.1 Transmit OFF power	Transmit OFF power shall be less than –65 dBm	1.5 dB	Formula: Transmit OFF power + TT Transmit OFF power = –63.5 dBm
5.5.1 Occupied Bandwidth	The occupied channel bandwidth shall be less than 5 MHz based on a chip rate of 3.84 Mcps.	0 kHz	Formula: occupied channel bandwitdh: + TT occupied channel bandwidth = 5.0 MHz

<table>
<tr><td>5.5.2.1 Spectrum emission mask</td><td colspan="2">Minimum requirement defined in TS25.101 Table 6.10.

The lower limit shall be –50 dBm / 3.84 MHz or which ever is higher.</td><td>1.5 dB</td><td colspan="2">Formula: Minimum requirement + TT

Lower limit + TT

Add 1.5 to Minimum requirement entries in TS25.101 Table 6.10

The lower limit shall be –48.5 dBm / 3.84 MHz or which ever is higher.</td></tr>
<tr><td>5.5.2.2 Adjacent Channel Leakage Power Ratio (ACLR)</td><td colspan="2">Power Classes 2 and 3:

UE channel +5 MHz or -5 MHz, ACLR limit: 33 dB

UE channel +10 MHz or -10 MHz, ACLR limit: 43 dB</td><td>0.8 dB</td><td colspan="2">Formula: ACLR limit - TT

Power Classes 2 and 3:

UE channel +5 MHz or -5 MHz, ACLR limit: 32.2 dB

UE channel +10 MHz or -10 MHz, ACLR limit: 42.2 dB</td></tr>
<tr><td rowspan="11">5.5.3 Spurious Emissions</td><td colspan="2"></td><td></td><td colspan="2">Formula: Minimum Requirement+ TT

Add zero to all the values of Minimum Requirements in table 5.5.3</td></tr>
<tr><td>Frequency Band</td><td>Minimum Requirement</td><td></td><td>Frequency Band</td><td>Minimum Requirement</td></tr>
<tr><td>9 kHz ≤ f < 150 kHz</td><td>–36dBm /1kHz</td><td>0 dB</td><td>9kHz ≤ f < 1GHz</td><td>–36dBm /1kHz</td></tr>
<tr><td>150 kHz ≤ f < 30 MHz</td><td>–36dBm /10kHz</td><td>0 dB</td><td>150 kHz ≤ f < 30 MHz</td><td>–36dBm /10kHz</td></tr>
<tr><td>30 MHz ≤ f < 1000 MHz</td><td>–36dBm /100kHz</td><td>0 dB</td><td>30 MHz ≤ f < 1000 MHz</td><td>–36dBm /100kHz</td></tr>
<tr><td rowspan="3">1 GHz ≤ f < 12.75 GHz</td><td rowspan="3">–30dBm /1MHz</td><td>0 dB</td><td>1 GHz ≤ f < 2.2 GHz</td><td>–30dBm /1MHz</td></tr>
<tr><td>0 dB</td><td>2.2 GHz ≤ f < 4 GHz</td><td>–30dBm /1MHz</td></tr>
<tr><td>0 dB</td><td>4 GHz ≤ f < 12.75 GHz</td><td>–30dBm /1MHz</td></tr>
<tr><td>925 MHz < f < 935 MHz</td><td>–67dBm /100kHz</td><td>0 dB</td><td>925 MHz < f < 935 MHz</td><td>–67dBm /100kHz</td></tr>
<tr><td>935 MHz ≤ f ≤ 960 MHz</td><td>–79dBm /100kHz</td><td>0 dB</td><td>935 MHz ≤ f ≤ 960 MHz</td><td>–79dBm /100kHz</td></tr>
<tr><td>1805 MHz < f ≤ 1880 MHz</td><td>–71dBm /100kHz</td><td>0 dB</td><td>1805 MHz < f ≤ 1880 MHz</td><td>–71dBm /100kHz</td></tr>
<tr><td>1805 MHz ≤ f ≤ 1880 MHz</td><td>–71dBm /100kHz</td><td>0 dB</td><td>1805 MHz ≤ f ≤ 1880 MHz</td><td>–71dBm /100kHz</td></tr>
</table>

5.6 Transmit Intermodulation	Intermodulation Product 5MHz -31 dBc 10MHz -41 dBc	0 dB	Formula: Intermodulation Product + TT Intermodulation Product 5MHz -31 dBc 10MHz -41 dBc
5.7.1 Error Vector Magnitude	The Error Vector Magnitude shall not exceed 17.5 %	0%	Formula: EVM limit + TT EVM limit = 17.5 %
5.7.2 Peak code domain error	The peak code domain error shall not exceed -21dB	±1.0 dB	Formula: Peak code domain error + TT Peak code domain error = -20 dB
6.2 Reference sensitivity level	$\hat{I}_{or}$ = -105 dBm / 3.84 MHz BER limit = 0.001	0.7 dB	Formula: $\hat{I}_{or}$ + T BER limit unchanged $\hat{I}_{or}$ = -104.3 dBm / 3.84 MHz
6.4 Adjacent Channel Selectivity	$\hat{I}_{or}$ = -91 dBm / 3.84 MHz $I_{oac\ (modulated)}$ = -52 dBm/3.84 MHz BER limit = 0.001	0 dB	Formula: $\hat{I}_{or}$ unchanged Ioac - TT BER limit unchanged Ioac = -52 dBm/3.84 MHz
6.5 Blocking Characteristics	See Table 6.5.2a and 6.5.2b. in TS34.122 BER limit = 0.001	0 dB	Formula: $I_{blocking}$ (modulated) - TT (dBm/3.84MHz) $I_{blocking}$ (CW) - TT (dBm) BER limit unchanged
6.6 Spurious Response	Iblocking(CW) –44 dBm Fuw: Spurious response frequencies BER limit = 0.001	0 dB	Formula: $I_{blocking}$ (CW) - TT (dBm) Fuw unchanged BER limit unchanged Iblocking(CW) -44 dBm
6.7 Intermodulation Characteristics	Iouw1 (CW) -46 dBm Iouw2 (modulated) –46 dBm / 3.84 MHz Fuw1 (offset) 10 MHz Fuw2 (offset) 20 MHz BER limit = 0.001	0 dB	Formula: TBD BER limit unchanged.
6.8 Spurious Emissions			Formula: Maximum level+ TT Add zero to all the values of Maximum Level in table 6.8.1.
	Frequency Band / Maximum level		Frequency Band / Maximum level
	9kHz ≤ f < 1GHz / -57dBm /100kHz	0 dB	9kHz ≤ f < 1GHz / -57dBm /100kHz

	1.9-1.92 GHz 2.01-2.025GHz 2.11-2.170GHz	-60 dBm / 3.84MHz	0 dB	1.9-1.92 GHz 2.01-2.025GHz 2.11-2.170GHz	-60 dBm / 3.84MHz
	1 –1.9GHz, 1.92–2.01 GHz 2.025–2.11GHz	-47 dBm/1MHz	0 dB	1 –1.9GHz, 1.92–2.01 GHz 2.025–2.11GHz	-47 dBm/1MHz
	1GHz ≤ f ≤ 12.75GHz	-47dBm /1MHz	0 dB	1GHz ≤ f ≤ 2.2GHz	-47dBm /1MHz
			0 dB	2.2GHz < f ≤ 4GHz	-47dBm /1MHz
			0 dB	4GHz < f ≤ 12.75GHz	-47dBm /1MHz

F.5 Acceptable uncertainty of Test Equipment (This subclause is informative)

This informative subclause specifies the critical parameters of the components of an overall Test System (e.g. Signal generators, Signal Analyzers etc.) which are necessary when assembling a Test System that complies with subclause F.1 Acceptable Uncertainty of Test System. These Test Equipment parameters are fundamental to the accuracy of the overall Test System and are unlikely to be improved upon through System Calibration.

F.5.1 Transmitter measurements

Table F.5.1 Equipment accuracy for transmitter measurements

Test	**Equipment accuracy**	**Test conditions**
5.2 UE Maximum Output Power	Not applicable	
5.3 Frequency Stability	± 10Hz	
5.4.1 Uplink power control		
5.4.2 Minimum Transmit Power		
5.4.3 Transmit OFF Power		
5.4.4 Transmit ON/OFF Power		
5.4.5 Out-of-synchronisation handling of output power $\frac{DPCCH\_E_c}{I_{or}}$		
5.4.5 Out-of-synchronisation handling of output power: transmit ON/OFF time		
5.5.1 Occupied Bandwidth	100 kHz	

5.5.2.1 Spectrum emission mask	Not applicable	
5.5.2.2 ACLR		
5.5.3 Spurious emissions		
5.5.3 Spurious emissions: additional		
5.6 Transmit intermodulation:	Not applicable	
5.7.1 Transmit modulation: EVM	2.5 %	
5.7.2 Transmit modulation: peak code domain error	±[1 dB]	

F.5.2 Receiver measurements

Table F.5.2 Equipment accuracy for receiver measurements

Subclause	**Equipment accuracy**	**Test conditions**
6.2 Reference Sensitivity Level	Not applicable	
6.3 maximum input level:	Not applicable	
6.4 Adjacent Channel Selectivity (ACS)	Not applicable	
6.5 Blocking Characteristics	Not applicable	
6.6 Spurious Responce	Not applicable	
6.7 Intermodulation Characteristics	Not applicable	
6.8 Spurious Emissions	Not applicable	

F.5.3 Performance measurements

Table G.3 Equipment accuracy for performance measurements

Subclause	**Equipment accuracy**	**Test conditions**
TBD	TBD	

F.46 General rules for statistical testing

[TBD]

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