Consultation response form

Please complete this form in full and return via email to annualplan2018@ofcom.org.uk or by post to:

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Consultation title	Proposed Annual Plan 2018/19
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Representing (delete as appropriate)	Organisation
Organisation name	EMEA Satellite Operators Association
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We will keep your contact number and email address confidential. Are there any additional details you want to keep confidential? (delete as appropriate)	Nothing
For confidential responses, can Ofcom publish a reference to the contents of your response?	Yes

Your response

Do you have any comments on our proposals?	Confidential? – N **Introduction** ESOA Members[1] welcome the opportunity to submit these comments to Ofcom as it considers its annual pan for 2018-19. Ofcom is one of the leading satellite regulators in the world, and while the 2018/19 work plan does not discuss any of the many issues facing this industry, it does take note of the upcoming World Radio Conference in early 2019 (WRC-19), where the leadership of Ofcom will be crucial to the continuing ability of the satellite industry to provide the only technology with true geographic ubiquitous coverage of the United

[1] A complete list of ESOA Members can be found at www.esoa.net

	Kingdom, and indeed, the world. The document outline the key areas where ESOA believes Ofcom should focus on while deciding its annual plan for 208-19, each section is highlighted below with the suggested areas of internet by the satellite industry. **About ESOA** ESOA is the world's only CEO-driven satellite association, and leads a coordinated and impactful response to the global challenges and opportunities the commercial satellite communications sector faces. Established as a non-profit organisation, ESOA has as its objective to serve and promote the common interests of satellite operators. Today ESOA represents the interests of EMEA satellite operators who deliver information communication services across the globe. **Universal Service Obligation:** In section 3.12 Areas to highlight from our 2017/8 work plan: Ofcom is looking at ways to improving the coverage of fixed and mobile communications services to meet the needs of people and businesses across the UK, including in rural and remote areas where commercial approaches have often failed to deliver on expectations. We note that Ofcom states they will implement any UK Government decision on a broadband Universal Service Obligation (USO) to improve the availability of decent broadband services to people and businesses across the UK. Ofcom also seeks to support wider mobile coverage by assessing and implementing new regulatory approaches. These may include mobile licence conditions and coverage obligations in new licences for the 700 MHz spectrum band, and policy on mobile repeaters. However it is very strange that Ofcom has not considered the role of satellite in this area. There are currently a number of geostationary systems operating in Ku and Ka bands offering rates higher than this, including Intelsat satellites. Moreover, with the launch of high throughput satellites (HTS), which use very small and reconfigurable beams to offer extremely high frequency re-use factors, we expect the delivery speeds to increase further. Given this we would urge Ofcom to carefully reconsider the

	potential role that satellite broadband could play in establishing an effective USO. This is particularly the case since it acknowledges that a significant proportion of households which come within the scope of the USO are rural – locations in which satellite could have a clear advantage in serving due to the possibility of quick deployment, flexible delivery technologies and easily scalable networks and coverage. Furthermore, there are several non-geostationary system under development that intend to launch in the 2018-2020 timeframe, and they will provide a level of connectivity as yet unseen in some areas of the United Kingdom. It would be short-sighted not to keep these ground-breaking technologies in mind when crafting the policies and regulations that will support real universal service. ESOA members support the ongoing development of satellite broadband services, identified by Ofcom as a priority in its 2017 Satellite Spectrum Strategy statement and note that these services will play an increasingly prevalent role in providing broadband to large populations – both rural and urban – in the coming years. **Expanding mobile access in 3.6-3.8 GHz** **Proposal:** In the section for future projects we note Ofcom's plans to expand the mobile access in 3.6-3.8 GHz, where Ofcom aims to develop a proposal to expand mobile data/5G access in the 3.6-3.8 GHz band. This work will include preparation for awarding the band, subject to consultation. We would like to remind Ofcom that the satellite industry depends on continued access to the 3.6 - 3.8 GHz spectrum for future satellite deployments due to continued demand by incumbent and new services. Therefore, if the band is re-farmed for data/5G services, in some cases it may not be possible for satellite earth stations to relocate to new bands or alternative means of delivery. One option for such a scenario to enable services to continue operating is to implement adequate measures to protect incumbent services and ensure their commitment and quality of services to their customers is continued unimpeded to ensure long term stability within this band for satellite

	operators. This will allow the FSS services to continue operating in the band by ensuring sufficient geographical separation with new services, possibly supplemented by mitigation techniques based on a coordinated effort with the new comer. We recognise that Ofcom plans to make the 3.6 - 3.8 GHz band available for mobile broadband, which is in part driven by the European Commission adopted Decision in 2008/411/EC, amended by Decision 2014/276/EU Decision related to the band 3.4 - 3.8 GHz. While we take a pragmatic approach to the identification the 3.6 - 3.8 GHz band for mobile services, we emphasize that, Article 1 of the EC Decision states: "This Decision aims at harmonising, without prejudice to the protection and continued operation of other existing use in this band, the conditions for the availability and efficient use of the 3.4 - 3.8 GHz band for terrestrial systems capable of providing electronic communications services." The designation and making available of the 3.4 - 3.8 GHz band in accordance with the Commission Decision recognizes the fact that there are other existing applications within these bands, such as FSS. It is equally important that FSS-ES operating in the adjacent 3.8 GHz band are also protected from interference from new terrestrial wireless systems. The EC Decision referred to above states in para 3 of Article 2 that: "Member States shall ensure that networks referred to in paragraphs 1 and 2 give appropriate protection to systems in adjacent bands." **Preparing to make sufficient spectrum available for 5G:** We note that Ofcom is planning to make sufficient spectrum available for new wireless technologies including 5G to facilitate the rapid rollout of 5G services so that the benefits of 5G services are delivered to citizens and consumers across the UK. Ofcom is also leading international discussions in CEPT and ITU to agree on the future spectrum bands and standards for 5G and to promote the early availability of a pioneer band for 5G in Europe. In addition, and in preparation for WRC-19, we think that new spectrum bands for 5G should be identified globally. We believe that portions of

	the Q/V-bands (37-52 GHz) included in WRC-19 Agenda Item 1.13 may be available to meet 5G mobile requirements. However, portions of these bands are likely to be contended, since they are already being incorporated into next-generation Very High Throughput Satellite systems (VHTS), including 6 global non-GEO systems proposed by Boeing, SpaceX, Telesat, O3b, OneWeb, and Theia. Indeed, WRC-19 will not only consider allocating Q-/V-band spectrum for 5G (AI 1.13), but also additional V-band spectrum for VHTS systems (AI 9.1.9) and Q/-/V-band spectrum for High Altitude Platforms (AI 1.14). Although there is a significant amount of Q/V-band spectrum under study, a careful evaluation of the various spectrum requirements will need to be undertaken to determine if there is enough spectrum to accommodate all future requirements. In addition, sharing studies are underway to assess compatibility. A number of other mmWaves in higher frequency bands should also be considered for 5G / IMT-2020 terrestrial mobile services under WRC-19 Agenda Item 1.13, including the 31.8-33.4 GHz (32 GHz), 37-52 GHz (Q/V band), 66-76 GHz (66 GHz) and the 81-86 GHz (81 GHz) bands. It should be possible to find adequate spectrum in these bands to meet terrestrial 5G requirements without the contention with existing and planned use of satellite spectrum that is foreseeable in, for example, the Ka-band. The 66 GHz and 81 GHz bands, in particular, are considered very good prospects for international harmonization given their limited existing and planned use by other radio services. The 66 and 81 GHz band in the “high” mmWave bands should yield about 15 GHz of spectrum in contiguous blocks of at least 5 GHz, which could support very wide-band 5G/IMT-2020 carriers. These high mmWave bands should therefore be able to support the development of 5G mobile networks in high-density indoor and outdoor scenarios, such as stadiums, campuses or shopping malls located in urban and suburban areas. The use of these bands would also benefit from synergies with WiGig – currently being deployed at 61 GHz – for which chipsets and MIMO antenna systems are already being manufactured.

	Ofcom mentioned during the presentation to stakeholders, that it is advising government regarding the effects of Brexit on the sector. ESOA wanted to highlight the special significance of Ofcom's role to the international satellite operators which are based in UK or for which UK is the managing administration. The interest of the satellite industry and these operators in particular, relies on international access to orbital positions, satellite co-ordination, and harmonised spectrum. It will be important that Ofcom and the UK government can continue to be effective and influential in international negotiations. Some EU forums like the Radio Spectrum Policy Group (RSPG) or BEREC are highly influential in the development of Europe's international regional approaches or positions in CEPT and ITU. ESOA would like to request Ofcom to be mindful in its priorities of the specific international nature of the satellite industry and the particular role it plays as home administration to some of the leading satellite operators in the world. ESOA would be pleased to follow up with Ofcom on ways that will allow Ofcom to continue to play a proactive and authoritative international role. **14.0-14.5 GHz band and its use for satellite applications:** The entire 14.0-14.5 GHz band is a globally harmonised allocation for the Fixed Satellite Service (FSS) and the Mobile Satellite Service (MSS), for the provision of uncoordinated and ubiquitous services on fixed and in motion platforms. The current Ofcom rules do not allow satellite uncoordinated earth stations (fixed, nomad, or in motion) to operate in the upper half of the band (14.25-14.5 GHz) due to the shared allocation with the Fixed Service (FS). However, only 121 fixed microwave links are currently deployed in this band in the United Kingdom, restricting the use of the 14.25-14.5 GHz band for ubiquitous use of uncoordinated FSS and MSS earth stations in the whole of the country, as well as restricting use in adjacent countries and sea. It would therefore be appreciated if Ofcom could confirm the adoption of a strategy to remove the remaining FS links (which in any case are reducing year by year) from this band by the horizon 2020. In the meantime, through the period between 2017

	and 2020, allowing all satellite applications to operate in such band on a light touch un-coordinated and non-interference basis would be most welcomed; for example by using a "FS list" approach that would allow FSS and MSS equipment to avoid interfering with the FS receivers. **Conclusion** In conclusion, ESOA thanks Ofcom for their work product over the past year, and looks forward to working with Ofcom on the spectrum and other issues affecting the satellite industry in 2018.

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