

**Agenda Item:** AdHoc 1  
**Source:** Siemens AG  
**Title:** Textproposal for TS25.224 Regarding Closed Loop PC in TDD mode  
**Document for:** Approval

## 1 Introduction

The following text proposal modifies section 4.3 of TS25.224 which defines transmitter power control in TDD. The changes are summarized below:

- In table 1 the square brackets for the PC step sizes are removed, according to the current working assumption in WG4.
- In table 1 the square brackets for the PC balance range for the powers of all active codes within one time slot are removed, according to the results of [1].
- Currently, according to the text in section 4.3.4.2 the NodeB shall increase or decrease Tx power as instructed by the UE. However, at least for fast moving mobiles and in case that the dynamic range limit has been reached, the NodeB should ignore TPC commands. Thus, the text is changed accordingly.

## 2 References

- [1] SMG2 UMTS L1 263/98, 'Radio Resource Management strategies for the UTRATDD mode and implications on the spreading factor', Source: France Telecom

## 3 Textproposal

We propose to change subsection 4.3 'Transmitter Power Control' in TS25.224 according to the following textproposal.

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### 4.3 Transmitter Power Control

#### 4.3.1 General Parameters

Power control is applied for the TDD mode to limit the interference level within the system thus reducing the intercell interference level and to reduce the power consumption in the UE.

**Table -1: TPC characteristics**

	<b>Uplink</b>	<b>Downlink</b>
<b>Dynamic range</b>	80 dB	30 dB
<b>Power control rate</b>	Variable Closed loop: 100-800 cycles/sec. Open loop: 1-7 slots delay (2 slot SCH) 1-14 slots delay (1 slot SCH)	Variable Closed loop: 100-800 cycles/sec.
<b>Step size</b>	[1 ... 3] dB	1 ... 3 dB
<b>Remarks</b>	All figures are without TPC decoding and received power measurements.	Within one timeslot the powers of all active codes may be balanced to within a range of 20 dB

## 4.3.4 Downlink Control

### 4.3.4.1 Common Physical Channel

The primary CCPCH transmit power can be changed based on network determination on a slow basis. The exact power of CCPCH is signalled on the BCH on a periodic basis.

### 4.3.4.2 Dedicated Physical Channel

The initial transmission power of the Downlink Dedicated Physical Channel is set by the network. After the initial transmission, the NodeB transits into SIR-based closed-loop TPC as similar to the FDD mode.

The measurement of received SIR shall be carried out periodically at the UE. When the measured value is higher than the target SIR value, TPC bit = „0,,. When this is lower than the target SIR value, TPC bit = „1,,.

At the NodeB, soft decision on the TPC bits is performed, and when it is judged as „0,, the transmission power may be reduced by one step, whereas if judged as „1,, the transmission power may be raised by one step.

When the TPC bit cannot be received due to out-of-synchronisation, the transmission power value shall be kept at a constant value. When SIR measurement cannot be performed due to out-of-synchronisation, the TPC bit shall always be = „1,, during the period of being out-of-synchronisation.

A higher layer outer loop adjusts the target SIR.

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