Agenda Item:

Source: NOKIA, Ericsson

Title: FDD UE blocking requirement

Document for: Approval

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1. INTRODUCTION

This contribution introduces a blocking requirement for UE at 10 MHz offset from carrier to TS 25.101 specification. This requirement was briefly discussed in last meeting in Miami during ACLR agreement and a decision of having this requirement was agreed.

2. DISCUSSION

2.1 10 MHz blocking requirement

During RF scenario studies it has become obvious that up- and down link performance should be balanced in order to guarantee proper functionality also in near-far cases, based on contribution presented in TSG RAN WG4#4 in Kista (Tdoc R4-99250).

In Miami meeting the agreement of ACLR (Tdoc R4 99343) was reach of having 33 dBc for ACLR1 and 43 dBc for ACLR2. Also there was an agreement of having same performance for UE receiver selectivity.

At the moment there is not a requirement for 10 MHz blocking in current TS 25.101 v.2.1.0 specification.

The required test case and interfering signals should be defined:

Taking current requirement of at 15 MHz point, we can derive the interfering signal level.

$$I_{blocking} = PG - \frac{E_b}{N_o} - BB_{m\,arg\,in} + \mathrm{Re}\,ference\,sensitivity + ACS2,$$

$$I_{blocking} = 25\,dB - 7\,dB - 117\,dBm + 43\,dB = -56\,dBm$$

2.2 Out of band blocking requirement

To make TS 25.101 specification more consistent there is an additional proposal to out of band section. It is proposed that adjacent frequency bands to FDD down link should be specified. It's proposed that the same value what is defined for 15 MHz offset is used here, since front-end filters can't provide any additional protection in this frequency region.

3. PROPOSED TEXT CHANGES

3.1.1 7.6.1   Minimum requirement

The BER shall not exceed 0.001 for the parameters specified in table 14 and table 15. For table 15 up to (24) exceptions are allowed for spurious response frequencies in each assigned frequency channel when measured using a 1MHz-step size

Table 14: In-band blocking

Parameter	Offset	~~Level~~Offset	Unit
$\dfrac{PCCPCH\_Ec}{I_{or}}$	-1	-1	dB
$\dfrac{DPCH\_Ec}{I_{or}}$	-7	-7	dB
$\hat{I}_{or}$	-107	-107	dBm/3.84 MHz
$I_{blocking}$ (modulated)	-56	-44	dBm/3.84 MHz
Blocking offset	10<|f-fo|<15	|f-fo|≥~~>~~15	MHz

Table 15: Out of band blocking

Parameter	Band 1	Band ~~1~~2	Band ~~2~~3	Unit
$\dfrac{PCCPCH\_Ec}{I_{or}}$	-1	-1	-1	dB
$\dfrac{DPCH\_Ec}{I_{or}}$	-7	-7	-7	dB
$\hat{I}_{or}$	-107	-107	-107	dBm/3.84 MHz
$I_{blocking}$ (CW)	-44	-30	-15	dBm
Blocking offset	2050<f<2110 2170<f<2230	2025 <f <2050 2230 <f <2255	1< f <2025 2255< f <12750	MHz

4. REFERENCES

Tdoc R4-99250, Presentation on system scenarios and escape mechanisms, Ericsson

Tdoc R4 99343, UE ACLR and ACS, Bell South, CSELT, Mannesmann Mobilfunk, Omnitel, One-2One, Telia, TIM, T-Mobile, Vodafone