

Liaison Statement

To: 3GPP TSG RAN, 3GPP TSG RAN WG4
Copy: ETSI/ERM/RM
From: CEPT ERC TG1
Subject: Response to 3GPP TSG RAN LS on Carrier Frequency Raster

As a response to the liaison statement from 3GPP TSG RAN (WG4) CEPT ERC TG1 has the following comment based on the ERC Decision on the utilisation of UMTS spectrum and the draft compatibility study between UMTS and services operating on adjacent bands, both of which have been approved by TG1. These documents were also sent to 3GPP TSG RAN(WG4) in February 1999:

1 Proposed carrier raster formula

TG1's comments on the proposed formula are based on the assumed needed flexibility in the definition of actual channel centre frequencies and the guard bands required between UMTS and adjacent services. Due to the time schedule, it was not possible to study the amount of the needed flexibility in details but at least the following expected cases (considering the FDD mode only) should be possible with the carrier raster - there might be cases, which are not listed here. Note that in each case the carrier centre frequencies at the operators band edges cannot be closer the 5 MHz from each other:

- Example 1: 4 operators, 2 x 15 MHz each
- the edge carriers lie on the basic raster but there should a possibility to move the place of the inside carrier to the carrier spacing of 4.4 MHz to the edge carrier. (This seems to be ok with the proposed raster)
- Example 2: 4 operators in 2 x 59.45 MHz, giving 2 x 14.8 MHz per each operator
- Now the whole raster is tuned 200 kHz away from the basic case - does the proposal give the needed flexibility?
- Example 3: 3 operators, 2 x 20 MHz
- Is it possible to change the carrier spacings inside the 2 x 20 MHz band in a sensible way?
- Is the flexibility enough, if guard bands are taken into account?
- Example 4: 5 operators, 4 x 2 x 10 MHz and 1 x 2 x 20 MHz
- 4 x 2 x 10 MHz probably fits to the proposed raster but is it possible to change the carrier spacings inside the 2 x 20 MHz band in a sensible way?
- Is the flexibility enough, if guard bands are taken into account?
- Example 5: 2 x 40 MHz somewhere in the IMT-2000 paired band
- This means that total flexibility is needed.

Due to the uncertainty of the amount of the necessary flexibility, CEPT ERC TG1 suggests that the restrictions in the carrier spacings should not be fixed yet.

2 Positioning of the underlying 200 kHz raster

TG1's comments on the effect of the channel raster positioning are based on the extreme positions of the UMTS carrier centre frequencies developed in the draft adjacent band study, Table 15.

From the proposed options, comparison of the positions of the 200 kHz raster gives the result that the integer 200 kHz gives less guard bands. It is noted that a raster of 100 kHz would provide a decrease in the loss of guard bands.

3 Conclusion

TG1 suggests that the current working assumption, which is a total flexibility in the channel raster, should be retained for both the paired and unpaired bands until the needed flexibility is estimated. Other possibilities to improve the performance while keeping the total flexibility would be preferred.

From the option proposed, TG1 supports the integer 200 kHz raster but from spectrum utilisation point of view, i.e. guard bands, a smaller raster, e.g. 100 kHz, would give better results.