

**TSG-RAN Meeting #6  
Nice, France, 13 – 15 December 1999**

**TSGRP#6(99)774**

**Title:** Agreed CRs of category "D" (Editorial) to TS 25.102

**Source:** TSG-RAN WG4

**Agenda item:** 5.4.3

TSG_DOC	SPEC	CR	REV	3G_P	SUBJECT	CAT	VERS_CUR	VERS_NEW
R4-99753	25.102	004		R99	Open item list in Annex D of 25.102v3.0.0	D	3.0.0	3.1.0
R4-99948	25.102	008		R99	Editorial changes to 25.102v3.0.0	D	3.0.0	3.1.0

<h2 style="margin: 0;">CHANGE REQUEST</h2>		Please see embedded help file at the bottom of this page for instructions on how to fill in this form correctly.
<b>25.102 CR 004</b>	Current Version: <b>3.0.0</b>	
GSM (AA.BB) or 3G (AA.BBB) specification number ↑	↑ CR number as allocated by MCC support team	
For submission to: <b>RAN#6</b> <i>list expected approval meeting # here ↑</i>	for approval <input checked="" type="checkbox"/> for information <input type="checkbox"/>	strategic <input type="checkbox"/> non-strategic <input type="checkbox"/> <i>(for SMG use only)</i>

Form: CR cover sheet, version 2 for 3GPP and SMG    The latest version of this form is available from: <ftp://ftp.3gpp.org/Information/CR-Form-v2.doc>

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

**Source:**    TSG RAN WG4    **Date:**    29.10.99

**Subject:**    Open item list in Annex D of 25.102v3.0.0

**Work item:**    \_\_\_\_\_

<b>Category:</b>	F Correction	<input type="checkbox"/>	<b>Release:</b>	Phase 2	<input type="checkbox"/>
	A Corresponds to a correction in an earlier release	<input type="checkbox"/>		Release 96	<input type="checkbox"/>
<i>(only one category shall be marked with an X)</i>	B Addition of feature	<input type="checkbox"/>		Release 97	<input type="checkbox"/>
	C Functional modification of feature	<input type="checkbox"/>		Release 98	<input type="checkbox"/>
	D Editorial modification	<input checked="" type="checkbox"/>		Release 99	<input checked="" type="checkbox"/>
				Release 00	<input type="checkbox"/>

**Reason for change:**    Open item list is shifted to 30.504 "Workplan" and therefore deleted in 25.102

**Clauses affected:**    \_\_\_\_\_

<b>Other specs affected:</b>	Other 3G core specifications	<input type="checkbox"/>	→ List of CRs:	
	Other GSM core specifications	<input type="checkbox"/>	→ List of CRs:	
	MS test specifications	<input type="checkbox"/>	→ List of CRs:	
	BSS test specifications	<input type="checkbox"/>	→ List of CRs:	
	O&M specifications	<input type="checkbox"/>	→ List of CRs:	

**Other comments:**    \_\_\_\_\_

## ~~Annex D (informative): Open items~~

<del>Section number</del>	<del>Section description</del>	<del>Status</del>
<del>3</del>	<del>Definitions, Symbols, Abbreviations</del>	<del>Update required</del>
<del>5.2</del>	<del>Frequency bands</del>	<del>The deployment of TDD in the 1920 MHz to 1980 MHz band is an open item.</del>
<del>6.6.2.2.1</del>	<del>ACLR, Minimum requirement</del>	<del>The possibility is being considered of dynamically relaxing the ACP requirements for User Equipment(s) under conditions when this would not lead to significant interference (with respect to other system scenario or UMTS operators). This would be carried out under network control, primarily to facilitate reduction in UE power consumption.</del>
<del>6.7.2.1</del>	<del>Spectrum emission mask</del>	<del>Requirements for other than UE power class 21dBm</del>
<del>6.7.2.2</del>	<del>ACLR</del>	<del>Requirements for other than UE power class 21dBm</del>
<del>6.8</del>	<del>Transmit Intermodulation</del>	<del>Requirements for other than UE power class 21dBm</del>
<del>6.9.3</del>	<del>Peak Code Domain Error</del>	<del>Requirement to be defined.</del>
<del>7.5</del>	<del>ACS</del>	<del>Value in square brackets</del>
<del>7.9</del>	<del>Spurious Emissions</del>	<del>Values in square brackets</del>
<del>8</del>	<del>Performance Requirement</del>	<del>Values are TBD, update of structure needed.</del>
<del>Annex E2</del>	<del>Service Implementation Capabilities</del>	<del>For further study</del>



### 3.3 Abbreviations

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

ACIR	Adjacent Channel Interference Ratio
ACLR	Adjacent Channel Leakage power Ratio
ACS	Adjacent Channel Selectivity
BS	Base Station
CW	Continuous wave (unmodulated signal)
DL	Down link (forward link)
DPCH	Dedicated physical channel
DPCH_Ec	Average energy per PN chip for DPCH
$\frac{DPCH\_Ec}{I_{or}}$	The ratio of the average energy per PN chip of the DPCH to the total transmit power spectral density of the forward link at the BS antenna connector
EIRP	Effective Isotropic Radiated Power
FDD	Frequency Division Duplexing
FER	Frame Error Rate
$f_{uw}$	<u>Frequency of unwanted signal. This is specified in bracket in terms of an absolute frequency(s) or frequency offset from the assigned channel frequency.</u>
$I_{or}$	The total transmit power spectral density of the Forward link at the BS antenna connector
$\hat{I}_{or}$	The received power spectral density of the Forward link as measured at the UE antenna connector
PPM	Parts Per Million
RSSI	Received Signal Strength Indicator
SIR	Signal to Interference ratio
TDD	Time Division Duplexing
TPC	Transmit Power Control
UE	User Equipment
UL	Up link (reverse link)
UTRA	UMTS Terrestrial Radio Access

Table 7.3: Maximum input level

Parameter	Level	Unit
$\frac{DPCH\_Ec}{I_{or}}$	-7	dB
$\hat{I}_{or}$	-25	dBm/3.84 MHz

## 7.5 Adjacent Channel Selectivity (ACS)

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 adjacent channel signal at a given frequency offset from the centre frequency of the assigned channel. ACS is the ratio of the receive filter attenuation on the assigned channel frequency to the receiver filter attenuation on the adjacent channel(s).

### 7.5.1 Minimum Requirement

The BER shall not exceed 0.001 for the parameters specified in Table 7.4.

Table 7.4: Adjacent Channel Selectivity

Power Class	ACS	Units
3	[33]	dB

Parameter	Level	Unit
Data rate	12.2	kbps
Wanted signal	[ ]	dBm
Interfering signal ( <u>modulated</u> )	[ ]	dBm
$E_{uw(\text{offset})}$ <del><math>E_{uw}</math> (Modulated)</del>	5	MHz

## 7.6 Blocking characteristics

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. The blocking performance shall apply at all frequencies except those at which a spurious response occur.

### 7.6.1 Minimum Requirement

The BER shall not exceed 0.001 for the parameters specified in table 7.5 and table 7.6. For table 13 up to 24 exceptions are allowed for spurious response frequencies in each assigned frequency channel when measured using a 1MHz step size.

Table 7.5: In-band blocking

Parameter	Offset	Offset	Unit
Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
Unwanted Signal Level (modulated)	-56	-44	dBm/3.84 MHz
<b>Blocking offset</b> $E_{uw(\text{offset})}$	$+10 <  f - f_0  < 15$ <u>+10 or -10</u>	$ f - f_0  \geq 15$ <u>+15 or -15</u>	MHz

Table 7.6: Out of band blocking

Parameter	Band 1	Band 2	Band 3	Unit
Wanted Signal Level	<REFSENS> + 3 dB	<REFSENS> + 3 dB	<REFSENS> + 3 dB	dBm/3.84 MHz
Unwanted Signal Level (CW)	-44	-30	-15	dBm
<del>Blocking offset</del> $E_{uw}$	1840 <f <1885 1935 <f <1995 2040 <f <2095	1815 <f <1840 2095 <f <2120	1 <f <1815 2120 <f <12750	MHz

Note: On frequency regions 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 7.5.1 shall be applied.

## 7.7 Spurious response

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.

### 7.7.1 Minimum Requirement

The BER shall not exceed 0.001 for the parameters specified in Table 7.7.

Table 7.7: Spurious Response

Parameter	Level	Unit
Wanted Signal Level	<REFSENS> + 3 dB	dBm/3.84 MHz
Unwanted Signal Level (CW)	-44	dBm
<del>Few</del> $E_{uw}$	Spurious response frequencies	MHz

## 7.8 Intermodulation characteristics

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

### 7.8.1 Minimum Requirements

The BER shall not exceed 0.001 for the parameters specified in table 7.8.

Table 7.8: Receive intermodulation characteristics

Parameter	Level	Unit
Wanted Signal Level	<REFSENS> + 3 dB	dBm/3.84 MHz
$I_{ow1(CW)}$	-46	dBm

$I_{\text{ouw2 (modulated)}}$	-46	dBm/3.84 MHz
<del><math>F_{\text{uw1 (CW)}}</math></del> $F_{\text{uw1 (offset)}}$	10	MHz
<del><math>F_{\text{uw2 (Modulated)}}</math></del> $F_{\text{uw2 (offset)}}$	20	MHz

## 7.9 Spurious emissions

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

### 7.9.1 Minimum Requirement

The spurious emission shall be:

1. Less than [-60dBm/ 3.84MHz] at the mobile station antenna connector, for frequencies within the UE receive band.
2. Less than [-57dBm/100kHz] at the mobile station antenna connector, for frequencies band from 9kHz to 1GHz.
3. Less than [-47dBm/100kHz] at the mobile station antenna connector, for frequencies band from 1GHz to 12.75GHz.



## 6 Transmitter characteristics

### 6.1 General

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

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

All the parameters in section 6 are defined using the UL reference measurement channel (12.2 kbps) specified in Annex A.2.1.

### 6.2 Transmit power

#### 6.2.1 User Equipment maximum output power

The following Power Classes define the maximum output power;

**Table 6.1: UE power classes**

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

Note

1. The maximum output power refers to the measure of power when averaged over the useful part of the transmit timeslots at the maximum power control setting.
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. The error of the maximum average power is below the prescribed value even at the multi-code transmission mode <new text is required to clarify this sentence>
3. Power class 4 is envisaged for licensed exempt operation.
4. For UE using directive antennas for transmission, a class dependent limit will be placed on the maximum EIRP (Equivalent Isotropic Radiated Power)..

### 6.3 UE frequency stability

The UE modulated carrier frequency shall be accurate to within  $\pm 0.1$  PPM compared to carrier frequency received from the BS. These signals will have an apparent error due to BS frequency error and Doppler shift. In the later case, signals from the BS must be averaged over sufficient time that errors due to noise or interference are allowed for within the above  $\pm 0.1$ PPM figure.

**Table 6.2: Frequency stability**

AFC	Frequency stability
ON	within $\pm 0.1$ PPM

## ANNEX E (INFORMATIVE): Terminal Capabilities (TDD)

This section is based on the LS sent to TSG T2 on baseline terminal capabilities which has been updated to take into account changes in UE radio requirement specifications TS 25.102.

### E.1 Baseline Implementation Capabilities

Capability TDD	Section	UE*	Comments
Chiprate 3.84 Mcps	5.1	M	
Frequency bands — 1900-1920 MHz — 2010-2025 MHz — Other spectrum	5.2	M M O	Declared 1900-1920 MHz Declared 2010-2025 MHz As Declared
Carrier raster	5.4	M	
UE maximum output power	6.2.1	M	At least one power class

(\* M = mandatory, O = optional)

### E.2 Service Implementation Capabilities

For further study.