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?

  1) There are still some use in the 3.4-3.8 GHz band, mainly local licenses, based on the decision 2008/411/EC. These licenses are valid until 31st Dec 2021, 31st March 2022 or 31st March 2023,

  2) Sweden will auction the frequency range 3400-3720 MHz in Nov 2020 in accordance with (EU) 2019/235 (amending 2008/411/EC). In addition, the frequency range 3720-3800 MHz is planned to be opened for local licenses.

- What are the status 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)?

  Sweden has coordination agreements with Norway, Finland and Germany, signed in 2018. An agreement with Denmark is close to be finalised. Neither of these agreements include any elements regarding frame structure, but different trigger values for the electric field strength depending on if the networks on different sides of the country border are synchronised or not. No specific consideration has been taken with regards to legacy MFCN networks in neighbouring countries. However, for the licenses to be awarded in Nov 2020 there are requirement to protect the legacy MFCN networks in Sweden until the current licences expire. PTS has proposed a "fall-back" frame structure to be applied in case the concerned licences holders can't come to an agreement. This frame structure is only adapted for 5G NR.

- 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)?

  In coordination agreements with most of our neighbours following text is included: *A complaint in case of harmful interference shall be based on the median values of measurements of field strength, performed at 3 meter of receiving antenna height at least on two different occasions over a range of at least 100 m along the border. In the presence of interference, the report of harmful interference shall be presented in accordance with Appendix 10 of the Radio Regulations. The other administration shall take all possible steps in order to eliminate the interference*.

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 …)?

  In Region 1 in 3.4-3.6 GHz Mobile (except aero), FS and FSS (s-to-E) all have a primary allocation and in 3.6-3.8 GHz FS and FSS (s-to-E) have a primary allocation and mobile service (except aero) a secondary allocation.

  With large coordination zones (many times covering areas in a number of countries) around receiving earth stations for FSS, especially for Mode 2, it would be useful with some common procedure within Europe for this type of coordination. For 3.4-3.6 GHz No. 5.430A says:

  *Before an administration brings into use a (base or mobile) station of the mobile service in this frequency band, it shall ensure that the power flux-density (pfd) produced at 3 m above ground does not exceed −154.5 dB(W/(m^2 * 4 kHz)) for more than 20% of time at the border of the territory of any other administration*.

  This value could possibly be used as a baseline, at least within the 3.4-3.6 GHz. Within the 3.6-3.8 GHz band it is more difficult since FSS has a primary allocation and mobile service (except aero) has a secondary allocation in RR.

Cross border negotiation difficulties (EU and non EU)

- Do you meet any difficulty in current cross border negotiations (EU and non EU)?
- Could such difficulty impact 5G deployment and why?

  Any uncertainty with regards to cross border coordination could impact the willingness of an operator to invest in a 5G roll out in possibly affected areas. Additional framework within CEPT could simplify cross border coordination, especially for cases where ECC decisions designates a frequency band for a service which only has a secondary allocation in the ITU-R RR.