

Your response

| Question | Your response |
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| <p>Question 1: Are there other trends in the space sector (or the broader spectrum environment) that we should monitor and/or take account of in our strategy?</p> | <p>The UK is developing its own PNT strategy post-Brexit, which probably requires consideration by Ofcom. The Government’s Integrated Review published in 2021 makes the following commitment, “ We will strengthen the resilience of the position, navigation and timing (PNT) services on which our CNI and economy depend”. Whilst this is a very open ended statement it probably means that OFCOM need to keep options open in terms of any emerging UK PNT programme – enhanced UK capability in this area is likely to be a mix of technologies – perhaps including Space Based Augmentation of existing GNSS services on a regional scale, a ground component with emphasis on providing assured precision time to Critical National Infrastructure users – including a last mile delivery system. Perhaps Low Earth Orbit (LEO) satellites will also form a significant part of a UK solution against an overall trend towards cheaper, lighter, smaller satellites with low launch costs.</p> |
| <p>Question 2: Do you agree with the broad areas we have prioritised for our work?</p> | <p>yes- although perhaps there could be more emphasis on PNT aspects, especially given the emerging UK trend/strategy above which probably requires special consideration by Ofcom to enable any potential UK developments in an optimal manner</p> |
| <p>Question 3: Are there other issues and actions that are likely to be important over the next 2 – 4 years?</p> | <p>Spectrum congestion driven by the need for broadband data links means that interference is going to become a growing problem as new services are introduced – examples from the US show how problematic this can be. The issues of interference between 5G services and aircraft radio altimeters has become a difficult issue. The FAA Ligado decision which authorized Ligado Networks LLC to operate a low-power terrestrial radio network adjacent to the Global Positioning System (GPS) frequency</p> |

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| | <p>band has also caused a great deal of controversy. The US National Academies of Sciences, Engineering, and Medicine was instructed to provide “an independent technical review of the order and authorization adopted by the Federal Communications Commission on April 19, 2020 (FCC 20-48),”</p> <p>The issue of terrestrial radio networks causing adjacent band interference to low power GNSS signals is one that is very likely to need special attention from Ofcom to prevent situations like the ones referred to in the US, occurring in the UK</p> |
| <p>Question 4: Do you have any evidence on whether specific actions should be a high priority?</p> | <p>The US National Academies of Sciences, Engineering, and Medicine independent technical review of the US FCC/Ligado decision has already gathered a great deal of evidence from many stakeholders which is available in the public domain.</p> <p>https://www.nationalacademies.org/our-work/review-of-fcc-order-20-48-authorizing-operation-of-a-terrestrial-radio-network-near-the-gps-frequency-bands</p> <p>A high priority area for the UK will be to keep GNSS signals free from adjacent band interferences caused by new terrestrial radio services and the evidence gathered by the US independent review shows clearly where the problem areas are likely to be</p> |
| <p>Question 5: Do you have any other issues you wish to comment on?</p> | <p>It is becoming ever more important to undertake measurements and assessments of transmission channels from satellite to ground, including atmosphere, RF environment and also of equipment to better understand potential issues and impacts or to detect real-world problem areas. These assessments may be undertaken using simulation and real world measurements in laboratory or real world environments. The UK has world leading expertise in GNSS test and measurement including simulation, record and playback and vulnerabilities testing that could be put to use in the context of a national test-bed</p> |
| <p>Question 6: Are there other issues and actions specifically relating to NGSO communication systems that are likely to be important over the next 2 – 4 years?</p> | <p>The rapid evolution of NGSO’s and their potential for use in PNT systems will raise specific issues – related to potential interference in terms of satellite-to-satellite communications and satellite to ground navigation signals.</p> |

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| Question 7: Do you have any evidence on whether specific actions relating to NGSO communication systems should be a high priority? | The “new space” sector is a rapidly evolving space and therefore disruptive uses of wireless technology are highly probable. There is also likely to be very high demand for some of the services on offer. This will mean close monitoring and international cooperation through established bodies will be necessary |
| Question 8: Do you have any other comments relating to NGSO systems? | A proliferation of system types is highly likely given the entrepreneurial approach that is being encouraged by world governments in order to achieve rapid growth in capability – this could lead to an unregulated “wild west” in space (and with PNT services) so warrants Ofcom monitoring the situation closely and proposing regulations where most appropriate |