

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? **No**
- 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?

All signed:

- Technical Arrangement between the national frequency management authorities of Austria, Croatia, Hungary, Serbia, The Slovak Republic and Slovenia on border coordination for terrestrial systems capable of providing electronic communications services in the frequency band 3400-3800 MHz, Geneva, 24 November 2015, [final version](#),
- Agreement between the administrations of Italy and Slovenia on frequency planning and frequency usage in border areas for terrestrial systems capable of providing electronic communication services in the frequency bands 791,0 – 821,0 MHz / 832,0 – 862,0 MHz, 880,2 – 960,2 MHz, 1427 – 1518 MHz, 1715,0 – 1785,0 MHz / 1810,0 – 1880,0 MHz, 1920,0 – 1980,0 MHz / 2110,0 – 2170,0 MHz, 2570,0 – 2600,0 MHz TDD, 2510,0 – 2570,0 MHz FDD / 2630,0 MHz – 2690,0 MHz, and future candidate bands for public mobile systems, 694 – 790 MHz, 3400 – 3800 MHz, Rome, 3.10.2018, [final version](#)

Is there a difficulty regarding the synchronisation with legacy MFCN networks (e.g. WiMax)?

No, as have defined synchronisation scheme that for this band, synchronization following the default synchronization scheme – Frame B («DD DS UU DD DD») from ECC Recommendation (20)03 where LTE and new radio – NR have a harmonized frame start, with frame duration of 5 ms, is required until the end of 2025. After 2025, when the full 5G NR implementation is expected, the holders of radio frequency allocation decisions in this band may propose another harmonized scheme. When defining a new synchronization scheme, the Agency will take into account proposals of the bidders who will have as result of the public tender together 80 MHz of more spectrum in this frequency band. In case of no agreement reached, Agency will define a new harmonised default synchronization scheme Frame A from ECC Recommendation (20)03 and decisions allocating radio frequencies shall be amended ex officio for this frequency band. License holders will have to adjust their networks to the new synchronisation scheme or use guard bands inside of their assigned spectrum in this frequency band.

- 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 procedure is defined in preferential agreements:

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5 HARMFUL INTERFERENCE

Concerning interference calculations a two-step procedure is described below. As the first step, in the case of harmful interference, the characteristics of stations including the necessary geographical separation shall be adjusted based upon following line calculations: Field strength line calculations shall be carried out between the base and/or terminal stations and the receiver points of the border line and 6 km line regarding threshold values in section 4.2 and 4.3, and depending on radio service (fixed and/or mobile) the relevant propagation models included in the Harmonised Calculation Method (HCM) shall be used. ITU-R P.1546-5 model 2 shall be used until the frequency band 3400-3800 MHz is included in the HCM for the land mobile service. In case of exclusion of the band from HCM for fixed service, the ITU-R P.452-13 shall be applied for fixed service systems. Time probability in all calculations is 10 %. As the second step, if harmful interference is still suffered despite the above adjustment, measurements shall be carried out according to international/mutually agreed procedures

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3 Operators arrangements

Arrangements between operators may be concluded with the aim to enhance the efficient use of spectrum, the coverage and to reduce interference in the border areas. Such arrangements shall respect:

- *Field strength levels and PCI codes (for UMTS/LTE) given by relevant harmonization documents for frequency bands:*

<i>Band</i>	<i>Recommendation Field strength levels PCI</i>
<i>800 MHz:</i>	<i>ECC REC(11)04 – Annex 1, Annex 5, Annex 6</i>
<i>900 MHz:</i>	<i>ECC REC(08)02 – Annex 1, Annex 3, Annex 5, Annex 6</i>
<i>1400 MHz:</i>	<i>ECC REC(15)01 – Annex 1_A1.2, Annex 4, Annex 5</i>
<i>1800 MHz:</i>	<i>ECC REC(08)02 – Annex 1, Annex 3, Annex 5, Annex 6</i>
<i>2600 MHz:</i>	<i>ECC REC(11)05 – Annex 1, Annex 5, Annex 6</i>

and future candidate bands for public mobile systems in frequency bands:

<i>Band</i>	<i>Recommendation Field strength levels PCI</i>
<i>700 MHz:</i>	<i>ECC REC(15)01 – Annex 1_A1.1, Annex 4, Annex 5</i>
<i>3400 - 3800 MHz:</i>	<i>ECC REC(15)01 – Annex 1_A1.3, Annex 4, Annex 5</i>

- *protection of users of communication networks from non-wanted international roaming,*
- *obligation to specify if the arrangement / agreed provisions are applied to individual sites or to the whole border.*

For future candidate bands for public mobile systems operators' agreements shall be concluded only when both administrations assign the band concerned.

For all other frequency bands agreed in this agreement for which no special agreement has been reached in arrangements between the operators regarding maximum field strength values at a certain distance from the border line admissible values for maximum field strength and the distance inside the neighboring country shall be used as laid down in relevant ECC recommendations for an individual frequency band. For these bands for as well public mobile systems operators' agreements shall be concluded only when both administrations assign the band concerned.

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 ...)?

N/A

Cross border negotiation difficulties (EU and non EU)

- Do you meet any difficulty in current cross border negotiations (EU and non EU)? **No.**
- Could such difficulty impact 5G deployment and why? **Yes.**