ESOA Response to Ofcom's Consultation on "Regulations and proposed technical parameters for Wireless Access Systems (WAS) in the 5725-5850 MHz band"

11 April 2017

Introduction

The EMEA Satellite Operators Association (ESOA)[1] welcomes the opportunity to respond to Ofcom's consultation on "Improving spectrum access for consumers in the 5 GHz band" and "Notice of proposal to make Wireless Telegraphic Exemption Regulations 2017, Consultation on Regulations and technical parameters", published on 9 March 2017.

Our position represents the view of all satellite operators active in Europe and other parts of the world. This consultation has the opportunity to give assurances to the space industry that spectrum required by the industry will be accessible for the continuation and growth of services that are essential to the UK economy and citizens.

As indicated in its response to the consultation on Wireless Access Systems (WAS) in 5 GHz in 2016, ESOA insists again on the extreme importance for the satellite industry of the 5850-5925 MHz (FSS) and 5350-5470 MHz (EESS) bands.

Based on this, ESOA respectfully submits the attached comments to this consultation.

Sincerely,

Aarti Holla
Secretary General
ESOA

[1] ESOA is a non-profit organisation established with the objective of serving and promoting the common interests of satellite operators from Europe, the Middle East, Africa and the Commonwealth of Independent States (CIS). The Association today represents the interests of 21 satellite operators who deliver information communication services around the globe. ESOA Members provide invaluable communication services to the whole world including television broadcast and distribution, broadband connectivity, emergency communication, newsgathering, maritime and aero communication, secure services for governments, 24-7 monitoring of industrial processes such as energy plants, and a whole range of other communications capabilities that society has come to rely on

Question 1: *Do you have any comments on the drafting of the Proposed Regulations?*

In its response to the consultation on Wireless Access Systems (WAS) in the 5 GHz in July 2016, ESOA expressed the view that the 5725-5850 MHz band is under discussion under WRC-19 Agenda Item 1.16 and that studies are on-going, including on the appropriate value for the limit on the maximum eirp of RLAN Access Points (APs) to protect FSS satellite receivers.[2]

Therefore, ESOA is of the view that it is preferable to wait for the completion of the technical studies under WRC-19 Agenda Item 1.16 to determine the appropriate set of technical conditions to ensure protection of the FSS (Region 1) in the 5725-5850 MHz band.

Also, ESOA expected that adjacent band compatibility studies would be conducted for the FSS in the adjacent band 5850-5925 MHz with respect to unwanted emissions from WAS operating in the band 5725-5850 MHz.

Otherwise, ESOA welcomes the decision to prohibit WAS outdoor use, and notes the proposed center frequency and channeling arrangements for the 20 MHz channels (i.e. upper channel in 5815-5835 MHz), which we understand would ensure a 15 MHz guard band with respect to the 5850-5925 MHz band.

Question 2: *Do you have any comments on the proposed technical parameters?*

As mentioned above, ESOA is of the view that additional in-band and adjacent band compatibility studies are necessary to conclude on the appropriate set of technical conditions to ensure protection of the FSS. Such studies should be conducted under WRC-19 Agenda Item 1.16. A unilateral approach to revise existing power limits within this band could cause interference to FSS space stations.

There are a number of technical reasons to consider that, within the range of scenarios studied by CEPT in ECC Report 244[3] the conservative scenarios should be the basis for developing technical conditions to ensure compatibility between FSS and WAS:

- The risk of aggregate interference from a very high number of RLAN APs to C-band satellite receivers
- Considering the significant uncertainty around WAS market projections and deployment scenarios, the absolute necessity to avoid the situation whereby WAS deployment is such that the interference threshold is reached at the FSS space station receiver, and the almost irreversible nature of such situation when it occurs, there is a need to define a limit on WAS maximum eirp which is sufficiently conservative to cope with all this uncertainty
- R-LAN market projections considered in ECC Report 244 are limited to EU countries, whereas FSS satellite networks usually cover the entire geographical Europe and beyond. R-LAN market projections do not take account of geographical areas within CEPT, located outside EU but

[2] https://www.ofcom.org.uk/consultations-and-statements/category-1/5-GHz-Wi-Fi

[3] The Electronic Communications Committee (ECC) considers and develops policies on electronic communications activities in European context, taking account of European and international legislations and regulations.

adjacent to or nearby EU countries, which are in the satellite geostationary footprint. Interference from RLAN is therefore underestimated in this regard

- The assumption that the introduction of LAA-LTE would not increase the overall number of R-LAN APs is probably too optimistic, and the respective distributions of WI-FI and LAA-LTE APs in the overall R-LAN deployment will rather contribute to increase the overall impact of R-LAN interference

Furthermore, a review of the liaison statement sent by WP3K/WP3M (22-29 March 2017) to WP5A[4] and the analysis of the clutter loss and building entry loss models provided in the ITU Draft New Recommendations[5] show that:

- Working Party 5A should not use the clutter component of P.452
- the clutter loss model of DNR P. [Clutter], currently applicable from 10 GHz to 100 GHz, could be extended to the 5GHz range
- This clutter model would provide lower values for clutter losses at 5 GHz than those currently assumed in ECC Report 244
- For the building entry loss model, applicable from 80 MHz to 100 GHz, the average values obtained for the building entry loss at 30 degrees elevation angle is 14 dB at 5.8 GHz and 13.4 dB at 2.4 GHz, which is only a 0.6 dB difference. OFCOM had assumed for its airborne measurements a difference of 6.1 dB (8.4 dB at 2.4 GHz and 14.5 dB at 5 GHz)

For the reasons mentioned above, the 200 mW / 200 MHz value retained by OFCOM does not seem sufficiently stringent to protect FSS in the same band. It is therefore required to review the calculations and associated scenarios between WAS and FSS as well as the conclusions drawn by OFCOM on the conducted airborne measurements which at this stage do not allow characterization of the interference environment and do not allow quantitative conclusions to be drawn.

Besides, OFCOM notes the relatively low number of FSS space stations operational in the 5725-5850 MHz band to justify the 200 mW / 200 MHz value (due to a lower inter-satellite interference in the band). ESOA would like to stress that in the 5850-5925 MHz band, there is a significantly higher number of operational FSS space stations (and Earth stations) deployed by ESOA members across the UK and Europe. ESOA members extensively use the 5850-5925 MHz band, therefore the sharing situation between WAS and the FSS would be very different from OFCOM's assumptions.

Aside the FSS allocation in the 5725-5850 MHz band (Region 1), the situation of FSS in the 5850-5925 MHz band is significantly different (global allocation, high level of space stations and Earth stations deployed).

Therefore, the technical conditions proposed for WAS in the 5725-5850 MHz band shall in no way be seen or considered as being a precedent or an appropriate standard to protect FSS when operating co-frequency with WAS in other bands. In particular, ESOA is of the view that the limit of 200 mW would not be appropriate to protect the FSS when operating in the same band as WAS.

Otherwise, ESOA welcomes the decision to prohibit WAS outdoor use, and can support the proposed center frequency and channeling arrangements for the 20 MHz channels (i.e. upper channel in 5815-

[4] Document 3K/TEMP/44

[5] P.[Clutter] (Doc. 3/53 rev 1) and P.[BEL] (Doc. 3/57 rev1) respectively

5835 MHz), which we understand would ensure a 15 MHz guard band with respect to the 5850-5925 MHz band.

Finally, ESOA would like to reiterate the view that, in order to ensure the protection of the FSS and EESS, it is opposed to the other options for the 5850-5925 MHz and 5350-5470 MHz bands proposed by OFCOM in its 2016 consultation document on WAS.