

Your response

Question	Your response
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?	The introduction and background covers the current developments in the space sector well.
Question 2: Do you agree with the broad areas we have prioritised for our work?	We agree with the prioritised areas of work. The main challenge will be do coordinate the significant increase in NGSO systems, while not hindering advances in technology.
Question 3: Are there other issues and actions	

<p>that are likely to be important over the next 2 – 4 years?</p>	
<p>Question 4: Do you have any evidence on whether specific actions should be a high priority?</p>	<p>No.</p>
<p>Question 5: Do you have any other issues you wish to comment on?</p>	<p>We are supportive of any actions that guarantee interference-free use of the available spectrum. However, an additional priority should be the easy use of spectrum for the user.</p> <p><i>General statement on putting restrictions on IoT bands:</i> The following mainly addresses use of licence-exempt bands for IoT: Licence-exempt bands have been established to provide easy access to users and have been the reason for significant advances in wireless technologies. Any changes in licencing should not result in disadvantages for the users. Therefore, individual licencing is strongly disfavoured.</p> <p><i>Individual licencing for satellites/ apparatus licence:</i> A receiving IoT gateway on a satellite is in general the same as a terrestrial gateway, except that it is not continuously available in the case of LEO/MEO satellites. Therefore, receiving gateways should not be treated different than terrestrial gateways, i.e. no individual regulations nor an individual licence should be required. For transmitting IoT gateways in licence-exempt bands, an apparatus licence might be conceivable. This licence however should not be intended to restrict spectrum access by requesting high fees, it should restrict spectrum access by establishing spectrum use limitations (e.g. p.f.d.) that minimise interference potential.</p> <p><i>General statement on use of licence-exempt bands:</i> Rather than reinventing restrictions for the users, it should be assured that the satellite network operator uses the band efficiently and for its original use. When satellite operators use bands allocated for IoT/M2M applications, the band should be used for IoT/M2M applications and not for the control of the satellite (TT&C) or other purposes that are not connected to</p>

	<p>IoT/M2M.</p> <p><i>Impact of IoT via satellite in licence-exempt bands</i></p> <p>IoT/M2M applications have a lack of connectivity in remote regions. Consequently, the bands are also not used in remote regions. Therefore, it only makes sense to make use of these bands for satellite IoT/M2M applications, it is even the most efficient sharing of spectrum. Device-to-satellite transmissions do not impact terrestrial systems and also would not expect significant interference from terrestrial use. What needs to be carefully coordinated is the satellite downlink in traditional IoT/M2M bands. First, the received power on ground has to be such that incumbent users are not significantly impacted. This would require a low power level (e.g. p.f.d.) on ground and potentially a duty cycle of space-to-Earth transmissions, which is not measured per satellite, but per ground location. This would ensure that satellite transmissions do not affect the terrestrial environment more than classical terrestrial gateways would do.</p> <p>Again, this concept only holds for systems that aim to extend terrestrial use of IoT spectrum.</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>Monitoring new developments and how satellite operators act in spectrum sharing remains one of the most important topics for the next years.</p>
<p>Question 7: Do you have any evidence on whether specific actions relating to NGSO communication systems should be a high priority?</p>	<p>See Q6</p>
<p>Question 8: Do you have any other comments relating to NGSO systems?</p>	<p>See Q5</p>