*CR-Form-v7*

# CHANGE REQUEST

⌘        **25.101 CR ???**        ⌘**rev**  **-**  ⌘  Current version:  **5.9.0**  ⌘

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

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

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| | | |
|---|---|---|
| ***Title:*** ⌘ | UE maximum output power with HS-DPCCH | |
| ***Source:*** ⌘ | Nokia, Motorola, Fujitsu, Panasonic, NEC, NTT DoCoMo, Samsung | |
| ***Work item code:*** ⌘ | HSDPA-RF | ***Date:*** ⌘ 09/03/2004 |

***Category:*** ⌘ **F**

*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.

***Release:*** ⌘ Rel-5

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

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| ***Reason for change:*** ⌘ | Introduction of HS-DPCCH increases PAR of the UE transmit signal and this needs to be included in the UE TX design. Requiring a more powerful PA in the UE should give comparable gain in UL and not only address requirements introduced in the DL direction. |
| ***Summary of change:*** ⌘ | Increased output power tolerance is allowed for the nominal maximum output power, when HS-DPCCH is applied in UL transmission. This takes into account the introduction of HS-DPCCH and assosiated PAR increase due to HS-DPCCH channel. The change clarifies that it is allowed to back off with the amount increased PAR and implement HSDPA feature without major redesign needs in UE transmitter.<br>This change is not intended to change the requirements of multicode DPDCH transmission in UL.<br><br>Isolated impact analysis: The change does not affect UE implementation, which already meets the current ACLR requirement. It may have an impact on UE implementation, which introduces the changes to meet the ACLR requirement. If proper network planning is made, this change has either no or neglible impact on network coverage. |
| ***Consequences if not approved:*** ⌘ | The UE TX design constrains in context with HSDPA to support HS-DPCCH are introducing a significant design challenges without giving any improvement to the UL service and bit rates. In addition this functionality is introducing decreased UE performance like battery operating time, increased form factor and cost. |

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| ***Clauses affected:*** ⌘ | 6.2.2 |

| Y | N |
|---|---|

| Other specs affected: | ⌘ | | X | Other core specifications | ⌘ | |
|---|---|---|---|---|---|---|
| | | X | | Test specifications | | 34.121 |
| | | | X | O&M Specifications | | |
| Other comments: | ⌘ | | | | | |

## How to create CRs using this form:

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

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

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

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

# 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 the present document. It is recognised that different requirements and test methods are likely to be required for the different types of UE.

All the parameters in clause 6 are defined using the UL reference measurement channel (12.2 kbps) specified in subclause A.2.1 and unless stated with the UL power control ON

## 6.2      Transmit power

### 6.2.1      UE 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, i.e. the power in a bandwidth of at least $(1+\alpha)$ times the chip rate of the radio access mode. The period of measurement shall be at least one timeslot.

**Table 6.1: UE Power Classes**

| Operating Band | Power Class 1 | | Power Class 2 | | Power Class 3 | | Power Class 4 | |
|---|---|---|---|---|---|---|---|---|
| | Power (dBm) | Tol (dB) | Power (dBm) | Tol (dB) | Power (dBm) | Tol (dB) | Power (dBm) | Tol (dB) |
| Band I | +33 | +1/-3 | +27 | +1/-3 | +24 | +1/-3 | +21 | +2/-2 |
| Band II | - | - | - | - | +24 | +1/-3 | +21 | +2/-2 |
| Band III | - | - | - | - | +24 | +1/-3 | +21 | +2/-2 |

NOTE:     The tolerance allowed for the nominal maximum output power applies even for the multi-code transmission mode.

## 6.2.2   UE maximum output power with HS-DPCCH

For all values of $\beta_{hs}$ defined in [TS25.214] the UE maximum output powers  as specified in Table 6.1a are applicable in the case when the HS-DPCCH is fully or partially transmitted during a DPCCH timeslot. In DPCCH time slots, where HS-DPCCH is not transmitted, the UE maximum output power shall fulfil the requirements specified in Table 6.1.

Table 6.1a: UE maximum output powers with HS-DPCCH

| Ratio of $\beta_c$  to  $\beta_d$ for all values of $\beta_{hs}$ | Power Class 3 | | Power Class 4 | |
|---|---|---|---|---|
| | Power (dBm) | Tol (dB) | Power (dBm) | Tol (dB) |
| $1/15 \leq \beta_c/\beta_d \leq 12/15$ | +24 | +1/-3 | +21 | +2/-2 |
| $13/15 \leq \beta_c/\beta_d \leq 15/15$ <br> $15/14 \leq \beta_c/\beta_d \leq 15/8$ | +23 | +2/-3 | +20 | +3/-2 |

| 15/7 $\leq \beta_c/\beta_d \leq$ 15/0 | +22 | +3/-3 | +19 | +4/-2 |
|---|---|---|---|---|

| 15/7 $\leq \beta_c/\beta_d \leq$ 15/0 | +22 | +3/-3 | +19 | +4/-2 |
|---|---|---|---|---|