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## **EBU RESPONSE TO DRAFT RSPG OPINION ON ADDITIONAL SPECTRUM NEEDS AND GUIDANCE ON THE FAST ROLLOUT OF FUTURE WIRELESS BROADBAND NETWORKS**

### **A. BACKGROUND**

The European Broadcasting Union ('EBU') is the world's leading alliance of Public Service Media ('PSM'). It is a not-for-profit organisation that represents 115 member organizations in 56 countries and 32 associates worldwide. PSM organizations are entrusted with the performance of a service of general interest, which consists of the provision of high-quality content and services that fulfil the cultural and democratic needs of the societies they serve.

The EBU and its Members welcome the opportunity to comment on the draft Radio Spectrum Policy Group ('RSPG') Opinion on Additional spectrum needs and guidance on the fast rollout of future wireless broadband networks. In general, the EBU welcomes the draft Opinion and will comment only on relevant points for PSM.

### **B. COMMENTS ON THE DRAFT RSPG OPINION**

#### **RSPG Opinion/report**

#### ***6. Recommends to investigate the possible use of the band 3.8-4.2 GHz for local vertical applications while protecting receiving earth stations and other existing applications and services***

The RSPG conducted a survey on Additional Spectrum Needs, 5G Roll out, Authorization and EMF related Issues (included in Annex I of the Draft Opinion) and the results are summarized in Annex II. The EBU notes that the summarised results do not indicate a requirement to investigate the possible use of the band 3.8 – 4.2 GHz for future wireless broadband networks.

The frequency range 3.4 to 4.2 GHz is used by broadcasters for programme contribution and programme distribution (including in some countries the backbone distribution network for DTT networks), nationally, regionally and globally. The EUROVISION satellite network also makes extensive use of the 3.6 to 4.2 GHz band for all coverage in Asia/Africa/America.

Compared with other FSS spectrum options C-Band spectrum is unique in that both uplinks and downlinks can be engineered to provide long-term, high-availability, high-reliability service, even when links are exposed to adverse atmospheric conditions, noise or interference. Further, C-Band spectrum provides critical newsgathering services for broadcasters in times of severe weather conditions where alternate technologies (fibre, Ku-Band, etc.) cannot operate or are not available. C-Band is critical for satellite services not only in tropical regions but also now in the northern hemisphere where raining statistics have dramatically worsened with global warming.

In Europe, the ECC/DEC/(11)06 harmonizes the use of the band 3.4 to 3.8 GHz for wireless broadband services; the band is one of the pioneer bands for the introduction of 5G based services in Europe and several European countries have already auctioned the band or are in the process of doing so.

Studies on technical and regulatory conditions for coexistence between IMT and fixed satellite services in the frequency band 3.4 to 4.2 GHz are included in Report ITU-R S.2368<sup>i</sup>. The results show that the required separation distances to avoid interference to satellite services could go up to tens of km or over 100 km in some particular cases. Recent 5G trials in the 3.4-3.8 GHz range have produced harmful interference to satellite services in the band, confirming the results of the studies.

The impact on broadcasters' satellite operations of the decision to make 3.4-3.8 GHz available to IMT has been to cause the failure of otherwise stable links in adjacent bands due to the impact of blocking caused by the relatively high levels of emission from IMT when compared with the emission from spacecraft. Satellite downlinks are designed to operate with high gain antenna systems and were largely designed to operate from 3.4-3.7 GHz upwards. Therefore, existing satellite earth stations have little or no adjacent channel selectivity at these frequencies. To mitigate these effects additional filtering is required at each downlink which is costly to retrofit.

In Europe, where the location of the receive satellite earth stations is known an exclusion zone could guarantee their protection. However, as ECC Report 254 (Operational guidelines for spectrum sharing to support the implementation of the current ECC framework in the 3600-3800 MHz range) notes in section 6.4, "most of the receive-only FSS usage within Europe falls under licence exempt authorisation". For a comprehensive investigation into the possible use of 3.8-4.2 GHz for local vertical applications, EBU believes that consideration must be made of how to handle non-registered stations in order to fully understand the impact on existing use. EBU believes that identification of the locations and extent of non-registered receive satellite earth stations, is fundamental to any investigation as is how to offer protection for the services provided.

EBU also notes that, even where the location of receive earth satellite is known, protection is not always applied for economic reasons. As a consequence, many broadcasters are moving their services to the upper part of the C-Band, the 3.8-4.2 GHz band.

Given the impact on broadcasters' services of making the 3.4-3.8 GHz spectrum available to IMT, the remaining spectrum from 3.8-4.2 GHz is even more important to broadcasters. Taking into account the above, EBU does not support use of the 3.8-4.2 GHz band by wireless broadband networks without ensuring adequate protection for existing users. In particular, before the spectrum could be authorised for other use such as local vertical applications, protection measures for all receive earth stations would need to be defined and verified, and harmonised regulatory measures put in place to ensure that there is no harmful interference into existing services.

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<sup>i</sup> Report ITU-R M.2368: Sharing studies between International Mobile Telecommunication-Advanced systems and geostationary satellite networks in the fixed-satellite service in the 3 400-4 200 MHz and 4 500-4 800 MHz frequency bands in the WRC study cycle leading to WRC-15