TSG-RAN Working Group 4 (Radio) meeting #3 Tokyo 29-31 March 1999

Agenda Item: 7.2

Source: Ericsson

Title: UE Receiver Blocking Frequency Bands

Document for: Approval

1. Introduction

This document suggests a change in S4.01A v0.0.3 UTRA (UE) FDD Radio Transmission and Reception [1], Ch. 7 Receiver Characteristics, Ch.7.6 Blocking Characteristics, 7.6.1 minimum requirements.

The scope of this document is to suggest a change, which eases the implementation requirements of the UE receiver.

2. Discussion

In the UE receiver:

It is common to have a filter prior to down conversion, which in principle reduces the level of the out-of-band blocking signals to the level of the in-band blocking signals. The advantage with this principle is that after filtering, the receiver selectivity and dynamic range is dimensioned of the in-band blocking level only. Hence, the out-of-band blocking requirements should only affect the LNA linearity requirements.

Currently, the level of the in-band blocking signal is –44dBm. Next to the "in-band" blocking band are the "band 1"out-of-band blocking bands, 2025-2070MHz and 2210-2255MHz. The blocking level in the band1-bands is –30dBm.

The current out-of bandBldBking requirements can be net typically in room temperature, but are not easy to guarantee in mass production and at different temperatures. The reason is that the transition bandwidth, from "out-of-band" to "in-band" is not wide enough for mass-production tolerances and temperature shift with current filter technology. If the "in-band" blocking band would be slightly wider, the UE implementations would become better: smaller size and of lower power consumption. In this document, it is suggested to widen the "in-band" blocking band from 2070-2210MHz to 2050-2230MHz.

To our knowledge, there are no significant blocking signals present at the frequencies, for which the blocking level is changed. 2250

2210

2210

22210

2230

3. Proposed modification

The proposal is a change in ch. 7.6.1 of S4.01A v0.0.3 UTRA (UE) FDD Radio Transmission and Reception, Table 11:

From: Blocking offset, band 1, 2025<f<2070, 2210<f<2255 To: Blocking offset, band 1, 2025<f<2050, 2230<f<2255

4. Conclusions

A change is proposed to the Receiver Blocking frequency bands to ease the UE-implementation. There is no relevant performance penalty for the UE or the system.

References:

[1] S4.01A v0.0.3, UTRA (UE) FDD; Radio transmission and reception, 3GPP TSG RAN WG4.