TSG-RAN Working Group 4 (Radio) meeting #8 TSGW4#8(99)648

Sophia 26th-29th of October 1999

Agenda Item: 8.7

Source: Nokia

Title: Proposal for RX reference sensitivity measurement

Document for: Approval

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1. Introduction

This proposal will give new format for the RX sensitivity measurement and at the same time internal BER calculation is allowed to use in this proposal. New connection figure is added to indicating this.

2. Text proposal

7.2 Reference sensitivity level

7.2.1 Definition and applicability

The reference sensitivity is the minimum receiver input power measured at the antenna connector at which the ~~FER/~~ BER does not exceed the specific value indicated in section 7.2.2. The signal power is equally applied to each antenna connector for diversity.

~~7.2.1 Test conditions and measurement methods~~

This test is performed without interfering signal with equal power applied to each RF input branch according to Fig. 7.2-1. In the case duplex operation is supported, the measurement configuration principle is indicated for one duplex branch in Fig. 7. 2-2 ~~Fig. 7. 2 2~~ Fig. 7. 2 2 . In case of internal BER calculation is used example of test connection is as shown in Fig. 7.2-3.The reference point for signal power is at the input of each receiver (antenna connector).

7.2.2 Conformance requirement

The BER shall not exceed 0.001 for the parameters specified in table 7.3-1

The reference for this requirement is [1] TS25.104 clause 7.3.1

Table 7.3-1 BS reference sensitivity levels

Data rate	BS reference sensitivity level (dBm)	FER/BER
12.2 kbps	-122 dBm	BER shall not exceed 0.001

7.2.3 Test purpose

To verify that the BS shall meet receiver sensitivity requirement as specified TS25.104 clause 7.3.1

7.2.4 Method of testing

7.2.4.1 Initial conditions

(1) Connect BS to be tested to the UE simulator or RF signal source.

(2) Start transmit DPCH to the BS under test (PN-9 data sequence)

(3) Disable TPC function

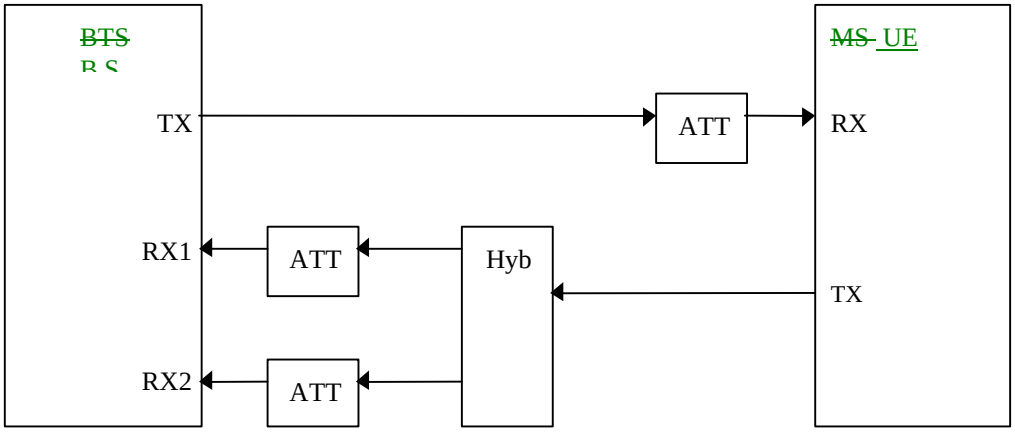

Fig. 7. 2-1 Functional Setup for Base Station Reference sensitivity level Testes (without duplex operation case)

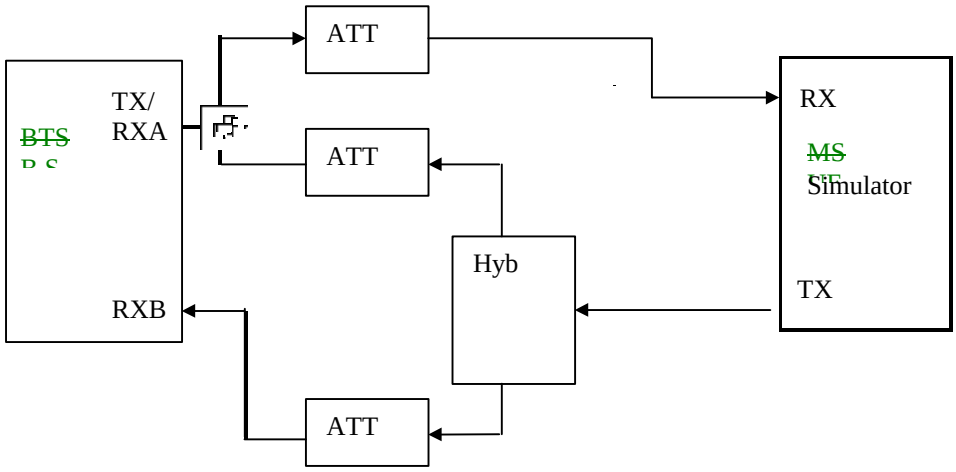

Fig. 7. 2-2 Functional Setup for Base Station Reference Sensitivity level Testes (with duplexing operation case)

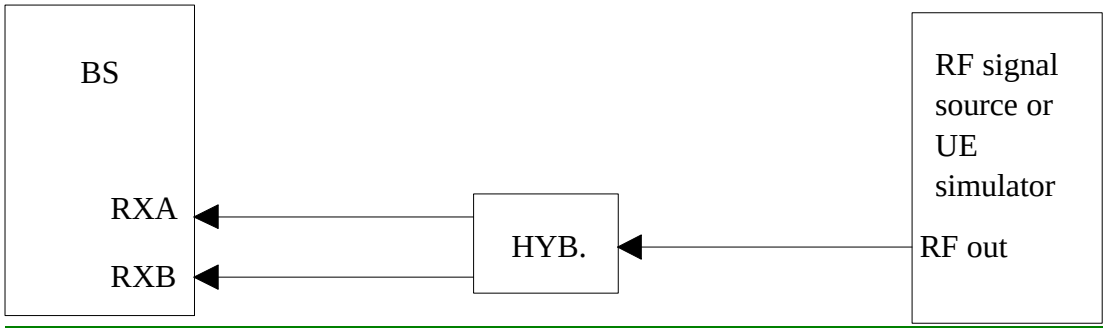

Fig. 7. 2-3Functional Setup for Base Station Reference Sensitivity level Testes (with the internal BER calculation case)

7.2.4.2 Procedure

(1) Calculate BER from at least 32000 received data bits

(2) Decrease power level transmitted to the BS until specified BER limit is exceeded.

(3) Measurement result is lowest signal level at which specified BER limit was not exceeded.

~~For each transport channel information rate and bearer service for which sensitivity is specified by the manufacturer, the applicable test in shall pass for an input signal equal to the specified sensitivity level.~~

~~7.3.2 Minimum requirement~~

7.2.5 Test requirement

Requirements for RX reference sensitivity shall be fulfilled with all data rates declared by manufacturer and specified in clause 7.2.2

~~For the different services with corresponding data rates, the reference sensitivity level of the BS shall be specified in Table 0-1 below.~~

3. Conclusion

New format and connection figures of receiver sensitivity measurement are proposed to use in TS25.141.