

Gary Hunt consultation submission for the Ofcom Non-geostationary satellite systems – Licensing updates

Thank you for the opportunity to respond to Ofcom's consultation process for Non-geostationary satellite systems – Licensing updates. My submission may at first sight stray outside of Ofcom's regulatory purview, but I feel that there are wider impacts and issues that are being ignored in this process and Ofcom need to acknowledge and address this? Although many of these impacts (but potentially Kessler Syndrome does!) do not directly affect Ka band operation within the UK they have critical secondary effects on astronomy (both optical, 'radioastronomy' and other astrophysical electromagnetic observation research. There are also others such as environmental issues including satellite light pollution, aluminum particulates in the upper atmosphere from future LEO satellite deorbiting, impacts on wildlife migration and indigenous people's cultural/belief system issues that need to be considered in a sensitive and considerate manner. There is also the threat of orbital collisions leading to a lethal Low Earth Orbit 'barrier' of high-speed particles that would prevent further telecommunication satellite, manned and research launches for decades to come. This is generally known as the Kessler Syndrome https://en.wikipedia.org/wiki/Kessler_syndrome . I would recommend that these issues are looked at very closely and sympathetically and if Ofcom feels that it is outside their purview then it should seek advice and help from those that have that responsibility including HMG, UN and NGOs?

Thank you...

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Gary Hunt
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Question 1: Do you have any comments on our assessment of the interference challenges raised by NGSO systems and their potential impact on a) service quality; and b) competition?

GH Response to Q1: No

Question 2: Do you have any comments on our approach to dealing with the interference challenges raised by NGSO systems?

GH Response to Q2: Yes. Large NGSO broadband systems by their very nature have evidentially and demonstrably interfered with professional and amateur astronomical observations in 'radio', optical and other parts of the electromagnetic spectrum. The current and future deployments of large broadband constellations (commonly referred to as 'megaconstellations') are/will impact[ing] significantly on astronomy (both professional and amateur) to the point that scientific observation may become impossible to undertake. It is well known that radio interference strays outside licensed bands and defined spot beams in the 'radio astronomy' field, what is now becoming 'visually' and evidentially obvious is that NGSO satellites in large numbers are interfering in optical (especially sensitive electronic optical chips and wide field of view) observations. There are now great and serious concerns over infrared, millimetre, submillimetre and ultraviolet observations with these huge constellations of continually moving and 'bright-in-sky objects', mainly the NGSOs. It should be noted that the ITU has input from the radioastronomy community but does not allow input from optical and other areas of astronomy. I would suggest that these areas of scientific research need to be consulted with urgently along with the ITU/UNOOSA/ COPUOS/UNGA/other Regional and National Regulators before any further granting of new NGSO licenses. Pressure to do the same on other administrations should be applied by Ofcom and HMG.

Question 3: Do you have any comments on the proposed updates to our process for NGSO gateway and network licences?

GH Response to Q3: Yes, the current suspension/moratorium on granting gateway and network licenses should be maintained until the whole question of astronomical observation, interference and other ethical/environmental/cultural impacts are fully considered (preferably by the UN and it's agencies).

Question 4: Do you have any comments on the proposed updates to existing and new NGSO network licences?

GH Response to Q4: Yes, the current licenses should be maintained if they are currently in use, if not then a revision/suspension/moratorium on the license should be considered (if legal and fair of course?) until the whole question of astronomical observation, interference and ethical/environmental/cultural impacts are fully considered (preferably by the UN and its agencies).

Question 5: Do you have any comments on the proposed updates to existing and new NGSO gateway licences?

GH Response to Q5: Yes, the current licenses should be maintained if they are currently in use, if not then a suspension/moratorium on the license should be considered (if legal and fair under UK law?) until the whole question of astronomical observation, interference and environmental/cultural impacts are fully considered (preferably by the UN and its agencies). The reason for this is so that companies that operate ground-stations do not expend resources/finance when the operational question of NGSO broadband megaconstellations is still questionable?

Question 6: Do you agree with our proposal regarding NGSO terminals operating in Ka band?

GH Response to Q6: No! If Ofcom issue licenses for NGSO terminals, this would encourage industry/public expectation that large NGSO broadband networks are legitimate to use and the NGSO service providers would also expect that the UK and Ofcom are happy with the whole principle of service ignoring the negative impacts and questions that are yet to be resolved! Issue 6 should not be given the go-ahead until the whole issue of a global NGSO megaconstellations as a potential threat is discussed globally, addressed by appropriate international authorities, global agreements are made and a wide-ranging multi-disciplinary regulatory framework is put in place. The Ofcom proposal is 'putting the cart before the horse' if the proposed NGSOs megaconstellations have negative future impacts. Scenarios such as the effect on future satellite telecommunications if there are NGSO collisions in Low Earth Orbit that lead to a 'lethal' Low Earth Orbit 'barrier' of high-speed particles that would prevent further telecommunication satellite, manned and research launches for decades to come – see Kessler Syndrome https://en.wikipedia.org/wiki/Kessler_syndrome . It should also be borne in mind that the locus of Ofcom is not the 'center-of-all-things', broadband in rural and hard to obtain areas is worthy and important of course, but it may not be equal or have priority needs as other areas of activity in our society? You cannot make these decisions in isolation of the needs and requirements of the rest of the world, if this is deemed outside Ofcom's remit then you will need to seek advice from those who have that area of responsibility externally?

Thank you...

Gary Hunt
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