

Agenda Item: 7

Source: Rohde & Schwarz

Title: Is it necessary to measure the chip rate?

Document for: Decision

Introduction:

The observation of a simple difference in GSM and PDC triggered this question:

GSM:

Clock-rate and RF frequency are dependent according to GSM 05.10 §5.1 and §6.5
-->There is an RF frequency measurement only

PDC:

Clock-rate and RF are independent
-->There are a Clock rate test and a RF frequency test

Reasoning for this question:

The functionality of the radio interface is not necessarily dependent on tied RF and clock rate (tied = derived from the same reference). Consequently they may be independent.

This is true, because TX RF frequency and TX chip rate (directly derived from the clock source) have, in case of independent offsets, different effects which can be compensated in the receiver by two independent synchronisation processes.

The RF phase and frequency synchronisation process is prerequisite for coherent detection as required e.g. in TS 25.211 (Physical Channels and Mapping of Transport Channels onto Physical Channels) § 5.2.1 (Dedicated Uplink Physical Channels).

Nothing is mentioned about the accuracy of the clock rate. Independent and inaccurate clock rate, however, can increase implementation complexity and/or degrade reception quality.

Inaccurate clock rate, if independent, is not really detectable in the tests, defined up to now.

Request for Decision:

Rohde & Schwarz believes that there is a necessity to generate a piece of core-specification in 25.101, 25.102, 25.104 and 25.105 in one of two alternative approaches.

- 1) Tie RF and Clock Rate by a statement
- 2) Create accuracy requirements for the clock rate.