

**SRDMG # 84****Webmeeting 12 to 14 January 2022****Date issued: 6 January 2022****Source: CRAF****Subject: UWB applications encompassing passive bands subject to RR No. 5.340**

Group membership required to read? (Y/N)

 N**Summary:**

ECC/WGFM invited administrations and stakeholders to contribute to the initiated work to investigate possible criteria/conditions under which requests related to UWB encompassing passive bands subject to RR No. 5.340 may be addressed. In this contribution, CRAF provides a summary of RAS considerations on the topic as a passive service directly impacted by this work.

CRAF maintains its opposition to developing any exceptions or conditions for UWB applications encompassing the passive bands under RR 5.340

**Proposal:**

CRAF invites the group:

- To comply with their obligations under No. 5.340 of the Radio Regulations, which prohibits all emissions in the corresponding frequency bands and abstain from developing any harmonized exceptions or conditions for UWB applications under which the radio regulations are violated.
- Reduce the frequency range for studies of security scanners described in the SRdoc ETSI TR 103730, to the 3.6-10.6 GHz band.
- Follow the regulatory ITU-R framework for the UWB RDI-S applications encompassing passive bands in the range 116-260 GHz and studied under SE24 work item 71 - Report 334, particularly the recent developments under Resolution 731, before considering any regulatory actions at CEPT.

**Background:**

The ECC has tasked WG FM with respect to requests for UWB encompassing passive bands to:

- Investigate possible criteria/conditions under which requests related to UWB encompassing passive bands subject to RR No. 5.340 may be addressed, considering the existing regulatory framework for UWB
- Assess the answers provided by ETSI, following the LS seeking clarifications on security scanners
- Report back to ECC

ECC/WGFM also invited administrations and stakeholders to contribute to this work and further discuss the issue at the SRD/MG project team.

**Summary of elements to be taken into account when considering any development of conditions/criteria for UWB encompassing passive bands subject to RR No. 5.340 :**

- **ITU-R RR No. 5.340**

- All emissions are prohibited in the passive bands under RR No. 5.340.
- The ITU-R Rules of Procedures 2021 section 2.2 on the passive bands under No. 5.340 states that *notifications concerning any other use than those authorized in the band or on the frequencies concerned cannot be accepted even with a reference to No. 4.4; furthermore the administration submitting such a notice is urged to abstain from such usage.*
- As part of an in-force international treaty signed by all CEPT member states, CEPT harmonized decisions cannot deviate from the radio regulations for the passive bands under RR No. 5.340

- **RE: The Radio Regulation for passive bands have been developed in the past**

The reply [LS](#) from ETSI to ECC concluded with the paragraph:

*“ Typically, the Radio Regulation for passive bands have been developed in the past when modern technical solutions were not available and unknown system parameter lead to the view that very strict protection criteria are required for those bands. Next to the pure radio emission limits the deployment of UWB devices should be considered how to enable novel applications. The ultimate goal is to make the best and most efficient use of the spectrum resource. Especially for applications and solutions that are important to the public sector like security or healthcare”*

- The inclusion of a “regulatory opinion” from ETSI in its reply to ECC that could drive the regulatory discussions in a certain direction is uncommon. The responsibility of ETSI is to develop standards for placing equipment on the market and such a regulatory guidance is normally out of the standardization scope.
- The content of the paragraph that the existing radio regulations for passive bands are obsolete or expired in relation to modern technical solutions is incorrect. Radio regulations are regularly reviewed and updated through WRCs held every 3-4 years. It is worth noting that the status of UWB/SRD applications in the RRs was a topic of an agenda item in WRC12 (A.I 1.22). The work under this agenda item concluded that no changes to the radio regulations were necessary, and studies should continue at the relevant working parties.
- ITU-R Res 54-2 (2015) also invites for continuing the studies for the recognition of SRDs in the RRs.
- In order to achieve the ultimate goal of making the most efficient use of the spectrum, the proper procedures must be followed. Any novel applications recently developed with spectrum requirements that would deviate from the existing radio regulations must be introduced through the ITU-R regulatory framework, not through skipping the existing radio regulations.

- **Unwanted emissions into the RR 5.340 bands**

- All emissions are prohibited in the 5.340 bands (wanted and unwanted). The exclusive status granted by RR No. 5.340 recognizes the extreme vulnerability to interference of passive sensors which are designed to measure very faint natural emissions.
- The unavoidable existence of unwanted OOB and spurious emissions shouldn't provide any justification to allow intentional in-band sharing in the 5.340 bands. There are several mitigations to eliminate OOB emissions into the passive bands such as introducing guard bands adjacent to the 5.340 bands.

- Guard bands have been applied in several occasions, for example, in the ECC report 271 for NGSO FSS services where the two adjacent channels to the passive band 10.68-10.7 GHz are disabled. In ECC Recommendation (18)01 for the FS service unwanted emission limits into the passive bands under 5.340, a guard band of at least 125 MHz is introduced, in addition to the OOB emission limits.
- The example provided for the limits in ERC Recommendation 74-01 is not applicable for the passive bands under RR 5.340. ERC Rec 74-01 refers to specific thresholds required for the passive services in the relevant ITU-R recommendations (*See Considering j and recommends 10*). It's worth noting that the passive bands under RR 5.340 have no defined protection criteria.
- In some cases where inevitable OOB emissions into the 5.340 bands exist with no feasibility of introducing guard bands, they are treated the same as in-band emissions are for non-5.340 passive bands to set protection limits. This approach currently doesn't rely on any regulatory basis.
- Generally, unwanted emission limits from service X into service Y bands doesn't infer that service Z is automatically granted in-band sharing with service Y at lower emission levels.
- From a technical point of view, OOB emission limits depend on several unique factors for each case, such as deployment scenarios, service characteristics and propagation paths. It is duly possible that in-band emissions from UWB applications be more harmful than the OOB emissions from other services, despite their lower levels.

- **Spectrum sharing and ECC Strategic Plan 2020 – 2025**

- The fundamental principle of spectrum sharing is that sharing is only possible if regulations don't prohibit it. Hence, the bands under 5.340 are currently out of the scope of any spectrum sharing plans.
- Spectrum sharing is not a new concept and is promoted by ITU-R and ECC since long time. ITU-R SGs have published plenty of standards (recommendations and reports) aiming to foster the spectrum sharing, e.g. ITU-R SM.1132-2 and ITU-R SM.2404-0. None of these standards are inconsistent with the radio regulations. The ECC strategic plan 2020 – 2025 doesn't provide any regulatory exception to that approach under section 3.1.

- **Existing framework for UWB**

- ITU-R**

- UWB applications are a subset of SRD applications and use the radio spectrum on a non-interference and non-protected basis with respect to radiocommunication services.
- The Recommendation ITU-R SM.1756-0 states: "*Administrations have a sovereign right to regulate the use of devices using UWB technology within their territory, provided that such devices do not impact stations of other administrations **in accordance with the RR***".
- The text "in accordance with the RR" limits the sovereign rights of administrations to regulate the use of UWB devices within their territory. As stated earlier, the RR – RoP abstains any deviation from the RR with respect to RR No. 5.340 . Therefore, Recommendation ITU-R SM.1756-0 doesn't provide any exceptions on this matter.
- All ITU-R Reports on the compatibility of UWB applications with radiocommunication services (e.g. ITU-R SM 2057) states that 5.340 applies for the corresponding bands.
- None of the ITU-R recommendations provided any exceptions to UWB applications in using the passive bands under RR No 5.340

## CEPT – EC

- It is factual that ECC decisions (06)04, (06)08, (07)01 and EC decision (EU) 2019/785 have previously provided exceptions for in-band emissions in some of the passive bands under RR 5.340. However, it's also factual that these decisions are inconsistent with the radio regulations and mustn't introduce a new reality over the existing radio regulations as an international treaty.
- Creating more precedents at CEPT will undoubtedly trigger requests for other applications wishing to benefit from equivalent conditions and normalize deviations from the RRs, not only for SRDs but might also extend to other radiocommunication services.
- **WI71 Report 334 and ITU-R Res 731**
  - RR 5.340 is applicable for portions of the bands studied in the recently finalized WI71 Report 334. The report focused on purely technical studies in terms of sharing and compatibility without any regulatory character.
  - ECC shall reassess the outcomes of Report 334 before deciding on any regulatory steps. Any regulatory action should normally be within the framework agreed – if any – for UWB applications at CEPT, currently under investigation by WGMF - SRD/MG.
  - There exist a parallel framework at ITU-R for studies between active and passive services for the bands above 71 GHz under Res 731. The purpose of Res 731 studies is possible changes to the RRs in the future. This is different from the proposed studies at CEPT that target harmonized regulatory ECC decisions in violation of the existing radio regulations.
  - In order to avoid any duplication or discrepancies with the existing ITU-R framework, the sections of the report concerning RR 5.340 sharing must be further studied under Res 731 at the relevant ITU-R SGs, before converting the outcomes into an ECC decision.
- **Market considerations**
  - Applications that only address niche markets, like security scanners and RDI-S, don't require exceptional harmonization by ECC and could be addressed on a national basis.
  - There are no technical arguments that demonstrated that a certain frequency band is a unique solution for a certain application. An example is security scanners where different industrial stakeholders have proposed different technologies (60 GHz band, THz range...etc).
  - ECC/EC decisions don't put constraints on device numbers nor on the operating professionals. There are no technical arguments that can demonstrate that an UWB application is not a mass market one. It is also impossible to track the number of devices in the market. Hence the condition of limited number of devices is not implementable.
- **Order of technical & regulatory discussions**
  - The proposed approach of initiating potential regulatory discussions only after the technical studies are completed is not a common approach at CEPT.
  - Technical studies normally take long time for completion where a lot of effort and resources are consumed. The return on investment in that case would ideally be placing the results into an ECC decision. The regulatory framework must be defined and agreed beforehand to ensure the outcomes of studies are implementable from the regulatory point of view.