

Questionnaire on cross-border agreements (EU and non EU) in the 3.4-3.8 GHz band

5G / MFCN cross-border agreements:

- Do you have some MFCN use which is not in conformity with EU decision (xx) and when this legacy use is expected to switch-off?

There are local and regional BWA assignments which will run out 31.12.2022.

- What are the statuses of cross-border agreements applicable to 5G/MFCN in the 3.4-3.8 GHz with each of neighbouring countries (EU and non EU)? Do these agreements include elements regarding synchronization and frame structures? Is there a difficulty regarding the synchronisation with legacy MFCN networks (e.g. WiMax)?

Germany is only sharing borders with EU countries and Switzerland and has started negotiations with all of them.

Most cross-border coordination agreements have successfully been concluded, some are still under discussion.

Most agreements contain the provision that synchronization shall be addressed in the framework of operators' arrangements.

In Germany national as well as cross-border synchronisation is under the responsibility of the mobile network operators. German mobile network operators have agreed upon a common frame structure which is a pure NR frame. There are difficulties to find a common cross-border synchronisation approach with neighbouring countries in which a deviating frame structure, e.g. LTE compatible NR frame, has been chosen.

- How the risk of interference from 5G base station to 5G base station at the border is addressed? Is there any procedure for the case when real interference occurs (e.g. method of measurement, exchange of information, common measures, etc)?

The risk of cross-border interference is minimised by application of case dependent field strength values at the border. In case of unsynchronised operation there are rather low values and in case of synchronised operation higher values.

For HCM signatories interference cases are handled according to Annex 7 of the HCM Agreement which provides guidance on measurements and interference report.

With non HCM members ITU-R interference reports shall be exchanged.

5G / others services cross-border agreements:

- Could you describe the elements of cross-border agreements regarding the coexistence between 5G and other services in the 3.4-3.8 GHz band, (concerned services, coexistence

method, expected impact on 5G deployment ...)?

For Germany, cross-border coexistence between 5G-MFCN and other services in the band comprise permanent (several FSS stations and one geodetic observatory) and temporary (BWA) protection requirements.

Compatibility shall be ensured by complying with respective field strength or pfd-limits at the border or the location of the site to be protected.

It can be expected that the protection requirements of these services will impact 5G-MFCN deployment in neighbouring countries.

Cross border negotiation difficulties (EU and non EU)

- Do you meet any difficulty in current cross border negotiations (EU and non EU)?

Currently, there are difficulties to reach an agreement with countries where the frame structure for TDD synchronization is different and/or where the frame structure shall be enforced by the frequency administration instead of the operators. However, we are confident that the technical solution provided by the CEPT will help to facilitate the necessary agreements.

- Furthermore, we face the challenge to reach an agreement with one neighbouring administration due to certain national protection requirements (security-related communications and the Geodetic Observatory Wettzell) with cross-border relevance.
- Could such difficulty impact 5G deployment and why?

The illustrated difficulties will affect the conclusion of cross-border coordination agreements. Without these agreements, the uncoordinated deployment of 5G-MFCN base stations in border areas could cause interference to MFCN and other services.