

ESOA and GVF Response on Ofcom Consultation

The EMEA Satellite Operators Association (ESOA) and the Global VSAT Forum (GVF) has the honour of replying to Ofcom's consultation published on 21 May 2015. ESOA is a CEO-driven association representing satellite operators in Europe, the Middle East and Africa; GVF is a non-profit organisation headquartered in the United Kingdom, and is a leading voice of the international satellite community. ESOA and GVF welcome Ofcom's consultation on its review of spectrum fees for fixed links and satellite services, and respectfully provides the following responses to Ofcom's questions.

Question 1 *Do you agree with Plum's view of the potential higher value alternative mobile use of the 3.6-3.8 GHz bands over the next seven to ten years?*

ESOA and GVF feel it would be wise for Ofcom to wait to act on Plum's assumptions about the value of the 3.6-3.8 GHz band until after the WRC to be held this coming November. To this end, we welcome Ofcom's indication on page 6 that no action will be taken on these matters until 2016. Agenda Item 1.1, as Ofcom well knows, will consider this band for mobile services, and while the European administrations may feel it is a foregone conclusion that "harmonisation" will lead to this band being used for mobile services, the rest of the world may value the band differently. We also question whether Mobile demand for this spectrum has materialized beyond highly urban areas, or will ever do so, as this spectrum is to be used for short distance, high-capacity links.

Question 3 *Do you agree with Plum's analysis of current and future demand of spectrum for PES and TES? Please give your reasoning.*

ESOA and GVF agree that demand for broadband will increase the demand for satellite links in the Ka-band. We disagree that this is limited to "consumer" broadband. Plum's suggests that the actual demand for Ka-band broadband satellite services is "highly uncertain" because the demand depends upon "future government policies in relation to broadband coverage." This verges on circular reasoning. This Consultation itself is an example of the very kind of "government policy" that can support – or destroy – the ability of a satellite company to provide broadband coverage.

We cautions that "modest" growth in the demand for PES and TES does not indicate lessening demand, nor a depression in value, nor a stagnant market. It is just as likely to indicate production efficiency. We do however note that Plum has concluded from his analysis that "the future outlook is for continued modest demand growth except possibly at Ka-band where demand could grow substantially" (Section 4.4). We also note that Plum has acknowledged an increase in FSS usage of C-Band in the UK: "The only band for which we have complete data for 2011 and 2014 (C-band) shows that the number of transmitter deployments has increased by a small amount and the number of receive deployments has increased considerably" (Section 4.2).

We'd also like to make it clear that, within Figure 4-1, Plum's numbers are based on information held by Ofcom on licences for permanent earth stations, as well as those with Recognised Spectrum Access (RSA). Notably, this excludes licence-exempt terminals, e.g. VSATs, at high density fixed satellite systems that number in the thousands. Such permanent earth stations might be lower in number, however they provide connectivity to thousands of smaller terminals.

Question 13 *What are your views on the proposed revisions to the PES algorithm and the TES ratio? In particular, do you agree we should use the relative denial areas to reflect the difference in opportunity cost between PES, TES and fixed links? Do you have any other suggestions for improvement?*

The Consultation notes that “underpinning the algorithm is the principle of charging an equivalent price to those faced by terrestrial links” (Cons. P. 15). ESOA and GVF do not believe that is an appropriate assumption. Satellite links are inherently different from terrestrial links in many ways. Although one can accurately describe some satellite links as a “unidirectional fixed link,” (Cons. p. 15), there are differences in build-out and capex that must affect the “value” of the link. *E.g.*, satellites take 3 years to build and launch and then must be operational for another 10-20 years; while fixed links take 3 months to build and can be replaced in another 3 months.

Plum suggests, at 6.18, the addition of a location factor to the PES and TES fee algorithms, based on the location factor applicable to fixed links (6.23). We agree with Ofcom that, on the contrary, “the area impacted by Earth stations is unlikely to be the same as for fixed links.”

Plum also suggests, at 6.20, that the PES/TES fee algorithm should reflect the “denial area” – the geographic area around a PES/TES in which a fixed link would be “denied” a licence. For this analysis, Plum used as parameter values ITU-R Recommendation 452 (smooth earth diffraction model) and ITU-R Recommendation 699 (antenna patterns). Ofcom states that this will ensure that fixed links and Earth stations are charged the same opportunity cost for their use.

Our experience is that a smooth earth diffraction model does not accurately predict the propagation in the Ka-band nor take into account line of sight. Instead, it systematically and substantially overstates the predicted propagation. In support of Earth station licensing activities we have performed a number of on-site measurements as a follow up to computer simulations of the predicted levels from FS links. In every case the actual measured levels were significantly lower than predicted.

Attenuation of signals from trees, buildings, and other structures, appears to have significant impact on the propagation of Ka-band signals along the potential interference path between a fixed site and an Earth station. Thus an analysis using actual surface data would yield much more realistic results when calculating “denial area”.

Regarding transportables, Plum suggests that it should be assumed that “all use [of TES] is in congested locations,” (6.25) because the location of a TES can change daily. We do not believe this is a reliable assumption; in fact, it is equally reasonable to posit that the most congested areas of the UK are served by multiple types of communications infrastructure and thus TES is arguably as or more likely in the least congested locations.

Regarding urban and rural population density, our experience in the United States suggests that Ka-band residential broadband customers are not limited to rural areas and there are many customers in suburban and urban areas. This is likely due to the small size of Ka-band customer premises equipment and the increasingly competitive offerings of satellite versus terrestrial solutions. In the US, the number of customers in a given area increases in relation to the population density, suggesting that Ka-band service is used as much, or more, in urban areas.

Question 14 *Do you agree that the benefits of implementing geographic pricing are sufficiently high to warrant us considering this further? Should we look at both where mobile is, and is not, an alternative use? Do you have ideas on how this could be implemented?*

Plum has suggested that Ofcom use a location factor in PES/TES fees in two situations:

- 1) If it's a band shared with mobile, and mobile is a higher value alternative use, and it's an area of lower population density, then fees for PES/TES should be lower (encouraging PES/TES to go where the population is sparser);
- 2) If it's not a band shared with mobile, but there are relatively few fixed link assignments, then lower fees should apply.

ESOA and GVF caution Ofcom to avoid proposals that would have the effect of moving Earth stations away from population centers as Earth stations provide important services to populated areas.

Question 15 *Do you have any comments to make on any issues related to next steps and implementation?*

In closing, ESOA and GVF reiterate that the "market" for spectrum use and valuation is defined by more than just the price paid by mobile carriers, or the market for mobile devices. Satellite services provide invaluable public interest benefits due to their universal availability and reliability. In addition to providing spectrally efficient, low-cost access to millions, they also indirectly provide value to millions more by supporting public safety and disaster response efforts.

We therefore consider careful inquiry is needed before developing consultation proposals to address the areas of concern and we would be pleased to assist Ofcom in its further work in advance of its publication of consultation proposals.