TSG RAN Meeting #13 **RP-010615**
Beijing, China, 18-21 September 2001

Title: **CRs (R'99 and Rel-4 Category A) to TS 25.102**

Source **TSG RAN WG4**

Agenda item: **8.4.3**

RAN4 Tdoc	Spec	CR	Title	Cat	Phase	Curr Ver	New Ver
R4-011133	25.102	67	Power and ACLR definition corrections	F	Rel99	3.7.0	3.8.0
R4-011052	25.102	68	Power and ACLR definition corrections.	A	Rel-4	4.1.0	4.2.0
R4-011161	25.102	69	Out of synchronisation handling	F	Rel99	3.7.0	3.8.0
R4-011053	25.102	70	Out-of-synchronisation handling.	A	Rel-4	4.1.0	4.2.0
R4-011265	25.102	71	Correction of frequency range for receiver spurious emissions	F	Rel99	3.7.0	3.8.0
R4-011267	25.102	72	Correction of frequency range for receiver spurious emissions	A	Rel-4	4.1.0	4.2.0
R4-011284	25.102	73	Clarification in Spectrum emission mask section	F	Rel99	3.7.0	3.8.0
R4-011285	25.102	74	Clarification in Spectrum emission mask section	A	Rel-4	4.1.0	4.2.0

3GPP TSG RAN WG4 Meeting #19 **R4-011133**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.102** **CR** **67** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

*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:	⌘	Power and ACLR definition corrections.
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 3-07/09/2001
Category:	⌘	**F** ***Release:*** ⌘ Rel99

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Corrections of power related entities.
Summary of change:	⌘	Definition of nominal maximum output power, deletion of unused terms. Modification to UE power class definition: use of nominal maximum output power rather than maximum output power. Transmit OFF power is measured over one chip Correction of ACLR definition.
Consequences if not approved:	⌘	Possible misunderstanding of various power definitions and ACLR definition.

Clauses affected:	⌘	3.1, 6.2.1, 6.4.2, 6.5, 6.6.2.2		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	34.122
Other comments:	⌘			

How to create CRs using this form:

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

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

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

3 Definitions, symbols and abbreviations

3.1 Definitions

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

~~Power Setting~~	~~The value of the control signal, which determines the desired transmitter, output Power. Typically, the power setting would be altered in response to power control commands~~
~~Maximum Power Setting~~	~~The highest value of the Power control setting which can be used.~~
~~Maximum output Power~~	~~This refers to the measure of power when averaged over the transmit timeslot at the maximum power setting.~~
Average power	The thermal power as measured through a root raised cosine filter with roll-off α=0.22 and a bandwidth equal to the chip rate of the radio access mode. The period of measurement shall be a transmit timeslot excluding the guard period unless otherwise stated.
~~Output Power~~	~~The Average Power of the UE (i.e. the actual power as would be measured assuming no measurement error),~~
Maximum Output Power	This is a measure of the maximum power ~~supported by~~ the UE can transmit (i.e. the actual broadband power as would be measured assuming no measurement error). The period of measurement shall be a transmit timeslot excluding the guard period.
Nominal Maximum Output Power	This is the nominal power defined by the UE power class. The period of measurement shall be a transmit timeslot excluding the guard period.
~~Peak Power~~	~~The instantaneous power of the RF envelope which is not expected to be exceeded for [99.9%] of the time~~
~~Maximum peak power~~	~~The peak power observed when operating at a given maximum output power.~~
~~Average transmit power~~	~~The average transmitter output power obtained over any specified time interval, including periods with no transmission.~~ ~~<Editors: This definition would be relevant when considering realistic deployment scenarios where the power control setting may vary. >~~
~~Maximum average power~~	~~The average transmitter output power obtained over any specified time interval, including periods with no transmission, when the transmit time slots are at the maximum power setting.~~ ~~<Editors: The average power at the maximum power setting would also be consistent with defining a long term average power>~~
Received Signal Code Power (RSCP)	Given only signal power is received, the average power of the received signal after despreading and combining.
Interference Signal Code Power (ISCP)	Given only interference power is received, the average power of the received signal after despreading to the code and combining. Equivalent to the RSCP value but now only interference is received instead of signal

6.2 Transmit power

6.2.1 User Equipment maximum output power

The following Power Classes define the nominal maximum output power. The nominal power defined is the broadband transmit power of the UE.~~;~~

Table 6.1: UE power classes

Power Class	Nominal ~~M~~maximum output power	Tolerance
1	+30 dBm	+1 dB / -3 dB
2	+24 dBm	+1 dB / -3 dB
3	+21 dBm	+2 dB / -2 dB
4	+10 dBm	+4 dB / -4 dB

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.~~1. For multi-code operation the nominal maximum output power will be reduced by the difference of peak to average ratio between single and multi-code transmission.

~~3.~~2. The tolerance allowed ~~of~~ for the nominal maximum power applies ~~is below the prescribed value~~ even at the multi-code transmission mode.

~~4.~~3. For UE using directive antennas for transmission, a class dependent limit will be placed on the maximum EIRP (Equivalent Isotropic Radiated Power)..

---NEXT SECTION---

6.4.2 Minimum ~~transmit~~ output power

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

6.4.2.1 Minimum requirement

The minimum ~~transmit~~ output power shall be less ~~better~~ than –44 dBm measured with a filter that has a root-raised cosine (RRC) filter response with a roll-off-factor $\alpha = 0.22$ and a bandwidth equal to the chip rate.

---NEXT SECTION---

6.5 Transmit ON/OFF power

6.5.1 Transmit OFF power

Transmit OFF power is defined as the average power measured over one chip when the transmitter is off. 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.~~

6.5.1.1 Minimum Requirement

The requirement for transmit OFF power shall be less ~~better~~ than −65 dBm measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off α=0.22 and a bandwidth equal to the chip rate.

6.6.2.2 Adjacent Channel Leakage power Ratio (ACLR)

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

6.6.2.2.1 Minimum requirement

If the adjacent channel power is greater than –50dBm then the ACLR shall be ~~better~~ higher than the value specified in Table 6.6.

Table 6.6:UE ACLR

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

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

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

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

---END OF CHANGES---

3GPP TSG RAN WG4 Meeting #19 **R4-011052**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.102** **CR** **68** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

*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:	⌘	Power and ACLR definition corrections.
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 3-7/09/2001
Category:	⌘	**A** ***Release:*** ⌘ Rel-4

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	Corrections of power related entities.
Summary of change:	⌘	Definition of nominal maximum output power, deletion of unused terms. Modification to UE power class definition: use of nominal maximum output power rather than maximum output power. Transmit OFF power is measured over one chip. Correction of ACLR definition
Consequences if not approved:	⌘	Possible misunderstanding of various power definitions and ACLR definition.

Clauses affected:	⌘	3.1, 6.2.1, 6.4.2, 6.5, 6.6.2.2		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	34.122
Other comments:	⌘	Corresponds to a R99 CR in R4-011133		

How to create CRs using this form:

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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.

3 Definitions, symbols and abbreviations

3.1 Definitions

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

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

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

~~**Maximum output Power:** This refers to the measure of power when averaged over the transmit timeslot at the maximum power setting.~~

Average power: The thermal power as measured through a root raised cosine filter with roll-off α=0.22 and a bandwidth equal to the chip rate of the radio access mode. The period of measurement shall be a transmit timeslot excluding the guard period unless otherwise stated.

~~**Output Power:** The Average Power of the UE (i.e. the actual power as would be measured assuming no measurement error),~~

Maximum Ouput Power: This is a measure of the maximum power ~~supported by~~ the UE can transmit (i.e. the actual broadband power as would be measured assuming no measurement error). The period of measurement shall be a transmit timeslot excluding the guard period.

Nominal Maximum Output Power: This is the nominal power defined by the UE power class. The period of measurement shall be a transmit timeslot excluding the guard period.

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

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

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

~~<Editors: This definition would be relevant when considering realistic deployment scenarios where the power control setting may vary. >~~

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

~~<Editors: The average power at the maximum power setting would also be consistent with defining a long term average power>~~

Received Signal Code Power (RSCP): Given only signal power is received, the average power of the received signal after despreading and combining.

Interference Signal Code Power (ISCP): Given only interference power is received, the average power of the received signal after despreading to the code and combining. Equivalent to the RSCP value but now only interference is received instead of signal

6.2 Transmit power

6.2.1 User Equipment maximum output power

The following Power Classes define the nominal maximum output power~~;~~. The nominal power defined is the broadband transmit power of the UE.

Table 6.1: UE power classes

Power Class	Nominal ~~M~~maximum output power	Tolerance
1	+30 dBm	+1 dB / -3 dB
2	+24 dBm	+1 dB / -3 dB
3	+21 dBm	+2 dB / -2 dB
4	+10 dBm	+4 dB / -4 dB

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.~~1. For multi-code operation the nominal maximum output power will be reduced by the difference of peak to average ratio between single and multi-code transmission.

~~3.~~2. The tolerance allowed ~~of~~ for the nominal maximum power applies ~~is below the prescribed value~~ even at the multi-code transmission mode.

~~4.~~3. For UE using directive antennas for transmission, a class dependent limit will be placed on the maximum EIRP (Equivalent Isotropic Radiated Power)..

---NEXT SECTION---

6.4.2 Minimum ~~transmit~~ output power

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

6.4.2.1 Minimum requirement

6.4.2.1.1 3.84 Mcps TDD option

The minimum ~~transmit~~ output power shall be less ~~better~~ than –44 dBm measured with a filter that has a root-raised cosine (RRC) filter response with a roll-off-factor $\alpha = 0.22$ and a bandwidth equal to the chip rate.

---NEXT SECTION---

6.5 Transmit ON/OFF power

6.5.1 Transmit OFF power

Transmit OFF power is defined as the average power measured over one chip when the transmitter is off. 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.~~

6.5.1.1 Minimum Requirement

The requirement for transmit OFF power shall be less ~~better~~ than −65 dBm measured with a filter that has a Root-Raised Cosine (RRC) filter response with a roll off α=0.22 and a bandwidth equal to the chip rate.

6.6.2.2 Adjacent Channel Leakage power Ratio (ACLR)

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

6.6.2.2.1 Minimum requirement

6.6.2.2.1.1 3.84 Mcps TDD Option

If the adjacent channel power is greater than –50dBm then the ACLR shall be higher ~~better~~ than the value specified in Table 6.6.

Table 6.6:UE ACLR (3.84 Mcps TDD Option)

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

NOTE:

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

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

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

---END OF CHANGES---

3GPP TSG RAN WG4 Meeting #19 **R4-011161**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.102** **CR** **69** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

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

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

Title:	⌘	Out-of synchronisation handling
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 03/09/2001
Category:	⌘	**F** ***Release:*** ⌘ Rel99

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

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

Reason for change:	⌘	The present minimum requirement is narrowly defined to cover only one test case.
Summary of change:	⌘	A general minimum requirement is added and the previous test is given as a “test case” in a new section. The same action is done for the DTX section. The DTX test case is aligned with RAN1 specification. Figures are corrected
Consequences if not approved:	⌘	The requirement will be ambiguous, since the spec would not define what the actual minimum requirement is other than for the specific test case.

Clauses affected:	⌘	6.4.3.1.1, 6.4.3.1.2, 6.4.3.2.1, 6.4.3.2.2 (New sections).		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	TS 34.122
Other comments:	⌘			

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

6.4.3 Out-of-synchronisation handling of output power

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. The thresholds $Q_{out,}$ $Q_{in,}$ Q_{sbout} and Q_{sbin} specify at what DPCH quality levels the UE shall shut its power off and when it shall turn its power on, respectively. The thresholds are not defined explicitly, but are defined by the conditions under which the UE shall shut its transmitter off and turn it on, as stated in this clause.

6.4.3.1 Requirement for continuous transmission

6.4.3.1.1 Minimum requirement

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

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

6.4.3.1.2 Test case

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

The conditions for the continous test case are as follows:

The handover triggering level shall be set very high to ensure that the beacon channel power never exceeds the value of 10dB above it. Therefore the averaging time for signal quality will always be 160 milliseconds.

The quality levels at the thresholds Q_{out} and Q_{in} correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in Table 6.4, a signal with the quality at the level Q_{out} can be generated by a ΣDPCH_Ec/Ior ratio of -13 dB, and a signal with Q_{in} by a ΣDPCH_Ec/Ior ratio of -9 dB. In this test, the DL reference measurement channel (12.2) kbps specified in subclauseA.2.2, where the CRC bits are replaced by data bits, and with static propagation conditions is used.

~~The parameters in Table 6.4 are defined using the DL reference measurement channel (12.2) kbps specified in Annex A.2.2, where the CRC bits are replaced by data bits, and with static propagation conditions.~~

Table 6.4: DCH parameters for ~~test of~~ the Out-of-synch handling test case – continuous transmission

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 6.1
Information Data Rate	kbps	13
TFCI	-	On

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

~~The conditions for when the UE shall shut its transmitter off and when it shall turn it on are defined by the parameters in Table 6.4 together with the DPCH power level as defined in Figure 6.1.~~

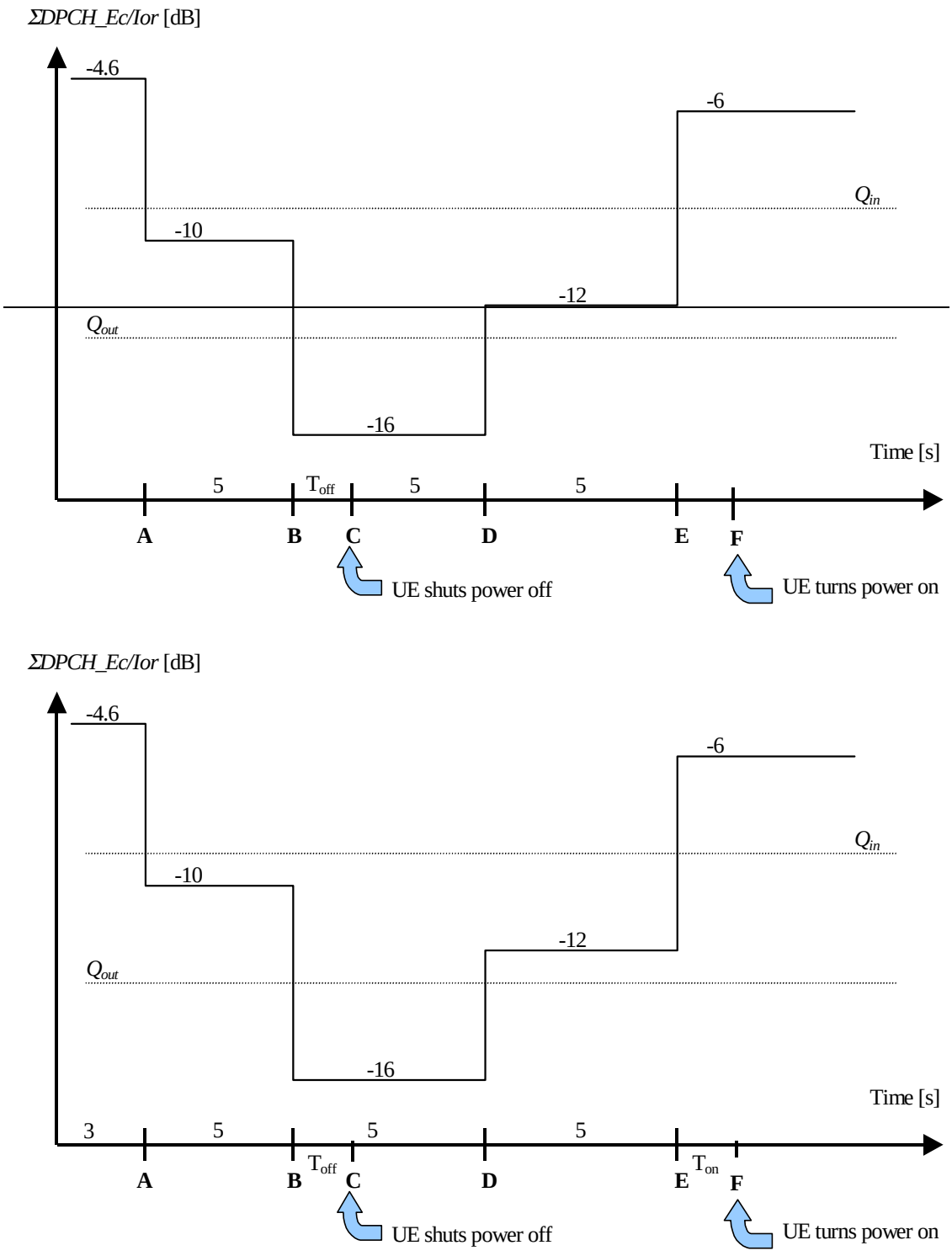

Figure 6.1. ~~Conditions~~ Test case for out-of-synch handling in the UE. ~~The indicated thresholds Q_{out} andQ_{in} are only informative –~~ continuous transmission

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

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

6.4.3.2 Requirement for discontinuous transmission

6.4.3.2.1 Minimum requirement

During DTX, there are periods when the UE will receive no data from the UTRAN. As specified in TS 25.224, in order to keep synchronization, Special Bursts shall be transmitted by the UTRAN during these periods of no data.

~~This test shall be done during a period of no data transmission.~~ During ~~this~~ these periods, the conditions for when the UE shall shut its transmitter on or off are defined by the power level of the received Special Bursts~~.~~, ~~as defined in Figure 6.1A.~~

When the UE does not detect at least one special burst with a quality above a threshold Q_{sbout} over the last 160 ms period, the UE shall shut its transmitter off within 40 ms. The UE shall not turn its transmitter on again until the special burst quality exceeds an acceptable level Q_{sbin}. When the UE estimates the special burst quality to be better than a threshold Q_{sbin} over the last 160 ms, the UE shall again turn its transmitter on within 40 ms.

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

6.4.3.2.2 Test case

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

The conditions for the discontinuous test case ~~performance requirement~~ are as follows:

The handover triggering level shall be set very high to ensure that the beacon channel power never exceeds the value of 10dB above it. Therefore the averaging time for signal quality will always be 160 milliseconds.

The UTRAN transmits Special Bursts as specified in TS 25.224. The Special Burst Scheduling Parameter, SBSP = 4, which means that UTRAN sends a Special Burst at every fourth frame with no data. Therefore, the UTRAN sends a Special Burst in the first frame without data transmission, followed by 3 frames with no transmission; followed by a Special Burst, etc.

The DCH parameters are shown in Table 6.4A. ~~While the normal data is transmitted using two channelization codes, the Special Burst is transmitted with only one channelization code. Therefore the total energy per chip during Special Bursts is 3 dB lower than for continuous data transmission. The Special Bursts are represented by "SBs" in the figure.~~

The quality levels at the thresholds Q_{sbout} and Q_{sbin} correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in Table 6.4A, a signal with the quality at the level Q_{sbout} can be generated by a DPCH_Ec/Ior ratio during received special bursts of -16 dB, and a signal with Q_{sbin} by a DPCH_Ec/Ior ratio during received special bursts of -12 dB.

Table 6.4A: DCH parameters for ~~test of~~ the Out-of-synch handling test case– discontinuous transmission

Parameter	Unit	Value
$\hat{I}_{or}/I_{oc}$	~~D~~dB	-1
I_{oc}	dBm/3.84 MHz	-60
$\frac{\Sigma DPCH\_E_c}{I_{or}}$ $\frac{DPCH\_E_c}{I_{or}}$	~~D~~dB	See figure 6.1A
Bits/burst (including TFCI bits)	Bits	244
TFCI	-	On

Figure 6.1A shows an example scenario where the special burst quality varies from a level above Q_{sbin}, down to a level below Q_{sbout} where the UE shall shut its power off and then back up to a level above Q_{sbin} where the UE shall turn the power back on.

While the normal data is transmitted using two channelization codes, the Special Burst is transmitted with only one channelization code. Therefore the total energy per chip during Special Bursts is 3 dB lower than for continuous data transmission. The Special Bursts are represented by “SBs” in Figure 6.1A.

During the period of 3 frames with no data, the UE will receive a very low power, which is not shown in the figure. The power shown in the figure is the power of the Special Burst. ~~(which is 3dB lower than power for normal data, which is shown in Figure 6.1A).~~

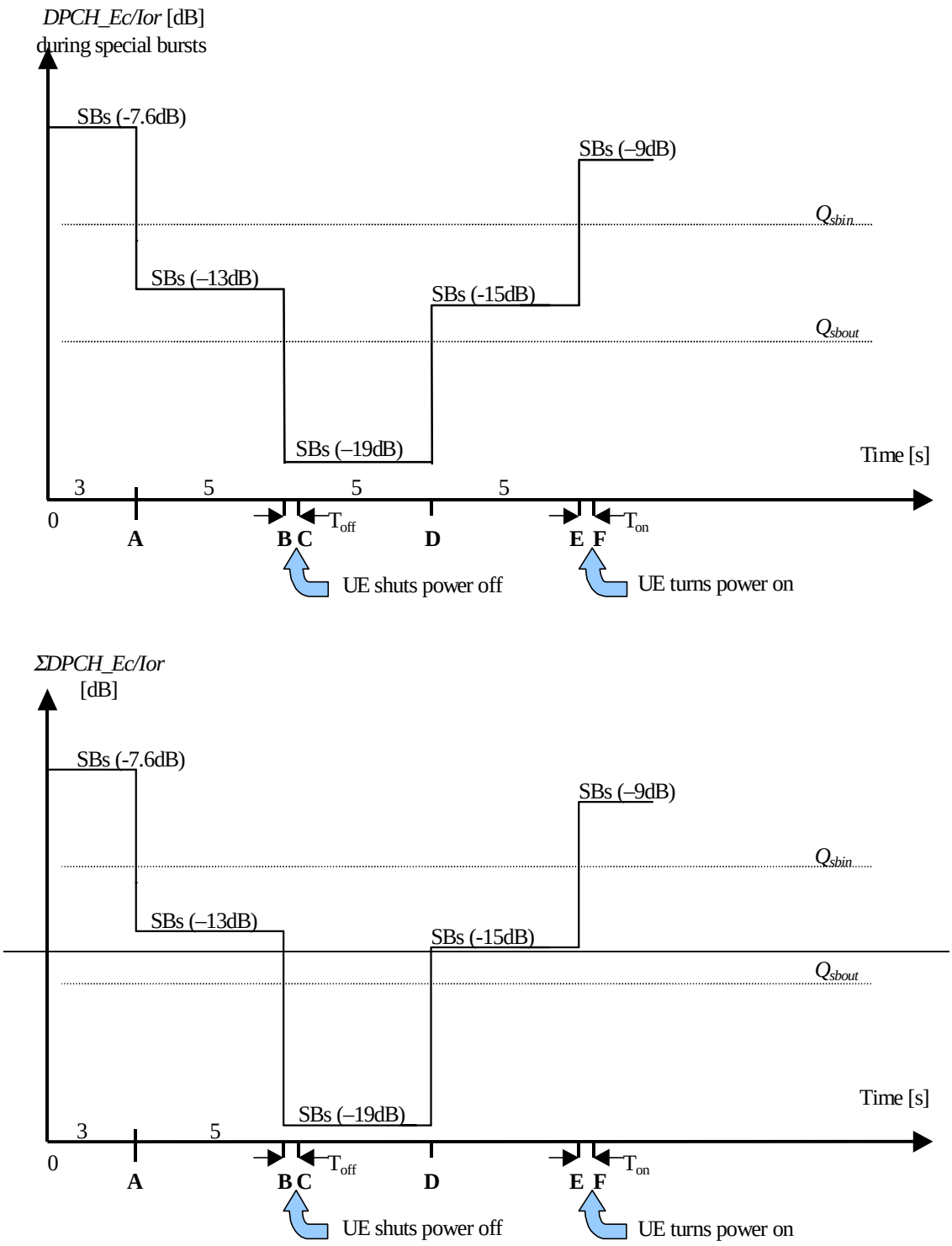

Figure 6.1A. ~~Conditions~~ Test case for out-of-synch handling in the UE - discontinuous transmission. ~~The indicated thresholds Q_{sbout} and Q_{sbin} are only informative.~~

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

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

3GPP TSG RAN WG4 Meeting #19 **R4-011053**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.102** **CR** **70** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

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

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

Title:	⌘	Out-of synchronisation handling
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 03/09/2001
Category:	⌘	**A** ***Release:*** ⌘ Rel-4

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The present minimum requirement is narrowly defined to cover only one test case.
Summary of change:	⌘	A general minimum requirement is added and the previous test is given as a “test case” in a new section. The same action is done for the DTX section. The DTX test case is aligned with RAN1 specification. Figures are corrected
Consequences if not approved:	⌘	The requirement will be ambiguous, since the spec would not define what the actual minimum requirement is other than for the specific test case.

Clauses affected:	⌘			
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	34.122
Other comments:	⌘	Cat-A CR corresponding to R4-011161		

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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.

6.4.3 Out-of-synchronisation handling of output power

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. The thresholds $Q_{out,}$ $Q_{in,}$ Q_{sbout} and Q_{sbin} specify at what DPCH quality levels the UE shall shut its power off and when it shall turn its power on, respectively. The thresholds are not defined explicitly, but are defined by the conditions under which the UE shall shut its transmitter off and turn it on, as stated in this clause.

6.4.3.1 Requirement for continuous transmission

6.4.3.1.1 3.84 Mcps TDD Option

6.4.3.1.1.1 Minimum requirement

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

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

6.4.3.1.1.2 Test case

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

The conditions for the continous test case are as follows:

The handover triggering level shall be set very high to ensure that the beacon channel power never exceeds the value of 10dB above it. Therefore the averaging time for signal quality will always be 160 milliseconds.

The quality levels at the thresholds Q_{out} and Q_{in} correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in Table 6.4, a signal with the quality at the level Q_{out} can be generated by a ΣDPCH_Ec/Ior ratio of -13 dB, and a signal with Q_{in} by a ΣDPCH_Ec/Ior ratio of -9 dB. In this test, the DL reference measurement channel (12.2) kbps specified in subclauseA.2.2, where the CRC bits are replaced by data bits, and with static propagation conditions is used.

~~The parameters in Table 6.4 are defined using the DL reference measurement channel (12.2) kbps specified in Annex A.2.2, where the CRC bits are replaced by data bits, and with static propagation conditions.~~

Table 6.4: DCH parameters ~~for test~~ the of Out-of-synch handling test case – 3.84 Mcps TDD option – continuous transmission

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 6.1
Information Data Rate	kbps	13
TFCI	-	On

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

~~The conditions for when the UE shall shut its transmitter off and when it shall turn it on are defined by the parameters in Table 6.4 together with the DPCH power level as defined in Figure 6.1.~~

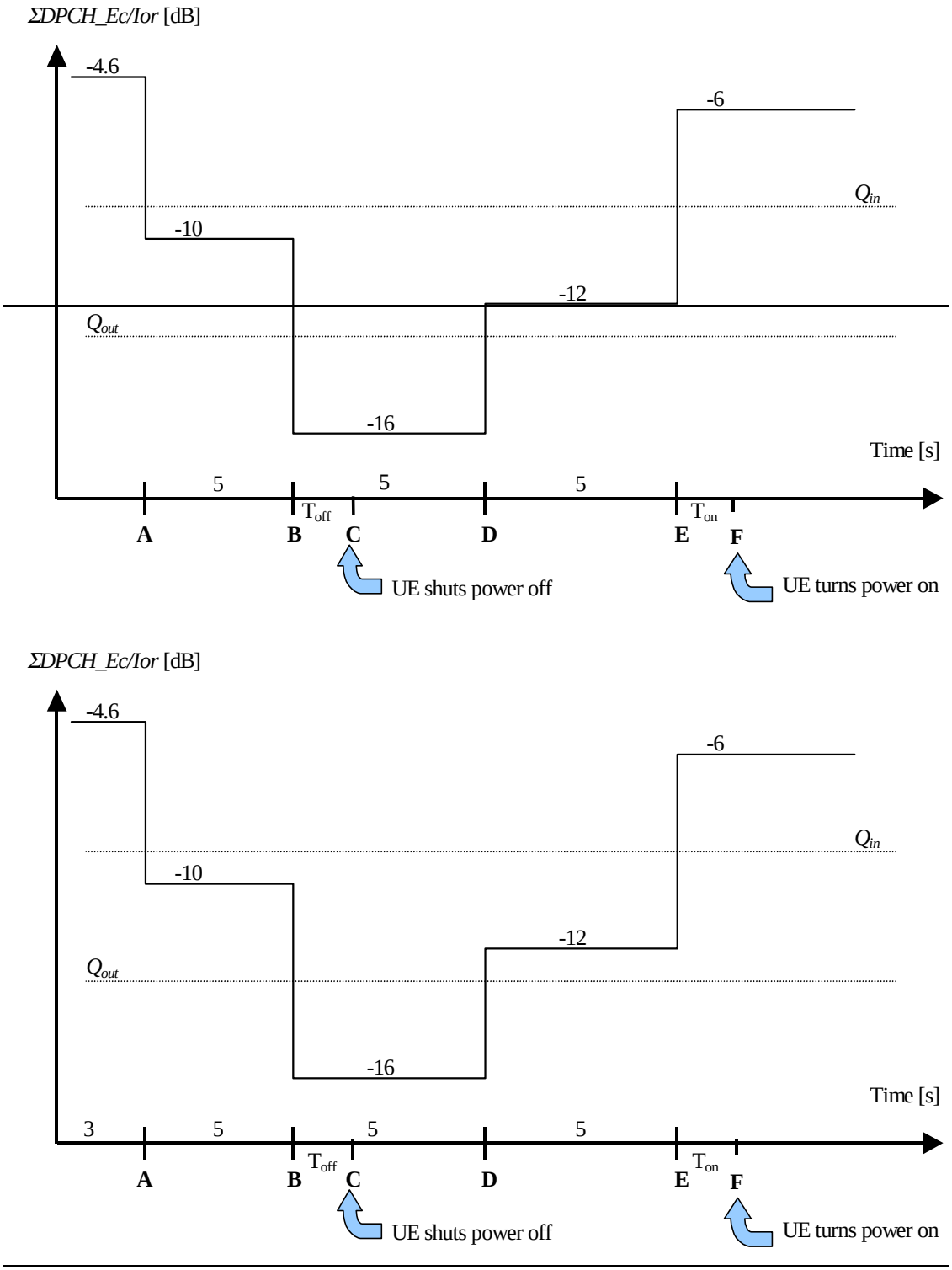

Figure 6.1. ~~Conditions~~ Test case for out-of-synch handling in the UE. ~~The indicated thresholds Q_{out} and Q_{in} are only informative~~ - 3.84 Mcps TDD option – continuous transmission

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

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

6.4.3.1.2 1.28 Mcps TDD Option

The parameters in Table 6.4AA are defined using the DL reference measurement channel (12.2) kbps specified in Annex A 2.2, where the CRC bits are replaced by data bits, and with static propagation conditions.

Table 6.4AA: DCH parameters for test of Out-of-synch handling

Parameter	Unit	Value
$\hat{I}_{or}/I_{oc}$	DB	-1
I_{oc}	dBm/1.28 MHz	-60
$\frac{\Sigma DPCH\_E_c}{I_{or}}$	DB	See figure 1
Information Data Rate	kbps	12.2
TFCI	-	On

The conditions for when the UE shall shut its transmitter on and when it shall turn it on are defined by the parameters in table 6.4AA together with the DPCH power level as defined in Figure 1AA.

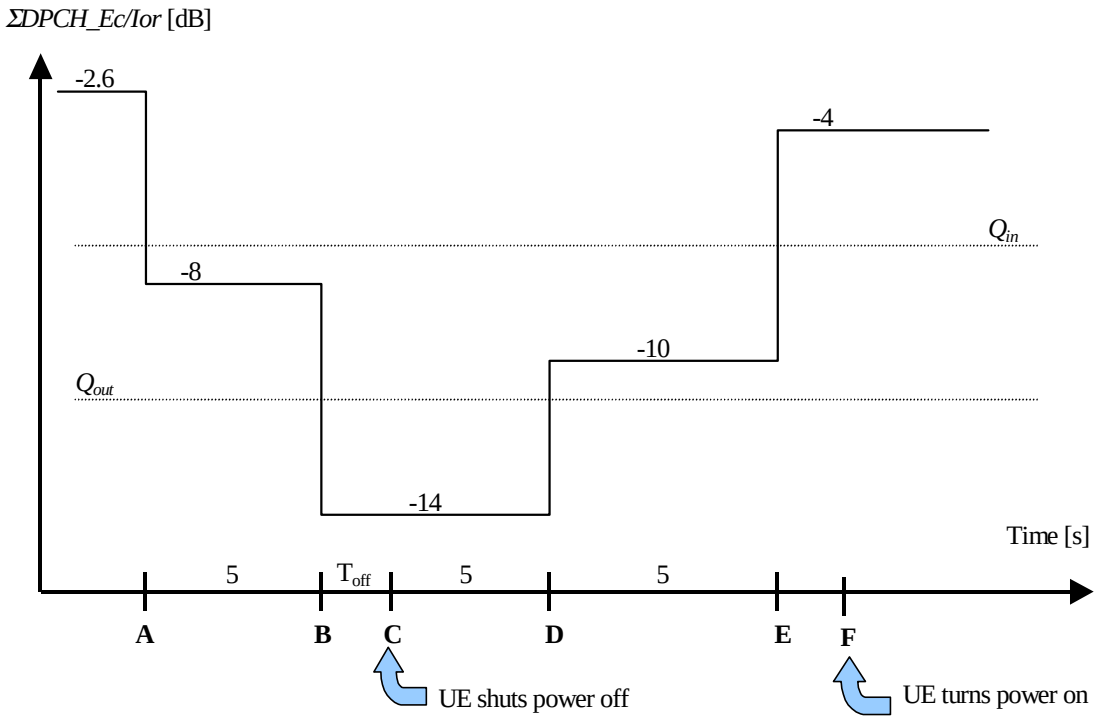

Figure 6.1AA: Conditions for out-of-synch handling in the UE. The indicated thresholds Q_{out} andQ_{in} are only informative.

The requirements for the UE are that:

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

6.4.3.2 Requirement for discontinuous transmission

~~During DTX, there are periods when the UE will receive no data from the UTRAN. As specified in TS 25.224, in order to keep synchronization, Special Bursts shall be transmitted by the UTRAN during these periods of no data.~~

~~This test shall be done during a period of no data transmission. During this period, the conditions for when the UE shall shut its transmitter on or off are defined by the power level of the received Special Bursts.~~

~~The handover triggering level shall be set very high to ensure that the beacon channel power never exceeds the value of 10dB above it. Therefore the averaging time for signal quality will always be 160 milliseconds.~~

~~The UTRAN transmits Special Bursts as specified in TS 25.224. The Special Burst Scheduling Parameter, SBSP = 4, which means that UTRAN sends a Special Burst at every fourth frame with no data. Therefore, the UTRAN sends a Special Burst in the first frame without data transmission, followed by 3 frames with no transmission; followed by a Special Burst, etc.~~

~~In case of 1.28Mcps TDD option the Special Burst will be sent in both subframes of the relevant frame designated for the Special Burst.~~

~~While the normal data is transmitted using two channelization codes, the Special Burst is transmitted with only one channelization code. Therefore the total energy per chip during Special Bursts is 3 dB lower than for continuous data transmission. The Special Bursts are represented by "SBs" in the figure.~~

6.4.3.2.1 3.84 Mcps TDD Option

6.4.3.2.1.1 Minimum Requirement

During DTX, there are periods when the UE will receive no data from the UTRAN. As specified in TS 25.224, in order to keep synchronization, Special Bursts shall be transmitted by the UTRAN during these periods of no data.

During these periods, the conditions for when the UE shall shut its transmitter on or off are defined by the power level of the received Special Bursts.

When the UE does not detect at least one special burst with a quality above a threshold Q_{sbout} over the last 160 ms period, the UE shall shut its transmitter off within 40 ms. The UE shall not turn its transmitter on again until the special burst quality exceeds an acceptable level Q_{sbin}. When the UE estimates the special burst quality to be better than a threshold Q_{sbin} over the last 160 ms, the UE shall again turn its transmitter on within 40 ms.

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

6.4.3.2.1.2 Test case

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

The conditions for the discontinuous test case are as follows:

The handover triggering level shall be set very high to ensure that the beacon channel power never exceeds the value of 10dB above it. Therefore the averaging time for signal quality will always be 160 milliseconds.

The UTRAN transmits Special Bursts as specified in TS 25.224. The Special Burst Scheduling Parameter, SBSP = 4, which means that UTRAN sends a Special Burst at every fourth frame with no data. Therefore, the UTRAN sends a Special Burst in the first frame without data transmission, followed by 3 frames with no transmission; followed by a Special Burst, etc.

The DCH parameters are shown in Table 6.4A.

The quality levels at the thresholds Q_{sbout} and Q_{sbin} correspond to different signal levels depending on the downlink conditions DCH parameters. For the conditions in Table 6.4A, a signal with the quality at the level Q_{sbout} can be generated by a DPCH_Ec/Ior ratio during received special bursts of -16 dB, and a signal with Q_{sbin} by a DPCH_Ec/Ior ratio during received special bursts of -12 dB.

Table 6.4A: DCH parameters ~~for test~~ the of Out-of-synch handling test case – 3.84 Mcps TDD option – discontinuous transmission

Parameter	Unit	Value
$\hat{I}_{or}/I_{oc}$	dB	-1
I_{oc}	dBm/3.84 MHz	-60
$\frac{\Sigma DPCH\_E_c}{I_{or}}$ $\frac{DPCH\_E_c}{I_{or}}$	dB	See figure 6.1A
Bits/burst (including TFCI bits)	bits	244
TFCI	-	On

Figure 6.1A shows an example scenario where the special burst quality varies from a level above Q_{sbin}, down to a level below Q_{sbout} where the UE shall shut its power off and then back up to a level above Q_{sbin} where the UE shall turn the power back on.

While the normal data is transmitted using two channelization codes, the Special Burst is transmitted with only one channelization code. Therefore the total energy per chip during Special Bursts is 3 dB lower than for continuous data transmission. The Special Bursts are represented by "SBs" in Figure 6.1A.

During the period of 3 frames with no data, the UE will receive a very low power, which is not shown in the figure. The power shown in the figure is the power of the Special Burst ~~(which is 3dB lower than power for normal data, which is shown in Figure 6.1A).~~

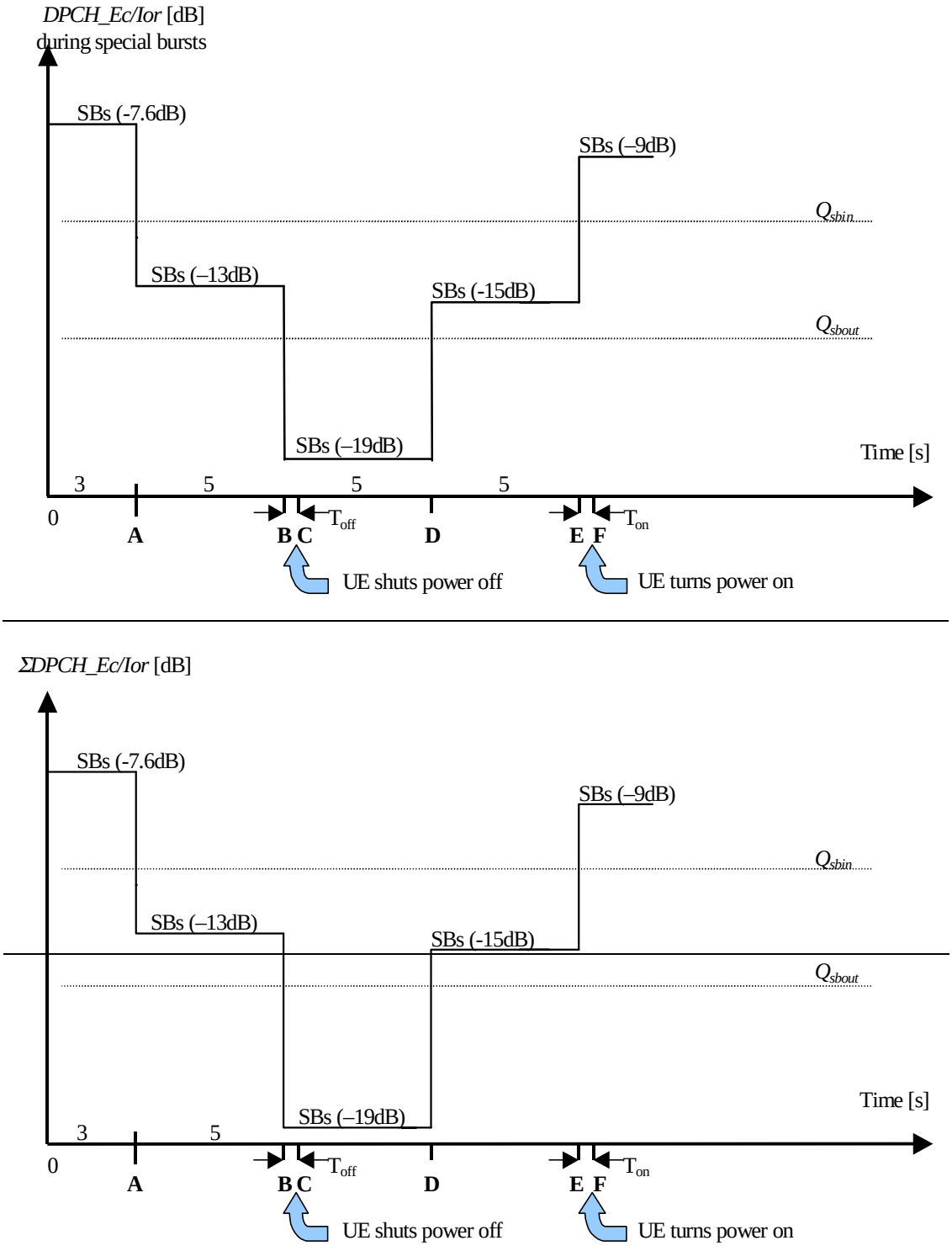

Figure 6.1A. ~~Conditions~~ Test case for out-of-synch handling in the UE – 3.84 Mcps TDD option - discontinuous transmission. ~~The indicated thresholds Q_{sbout} and Q_{sbin} are only informative.~~

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

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

6.4.3.2.2 1.28 Mcps TDD Option

The DCH parameters are shown in Table 6.4B.

Table 6.4B: DCH parameters for test of Out-of-synch handling – discontinuous transmission

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 6.1B
Bits/burst (including TFCI bits)	bits	88 in each subframe
TFCI	-	On

During the period of 3 frames with no data, the UE will receive a very low power, which is not shown in the figure. In the fourth frame the Special Burst will be sent in both subframes designated to carry the Special Burst during DTX. The power shown in the figure is the power of the Special Burst (which is 3dB lower than power for normal data, which is shown in Figure 6.1B).

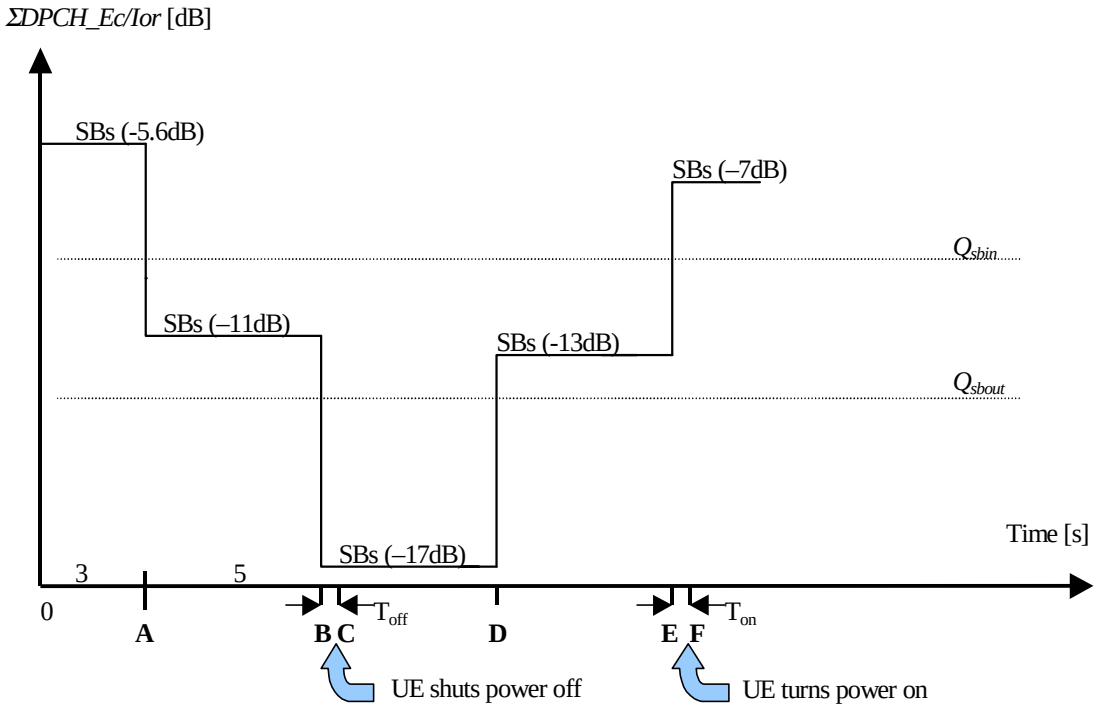

Figure 6.1B: Conditions for out-of-synch handling in the UE - discontinuous transmission. The indicated thresholds Q_{sbout} and Q_{sbin} are only informative.

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

3GPP TSG RAN WG4 Meeting #19 **R4-011265**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **TS 25.102 CR 71** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

*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 of frequency range for receiver spurious emissions
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 03/09/2001
Category:	⌘	**F** ***Release:*** ⌘ Rel99

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The current frequency range for receiver spurious emission requirements is inconsistence with is proposed in ITU-R M.[UNWANT-MS].
Summary of change:	⌘	The starting frequency for receiver spurious emission requirements is changed from 9kHz to 30MHz as proposed in ITU-R M.[UNWANT-MS].
Consequences if not approved:	⌘	There will be inconsistency with ITU-R recommendation M.[UNWANT]. It will casue further inconsistency with each regulations those follow the recommendation.

Clauses affected:	⌘	7.9.1		
Other specs affected:	⌘	[ ] Other core specifications [X] Test specifications [ ] O&M Specifications	⌘	34.122
Other comments:	⌘			

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

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

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 power of any spurious emission shall not exceed:

Table 7.10: Receiver spurious emission requirements

Band	Maximum level	Measurement Bandwidth	Note
30 MHz~~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	

3GPP TSG RAN WG4 Meeting #19 **R4-011267**

Edinburgh, Great Britain, 3rd - 7th September 2001

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CHANGE REQUEST

⌘ **TS 25.102 CR 72** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

*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 of frequency range for receiver spurious emissions
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 03/09/2001
Category:	⌘	**A** ***Release:*** ⌘ Rel-4

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

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The current frequency range for receiver spurious emission requirements is inconsistence with is proposed in ITU-R M.[UNWANT-MS].
Summary of change:	⌘	The starting frequency for receiver spurious emission requirements is changed from 9kHz to 30MHz as proposed in ITU-R M.[UNWANT-MS].
Consequences if not approved:	⌘	There will be inconsistency with ITU-R recommendation M.[UNWANT]. It will casue further inconsistency with each regulations those follow the recommendation.

Clauses affected:	⌘	7.9.1.1		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	34.122
Other comments:	⌘	Corresponding R99 Cat. F CR is tdoc R4-011265		

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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.

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

7.9.1.1 3.84 Mcps TDD Option

The power of any spurious emission shall not exceed:

Table 7.10: Receiver spurious emission requirements (3.84 Mcps TDD Option)

Band	Maximum level	Measurement Bandwidth	Note
30 MHz~~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	

7.9.1.2 1.28 Mcps TDD Option

The power of any spurious emission shall not exceed:

Table 7.10A: Receiver spurious emission requirements (1.28 Mcps TDD Option)

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 4MHz below the first carrier frequency and 4MHz 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	-64 dBm	1.28 MHz	With the exception of frequencies between 4MHz below the first carrier frequency and 4MHz above the last carrier frequency used by the UE.
2.170 GHz – 12.75 GHz	-47 dBm	1 MHz	

3GPP TSG RAN WG4 Meeting #19 **R4-011284**

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CHANGE REQUEST

⌘ **25.102** **CR** **73** ⌘ ev **-** ⌘ Current version: **3.7.0** ⌘

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

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

Title:	⌘	Clarification in Spectrum emission mask section
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 04/09/2001
Category:	⌘	**F** ***Release:*** ⌘ Rel99

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The definition of Δf in the spectrum emission mask is missing.
Summary of change:	⌘	Addition of definition for Δf. Correction of ambiguous terms.
Consequences if not approved:	⌘	Possible misunderstanding of spectrum emission mask requirement.

Clauses affected:	⌘	6.6.2.1.1		
Other specs affected:	⌘	☐ Other core specifications ☒ Test specifications ☐ O&M Specifications	⌘	TS34.122
Other comments:	⌘			

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1) Fill out the above form. The symbols above marked ⌘ contain pop-up help information about the field that they are closest to.
2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under ftp://ftp.3gpp.org/specs/ For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

6.6.2.1 Spectrum emission mask

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

6.6.2.1.1 Minimum Requirement

The power of any UE emission shall not exceed the levels specified in table 6.5

Table 6.5: Spectrum Emission Mask Requirement

~~Frequency offset from carrier~~ Δf* in MHz	Minimum requirement	Measurement bandwidth
2.5 - 3.5 ~~MHz~~	~~-35 -15*(Δf – 2.5)~~ ~~dBc~~ $\left\{-35-15\cdot\left(\frac{\Delta f}{MHz}-2.5\right)\right\}dBc$	30 kHz **
3.5 - 7.5 ~~MHz~~	~~-35- 1*(Δf-3.5)~~ ~~dBc~~ $\left\{-35-1\cdot\left(\frac{\Delta f}{MHz}-3.5\right)\right\}dBc$	1 MHz ***
7.5 - 8.5 ~~MHz~~	~~-39 - 10*(Δf – 7.5)~~ ~~dBc~~ $\left\{-39-10\cdot\left(\frac{\Delta f}{MHz}-7.5\right)\right\}dBc$	1 MHz ***
8.5 - 12.5 ~~MHz~~	-49 dBc	1 MHz ***
* Δf is the separation between the carrier frequency and the centre of the measuring filter.		
** The first and last measurement position with a 30 kHz filter is at Δf equals to 2.515 MHz and 3.485 MHz.		
*** The first and last measurement position with a 1 MHz filter is at Δf equals to 4 MHz and 12 MHz. As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. To improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth can be different from the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth.		
The lower limit shall be –50dBm/3.84 MHz or the minimum requirement presented in this table which ever is the higher.		

3GPP TSG RAN WG4 Meeting #19 **R4-011285**

Edinburgh, Great Britain, 3rd - 7th September 2001

CR-Form-v4

CHANGE REQUEST

⌘ **25.102** **CR** **74** ⌘ ev **-** ⌘ Current version: **4.1.0** ⌘

*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 in Spectrum emission mask section
Source:	⌘	RAN WG4
Work item code:	⌘	***Date:*** ⌘ 03/09/2001
Category:	⌘	**A** ***Release:*** ⌘ Rel-4

Use one of the following categories:
- ***F*** *(correction)*
- ***A*** *(corresponds to a correction in an earlier release)*
- ***B*** *(addition of feature),*
- ***C*** *(functional modification of feature)*
- ***D*** *(editorial modification)*

Detailed explanations of the above categories can be found in 3GPP TR 21.900.

Use one of the following releases:

2	*(GSM Phase 2)*
R96	*(Release 1996)*
R97	*(Release 1997)*
R98	*(Release 1998)*
R99	*(Release 1999)*
REL-4	*(Release 4)*
REL-5	*(Release 5)*

Reason for change:	⌘	The definition of Δf in the spectrum emission mask is missing.
Summary of change:	⌘	Addition of definition for Δf. Correction of ambiguous terms.
Consequences if not approved:	⌘	Possible misunderstanding of spectrum emission mask requirement.

Clauses affected:	⌘	6.6.2.1.1.1		
Other specs affected:	⌘	[ ] Other core specifications [X] Test specifications [ ] O&M Specifications	⌘	34.122
Other comments:	⌘	Cat A CR releated to R99 Cat F CR tdoc R4-011162		

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.
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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.

6.6.2.1 Spectrum emission mask

6.6.2.1.1 3.84 Mcps TDD Option

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

6.6.2.1.1.1 Minimum Requirement

The power of any UE emission shall not exceed the levels specified in table 6.5

Table 6.5: Spectrum Emission Mask Requirement (3.84 Mcps TDD Option)

~~Frequency offset from carrier~~ **Δf* in MHz**	**Minimum requirement**	**Measurement bandwidth**
2.5 - 3.5~~MHz~~	~~-35 -15*(Δf – 2.5)~~ ~~dBc~~ $\left\{-35-15\cdot\left(\frac{\Delta f}{MHz}-2.5\right)\right\}dBc$	30 kHz **
3.5 - 7.5~~MHz~~	~~-35 -1*(Δf 3.5)~~ ~~dBc~~ $\left\{-35-1\cdot\left(\frac{\Delta f}{MHz}-3.5\right)\right\}dBc$	1 MHz ***
7.5 - 8.5~~MHz~~	~~-39 - 10*(Δf – 7.5)~~ ~~dBc~~ $\left\{-39-10\cdot\left(\frac{\Delta f}{MHz}-7.5\right)\right\}dBc$	1 MHz ***
8.5 - 12.5~~MHz~~	-49 dBc	1 MHz ***
* Δf is the separation between the carrier frequency and the centre of the measuring filter.		
** The first and last measurement position with a 30 kHz filter is at Δf equals to 2.515 MHz and 3.485 MHz		
*** The first and last measurement position with a 1 MHz filter is at Δf equals to 4 MHz and 12 MHz. As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. To improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth can be different from the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth.		
The lower limit shall be –50dBm/3.84 MHz or the minimum requirement presented in this table which ever is the higher.		

6.6.2.1.2 1.28 Mcps TDD Option

The spectrum emission mask of the UE applies to frequencies, which are between 0.8 and 4.0MHz from a carrier frequency. The out of channel emission is specified relative to the UE output power in measured in a 1.28 MHz bandwidth.

6.6.2.1.2.1 Minimum Requirement

The power of any UE emission shall not exceed the levels specified in table 6.5A

Table 6.5A: Spectrum Emission Mask Requirement (1.28 Mcps TDD Option)

Frequency offset from carrier Δf	Minimum requirement	Measurement bandwidth
0.8 MHz	-35 dBc	30 kHz *
0.8-1.8 MHz	-35 – 14*(Δf-0.8) dBc	30 kHz *
1.8-2.4 MHz	-49 – 25*(Δf-1.8)dBc	30 kHz *
2.4 – 4.0MHz	-49 dBc	1MHz **
* The first and last measurement position with a 30 kHz filter is 0.815 MHz and 2.385 MHz.		
** The first and last measurement position with a 1 MHz filter is 2.9MHz and 3.5MHz .As a general rule, the resolution bandwidth of the measuring equipment should be equal to the measurement bandwidth. To improve measurement accuracy, sensitivity and efficiency, the resolution bandwidth can be different from the measurement bandwidth. When the resolution bandwidth is smaller than the measurement bandwidth, the result should be integrated over the measurement bandwidth.		
The lower limit shall be –55dBm/1.28 MHz or the minimum requirement presented in this table which ever is the higher.		