

**TSG-RAN Meeting #8
Düsseldorf, Germany, 21 – 23 June 2000**

RP-000207

Title: Agreed CRs to TS 25.105

Source: TSG-RAN WG4

Agenda item: 5.4.3

Doc-1st-	Spec	CR	Re	Phas	Subject	Cat	Version	Version
RP-000207	25.105	032		R99	Reference Measurement Channels	F	3.2.0	3.3.0
RP-000207	25.105	033		R99	Regional requirements in TS 25.105	F	3.2.0	3.3.0
RP-000207	25.105	034		R99	Clarification of receiver dynamic range.	F	3.2.0	3.3.0
RP-000207	25.105	035		R99	Input power level for performance requirements	F	3.2.0	3.3.0
RP-000207	25.105	036		R99	Modification to the handling of UE TDD Measurement Uncertainty	F	3.2.0	3.3.0
RP-000207	25.105	037		R99	Clarification of the specification on Peak Code Domain Error	F	3.2.0	3.3.0
RP-000207	25.105	038		R99	Correction for emission mask measurement (TDD)	F	3.2.0	3.3.0

CHANGE REQUEST

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25.105 CR 032

Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **RAN 8**
list expected approval meeting # here ↑

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Form: CR cover sheet, version 2 for 3GPP and SMG

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Proposed change affects:
(at least one should be marked with an X)

(U)SIM ME UTRAN / Radio Core Network

Source: RAN WG4

Date: 22/05/2000

Subject: Reference Measurement Channels

Work item:

Category:

(only one category shall be marked with an X)

F Correction
A Corresponds to a correction in an earlier release
B Addition of feature
C Functional modification of feature
D Editorial modification

Release: Phase 2
Release 96
Release 97
Release 98
Release 99
Release 00

Reason for change:

The current measurement channels are not in line with the WG1 and WG2 specifications.

Clauses affected: Appendix A

Other specs affected:

Other 3G core specifications → List of CRs:
Other GSM core specifications → List of CRs:
MS test specifications → List of CRs:
BSS test specifications → List of CRs:
O&M specifications → List of CRs:

Other comments:

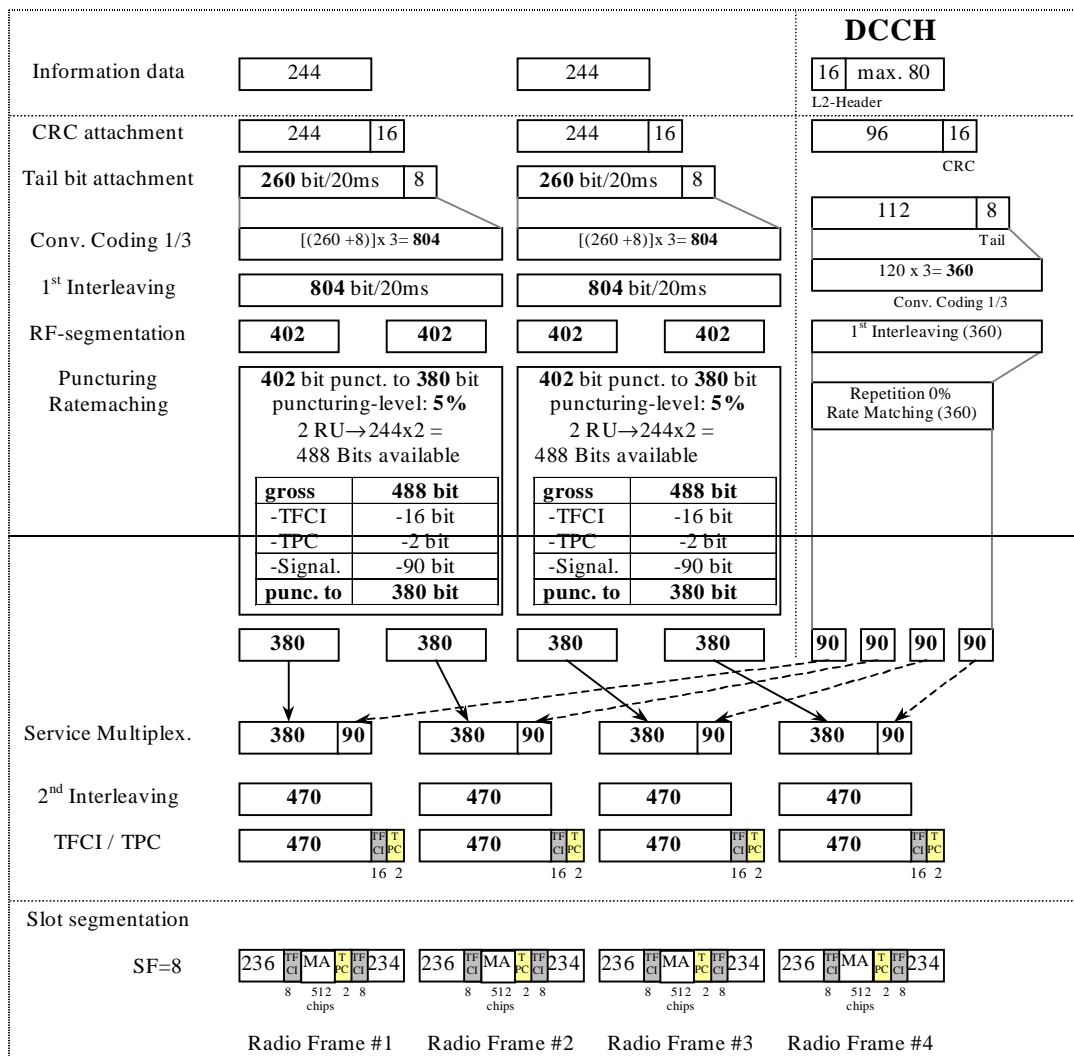
Annex A (normative): Measurement Channels

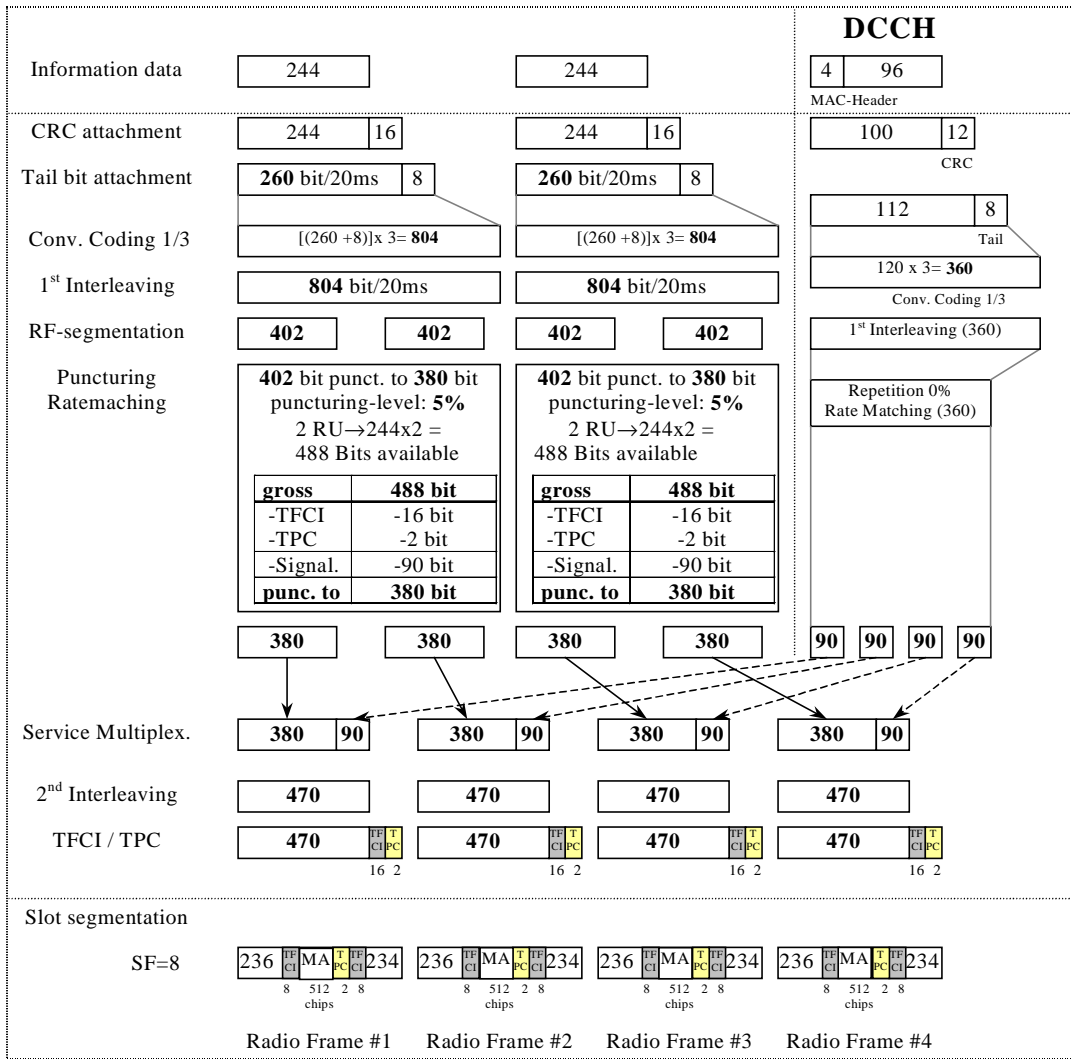
A.1 General

A.2 Reference measurement channel

A.2.1 UL reference measurement channel (12.2 kbps)

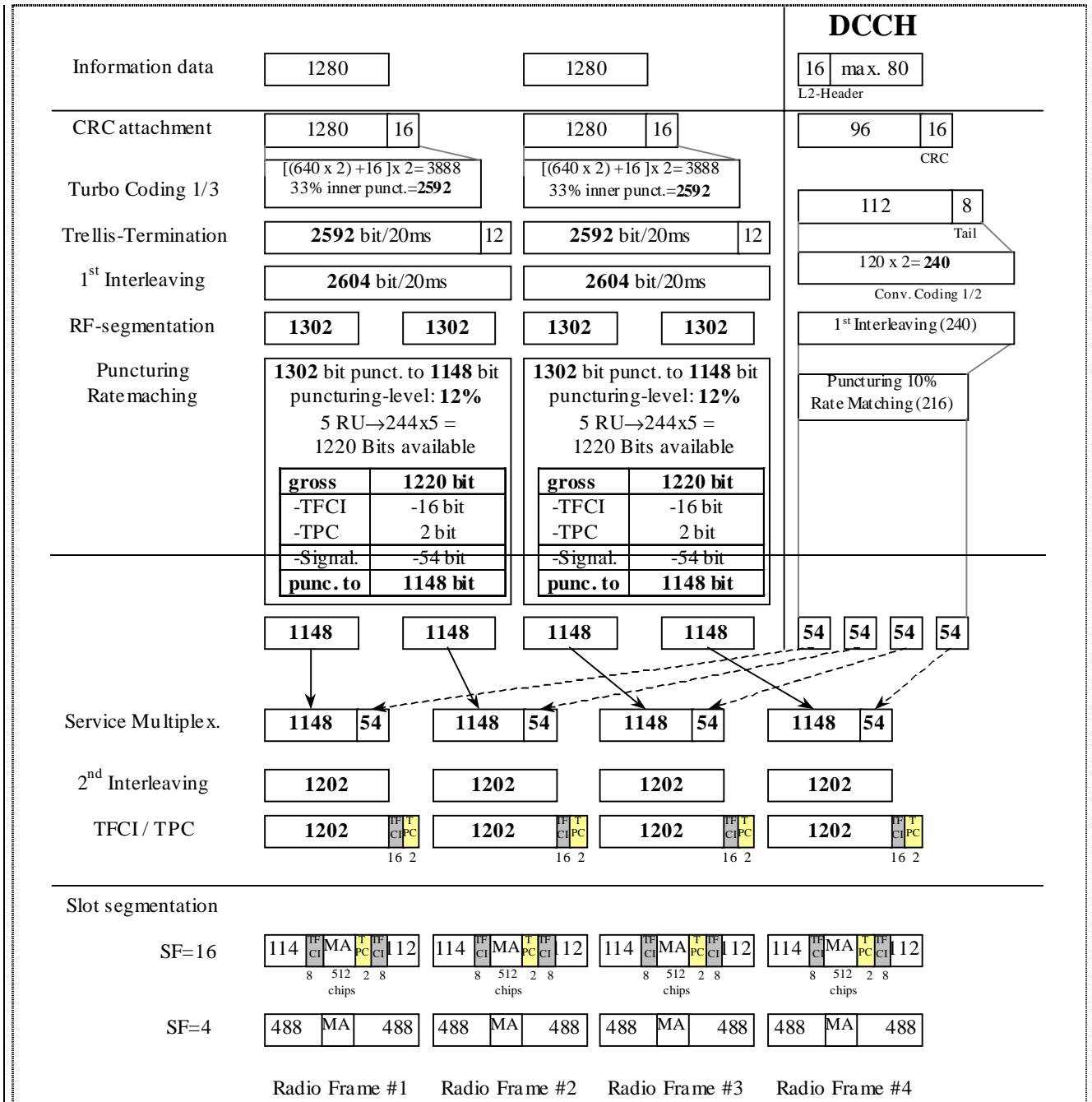
Parameter	
Information data rate	12.2 kbps
RU's allocated	2 RU
Midamble	512 chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate 1/3 : DCH / DCCH	5% / 0%

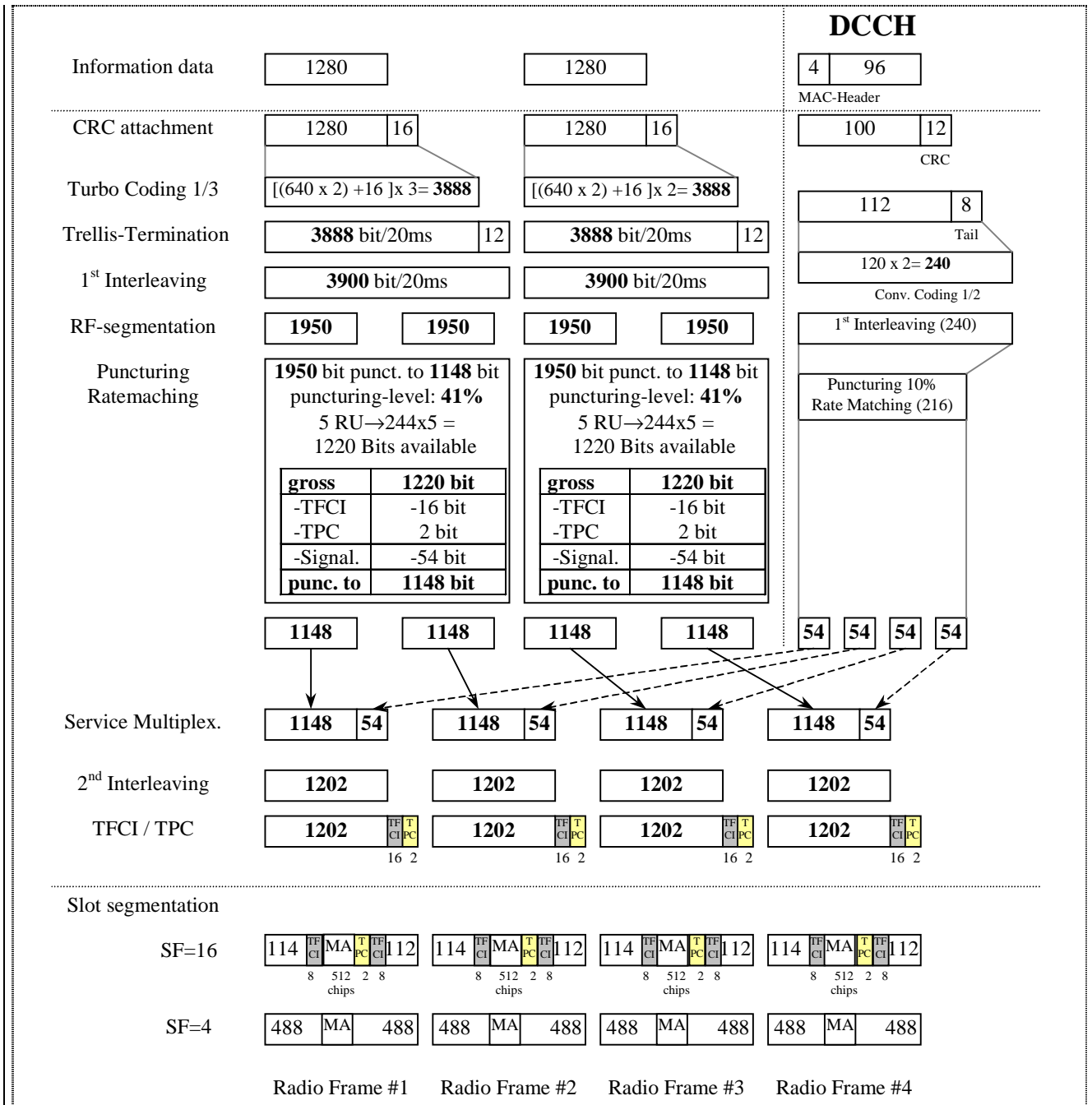




A.2.2 UL reference measurement channel (64 kbps)

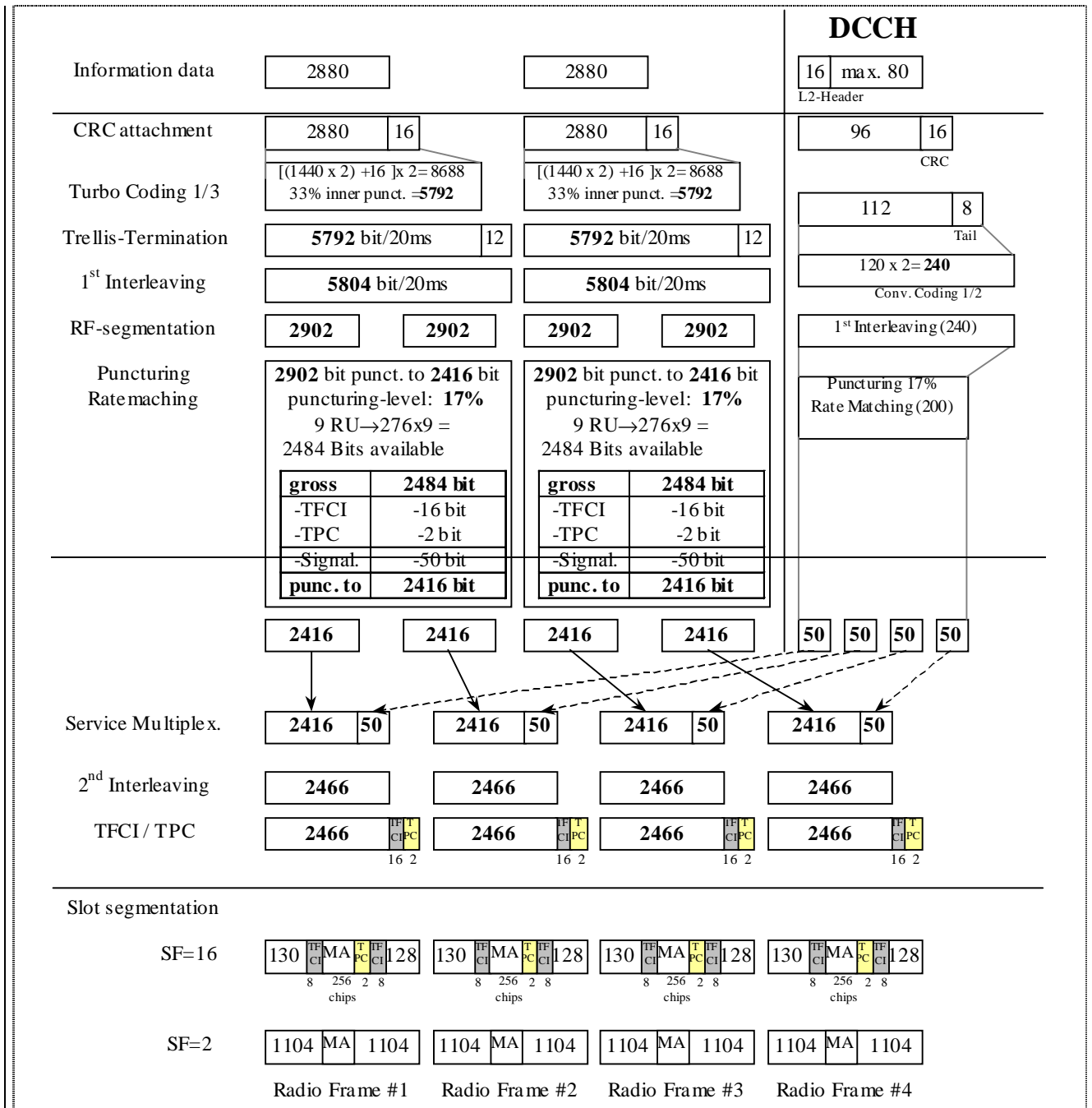
Parameter	
Information data rate	64 kbps
RU's allocated	1 SF4 + 1 SF16 = 5RU
Midamble	512 chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate : 1/3 DCH / 1/2 DCCH	41.2% / 10%

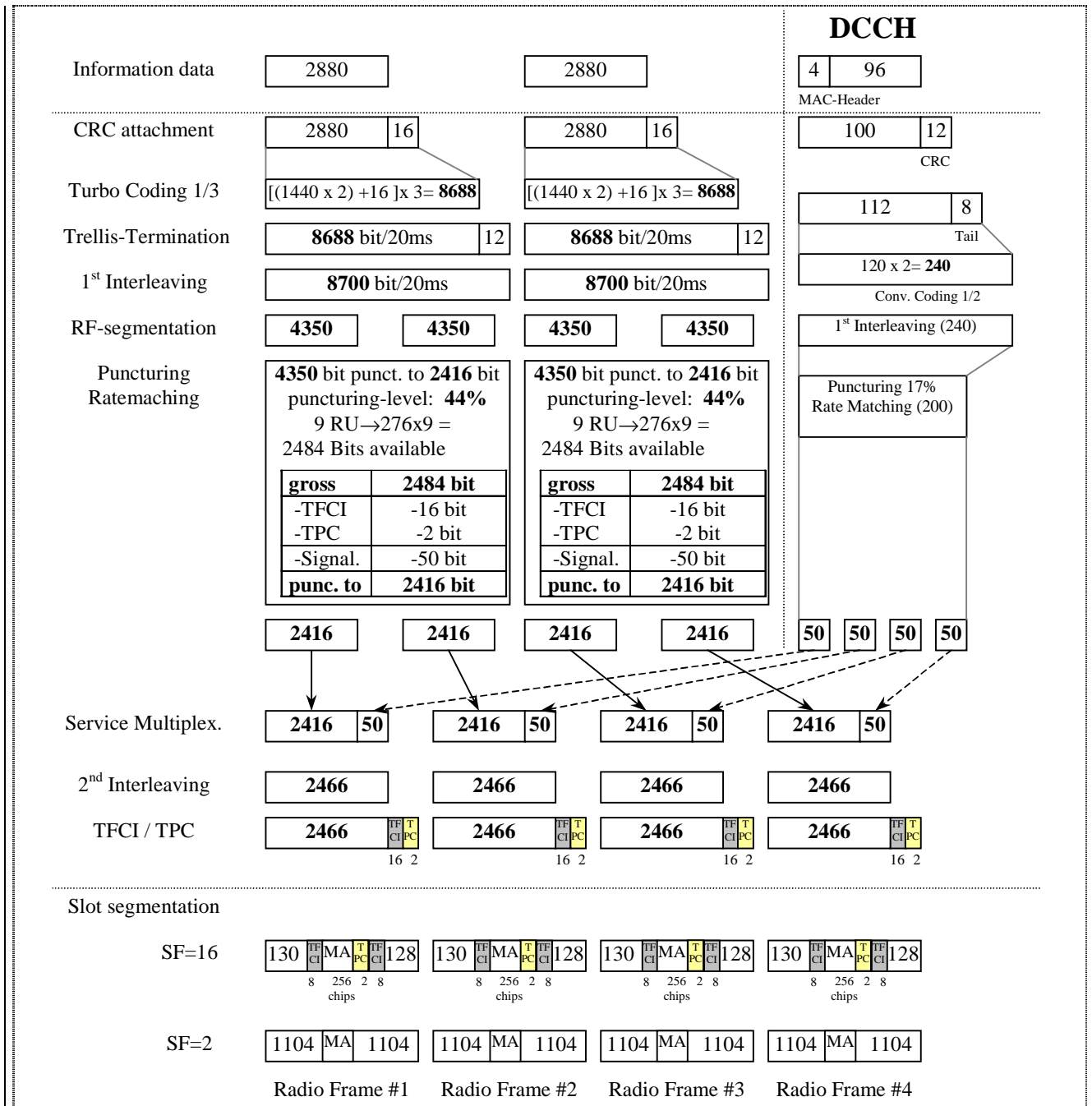




A.2.3 UL reference measurement channel (144 kbps)

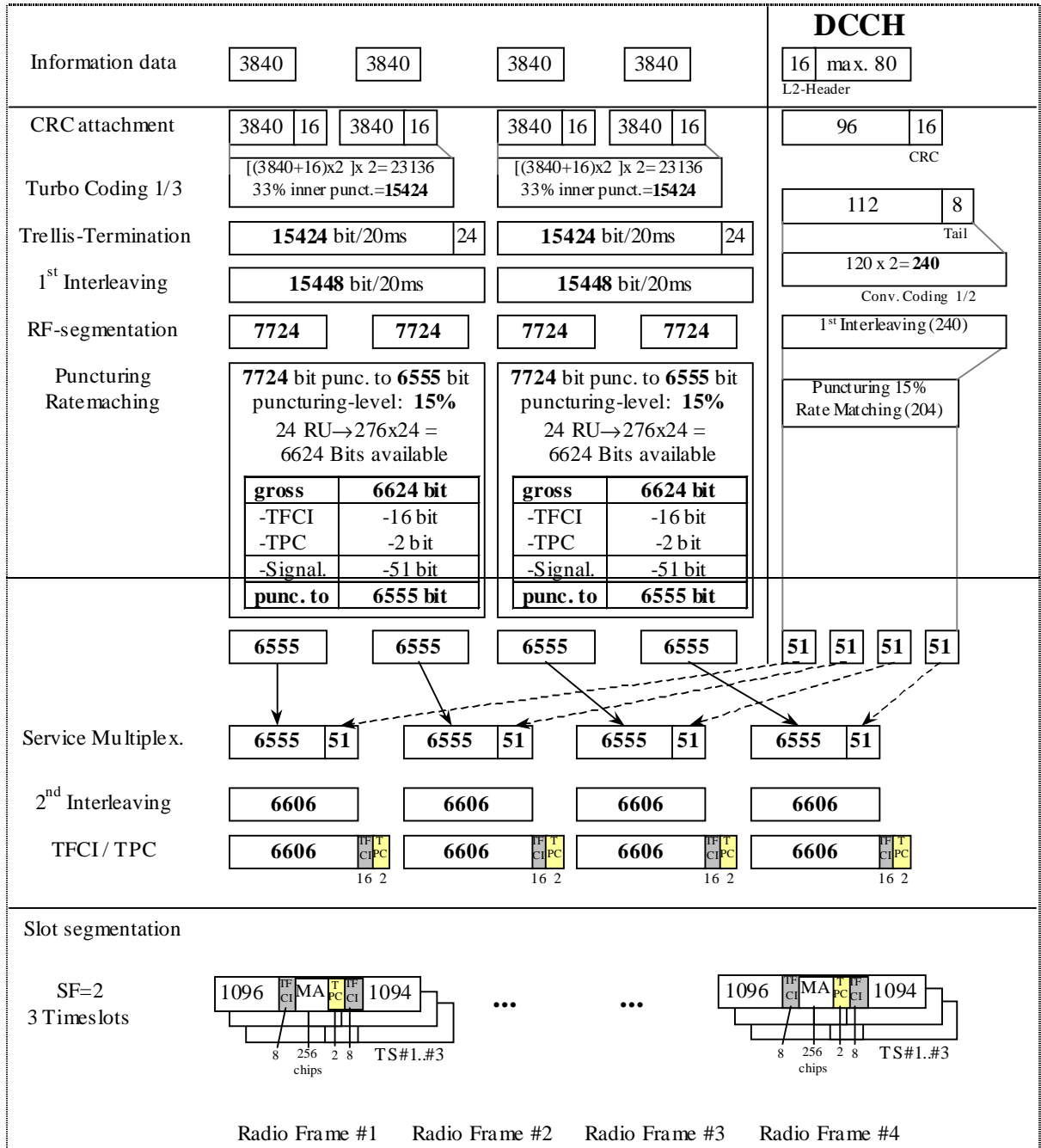
Parameter	
Information data rate	144 kbps
RU's allocated	1 SF2 + 1 SF16 = 9RU
Midamble	256 chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate : 1/3 DCH / 1/2 DCCH	44.4% / 16.6%

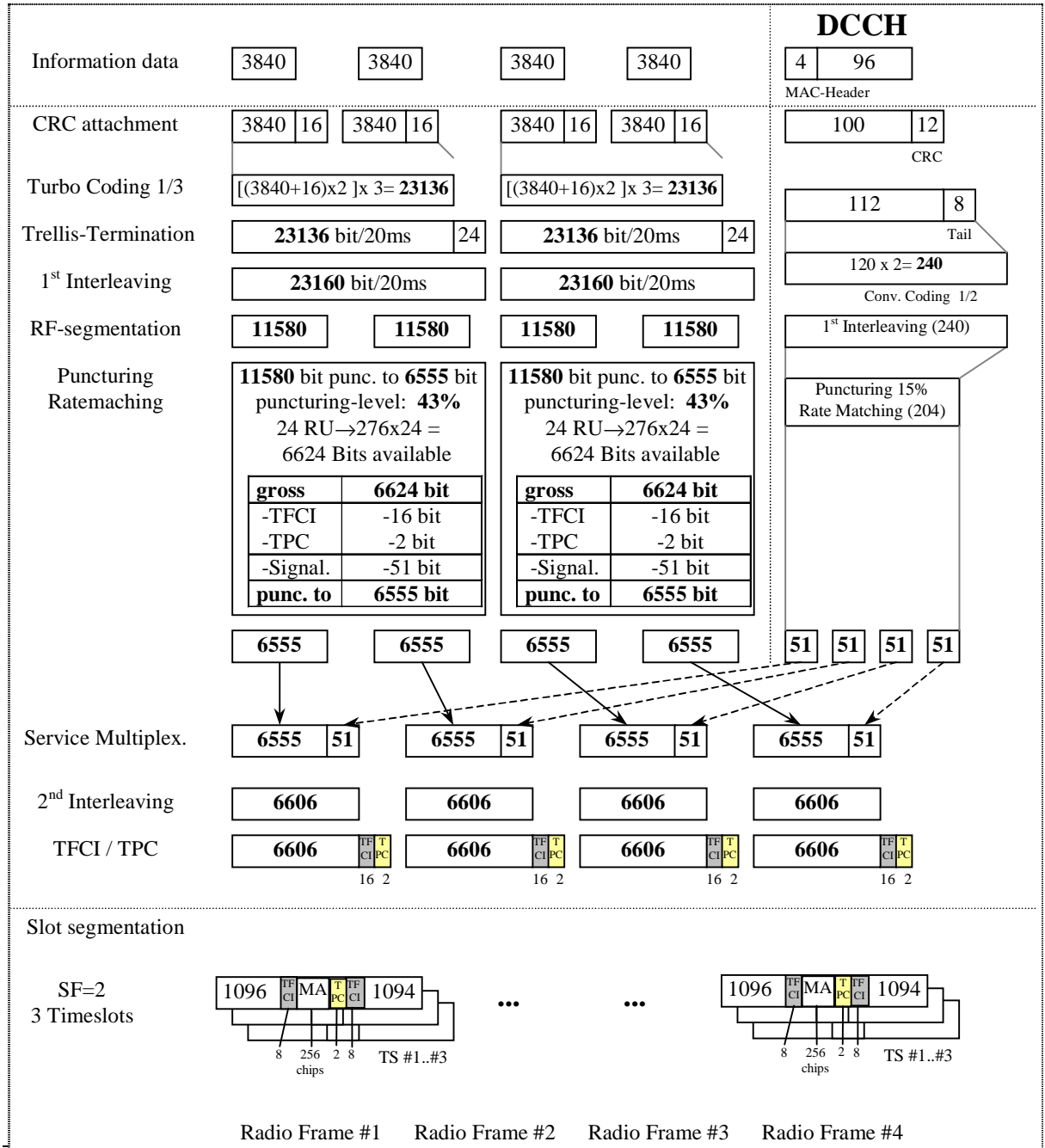




A.2.4 UL reference measurement channel (384 kbps)

Parameter	
Information data rate	384 kbps
RU's allocated	8*3TS = 24RU
Midamble	256 chips
Interleaving	20 ms
Power control	2 Bit/user
TFCI	16 Bit/user
Inband signalling DCCH	2 kbps
Puncturing level at Code rate : 1/3 DCH / 1/2 DCCH	43.4% / 15.3%





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25.105 CR 033

Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **RAN #8**
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strategic
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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:
(at least one should be marked with an X)

(U)SIM ME UTRAN / Radio Core Network

Source: RAN WG4 **Date:** 11/04/00

Subject: Regional requirements in TS 25.105

Work item:

Category:	F Correction	<input checked="" type="checkbox"/>	Release:	Phase 2	<input type="checkbox"/>
(only one category shall be marked with an X)	A Corresponds to a correction in an earlier release	<input type="checkbox"/>		Release 96	<input type="checkbox"/>
	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 type="checkbox"/>		Release 99	<input checked="" type="checkbox"/>
				Release 00	<input type="checkbox"/>

Reason for change: Several requirements in TS 25.105 will be applied regionally, since they depend on regional regulatory requirements or on co-existence with systems that are deployed regionally. The proposed text for the "General" section clarifies this. A regional requirement is also added for Clause 6.2.

Clauses affected: 4.3, 6.2.1.1

Other specs affected:	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 checked="" type="checkbox"/>	→ List of CRs:	
	O&M specifications	<input type="checkbox"/>	→ List of CRs:	

Other comments:

4 General

4.1 Measurement uncertainty

The requirements given in this specification are absolute. Compliance with the requirements is determined by comparing the measured value with the specified limit, without making allowance for measurement uncertainty.

4.2 Base station classes

The requirements in this specification apply to base station intended for general-purpose applications in co-ordinated network operation.

In the future further classes of base stations may be defined; the requirements for these may be different than for general-purpose applications.

4.3 Regional requirements

Some requirements in TS 25.105 may only apply in certain regions. Table 4.1 lists all requirements that may be applied differently in different regions.

Table 4.1: List of regional requirements.

<u>Clause number</u>	<u>Requirement</u>	<u>Comments</u>
<u>5.2</u>	<u>Frequency bands</u>	<u>Some bands may be applied regionally.</u>
<u>6.2.1</u>	<u>Base station maximum output power</u>	<u>In certain regions, the minimum requirement for normal conditions may apply also for some conditions outside the range of conditions defined as normal.</u>
<u>6.6.2.1</u>	<u>Spectrum emission mask</u>	<u>The mask specified may be mandatory in certain regions. In other regions this mask may not be applied.</u>
<u>6.6.3.1.1</u>	<u>Spurious emissions (Category A)</u>	<u>These requirements shall be met in cases where Category A limits for spurious emissions, as defined in ITU-R Recommendation SM.329-7 [1], are applied.</u>
<u>6.6.3.1.2</u>	<u>Spurious emissions (Category B)</u>	<u>These requirements shall be met in cases where Category B limits for spurious emissions, as defined in ITU-R Recommendation SM.329-7 [1], are applied.</u>
<u>6.6.3.2.1</u>	<u>Co-existence with GSM900 – Operation in the same geographic area</u>	<u>This requirement may be applied for the protection of GSM 900 MS in geographic areas in which both GSM 900 and UTRA are deployed.</u>
<u>6.6.3.2.2</u>	<u>Co-existence with GSM900 – Co-located base stations</u>	<u>This requirement may be applied for the protection of GSM 900 BTS receivers when GSM 900 BTS and UTRA BS are co-located.</u>
<u>6.6.3.3.1</u>	<u>Co-existence with DCS1800 – Operation in the same geographic area</u>	<u>This requirement may be applied for the protection of DCS 1800 MS in geographic areas in which both DCS 1800 and UTRA are deployed.</u>

6.6.3.3.2	Co-existence with DCS1800 – Co-located base stations	This requirement may be applied for the protection of DCS 1800 BTS receivers when DCS 1800 BTS and UTRA BS are co-located.
6.6.3.4.1	Co-existence with UTRA FDD – Operation in the same geographic area	This requirement may be applied to geographic areas in which both UTRA-TDD and UTRA-FDD are deployed.
6.6.3.4.2	Co-existence with UTRA FDD – Co-located base stations	This requirement may be applied for the protection of UTRA-FDD BS receivers when UTRA-TDD BS and UTRA FDD BS are co-located.
7.5	Blocking characteristic	The requirement is applied according to what frequency bands in Clause 5.2 that are supported by the BS.

6 Transmitter characteristics

6.1 General

Unless detailed the transmitter characteristic are specified at the antenna connector.

6.2 Base station output power

Output power, P_{out} , of the base station is the mean power of one carrier delivered to a load with resistance equal to the nominal load impedance of the transmitter during one slot.

Rated output power, PRAT, of the base station is the mean power level per carrier over an active timeslot that the manufacturer has declared to be available at the antenna connector.

6.2.1 Base station maximum output power

Maximum output power, P_{max} , of the base station is the mean power level per carrier over an active timeslot measured at the antenna connector for a specified reference condition.

6.2.1.1 Minimum Requirement

In normal conditions, the base station maximum output power shall remain within +2 dB and -2 dB of the manufacturer's rated output power.

In extreme conditions, the Base station maximum output power shall remain within +2.5 dB and -2.5 dB of the manufacturer's rated output power.

[In certain regions, the minimum requirement for normal conditions may apply also for some conditions outside the range of conditions defined as normal.](#)

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25.105 CR 034

Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **RAN 8**
list expected approval meeting # here ↑

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non-strategic (for SMG use only)

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:
(at least one should be marked with an X)

(U)SIM ME UTRAN / Radio Core Network

Source: RAN WG4

Date: 22/05/2000

Subject: Clarification of receiver dynamic range.

Work item:

Category:

(only one category shall be marked with an X)

F Correction
A Corresponds to a correction in an earlier release
B Addition of feature
C Functional modification of feature
D Editorial modification

Release:

Phase 2
Release 96
Release 97
Release 98
Release 99
Release 00

Reason for change:

The current receiver dynamic range requirement is unclear. The proposed correction specifies both the level of the received signal and the interference level.

Clauses affected: 7.3

Other specs affected:

Other 3G core specifications → List of CRs:
Other GSM core specifications → List of CRs:
MS test specifications → List of CRs:
BSS test specifications → List of CRs:
O&M specifications → List of CRs:

Other comments:

7.3 Dynamic range

The receiver dynamic range is the input power range at each BS antenna connector over which the BER does not exceed a specific rate.

~~The static BER reference performance as specified in clause 7.2.1 should be met over a receiver input range of 30 dB above the specified reference sensitivity level for 12.2 kbps channel.~~

Receiver dynamic range is the receiver ability to handle a rise of interference in the reception frequency channel. The receiver shall fulfil a specified BER requirement for a specified sensitivity degradation of the wanted signal in the presence of an interfering AWGN signal in the same reception frequency channel.

7.3.1 Minimum requirement

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

Table xx: Dynamic Range

<u>Parameter</u>	<u>Level</u>	<u>Unit</u>
<u>Data rate</u>	<u>12.2</u>	<u>kbps</u>
<u>Wanted signal</u>	<u><REFSENS> + 30 dB</u>	<u>dBm</u>
<u>Interfering AWGN signal</u>	<u>-73</u>	<u>dBm/3.84 MHz</u>

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25.105 CR 035

Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **RAN 8**
list expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG use only)

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:
(at least one should be marked with an X)

(U)SIM ME UTRAN / Radio Core Network

Source: RAN WG4

Date: 22/05/2000

Subject: Input power level for performance requirements

Work item:

Category:

(only one category shall be marked with an X)

F Correction
A Corresponds to a correction in an earlier release
B Addition of feature
C Functional modification of feature
D Editorial modification

Release:

Phase 2
Release 96
Release 97
Release 98
Release 99
Release 00

Reason for change:

The currently defined input power level is outside the receiver dynamic range. The value is adopted accordingly.

Clauses affected: 8.2; 8.3

Other specs affected:

Other 3G core specifications → List of CRs:
Other GSM core specifications → List of CRs:
MS test specifications → List of CRs:
BSS test specifications → List of CRs:
O&M specifications → List of CRs:

Other comments:

8.2 Demodulation in static propagation conditions

8.2.1 Demodulation of DCH

The performance requirement of DCH in static propagation conditions is determined by the maximum Block Error Rate (BLER) allowed when the receiver input signal is at a specified \hat{I}_{or}/I_{oc} limit. The BLER is calculated for each of the measurement channels supported by the base station.

8.2.1.1 Minimum requirement

For the parameters specified in Table 8.2 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.3.

Table 8.2: Parameters in static propagation conditions

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of DPCH _o		6	4	0	0
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-9	-9.5	0	0
I_{oc}	dBm/3.84 MHz	-89-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.3: Performance requirements in AWGN channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER Required E_b/N_0
1	-1.9	10^{-2}
2	-0.3	10^{-1}
	0.0	10^{-2}
3	0.0	10^{-1}
	0.2	10^{-2}
4	-0.5	10^{-1}
	-0.3	10^{-2}

8.3 Demodulation of DCH in multipath fading conditions

8.3.1 Multipath fading Case 1

The performance requirement of DCH in multipath fading Case 1 is determined by the maximum Block Error Rate (BLER) allowed when the receiver input signal is at a specified \hat{I}_{or}/I_{oc} limit. The BLER is calculated for each of the measurement channels supported by the base station.

8.3.1.1 Minimum requirement

For the parameters specified in Table 8.4 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.5.

Table 8.4: Parameters in multipath Case 1 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of DPCH _o		6	4	0	0
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-9	-9.5	0	0
I _{oc}	dBm/3.84 MHz	-89-60			
Information Data Rate	kbps	12.2	64	144	384

Table 8.5: Performance requirements in multipath Case 1 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	6.3	10 ⁻²
2	5.5	10 ⁻¹
	9.4	10 ⁻²
3	5.6	10 ⁻¹
	9.4	10 ⁻²
4	5.5	10 ⁻¹
	8.7	10 ⁻²

8.3.2 Multipath fading Case 2

The performance requirement of DCH in multipath fading Case 2 is determined by the maximum Block Error Rate (BLER) allowed when the receiver input signal is at a specified \hat{I}_{or}/I_{oc} limit. The BLER is calculated for each of the measurement channels supported by the base station.

8.3.2.1 Minimum requirement

For the parameters specified in Table 8.6 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.7.

Table 8.6: Parameters in multipath Case 2 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of DPCH _o		2	0	0	0
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-6	0	0	0
I _{oc}	dBm/3.84 MHz	-89-60			

Information Data Rate	kbps	12.2	64	144	384
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Table 8.7: Performance requirements in multipath Case 2 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER
1	0.1	10^{-2}
2	0.4	10^{-1}
	2.8	10^{-2}
3	3.6	10^{-1}
	6.0	10^{-2}
4	3.0	10^{-1}
	5.4	10^{-2}

8.3.3 Multipath fading Case 3

The performance requirement of DCH in multipath fading Case 3 is determined by the maximum Block Error Rate (BLER) allowed when the receiver input signal is at a specified \hat{I}_{or}/I_{oc} limit. The BLER is calculated for each of the measurement channels supported by the base station.

8.3.3.1 Minimum requirement

For the parameters specified in Table 8.8 the BLER should not exceed the piece-wise linear BLER curve specified in Table 8.9.

Table 8.8: Parameters in multipath Case 3 channel

Parameters	Unit	Test 1	Test 2	Test 3	Test 4
Number of DPCH _o		2	0	0	0
$\frac{DPCH_o - E_c}{I_{or}}$	dB	-6	0	0	0
I_{oc}	dBm/3.84 MHz	-89 -60			
Information Data Rate	Kbps	12.2	64	144	384

Table 8.9: Performance requirements in multipath Case 3 channel.

Test Number	$\frac{\hat{I}_{or}}{I_{oc}}$ [dB]	BLER	
1	-0.6	10^{-2}	
2	0.7	10^{-1}	
	2.4	10^{-2}	
	3.8	10^{-3}	
3	3.9	10^{-1}	

	5.9	10^{-2}	
	7.3	10^{-3}	
4	2.8	10^{-1}	
	4.2	10^{-2}	
	4.8	10^{-3}	

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25.105 CR 036

Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **RAN #8**
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for approval
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strategic
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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:
(at least one should be marked with an X)

(U)SIM ME UTRAN / Radio Core Network

Source: RAN WG4 **Date:** 05/05/00

Subject: Modification to the handling of BS TDD Measurement Uncertainty

Work item:

Category:
(only one category shall be marked with an X)

F Correction
A Corresponds to a correction in an earlier release
B Addition of feature
C Functional modification of feature
D Editorial modification

Release: Phase 2
Release 96
Release 97
Release 98
Release 99
Release 00

Reason for change:

The directions of handling for measurement uncertainty shall be changed to clarify its meaning.

Clauses affected: 4.1

Other specs affected:

Other 3G core specifications → List of CRs:
Other GSM core specifications → List of CRs:
MS test specifications → List of CRs:
BSS test specifications → List of CRs:
O&M specifications → List of CRs:

Other comments:

4 General

4.1 Measurement uncertainty

~~The requirements given in this specification are absolute. Compliance with the requirements is determined by comparing the measured value with the specified limit, without making allowance for measurement uncertainty.~~

The requirements given in this specification make no allowance for measurement uncertainty. Where the measurement uncertainty can be determined, the test limit shall be relaxed from the value given in this specification. See section 5.8.5 of 25.142. Where the measurement uncertainty cannot reasonably be determined, the “Shared Risk” principle is applied, i.e. the test limit is not relaxed.

The Shared Risk principle is defined in ETR 028.

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25.105 CR 037

Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: for approval
list expected approval meeting # here ↑ for information

strategic (for SMG use only)
non-strategic

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: RAN WG4 **Date:** 23.05.2000

Subject: Clarification of the specification on Peak Code Domain Error (PCDE)

Work item: TS 25.105

Category: F Correction **Release:** Phase 2
(only one category shall be marked with an X) A Corresponds to a correction in an earlier release Release 96
B Addition of feature Release 97
C Functional modification of feature Release 98
D Editorial modification Release 99
Release 00

Reason for change: The PCDE is strongly dependent on the spreading factor (SF); therefore, it is needed to clearly specify at which SF the PCDE is evaluated.

Clauses affected:

Other specs affected: Other 3G core specifications → List of CRs:
Other GSM core specifications → List of CRs:
MS test specifications → List of CRs:
BSS test specifications → List of CRs:
O&M specifications → List of CRs:

Other comments:

6.8.3 Peak Code Domain Error

The code domain error is computed by projecting the error vector power onto the code domain at ~~a specific~~
~~maximum~~ spreading factor. The error power for each code is defined as the ratio to the mean power of the 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.

6.8.3.1 Minimum Requirement

The peak code domain error shall not exceed -28 dB at spreading factor 16

CHANGE REQUEST

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25.105 CR 038

Current Version: **3.2.0**

GSM (AA.BB) or 3G (AA.BBB) specification number ↑

↑ CR number as allocated by MCC support team

For submission to: **RAN#8**

List expected approval meeting # here ↑

for approval
for information

strategic
non-strategic (for SMG use only)

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:

(at least one should be marked with an X)

(U)SIM ME UTRAN / Radio Core Network

Source:

RAN WG4

Date:

26.05.2000

Subject:

Correction for emission mask measurement (TDD)

Work item:

Category:

(only one category shall be marked with an X)

F Correction
A Corresponds to a correction in an earlier release
B Addition of feature
C Functional modification of feature
D Editorial modification

Release:

Phase 2
Release 96
Release 97
Release 98
Release 99
Release 00

Reason for change:

Correction for emission mask measurement

Clauses affected:

6.5.2.1 Emission mask measurement

Other specs

Affected:

Other 3G core specifications → List of CRs:
Other GSM core specifications → List of CRs:
MS test specifications → List of CRs:
BSS test specifications → List of CRs:
O&M specifications → List of CRs:

Other comments:

6.6.2.1 Spectrum emission mask

The mask defined in Table 6.3 to 6.6 below may be mandatory in certain regions. In other regions this mask may not be applied.

For regions where this clause applies, the requirement shall be met by a base station transmitting on a single RF carrier configured in accordance with the manufacturer's specification. Emissions shall not exceed the maximum level specified in tables 6.3 to 6.6 for the appropriate BS maximum output power, in the frequency range from $\Delta f = 2.5$ MHz to $f_{\text{offset_max}}$ from the carrier frequency, where:

- $f_{\text{offset_max}}$ is either 12.5 MHz or the offset to the UMTS Tx band edge as defined in section 5.2, whichever is the greater.

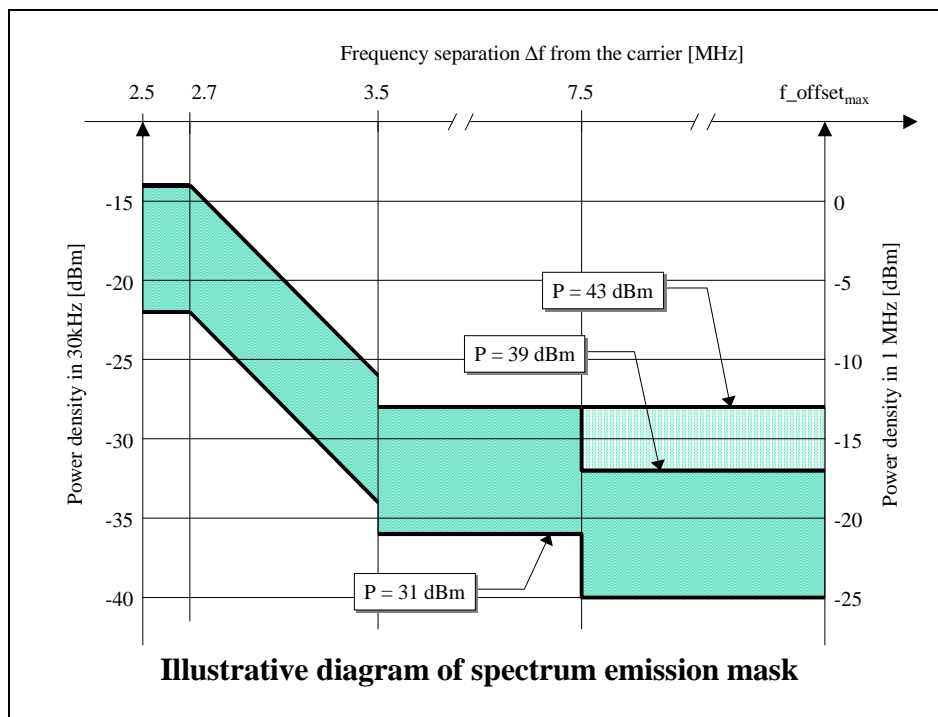


Table 6.3: Spectrum emission mask values, BS maximum output power $P \geq 43$ dBm

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Maximum level	Measurement bandwidth
$2.5 \leq \Delta f < 2.7$ MHz	$2.515\text{MHz} \leq f_{\text{offset}} < 2.715\text{MHz}$	-14 dBm	30 kHz
$2.7 \leq \Delta f < 3.5$ MHz	$2.715\text{MHz} \leq f_{\text{offset}} < 3.515\text{MHz}$	$-14 - 15 \cdot (f_{\text{offset}} - 2.715)$ dBm	30 kHz
	$3.515\text{MHz} \leq f_{\text{offset}} < 4.0\text{MHz}$	-26 dBm	30 kHz
$3.5 \leq \Delta f$ MHz	$4.0\text{MHz} \leq f_{\text{offset}} < f_{\text{offset_max}}$	-13 dBm	1 MHz

Table 6.4: Spectrum emission mask values, BS maximum output power $39 \leq P < 43$ dBm

Frequency offset of measurement filter -3 dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Maximum level	Measurement bandwidth

$2.5 \leq \Delta f < 2.7$ MHz	$2.515\text{MHz} \leq f_{\text{offset}} < 2.715\text{MHz}$	-14 dBm	30 kHz
$2.7 \leq \Delta f < 3.5$ MHz	$2.715\text{MHz} \leq f_{\text{offset}} < 3.515\text{MHz}$	$-14 - 15 \cdot (f_{\text{offset}} - 2.715)$ dBm	30 kHz
(see note)	$3.515\text{MHz} \leq f_{\text{offset}} < 4.0\text{MHz}$	-26 dBm	30 kHz
$3.5 \leq \Delta f < 7.5$ MHz	$4.0\text{MHz} \leq f_{\text{offset}} < 8.0\text{MHz}$	-13 dBm	1 MHz
$7.5 \leq \Delta f$ MHz	$8.0\text{MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	P - 56 dBm	1 MHz

Table 6.5: Spectrum emission mask values, BS maximum output power $31 \leq P < 39$ dBm

Frequency offset of measurement filter -3dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Maximum level	Measurement bandwidth
$2.5 \leq \Delta f < 2.7$ MHz	$2.515\text{MHz} \leq f_{\text{offset}} < 2.715\text{MHz}$	P - 53 dBm	30 kHz
$2.7 \leq \Delta f < 3.5$ MHz	$2.715\text{MHz} \leq f_{\text{offset}} < 3.515\text{MHz}$	$P - 53 - 15 \cdot (f_{\text{offset}} - 2.715)$ dBm	30 kHz
(see note)	$3.515\text{MHz} \leq f_{\text{offset}} < 4.0\text{MHz}$	-26 dBm	30 kHz
$3.5 \leq \Delta f < 7.5$ MHz	$4.0\text{MHz} \leq f_{\text{offset}} < 8.0\text{MHz}$	P - 52 dBm	1 MHz
$7.5 \leq \Delta f$ MHz	$8.0\text{MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	P - 56 dBm	1 MHz

Table 6.6: Spectrum emission mask values, BS maximum output power $P < 31$ dBm

Frequency offset of measurement filter -3dB point, Δf	Frequency offset of measurement filter centre frequency, f_{offset}	Maximum level	Measurement bandwidth
$2.5 \leq \Delta f < 2.7$ MHz	$2.515\text{MHz} \leq f_{\text{offset}} < 2.715\text{MHz}$	-22 dBm	30 kHz
$2.7 \leq \Delta f < 3.5$ MHz	$2.715\text{MHz} \leq f_{\text{offset}} < 3.515\text{MHz}$	$-22 - 15 \cdot (f_{\text{offset}} - 2.715)$ dBm	30 kHz
(see note)	$3.515\text{MHz} \leq f_{\text{offset}} < 4.0\text{MHz}$	-26 dBm	30 kHz
$3.5 \leq \Delta f < 7.5$ MHz	$4.0\text{MHz} \leq f_{\text{offset}} < 8.0\text{MHz}$	-21 dBm	1 MHz
$7.5 \leq \Delta f$ MHz	$8.0\text{MHz} \leq f_{\text{offset}} < f_{\text{offset}_{\text{max}}}$	-25 dBm	1 MHz

NOTE: This frequency range ensures that the range of values of f_{offset} is continuous.

6.6.2.2 Adjacent Channel Leakage power Ratio (ACLR)

Adjacent Channel Leakage power Ratio (ACLR) is the ratio of the transmitted power to the power measured in an adjacent channel. Both the transmitted and the adjacent channel power are measured through a matched filter (Root Raised Cosine and roll-off 0.22) with a noise power bandwidth equal to the chip rate. The requirements shall apply for all configurations of BS (single carrier or multi-carrier), and for all operating modes foreseen by the manufacturer's specification.

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