**Comments on ECC Deliverable**

**“Draft ECC Report 358”**

**1 Sources**

**Entity: LUXEMBOURG**

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**2 General Comments**

The changes proposed are mostly editorial in nature. Parts of the proposals are provided to review the summary of the study 5 in section 6.3.5.

**3 Proposals related to the ECC Deliverables**

**Note:** Contributors shall use the following table to provide comments. It is also encouraged to provide as an annex a separate document showing the proposals with track changes. Minor editorial corrections do not need to be recorded in the table. The table is used in the resolution meeting to record how each proposal is addressed.

*The* following information must be included.

* **Comment number**: Sequential numbering of comments in the format “XX/1”, “XX/2” etc, where “XX” is the organisation name or a suitable abbreviation. Administrations may use CEPT country codes
* **Section number/Clause**: Relevant section number of the deliverable, use numbers where applicable e.g. “1.1”, “A1.4”, “List of abbreviations”
* **Paragraph/Figure/Table**: Paragraph number in section, e.g. “1”,”2”.. or Figure/Table, e.g. “Figure 1”, “Table 2”
* **Type of comment**: “General”, “Technical” or “Editorial” depending on the nature of the proposed changes
* **Comment**: Background/justification for proposed changes
* **Proposed change**: Proposed modifications shown in revision marks where possible. For more complicated changes (e.g. proposed deletion/addition of whole sections) or changes to tables it is sufficient to refer to the annex including the changes

| **Comment number** | **Section number**  **Clause** | **Paragraph**  **Figure**  **Table** | **Type of comment**  (General,  Technical or  Editorial) | **Comment** | **Proposed change** |
| --- | --- | --- | --- | --- | --- |
| LUX/1 | 0 | In-band coexistence of WBB LMP with FS and FSS  Paragraph 3 | General | To avoid two consecutive words “coexistence” | In addition, due to the large separation distances that may be necessary depending of the configuration of the two systems, coexistence… |
| LUX/2 | 0 | Second last paragraph | General | Proposal to use “recommendations” instead of “toolbox”. | CEPT is developing a recommendations for administrations to provide guidance on the approach to coexistence in the band. |
| LUX/4 | 2.1.4 | Paragraph 4 | General | Editorial change to split list of sharing studies to separate in-band and adjacent band studies. | However, for some cases, especially if the required separation distance for unsynchronised operation is a challenge, synchronisation might be necessary. For those cases, additional frame structure flexibility is achieved by employing semi-synchronised operation. |
| LUX/5 | 2.1.4 | Second last paragraph | General | Clarifying the frame structure of MFCN | Compared to synchronised operation the benefit is the possibility to employ more UL resources than provided by the defined frame structure of the MFCN network below 3800 MHz. |
| LUX/6 | 2.2 | Paragraph 1 | General | Clarification of licenced area, which does not apply necessary to base stations only | Licensed area is geographical zone bounded by specific conditions to be met (e.g. a pfd/field strength not to be exceeded) at the receiving antenna of the station to be protected. |
| LUX/7 | 3.1.1 | Paragraph 1 | General | Clarification of the regulatory framework under which FSS is used and editorial edit. | For decades and in accordance with the Article 5 of the ITU-R Radio Regulation, the FSS has utilized the 3400-4200 MHz and 5850-6725 MHz frequency bands for space-to-Earth (downlink) and Earth-to-space (uplink) links, respectively. FSS earth stations in CEPT countries have mainly been used in the 3600-3800 MHz and 3800-4200 MHz bands, rather than the lower 3400-3600 MHz band. |
| LUX/7 | 3.1.1 | Paragraph 4 | General | The reference provided in the annex of the list of references seems to not be right | C-band IoT terminals [8] in other |
| LUX/8 | 3.1.1 | Last Paragraph | General | This change is proposed because based on the work done so far, there has not been any clear proposal of conditions to preserve the band for long-term development of FSS | As the 3800-4200 MHz band is the only remaining part of the C-band for downlink communication, CEPT has assessed the requirements for the protection of FSS in the band and CEPT needs to propose the conditions to preserve this band for the long-term development of FSS in accordance with the objectives of the EC mandate. |
| LUX/9 | 6.3.5 | Paragraphs 3 and 4 | Editorial | The two paragraphs should be in bullet format | * A static analysis that provides a clear picture of the various parameters impacting the interference received by the FSS ES from WBB LMP BS and allows identifying possible ways to mitigate the interference by applying site specific adjustments. * A statistical case study analysis which explores site-specific configuration for two locations of FSS hubs and allows assessing the impact of the terrain and environment around the FSS ES in the received interference, including considering both long-term and short-term interferences. |
| LUX/10 | 6.3.5 | Last paragraphs | General | Clarification of the mitigation techniques that could be used to facilitate the sharing as they could be useful for the elaboration of the ECC Recommendation for guidance to administrations.  Redrafting and restructuring of the paragraphs. | Based on the assumptions considered in this study, the analysis shows that where there is a necessity to protect an FSS ES, the following specific actions or measures could be implemented, as appropriate:   * Blocks of vegetation or building that stand in the direct line between the two antennas create clutter loss that attenuates the power of interfering signal. Therefore, it is beneficial to avoid positioning a WBB LMP BS antenna at any place where there is line of sight and direct visibility with an FSS earth station. * Deploying the lower power of the WBB BS at the lowest altitude above ground level benefits the sharing result and reduces the separation required between WBB LMP and FSS ES. * Avoiding pointing the WBB LMP towards the FSS earth station reduces the level of interference received at the FSS receiver, thus reducing the required separation distance. It is therefore suitable to position the WBB LMP BS antenna so that it does not point in the direction of the FSS earth station that would be seen, in the best case, from the backside lobe where the BS antenna gain is the lowest. * Using terrain data could enhance the analysis and define more accurate conditions of operation of the two systems. * Free space model can be used for fast assessment, when the distance between FSS ES and LMP BS is lower than the distance to the horizon for the assumed antenna heights (in this study this distance will correspond to15 km).   Finally, the study concludes that a coordination distance of 40km around an FSS ES location, with no consideration of terrain, is suitable to protect FSS ES receivers. Below that distance the use of one or combination of some of the various mitigation techniques mentioned above could be implemented on a case by case basis to minimize the interference received, reduce the required separation distance between the WBB LMP and the FSS earth stations and facilitate the deployment of LMP 5G systems while protecting existing and future use of FSS systems. |