

Agenda Item: 8.3
Source: Nokia
Title: BS Receiver adjacent channel selectivity
Document for: Approval

1. Introduction

This document proposes requirements and definitions for the BS Receiver Adjacent channel selectivity. The channel selectivity describes the receiver's ability to receive a signal even though there is another signal in its adjacent or alternate channel. If the receiver's selectivity is not appropriate it will detect the signal which it's supposed to be receiving and the signals that are in the adjacent and alternate channels as well. The signals that are in the adjacent and alternate channels don't contain wanted information for the subject receiver and, therefore, these signals are considered as noise. The receiver will pick up these unwanted channels to a certain extent because its filtering is not ideal and AD conversion generates alias products of the unwanted channels on the top of the wanted channel.

Nokia proposes -57dBm figure for the 5 MHz offset. This proposal is based on following calculation:

BS noise floor – BS filter selectivity = Adjacent channel selectivity, where

BS filter selectivity = 45 dB

BS noise floor = thermal noise for 5 MHz band + BS receiver noise figure =
-108 dBm + 6 dB = -102 dBm

⇒ -102 dBm + 45 dB = - 57 dBm

2. Text proposal for '7.5 Adjacent channel selectivity'

7.5 *Adjacent Channel Selectivity (ACS)*

Adjacent channel selectivity (ACS) is a measure of the receiver ability to receive a wanted signal at its 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).

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.~~
- ❑ Wanted and interfering signals are coupled to BS antenna input

<u>Center Frequency of Interfering Signal</u>	<u>Interfering Signal Level</u>	<u>Wanted Signal Level</u>	<u>Minimum Offset</u>	<u>Type of Interfering Signal</u>
<u>1920 MHz-1980 MHz</u>	<u>- 57 dBm</u>	<u><REFSENS> + 3 dBm</u>	<u>5 MHz</u>	<u>WCDMA Signal with one code</u>

3. Conclusion

Requirements and definitions for BS receiver adjacent channel selectivity has been proposed to be used in TS25.104.