Title   **CRs (Rel-4 and Rel-5 Category A) to TS 25.104 & TS 25.141 on "BS IPDL requirement & test"**

Source   **TSG RAN WG4**

Agenda Item   **7.4.4**

RAN4 Tdoc	Spec	CR	R	Cat	Rel	Curr Ver	Title	Work Item
R4-021687	25.104	159	1	F	Rel-4	4.5.0	BS IPDL requirement	TEI4
R4-021688	25.104	160	1	A	Rel-5	5.4.0	BS IPDL requirement	TEI4
R4-021689	25.141	255	1	F	Rel-4	4.6.0	BS IPDL test	TEI4
R4-021690	25.141	256	1	A	Rel-5	5.4.0	BS IPDL test	TEI4

CR-Form-v7

CHANGE REQUEST

| ⌘ | **25.104** CR **159** | ⌘ **rev** | **1** | ⌘ | Current version: | **4.5.0** | ⌘ |

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

Proposed change affects: UICC apps⌘ ☐ ME ☐ Radio Access Network **X** Core Network ☐

Title: ⌘	BS IPDL requirement	
Source: ⌘	RAN WG4	
Work item code:⌘	TEI4	***Date:*** ⌘ 26/11/2002

Category: ⌘	**F**		***Release:*** ⌘ Rel-4
	Use one of the following categories:		*Use one of the following releases:*
	F (correction)		2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)		R96 (Release 1996)
	B (addition of feature),		R97 (Release 1997)
	C (functional modification of feature)		R98 (Release 1998)
	D (editorial modification)		R99 (Release 1999)
	Detailed explanations of the above categories can		Rel-4 (Release 4)
	be found in 3GPP TR 21.900.		Rel-5 (Release 5)
			Rel-6 (Release 6)

Reason for change: ⌘	BS supporting IPDL shall be able to interrupt all transmission signals in the downlink during a short period. Currently no RF requirement is defined for that feature.
Summary of change:⌘	A new section for BS IPDL requirement is added. The requirement is defined in terms of time mask.
Consequences if not approved: ⌘	Node B requirements to support OTDOA-IPDL based UE positionning are ambiguous. **Isolated Impact Analysis:** This correction has no impact on Node B-UE interworking.

Clauses affected: ⌘	6.4.5 (new)

	Y	N			
Other specs ⌘		X	Other core specifications ⌘		
affected:	X		Test specifications	25.141 in CR 255 rev1
		X	O&M Specifications	

Other comments: ⌘	Equivalent CRs in other Releases: CR160r1 cat. A to 25.104 v5.4.0

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

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

6.4.4   Primary CPICH power

Primary CPICH power is the code domain power of the Common Pilot Channel averaged over one frame. Primary CPICH power is indicated on the BCH.

6.4.4.1   Requirement

Primary CPICH code domain power shall be within ± 2.1dB of the Primary CPICH code domain power indicated on the BCH.

6.4.5   IPDL time mask

To support IPDL location method, the Node B shall interrupt all transmitted signals in the downlink (i.e. common and dedicated channels).

The IPDL time mask specifies the limits of the BS output power during these idle periods.

The requirement in this section shall apply to BS supporting IPDL.

6.4.5.1   Minimum Requirement

The mean power measured over a period starting 27 chips after the beginning of the IPDL period and ending 27 chips before the expiration of the IPDL period shall be equal to or less than

BS maximum output power – 35 dB;
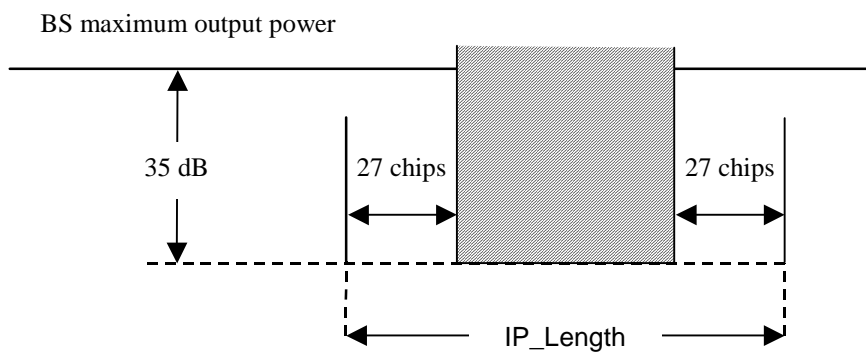
see also Figure 6.1A.

BS maximum output power

35 dB   27 chips   27 chips

IP_Length

Figure 6.1A: IPDL Time Mask

The requirement applies to all output powers within the total power dynamic range as specified in subclause 6.4.3.

6.5 (void)

CR-Form-v7

CHANGE REQUEST

⌘   **25.104** CR **160**   ⌘**rev** **1** ⌘   Current version: **5.4.0** ⌘

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Proposed change affects: UICC apps⌘ ☐   ME ☐   Radio Access Network **X**   Core Network ☐

Title:	⌘	BS IPDL requirement		
Source:	⌘	RAN WG4		
Work item code:⌘		TEI4	***Date:*** ⌘	26/11/2002

Category:	⌘	**A**	***Release:*** ⌘	Rel-5

Use one of the following categories:	*Use one of the following releases:*
F *(correction)*	*2* *(GSM Phase 2)*
A *(corresponds to a correction in an earlier release)*	*R96* *(Release 1996)*
B *(addition of feature),*	*R97* *(Release 1997)*
C *(functional modification of feature)*	*R98* *(Release 1998)*
D *(editorial modification)*	*R99* *(Release 1999)*
Detailed explanations of the above categories can	*Rel-4* *(Release 4)*
be found in 3GPP TR 21.900.	*Rel-5* *(Release 5)*
	Rel-6 *(Release 6)*

Reason for change:	⌘	BS supporting IPDL shall be able to interrupt all transmission signals in the downlink during a short period. Currently no RF requirement is defined for that feature.
Summary of change:⌘		A new section for BS IPDL requirement is added. The requirement is defined in terms of time mask.
Consequences if not approved:	⌘	Node B requirements to support OTDOA-IPDL based UE positionning are ambiguous. **Isolated Impact Analysis:** This correction has no impact on Node B-UE interworking.

Clauses affected:	⌘	6.4.5 (new)

		Y	**N**		
Other specs affected:	⌘		X	Other core specifications	⌘
		X		Test specifications	25.141 in CR 256 rev1
			X	O&M Specifications	

Other comments:	⌘	
		Equivalent CRs in other Releases: CR159r1 cat. F to 25.104 v4.5.0

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

6.4.4 Primary CPICH power

Primary CPICH power is the code domain power of the Common Pilot Channel.Primary CPICH power is indicated on the BCH.

6.4.4.1 Requirement

Primary CPICH code domain power shall be within ± 2.1dB of the Primary CPICH code domain power indicated on the BCHe.

6.4.5 IPDL time mask

To support IPDL location method, the Node B shall interrupt all transmitted signals in the downlink (i.e. common and dedicated channels).

The IPDL time mask specifies the limits of the BS output power during these idle periods.

The requirement in this section shall apply to BS supporting IPDL.

6.4.5.1 Minimum Requirement

The mean power measured over a period starting 27 chips after the beginning of the IPDL period and ending 27 chips before the expiration of the IPDL period shall be equal to or less than

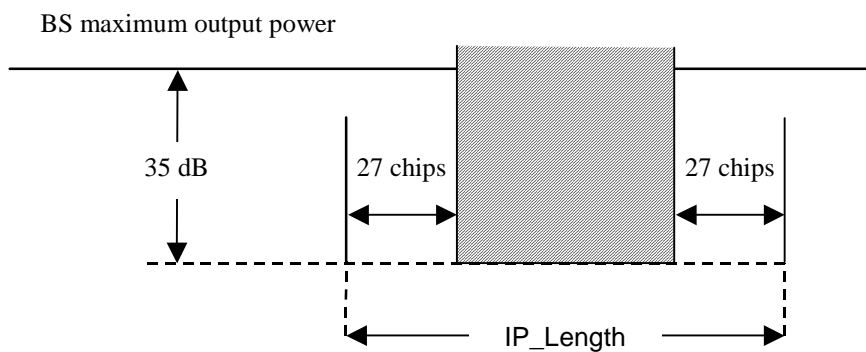BS maximum output power – 35 dB;

see also Figure 6.1A.

Figure 6.1A: IPDL Time Mask

The requirement applies to all output powers within the total power dynamic range as specified in subclause 6.4.3.

6.5 (void)

CR-Form-v7

CHANGE REQUEST

| ⌘ | **25.141** CR **255** | ⌘ **rev** | **1** | ⌘ | Current version: | **4.6.0** | ⌘ |

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Proposed change affects:　　UICC apps⌘ ☐　　　　ME ☐ Radio Access Network **X** Core Network ☐

Title: ⌘	BS IPDL test	
Source: ⌘	RAN WG4	
Work item code:⌘	TEI4	**Date:** ⌘ 26/11/2002

Category: ⌘	**F**	**Release:** ⌘ Rel-4
	Use one of the following categories:	*Use one of the following releases:*
	F (correction)	2 (GSM Phase 2)
	A (corresponds to a correction in an earlier release)	R96 (Release 1996)
	B (addition of feature),	R97 (Release 1997)
	C (functional modification of feature)	R98 (Release 1998)
	D (editorial modification)	R99 (Release 1999)
	Detailed explanations of the above categories can	Rel-4 (Release 4)
	be found in 3GPP <u>TR 21.900</u>.	Rel-5 (Release 5)
		Rel-6 (Release 6)

Reason for change: ⌘	BS supporting IPDL shall be able to interrupt all transmission signals in the downlink during a short period. Currently no test is defined for that feature.
Summary of change: ⌘	- new section 6.4.5 for BS IPDL test added - TS 25.214 added to references - BS IPDL test added in tables 4.1 , 4.1.C, F.1 and G.1 - IPDL test added to test model 1 list
Consequences if not approved: ⌘	There will be no test for IPDL requirements. **Isolated Impact Analysis:** The proposed correction has no impact on NodeB-UE interworking since it is a correction to a Node B test specification.

Clauses affected: ⌘	2, 4.1.2, 6.1.1.1, 6.4.5 (new), Annex F, Annex G.1		

		Y	N		
Other specs **affected:** ⌘			X	Other core specifications ⌘	
			X	Test specifications	
			X	O&M Specifications	

Other comments: ⌘	
	Equivalent CRs in other Releases: CR256r1 cat. A to 25.141 v5.4.0

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

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

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]   3GPP TS 25.104: "UTRA(BS) FDD; Radio transmission and Reception".

[2]   3GPP TS 25.942: "RF system scenarios".

[3]   3GPP TS 25.113: "Base station EMC".

[4]   ITU-R recommendation SM.329-8: "Spurious emissions".

[5]   ITU-T recommendation O.153: "Basic parameters for the measurement of error performance at bit rates below the primary rate".

[6]   IEC 60721-3-3 (1994): "Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 3: Stationary use at weather protected locations".

[7]   IEC 60721-3-4 (1995): "Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 4: Stationary use at non-weather protected locations".

[8]   IEC 60068-2-1 (1990): "Environmental testing - Part 2: Tests. Tests A: Cold".

[9]   IEC 60068-2-2 (1974): "Environmental testing - Part 2: Tests. Tests B: Dry heat".

[10]   IEC 60068-2-6 (1995): "Environmental testing - Part 2: Tests - Test Fc: Vibration (sinusoidal)".

[11]   ITU-R recommendation SM.328-9: "Spectra and bandwidth of emissions".

[12]   3GPP TS 25.214: "Physical layer procedures (FDD)"

--- Next changed section ---

4.1.2 Measurement of transmitter

Table 4.1: Maximum Test System Uncertainty for transmitter tests

Subclause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
6.2.1 Maximum Output Power	±0.7 dB	
6.2.2 CPICH Power accuracy	± 0.8 dB	
6.3.4 Frequency error	± 12 Hz	
6.4.2 Power control steps	± 0.1 dB for one 1 dB step ± 0.1 dB for one 0.5 dB step ± 0.1 dB for ten 1 dB steps ± 0.1 dB for ten 0.5 dB steps	Result is difference between two absolute CDP measurements on the power controlled DPCH. Assume BTS output power on all other channels is constant. Assume Test equipment relative power accuracy over the range of the test conditions is perfect, or otherwise included in the system measurement error. For this test the absolute power change is < 3 dB.
6.4.3 Power control dynamic range	± 1.1 dB	
6.4.4 Total power dynamic range	± 0.3 dB	
6.4.5 IPDL time mask	±0.7 dB	
6.5.1 Occupied Bandwidth	±100 kHz	Accuracy = ±3*RBW. Assume 30 kHz bandwidth
6.5.2.1 Spectrum emission mask	±1.5 dB Due to carrier leakage, for measurements specified in a 1 MHz bandwidth close to the carrier (4 MHz to 8 MHz), integration of the measurement using several narrower measurements may be necessary in order to achieve the above accuracy.	
6.5.2.2 ACLR	5 MHz offset ± 0.8 dB 10 MHz offset ± 0.8 dB Note: Impact of measurement period (averaging) and intermod effects in the measurement receiver not yet fully studied. However, the above limits remain valid.	
6.5.3 Spurious emissions	± 2.0 dB for BS and coexistance bands for results > -60 dBm ± 3.0 dB for results < -60 dBm Outside above range: f≤2.2GHz : ± 1.5 dB 2.2 GHz < f ≤ 4 GHz : ± 2.0 dB f > 4 GHz : ±4.0 dB	
6.6 Transmit intermodulation (interferer requirements)	The value below applies only to the interference signal and is unrelated to the measurement uncertainty of the tests (6.5.2.1, 6.5.2.2 and 6.5.3) which have to be carried out in the presence of the interferer. ± 1.0 dB	The uncertainty of interferer has double the effect on the result due to the frequency offset.
6.7.1 EVM	±2.5 % (for single code)	
6.7.2 Peak code Domain error	±1.0 dB	

--- Next changed section ---

4.2.1 Transmitter

Table 4.1C: Test Tolerances for transmitter tests.

Subclause	Test Tolerance[1]
6.2.1 Maximum Output Power	0.7 dB
6.2.2 CPICH Power accuracy	0.8 dB
6.3.4 Frequency error	12 Hz
6.4.2 Power control steps	0.1 dB
6.4.3 Power control dynamic range	1.1 dB
6.4.4 Total power dynamic range	0.3 dB
6.4.5 IPDL time mask	0.7 dB
6.5.1 Occupied Bandwidth	0 kHz
6.5.2.1 Spectrum emission mask	1.5 dB[3]
6.5.2.2 ACLR	0.8 dB
6.5.3 Spurious emissions	0 dB
6.6 Transmit intermodulation (interferer requirements)	0 dB[2]
6.7.1 Frequency error	12 Hz
6.7.12 EVM	0 %
6.7.23 Peak code Domain error	1.0dB
Note 1: Unless otherwise stated, The Test Tolerances are applied to the DUT Minimum Requirement. See Annex F.	
Note 2: The Test Tolerance is applied to the stimulus signal(s). See Annex F.	
Note 3: 0 dB test tolerance for the additional Band b requirements.	

--- Next changed section ---

6.1.1.1 Test Model 1

This model shall be used for tests on:

- spectrum emission mask;

- ACLR;

- spurious emissions;

- transmit intermodulation;

- base station maximum output power.

- total power dynamic range (at Pmax)

- IPDL time mask

64 DPCHs at 30 ksps (SF=128) distributed randomly across the code space, at random power levels and random timing offsets are defined so as to simulate a realistic traffic scenario which may have high PAR (Peak to Average Ratio).

Considering that not every base station implementation will support 64 DPCH, variants of this test model containing 32 and 16 DPCH are also specified. The conformance test shall be performed using the largest of these three options that can be supported by the equipment under test.

"Fraction of power" is relative to the maximum output power on the TX antenna interface under test.

Table 6.1: Test Model 1 Active Channels

Type	Number of Channels	Fraction of Power (%)	Level setting (dB)	Channelization Code	Timing offset (x256T$_{chip}$)
P-CCPCH+SCH	1	10	-10	1	0
Primary CPICH	1	10	-10	0	0
PICH	1	1.6	-18	16	120
S-CCPCH containing PCH (SF=256)	1	1.6	-18	3	0
DPCH (SF=128)	16/32/64	76.8 in total	see table 6.2	see table 6.2	see table 6.2

Table 6.2: DPCH Spreading Code, Timing offsets and level settings for Test Model 1

Code	Timing offset (x256T$_{chip}$)	Level settings (dB) (16 codes)	Level settings (dB) (32 codes)	Level settings (dB) (64 codes)
2	86	-10	-13	-16
11	134	-12	-13	-16
17	52	-12	-14	-16
23	45	-14	-15	-17
31	143	-11	-17	-18
38	112	-13	-14	-20
47	59	-17	-16	-16
55	23	-16	-18	-17
62	1	-13	-16	-16
69	88	-15	-19	-19
78	30	-14	-17	-22
85	18	-18	-15	-20
94	30	-19	-17	-16
102	61	-17	-22	-17
113	128	-15	-20	-19
119	143	-9	-24	-21
7	83		-20	-19
13	25		-18	-21
20	103		-14	-18
27	97		-14	-20
35	56		-16	-24
41	104		-19	-24
51	51		-18	-22
58	26		-17	-21
64	137		-22	-18
74	65		-19	-20
82	37		-19	-17
88	125		-16	-18
97	149		-18	-19
108	123		-15	-23
117	83		-17	-22
125	5		-12	-21
4	91			-17
9	7			-18
12	32			-20
14	21			-17
19	29			-19
22	59			-21
26	22			-19
28	138			-23
34	31			-22
36	17			-19
40	9			-24
44	69			-23
49	49			-22
53	20			-19
56	57			-22
61	121			-21
63	127			-18
66	114			-19
71	100			-22
76	76			-21
80	141			-19
84	82			-21
87	64			-19
91	149			-21
95	87			-20
99	98			-25
105	46			-25
110	37			-25
116	87			-24

Code	Timing offset (x256T$_{chip}$)	Level settings (dB) (16 codes)	Level settings (dB) (32 codes)	Level settings (dB) (64 codes)
118	149			-22
122	85			-20
126	69			-15

--- Next changed section ---

6.4.4 Total power dynamic range

6.4.4.1 Definition and applicability

The total power dynamic range is the difference between the maximum and the minimum output power for a specified reference condition.

6.4.4.2 Minimum Requirement

The down link (DL) total power dynamic range shall be 18 dB or greater. The normative reference for this requirement is TS 25.104 [1] subclause 6.4.3.1.

6.4.4.3 Test purpose

To verify that the total power dynamic range is met as specified in TS 25.104 subclause 6.4.3.1. The test is to ensure that the total output power can be reduced while still transmitting a single code. This is to ensure that the interference to neighbouring cells is reduced.

6.4.4.4 Method of test

The method of test is carried out as part of 6.2.1 Base station maximum output power and 6.7.1 Error vector magnitude.

The total power dynamic range result is the difference between the power measurement at Pmax made in 6.2.1.4.2 and the power measurement at Pmax – 18 dB made in 6.7.1.4.2.

6.4.4.5 Test requirement

The down link (DL) total power dynamic range shall be 17.7 dB or greater.

> 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 subclause 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

6.4.5 IPDL time mask

6.4.5.1 Definition and applicability

To support IPDL location method, the Node B shall interrupt all transmitted signals in the downlink (i.e. common and dedicated channels).

The IPDL time mask specifies the limits of the BS output power during these idle periods.

The requirement in this section shall apply to BS supporting IPDL.

6.4.5.2 Minimum Requirement

The mean power measured over a period starting 27 chips after the beginning of the IPDL period and ending 27 chips before the expiration of the IPDL period shall be equal to or less than

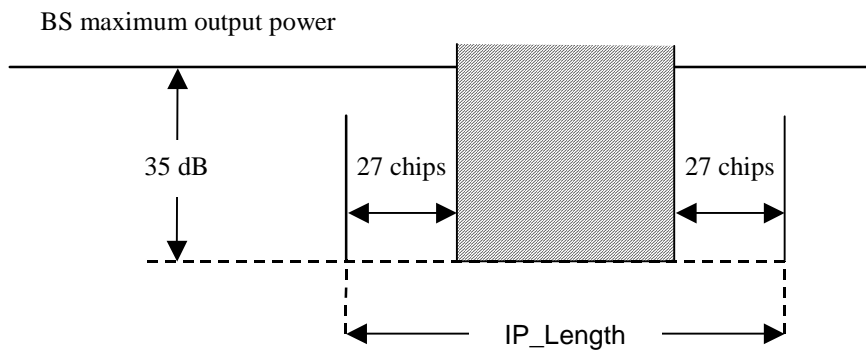BS maximum output power – 35 dB;

see also Figure 6.4

Figure 6.4: IPDL Time Mask

The requirement applies to all output powers within the total power dynamic range as specified in TS25.104 [1] subclause 6.4.3.

The normative reference for this requirement is in TS 25.104 [1] subclause 6.4.5.1.

6.4.5.3 Test purpose

The test purpose is to verify the ability of the BS to temporarily reduce its output power below a specified value to improve time difference measurements made by UE for location services.

6.4.5.4 Method of test

6.4.5.4.1 Initial conditions

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: B, M and T; see subclause 4.8.

1) Connect the power measuring equipment to the BS antenna connector.

2) Set the BS to transmit a signal according to test model 1 as defined in subclause 6.1.1.1, at the manufacturers specified maximum output power.

3) Configure the BS to produce idle periods in continuous mode. The IPDL parameters as defined in TS 25.214 [12] shall have the following values:

   IP_Spacing = 5

   IP_Length = 10 CPICH symbols

   Seed = 0

6.4.5.4.2 Procedure

1) Measure the mean power at the BS antenna connector over a period starting 27 chips after the beginning of the IPDL period and ending 27 chips before the expiration of the IPDL period.

6.4.5.5 Test Requirements

The mean power measured according to step (1) in subclause 6.4.5.4.2 shall be equal to or less than

   BS maximum output power – 34.3 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 subclause 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

6.5 Output RF spectrum emissions

--- Next changed section ---

Annex F (informative): Derivation of Test Requirements

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 4.2. 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 tables F.1, F.2 and F.3

Note that a formula for applying Test Tolerances is provided for all tests, even those with a test tolerance of zero. This is necessary in the case that the Test System uncertainty is greater than that allowed in subclause 4.1. In this event, the excess error shall be subtracted from the defined test tolerance in order to generate the correct tightened Test Requirements as defined in subclause 4.3.

For example, a Test System having 0.9 dB accuracy for test 6.2.1 Base Station maximum output power (which is 0.2 dB above the limit specified in subclause 4.) would subtract 0.2 dB from the Test Tolerance of 0.7 dB defined in subclause 4.2. This new test tolerance of 0.5 dB would then be applied to the Minimum Requirement using the formula defined in Table F.1 to give a new range of ±2.5 dB of the manufacturer's rated output power.

Using this same approach for the case where a test had a test tolerance of 0 dB, an excess error of 0.2 dB would result in a modified test tolerance of –0.2 dB.

Table F.1: Derivation of Test Requirements (Transmitter tests)

Test	Minimum Requirement in TS 25.104	Test Tolerance (TT)	Test Requirement in TS 25.141
6.2.1 Base station maximum output power	In normal conditions … within +2 dB and -2 dB of the manufacturer's rated output power In extreme conditions… within +2.5 dB and –2.5 dB of the manufacturer's rated output power	0.7 dB	Formula: Upper limit + TT Lower limit – TT In normal conditions … within +2.7 dB and –2.7 dB of the manufacturer's rated output power In extreme conditions… within +3.2 dB and –3.2 dB of the manufacturer's rated output power
6.2.2 CPICH Power accuracy	CPICH power shall be within ±2.1dB	0.8 dB	Formula: Upper limit + TT Lower limit – TT CPICH power shall be within ±2.9dB
6.3.4 Frequency error	Frequency error limit = 0.05 ppm	12 Hz	Formula: Frequency Error limit + TT Frequency Error limit = 0.05 ppm + 12 Hz
6.4.2 Power control steps	Lower and upper limits as specified in tables 6.9 and 6.10a	0.1 dB	Formula: Upper limits + TT Lower limits – TT 0.1 dB applied as above to tables 6.9 and 6.10a
6.4.3 Power control dynamic range	maximum power limit = BS maximum output power -3 dB minimum power limit = BS maximum output power –28 dB	1.1 dB	Formula: maximum power limit – TT minimum power limit + TT maximum power limit = BS maximum output power –4.1 dB minimum power limit = BS maximum output power –26.9 dB
6.4.4 Total power dynamic range	total power dynamic range limit = 18 dB	0.3 dB	Formula: total power dynamic range limit – TT total power dynamic range limit = 17.7 dB
6.4.5. IPDL time mask	maximum power limit = BS maximum output power –35 dB	0.7 dB	Formula: maximum power limit + TT maximum power limit = BS maximum output power – 34.3 dB
6.5.1 Occupied Bandwidth	occupied bandwidth limit = 5 MHz	0 kHz	Formula: Occupied bandwidth limit + TT Occupied bandwidth limit = 5 MHz
6.5.2.1 Spectrum emission mask	Maximum level defined in tables 6.11, 6.12, 6.13 and 6.14:	1.5 dB (0 dB for the additional Band b requirements)	Formula: Maximum level + TT Add 1.5 to Maximum level entries in tables 6.11, 6.12, 6.13 and 6.14.
6.5.2.2 Adjacent Channel Leakage power Ratio (ACLR)	ACLR limit = 45 dB at 5 MHz ACLR limit = 50 dB at 10 MHz	0.8 dB	Formula: ACLR limit – TT ACLR limit = 44.2 dB at 5 MHz ACLR limit = 49.2 dB at 10 MHz
6.5.3 Spurious emissions	Maximum level defined in tables 6.16 to 6.26	0 dB	Formula: Maximum limit + TT Add 0 to Maximum level in tables 6.16 to 6.26
6.6 Transmit intermodulation (interferer requirements) This tolerance applies to the stimulus and not the measurements defined in 6.5.2.1, 6.5.2.2 and 6.5.3.	Wanted signal level – interferer level = 30 dB	0 dB	Formula: Ratio + TT Wanted signal level – interferer level = 30 + 0 dB
6.7.1 EVM	EVM limit =17.5 %	0 %	Formula: EVM limit + TT EVM limit = 17.5%

6.7.2 Peak code Domain error	Peak code domain error limit = -33 dB	1.0 dB	Formula: Peak code domain error limit + TT Peak code domain error limit = -32 dB

--- Next changed section ---

Annex G (informative):
Acceptable uncertainty of Test Equipment

This informative annex specifies the critical parameters of the components of an overall Test System (e.g. Signal generators, Signal Analysers etc.) which are necessary when assembling a Test System which complies with subclause 4.1 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.

G.1   Transmitter measurements

Table G.1: Equipment accuracy for transmitter measurements

Test	Equipment accuracy	Range over which equipment accuracy applies
6.2.1 Maximum Output Power	Not critical	Not critical
6.2.2 CPICH Power accuracy	Not critical	Not critical
6.3.4 Frequency error	± 10 Hz + timebase = [12] Hz	Measurements in the range ±500 Hz.
6.4.2 Power control steps	± 0.1 dB for one 1 dB step ± 0.1 dB for ten 1 dB steps	Pmax – 3dB to Pmax – 28 dB
6.4.3 Power control dynamic range	± 0.2 dB relative code domain power accuracy	Pmax – 3dB to Pmax – 28 dB
6.4.4 Total power dynamic range	±0.3 dB relative error over 18 dB	Pmax to Pmax – 18 dB
6.4.5 IPDL time mask	Not critical	Not critical
6.5.1 Occupied Bandwidth	± 100 kHz	±1 MHz of the minimum requirement
6.5.2.1 Spectrum emission mask	Not critical	Not critical
6.5.2.2 ACLR	± 0.8 dB	Measurements in the range ±3 dB of the minimum requirement at signal power = Pmax
6.5.3 Spurious emissions	Not critical	Not critical
6.6 Transmit intermodulation (interferer requirements)	Not critical	Not critical
6.7.1 EVM	± 2.5 % (for single code)	Measurements in the range 12.5% to 22.5% at signal power = Pmax –3 dB to Pmax – 18 dB
6.7.2 Peak code Domain error	±1.0dB	Measurements in the range –30 to –36 dB at signal power = Pmax

CR-Form-v7

CHANGE REQUEST

| ⌘ | **25.141** CR **256** | ⌘ **rev** | **1** | ⌘ | Current version: | **5.4.0** | ⌘ |

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

Proposed change affects: UICC apps⌘ ☐　　ME ☐　Radio Access Network **X**　Core Network ☐

Title: ⌘	BS IPDL test	
Source: ⌘	RAN WG4	
Work item code: ⌘	TEI4	**Date:** ⌘ 26/11/2002
Category: ⌘	**A**	**Release:** ⌘ Rel-5

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

Use *one* of the following releases:
2　　(GSM Phase 2)
R96　(Release 1996)
R97　(Release 1997)
R98　(Release 1998)
R99　(Release 1999)
Rel-4　(Release 4)
Rel-5　(Release 5)
Rel-6　(Release 6)

Reason for change: ⌘	BS supporting IPDL shall be able to interrupt all transmission signals in the downlink during a short period. Currently no test is defined for that feature.
Summary of change: ⌘	- new section 6.4.5 for BS IPDL test added - TS 25.214 added to references - BS IPDL test added in tables 4.1 , 4.1.C, F.1 and G.1 - IPDL test added to test model 1 list
Consequences if not approved: ⌘	There will be no test for IPDL requirements. **Isolated Impact Analysis:** The proposed correction has no impact on NodeB-UE interworking since it is a correction to a Node B test specification.

Clauses affected: ⌘	2, 4.1.2, 6.1.1.1, 6.4.5 (new), Annex F, Annex G.1

	Y	N		
Other specs affected: ⌘		X	Other core specifications ⌘	
		X	Test specifications	
		X	O&M Specifications	

Other comments: ⌘	Equivalent CRs in other Releases: CR255r1 cat. F to 25.141 v4.6.0

How to create CRs using this form:
Comprehensive information and tips about how to create CRs can be found at http://www.3gpp.org/specs/CR.htm.
Below is a brief summary:

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

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

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

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

[1]   3GPP TS 25.104: "UTRA(BS) FDD; Radio transmission and Reception".

[2]   3GPP TS 25.942: "RF system scenarios".

[3]   3GPP TS 25.113: "Base station EMC".

[4]   ITU-R recommendation SM.329-9: "Spurious emissions".

[5]   ITU-T recommendation O.153: "Basic parameters for the measurement of error performance at bit rates below the primary rate".

[6]   IEC 60721-3-3 (1994): "Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 3: Stationary use at weather protected locations".

[7]   IEC 60721-3-4 (1995): "Classification of environmental conditions - Part 3: Classification of groups of environmental parameters and their severities - Section 4: Stationary use at non-weather protected locations".

[8]   IEC 60068-2-1 (1990): "Environmental testing - Part 2: Tests. Tests A: Cold".

[9]   IEC 60068-2-2 (1974): "Environmental testing - Part 2: Tests. Tests B: Dry heat".

[10]   IEC 60068-2-6 (1995): "Environmental testing - Part 2: Tests - Test Fc: Vibration (sinusoidal)".

[11]   ITU-R recommendation SM.328-9: "Spectra and bandwidth of emissions".

[12]   3GPP TS 45.004: "Digital cellular telecommunications system (Phase 2+); Modulation".

[13]   3GPP TS 25.214: "Physical layer procedures (FDD)"

--- Next changed section ---

4.1.2 Measurement of transmitter

Table 4.1: Maximum Test System Uncertainty for transmitter tests

Subclause	Maximum Test System Uncertainty	Derivation of Test System Uncertainty
6.2.1 Maximum Output Power	±0.7 dB	
6.2.2 CPICH Power accuracy	± 0.8 dB	
6.3.4 Frequency error	± 12 Hz	
6.4.2 Power control steps	± 0.1 dB for one 1 dB step ± 0.1 dB for one 0.5 dB step ± 0.1 dB for ten 1 dB steps ± 0.1 dB for ten 0.5 dB steps	Result is difference between two absolute CDP measurements on the power controlled DPCH. Assume BTS output power on all other channels is constant. Assume Test equipment relative power accuracy over the range of the test conditions is perfect, or otherwise included in the system measurement error. For this test the absolute power change is < 3 dB.
6.4.3 Power control dynamic range	± 1.1 dB	
6.4.4 Total power dynamic range	± 0.3 dB	
6.4.5 IPDL Time mask	0.7 dB	
6.5.1 Occupied Bandwidth	±100 kHz	Accuracy = ±3*RBW. Assume 30 kHz bandwidth
6.5.2.1 Spectrum emission mask	±1.5 dB Due to carrier leakage, for measurements specified in a 1 MHz bandwidth close to the carrier (4 MHz to 8 MHz), integration of the measurement using several narrower measurements may be necessary in order to achieve the above accuracy.	
6.5.2.2 ACLR	5 MHz offset ± 0.8 dB 10 MHz offset ± 0.8 dB Note: Impact of measurement period (averaging) and intermod effects in the measurement receiver not yet fully studied. However, the above limits remain valid.	
6.5.3 Spurious emissions	± 2.0 dB for BS and coexistance bands for results > -60 dBm ± 3.0 dB for results < -60 dBm Outside above range: f≤2.2GHz : ± 1.5 dB 2.2 GHz < f ≤ 4 GHz : ± 2.0 dB f > 4 GHz : ±4.0 dB	
6.6 Transmit intermodulation (interferer requirements)	The value below applies only to the interference signal and is unrelated to the measurement uncertainty of the tests (6.5.2.1, 6.5.2.2 and 6.5.3) which have to be carried out in the presence of the interferer. . ± 1.0 dB	The uncertainty of interferer has double the effect on the result due to the frequency offset.
6.7.1 EVM	±2.5 % (for single code)	
6.7.2 Peak code Domain error	±1.0 dB	
Annex H.3 Transmitted code power. Absolute	±0.9 dB	Absolute power accuracy = 0.7dB + relative power accuracy 0.2 dB.

Annex H.3 Transmitted code power. Relative	±0.2 dB	
Annex H.4 Transmitted carrier power	±0.3 dB	

--- Next changed section ---

4.2.1 Transmitter

Table 4.1C: Test Tolerances for transmitter tests.

Subclause	Test Tolerance[1]
6.2.1 Maximum Output Power	0.7 dB
6.2.2 CPICH Power accuracy	0.8 dB
6.3.4 Frequency error	12 Hz
6.4.2 Power control steps	0.1 dB
6.4.3 Power control dynamic range	1.1 dB
6.4.4 Total power dynamic range	0.3 dB
6.4.5 IPDL time mask	0.7 dB
6.5.1 Occupied Bandwidth	0 kHz
6.5.2.1 Spectrum emission mask	1.5 dB[3]
6.5.2.2 ACLR	0.8 dB
6.5.3 Spurious emissions	0 dB
6.6 Transmit intermodulation (interferer requirements)	0 dB[2]
6.7.1 Frequency error	12 Hz
6.7.12 EVM	0 %
6.7.23 Peak code Domain error	1.0dB
Annex H.3 Transmitted code power (absolute)	0.9 dB
Annex H.3 Transmitted code power (relative)	0.2 dB
Annex H.4 Transmitted carrier power	0.3 dB
Note 1: Unless otherwise stated, The Test Tolerances are applied to the DUT Minimum Requirement. See Annex F. Note 2: The Test Tolerance is applied to the stimulus signal(s). See Annex F. Note 3: 0 dB test tolerance for the additional Band II requirements.	

--- Next changed section ---

6.1.1.1 Test Model 1

This model shall be used for tests on:

- occupied bandwidth;

- spectrum emission mask;

- ACLR;

- spurious emissions;

- transmit intermodulation;

- base station maximum output power.

- Total power dynamic range (at Pmax)

- Frequency error (at Pmax)

- Error Vector Magnitude (at Pmax)

- IPDL time mask

64 DPCHs at 30 ksps (SF=128) distributed randomly across the code space, at random power levels and random timing offsets are defined so as to simulate a realistic traffic scenario which may have high PAR (Peak to Average Ratio).

Considering that not every base station implementation will support 64 DPCH, variants of this test model containing 32 and 16 DPCH are also specified. The conformance test shall be performed using the largest of these three options that can be supported by the equipment under test.

"Fraction of power" is relative to the maximum output power on the TX antenna interface under test.

Table 6.1: Test Model 1 Active Channels

Type	Number of Channels	Fraction of Power (%)	Level setting (dB)	Channelization Code	Timing offset (x256T_{chip})
P-CCPCH+SCH	1	10	-10	1	0
Primary CPICH	1	10	-10	0	0
PICH	1	1.6	-18	16	120
S-CCPCH containing PCH (SF=256)	1	1.6	-18	3	0
DPCH (SF=128)	16/32/64	76.8 in total	see table 6.2	see table 6.2	see table 6.2

Table 6.2: DPCH Spreading Code, Timing offsets and level settings for Test Model 1

Code	Timing offset (x256T$_{chip}$)	Level settings (dB) (16 codes)	Level settings (dB) (32 codes)	Level settings (dB) (64 codes)
2	86	-10	-13	-16
11	134	-12	-13	-16
17	52	-12	-14	-16
23	45	-14	-15	-17
31	143	-11	-17	-18
38	112	-13	-14	-20
47	59	-17	-16	-16
55	23	-16	-18	-17
62	1	-13	-16	-16
69	88	-15	-19	-19
78	30	-14	-17	-22
85	18	-18	-15	-20
94	30	-19	-17	-16
102	61	-17	-22	-17
113	128	-15	-20	-19
119	143	-9	-24	-21
7	83		-20	-19
13	25		-18	-21
20	103		-14	-18
27	97		-14	-20
35	56		-16	-24
41	104		-19	-24
51	51		-18	-22
58	26		-17	-21
64	137		-22	-18
74	65		-19	-20
82	37		-19	-17
88	125		-16	-18
97	149		-18	-19
108	123		-15	-23
117	83		-17	-22
125	5		-12	-21
4	91			-17
9	7			-18
12	32			-20
14	21			-17
19	29			-19
22	59			-21
26	22			-19
28	138			-23
34	31			-22
36	17			-19
40	9			-24
44	69			-23
49	49			-22
53	20			-19
56	57			-22
61	121			-21
63	127			-18
66	114			-19
71	100			-22
76	76			-21
80	141			-19
84	82			-21
87	64			-19
91	149			-21
95	87			-20
99	98			-25
105	46			-25
110	37			-25
116	87			-24

Code	Timing offset (x256T_chip)	Level settings (dB) (16 codes)	Level settings (dB) (32 codes)	Level settings (dB) (64 codes)
118	149			-22
122	85			-20
126	69			-15

--- Next changed section ---

6.4.4 Total power dynamic range

6.4.4.1 Definition and applicability

The total power dynamic range is the difference between the maximum and the minimum output power for a specified reference condition.

6.4.4.2 Minimum Requirement

The down link (DL) total power dynamic range shall be 18 dB or greater. The normative reference for this requirement is TS 25.104 [1] subclause 6.4.3.1.

6.4.4.3 Test purpose

To verify that the total power dynamic range is met as specified in TS 25.104 subclause 6.4.3.1. The test is to ensure that the total output power can be reduced while still transmitting a single code. This is to ensure that the interference to neighbouring cells is reduced.

6.4.4.4 Method of test

Requirement is tested together with Error Vector Magnitude test, as described in subclause 6.7.1.4.

6.4.4.5 Test requirement

The down link (DL) total power dynamic range shall be 17.7 dB or greater.

> 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 subclause 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

6.4.5 IPDL time mask

6.4.5.1 Definition and applicability

To support IPDL location method, the Node B shall interrupt all transmitted signals in the downlink (i.e. common and dedicated channels).

The IPDL time mask specifies the limits of the BS output power during these idle periods.

The requirement in this section shall apply to BS supporting IPDL.

6.4.5.2 Minimum Requirement

The mean power measured over a period starting 27 chips after the beginning of the IPDL period and ending 27 chips before the expiration of the IPDL period shall be equal to or less than

        BS maximum output power – 35 dB;
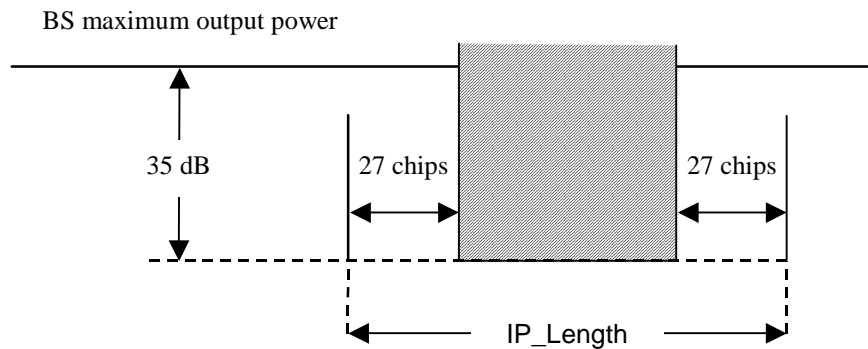
see also Figure 6.4

BS maximum output power

35 dB   27 chips   27 chips

IP_Length

Figure 6.4: IPDL Time Mask

The requirement applies to all output powers within the total power dynamic range as specified in TS 25.104 [1] subclause 6.4.3.

The normative reference for this requirement is in TS 25.104 [1] subclause 6.4.5.1.

6.4.5.3   Test purpose

The test purpose is to verify the ability of the BS to temporarily reduce its output power below a specified value to improve time difference measurements made by UE for location services.

6.4.5.4   Method of test

6.4.5.4.1   Initial conditions

Test environment: normal; see subclause 4.4.1.

RF channels to be tested: B, M and T; see subclause 4.8.

   1) Connect the power measuring equipment to the BS antenna connector.

   2) Set the BS to transmit a signal according to test model 1 as defined in subclause 6.1.1.1, at the manufacturers specified maximum output power.

   3) Configure the BS to produce idle periods in continuous mode. The IPDL parameters as defined in TS 25.214 [12] shall have the following values:

      IP_Spacing = 5

      IP_Length = 10 CPICH symbols

      Seed = 0

6.4.5.4.2   Procedure

   1) Measure the mean power at the BS antenna connector over a period starting 27 chips after the beginning of the IPDL period and ending 27 chips before the expiration of the IPDL period.

6.4.5.5   Test Requirements

The mean power measured according to step (1) in subclause 6.4.5.4.2 shall be equal to or less than

      BS maximum output power – 34.3 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 subclause 4.2 and the explanation of how the Minimum Requirement has been relaxed by the Test Tolerance is given in Annex F.

6.5 Output RF spectrum emissions

--- Next changed section ---

Annex F (informative):
Derivation of Test Requirements

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 4.2. 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 tables F.1, F.2 and F.3

Note that a formula for applying Test Tolerances is provided for all tests, even those with a test tolerance of zero. This is necessary in the case that the Test System uncertainty is greater than that allowed in subclause 4.1. In this event, the excess error shall be subtracted from the defined test tolerance in order to generate the correct tightened Test Requirements as defined in subclause 4.3.

For example, a Test System having 0.9 dB accuracy for test 6.2.1 Base Station maximum output power (which is 0.2 dB above the limit specified in subclause 4.) would subtract 0.2 dB from the Test Tolerance of 0.7 dB defined in subclause 4.2. This new test tolerance of 0.5 dB would then be applied to the Minimum Requirement using the formula defined in Table F.1 to give a new range of ±2.5 dB of the manufacturer's rated output power.

Using this same approach for the case where a test had a test tolerance of 0 dB, an excess error of 0.2 dB would result in a modified test tolerance of –0.2 dB.

Table F.1: Derivation of Test Requirements (Transmitter tests)

Test	Minimum Requirement in TS 25.104	Test Tolerance (TT)	Test Requirement in TS 25.141
6.2.1 Base station maximum output power	In normal conditions … within +2 dB and -2 dB of the manufacturer's rated output power In extreme conditions… within +2.5 dB and –2.5 dB of the manufacturer's rated output power	0.7 dB	Formula: Upper limit + TT Lower limit – TT In normal conditions … within +2.7 dB and –2.7 dB of the manufacturer's rated output power In extreme conditions… within +3.2 dB and –3.2 dB of the manufacturer's rated output power
6.2.2 CPICH Power accuracy	CPICH power shall be within ±2.1dB	0.8 dB	Formula: Upper limit + TT Lower limit – TT CPICH power shall be within ±2.9dB
6.3.4 Frequency error	Frequency error limit = 0.05 ppm	12 Hz	Formula: Frequency Error limit + TT Frequency Error limit = 0.05 ppm + 12 Hz
6.4.2 Power control steps	Lower and upper limits as specified in tables 6.9 and 6.10a	0.1 dB	Formula: Upper limits + TT Lower limits – TT 0.1 dB applied as above to tables 6.9 and 6.10a
6.4.3 Power control dynamic range	maximum power limit = BS maximum output power -3 dB minimum power limit = BS maximum output power –28 dB	1.1 dB	Formula: maximum power limit – TT minimum power limit + TT maximum power limit = BS maximum output power –4.1 dB minimum power limit = BS maximum output power –26.9 dB
6.4.4 Total power dynamic range	total power dynamic range limit = 18 dB	0.3 dB	Formula: total power dynamic range limit – TT total power dynamic range limit = 17.7 dB
6.4.5. IPDL time mask	maximum power limit = BS maximum output power –35 dB	0.7 dB	Formula: maximum power limit + TT maximum power limit = BS maximum output power – 34.3 dB
6.5.1 Occupied Bandwidth	occupied bandwidth limit = 5 MHz	0 kHz	Formula: Occupied bandwidth limit + TT Occupied bandwidth limit = 5 MHz
6.5.2.1 Spectrum emission mask	Maximum level defined in tables 6.11, 6.12, 6.13 and 6.14:	1.5 dB(0 dB for the additional Band II requirements)	Formula: Maximum level + TT Add 1.5 to Maximum level entries in tables 6.11, 6.12, 6.13 and 6.14.
6.5.2.2 Adjacent Channel Leakage power Ratio (ACLR)	ACLR limit = 45 dB at 5 MHz ACLR limit = 50 dB at 10 MHz	0.8 dB	Formula: ACLR limit – TT ACLR limit = 44.2 dB at 5 MHz ACLR limit = 49.2 dB at 10 MHz
6.5.3 Spurious emissions	Maximum level defined in tables 6.16 to 6.26	0 dB	Formula: Maximum limit + TT Add 0 to Maximum level in tables 6.16 to 6.26
6.6 Transmit intermodulation (interferer requirements) This tolerance applies to the stimulus and not the measurements defined in 6.5.2.1, 6.5.2.2 and 6.5.3.	Wanted signal level – interferer level = 30 dB	0 dB	Formula: Ratio + TT Wanted signal level – interferer level = 30 + 0 dB
6.7.1 EVM	EVM limit =17.5 % for a composite signal modulated only by QPSK EVM limit = 12.5 % for a composite signal modulated by QPSK and 16QAM	0 %	Formula: EVM limit + TT EVM limit = 17.5% for a composite signal modulated only by QPSK EVM limit = 12.5 % for a composite signal modulated by QPSK and 16QAM

6.7.2 Peak code Domain error	Peak code domain error limit = -33 dB	1.0 dB	Formula: Peak code domain error limit + TT Peak code domain error limit = -32 dB
Annex H.3 Transmitted code power (absolute)	Absolute accuracy limit = Pout,code – 3 dB Pout,code + 3 dB	0.9 dB	Formula: Absolute accuracy limit –TT Absolute accuracy limit +TT Absolute accuracy limit: minimum power limit = -3.9 dB maximum power limit = +3.9 dB
Annex H.3 Transmitted code power (relative)	Relative accuracy limit = $\mid$ Pout,code1 - Pout,code2 $\mid \le$ 2 dB	0.2 dB	Formula: Relative accuracy limit + TT Relative accuracy limit = 2.2 dB
Annex H.4 Transmitted carrier power	total power dynamic range limit = 18 dB	0.3 dB	Formula: total power dynamic range limit – TT total power dynamic range limit = 17.7 dB

--- Next changed section ---

Annex G (informative):
Acceptable uncertainty of Test Equipment

This informative annex specifies the critical parameters of the components of an overall Test System (e.g. Signal generators, Signal Analysers etc.) which are necessary when assembling a Test System which complies with subclause 4.1 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.

G.1 Transmitter measurements

Table G.1: Equipment accuracy for transmitter measurements

Test	Equipment accuracy	Range over which equipment accuracy applies
6.2.1 Maximum Output Power	Not critical	Not critical
6.2.2 CPICH Power accuracy	Not critical	Not critical
6.3.4 Frequency error	± 10 Hz + timebase = [12] Hz	Measurements in the range ±500 Hz.
6.4.2 Power control steps	± 0.1 dB for one 1 dB step ± 0.1 dB for ten 1 dB steps	Pmax – 3dB to Pmax – 28 dB
6.4.3 Power control dynamic range	± 0.2 dB relative code domain power accuracy	Pmax – 3dB to Pmax – 28 dB
6.4.4 Total power dynamic range	±0.3 dB relative error over 18 dB	Pmax to Pmax – 18 dB
6.4.5 IPDL time mask	Not critical	Not critical
6.5.1 Occupied Bandwidth	± 100 kHz	±1 MHz of the minimum requirement
6.5.2.1 Spectrum emission mask	Not critical	Not critical
6.5.2.2 ACLR	± 0.8 dB	Measurements in the range ±3 dB of the minumum requirement at signal power = Pmax
6.5.3 Spurious emissions	Not critical	Not critical
6.6 Transmit intermodulation (interferer requirements)	Not critical	Not critical
6.7.1 EVM	± 2.5 % (for single code)	Measurements in the range 12.5% to 22.5% at signal power = Pmax –3 dB to Pmax – 18 dB
6.7.2 Peak code Domain error	±1.0dB	Measurements in the range –30 to –36 dB at signal power = Pmax
Annex H.3 Transmitted code power (absolute)	±0.9dB	Pmax – 3dB to Pmax – 28 dB
Annex H.3 Transmitted code power (relative)	±0.2dB	Pmax – 3dB to Pmax – 28 dB
Annex H.4 Transmitted carrier power	±0.3 dB relative error over 18 dB	Pmax to Pmax – 18 dB