3GPP TSG RAN WG4 meeting #5 **3GPP/TSG R4 #5 (99)286**

14th –16th June 1999

Miami

Agenda Item:

Source: **Fujitsu, NEC, NTT DoCoMo, Panasonic**

Title: **Proposal for Adjacent channel selectivity of BS**

Document for: **Discussion & Decision**

1 Introduction

This paper proposes some additions and changes to the Radio Transmission and Reception Document TS 25.104 v1.1.0 for 3GPP. The aim of the proposal is to promote discussions and to help make progress in this area of Adjacent channel selectivity requirements for the BS in FDD mode.

2 Discussion

2.1 ACS value

As it's proposed on both Tdoc (99) 222 ("Proposal for Adjacent channel selectivity, Blocking, Spurious response and Intermodulation specification ",Source: Fujitsu, NEC, NTT DoCoMo, Panasonic) and Tdoc (99)239 ("Choice of Base Station ACS value ", Source: Ericsson), in the uplink, the limiting design factor is the UE transmitter, which will dominate the uplink interference. Therefore, ACS of BS should be determined 10dB higher than ACLR of UE.
If ACLR of UE = 32dB is effective, ACS of BS = 42dB is to be determined.

2.2 Wanted signal level

ACS definition is as follows:

ACS is the ratio of the receive filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s)

Therefore, in ACS measurement, conditions that a value of the ratio of receive filter attenuation can accurately be measured should be selected.It's because there would occasionally be a case that a value of capacity loss in an actual system becomes larger than the one obtained from ACIR simulation result.
In order to measure an accurate ACS value, it should be required to setup a wanted signal level into the level which cannot be affected by thermal noise + NF. As the same as a definition of UE minimum requirement, we are to propose 17 dB above the static reference as the value of a wanted signal level.
Consequently, if BS reference sensitivity level is equal to -122dBm, a proposing wanted signal level should be –105dBm.

2.3 Interfering adjacent channel signal level

Interfering adjacent channel signal level is given as follows:

interfering adjacent channel signal level

= wanted signal level + PGusr – (Eb/No)usr – margin + ACS
= wanted signal level + 25.3dB - 4.4dB – 2dB + ACS
= wanted signal level + 19dB + ACS

Given a wanted signal level = -105dBm, ACS = 42dB
interfering adjacent channel signal level
= -105dBm +19dB + 42dB
= -44dBm

3 Text Proposal

The following is a text proposal for relevant part in Document 25.104 , "Radio Transmission and Reception (FDD)".

7.5 Adjacent Channel Selectivity (ACS)

Adjacent channel selectivity (ACS) is a measure of the receiver ability to receive a wanted signal at is assigned channel frequency in the presence of an adjacent channel signal at a given frequency offset from the center frequency of the assigned channel. ACS is the ratio of the receiver filter attenuation on the assigned channel frequency to the receive filter attenuation on the adjacent channel(s).

7.5.1 Minimum requirement

~~The static reference performance as specified in clause 7.3.1 should be met when the following signals are applied to the receiver;~~

- ~~A wanted signal at the assigned channel frequency, 3 dB above the static reference level.~~
- ~~A modulated interfering adjacent channel signal with a level of [ ] dBm.~~

~~<The specification will be based on an ACS value of [45] dB for the first adjacent channel.>~~

The BER shall not exceed 0.001 for the parameters specified in table **

Table ** : Adjacent channel selectivity

Parameter	**Level**	**Unit**
Data rate	12.2	kbps
wanted signal	reference sensitivity level + 17dB	dBm
interfering signal	-44	dBm
Fuw (Modulated)	5	MHz

Note: in case that a chip rate is 3.84Mcps, a wanted signal level and an interfering signal level should be determined as follows:

A wanted signal level = reference sensitivity level + 17dB (no change)
An interfering signal level = wanted signal level + PGusr – (Eb/No)usr – margin + ACS