

Your response

Question	Your response
<p>Question 1: Have you identified an alternative use for the 14.25-14.5 GHz band which could lead to greater benefits for consumers and citizens than our proposal to extend satellite ESN authorisations? Please provide evidence to support your comments.</p>	<p><i>Is this response confidential? – N</i></p> <p>Extending satellite ESN authorizations to the 14.25-14.5 GHz spectrum band will offer immediate benefits for consumers and citizens in the UK.</p> <p>Next-generation satellite networks like Starlink can provide high-speed, low-latency broadband service to those in even the most challenging areas, often enabling access to reliable high-speed internet for the first time. Access to the 14.25-14.5 GHz band, which many NGSO systems use to transmit data from user terminals to the satellites, is critical to ensuring that UK consumers receive the best possible service wherever they are, including in rural and remote areas that lack other high-speed broadband connectivity options.</p> <p>Currently, the spectrum at 14.25-14.5 GHz is not intensively used in the UK, which has created a huge missed opportunity for citizens. Lack of access to the band is already constraining SpaceX’s ability to meet growing demand for service from UK citizens.</p> <p>SpaceX appreciates that Ofcom is planning to eliminate these constraints and make this spectrum available to next-generation satellite services, while appropriately protecting incumbent services. Next-generation satellite operators do not even need a new technical standard because the CEPT has already decided that where operators meet the standards set forth in ECC Decisions (17)04 and (18)05 (for NGSOs), license exemption is appropriate.</p>
<p>Question 2: Do you agree with our proposal to extend access in the 14.25-14.5 GHz band for satellite connectivity, for future broadband, air, sea, energy and transport uses? Please provide evidence to support your comments.</p>	<p><i>Is this response confidential? – N</i></p> <p>SpaceX appreciates Ofcom’s proposal to make the 14.25-14.5 GHz band available for satellite connectivity as a “high priority action.”</p> <p>The UK Government is committed to making the UK a global leader in digital connectivity, and has made great strides in doing so. But the work is not done. Many people across the UK still lack access to high-quality, high-speed broadband. Starlink is already helping to bridge that connectivity gap with high-speed, low-latency satellite broadband service. Unfortunately, because the 14.25-14.5 GHz band has not been available, satellite systems must force their signals through a severe spectrum bottleneck that needlessly chokes off services for many more citizens across the UK.</p> <p>The demand for and benefit of access to the spectrum at 14.25-14.5 GHz is clear and growing. Many next generation satellite networks like Starlink rely on access to the entire 14 GHz band (14.0-14.5 GHz) to provide consumers with high-speed, low-latency broadband service. In addition, earth stations in motion rely on the same frequencies to provide</p>

	<p>robust broadband service to people on aircraft, ships, and moving vehicles.</p> <p>Access to this spectrum will help Starlink provide access in a way that UK consumers in Very Hard to Reach areas can enjoy similar broadband to their urban and suburban colleagues.</p>
<p>Question 3: Do you agree with our proposed protection requirements for a) radio astronomy users of 14.47-14.5 GHz; b) remaining fixed link users (at specified frequencies and locations) and c) Crown users?</p>	<p><i>Is this response confidential? – N</i></p> <p>SpaceX recognizes the critical importance of protecting existing uses and services in the 14 GHz band, including radio astronomy, remaining fixed link users, and Crown users.</p> <p>SpaceX’s satellite constellation is designed to make efficient use of radio spectrum resources by optimizing its ability to flexibly share spectrum with other licensed satellite and terrestrial users, including through advanced beam-forming and digital processing technologies. This technology allows SpaceX to dynamically avoid interfering with incumbent users without the need for overly conservative keep-out zones.</p> <p>SpaceX urges Ofcom to reconsider its overly conservative approach to regulating protection requirements for radio astronomy users of 14.47-14.5 GHz and fixed links operating in 14.25-14.5 GHz, and offers suggestions for protecting the incumbent services in a more flexible and efficient manner consistent with international best practices.</p> <p>In particular, SpaceX urges reconsideration of several of the assumptions put forward in Ofcom’s proposal that unnecessarily restrict service for UK consumers with no added benefit for radio astronomy, including the following:</p> <ul style="list-style-type: none"> • Ofcom conducted an analysis based on GSO terminals to determine keep-out-zones. NGSO user terminals differ from GSO terminals and have unique characteristics that need to be considered. • Ofcom assumed a nominal EIRP toward the horizon that does not match the EIRP of the Starlink user terminal. • Ofcom assumed that NGSO user terminals operate at 20m height. While SpaceX user terminals often are installed above ground level (e.g., on rooftops or masts) to provide a clear field of view, they typically are operated below 20m height. <p>These incorrect assumptions greatly inflate the size of the contours for keep-out-zones and overstate the affect to incumbent services, to the detriment of citizens that can benefit from NGSO services. Excluding NGSO operators from providing service in these areas, even where fixed links are no longer operational, will artificially limit service to UK consumer at home and on the move with no attendant benefits. At the very least, Ofcom should clarify that satellite operators need only protect operational fixed links in the band and establish a sunset period for any remaining links.</p> <p>Instead of determining fixed keep-out-zones for all GSO and NGSO operators alike, SpaceX proposes that Ofcom adopts existing ECC Report 271 for its UK topography. Based on ECC</p>

	<p>Report 271, Ofcom can require operators to demonstrate their compliance with identified interference protection criteria and submit contouring that is based on each specific system's earth station properties. As long as operators can demonstrate that they are able to meet the receive interference limits at the radio astronomy site or fixed link receive antenna, operators should not be needlessly constrained to broad keep-out-zones. This way, Ofcom can ensure the protection of incumbent services, while enabling efficient use of the spectrum.</p> <p>Alternatively, Ofcom should permit operators to coordinate directly with radio astronomers in the 14.47-14.5 GHz band to reach even more efficient arrangements.</p>
<p>Question 4: Do you agree with our proposed authorisation approach and draft licence conditions for a) ESN licences, and b) other licensees wishing to take advantage of enhanced satellite connectivity (i.e. aircraft, ships, unmanned aircraft systems).</p>	<p><i>Is this response confidential? – N</i></p> <p>SpaceX welcomes Ofcom's approach to enabling access to 14.25-14.5 GHz band for ESN license holders and other licenses that are able to provide services for mobile use, including aircrafts and ships.</p> <p>Today, SpaceX's earth stations in motion rely on 14-14.5 GHz to provide high-speed, low-latency satellite broadband service on aircraft, ships, and moving vehicles. By taking the constraints off this important spectrum band, Ofcom will enable NGSO operators like SpaceX to provide increased capabilities not only at fixed locations, but also to improve service quality for consumers, businesses, and industries that require high-quality broadband on the move.</p>
<p>Question 5: Do you have any other comments on our proposals?</p>	<p><i>No comment.</i></p>

Please complete this form in full and return to 14ghz@ofcom.org.uk.