
Telesat LEO Inc: application for non-geostationary earth station network licence

Request for comments

CONSULTATION:

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1. Introduction

- 1.1 Non-geostationary orbiting (NGSO) satellite systems are a new way of delivering broadband services from space using a constellation of satellites in a low or medium orbit. These satellite services have the potential to deliver higher speeds and lower latency services.
- 1.2 As set out in our statement on [non-geostationary satellite systems](#), we have a new process for considering applications for the following types of spectrum licence:
- **Satellite (Earth Station Network):** this authorizes an unlimited number of user terminals to connect to the NGSO system (subject to certain conditions). It also places certain conditions on the licence holder (typically a satellite operator) to coordinate with other licence-holders. We will refer to these in the rest of the document as “ESN licences”.
 - **Satellite (Non-Geostationary Earth Station):** this authorises gateway earth stations, which connect the NGSO system to the internet or to a private network. We will refer to these in the rest of the document as “NGSO gateway licences”.
- 1.3 On [6 June 2022], Ofcom received an application from Telesat for an Earth Station Network Licence for their Lightspeed constellation. This application is to cover their user terminals. They have not applied for any gateway licences at the time of writing. Details of this application (Telesat_NET_06/22) can be found under the “Applications received” section of our [website](#).
- 1.4 Telesat is proposing to provide satellite broadband services to support enterprise and mobile backhaul, maritime and offshore platforms, aviation, and government services in the UK. Telesat plans to start launching its satellites in Q3 2025 and to commence initial services in the UK in Q1 2026.
- 1.5 At the time of writing, there are three satellite operators holding ESN licences. These permit the licence-holder to operate in both the Ku band [14.0-14.25 GHz] and Ka band [27.5 – 27.8185 GHz, 28.4545 – 28.8265 GHz and 29.4625 – 30 GHz]. These operators are:
- a) Kepler;
 - b) Network Access Associates Ltd (a subsidiary of OneWeb); and
 - c) Starlink Ltd (a subsidiary of SpaceX)
- 1.6 All of these operators deploy terminals in the Ku band. Details of these licences can also be found on the [NGSO](#) section of our website.

- 1.7 In addition, SpaceX currently operates three non-geostationary gateways in the UK connecting to the Starlink constellation. Some of the licences for these gateways are held by the teleport operators¹. The licences for the NGSO gateways are held by:
- a) Arqiva Ltd;
 - b) Goonhilly Earth Station Limited; and
 - c) Starlink Internet Services UK Limited.
- 1.8 On Tuesday 21 June, we published an [application from SpaceX](#) for an additional six gateways. We also published our request for comments on the applications. Details of the existing licences and the SpaceX application can also be found on the [NGSO](#) section of our website.
- 1.9 Telesat's Lightspeed uses Ka band for both its terminals and gateways. It has applied to use the frequencies [27.5 – 27.8185 GHz, 28.4545 – 28.8265 GHz and 29.5 – 30 GHz].
- 1.10 When considering applications for these licences, we take account of their impact on technical coexistence and competition. We also publish and invite comments on applications that we are considering authorising. Further information about the process and how to respond to licence applications can be found in our [non-geostationary satellite earth stations licence guidance](#).
- 1.11 We are publishing this document to invite comments on the application and on our preliminary views. We will take into account all comments received and we are open to changing those views depending on responses and evidence submitted to us as part of this process.
- 1.12 Further information about the process and how to respond to licence applications can be found in our [non-geostationary satellite earth stations licence guidance](#).
- 1.13 The deadline for comments is 5pm on Friday 22 July 2022.

¹ A teleport is a site from which gateways from multiple companies are operated. Geostationary operators often co-locate their gateways with other operators in this way as a cost-saving measure. As described in our NGSO Licensing Updates consultation, this is not always desirable for NGSO.

2. Assessment of application

2.1 In this section we consider the coexistence and competition aspects of the application. We outline relevant parts of the application and indicate where we would value input from stakeholders. We would encourage stakeholders to read the full application.

Description of the system

- 2.2 Telesat's Lightspeed constellation will initially consist of 198 satellites (with 10 spares²) operating in two orbits:
- a) The first in polar orbit (inclination of 98.98°) and altitude of 1,000km. These satellites will provide global coverage with a higher concentration of satellites in the polar regions.
 - b) The second in inclined orbit (inclination 50.88°) and altitude 1,350. This concentrates satellites over equatorial and mid-latitude areas where demand for communications services is greater, thereby focusing most of the capacity on populated areas.

Coexistence

- 2.3 When issuing new licences, one of Ofcom's objectives is that all authorised systems are capable of coexisting (in bands they are using in common), such that they are all able to provide services to their users without experiencing harmful interference.
- 2.4 When applying for a licence, we ask applicants to demonstrate:
- a) coexistence with existing satellite systems: applicants should demonstrate how coexistence is possible between their networks and:
 - i) existing NGSO systems that are already licensed in the UK;
 - ii) NGSO systems for which a licence application has been made and has been published for comment; and
 - iii) Other specific co-frequency earth stations registered with the ITU.
 - b) an ability to coexist with future NGSO systems: applicants should state what flexibility their system has to achieve coexistence with future networks. This could include the measures they would be able to put in place if another network comes along in the future; it could also suggest measures future networks could reasonably be expected to put in place in order to coexist.

² Spare satellites are typically launched into the same orbit in case one satellite in the constellation has a premature technical failure.

Coexistence with existing operators

- 2.5 With respect to existing licensees, at the time of writing, Telesat has not reached coordination agreements with any of these companies and so have outlined in their application how they plan to coexist with existing licence operators. They state:

“Telesat Lightspeed can dynamically assign capacity where and as required, through the selection of the satellite chosen to deliver the service, of the size and steering of satellite spot beams, and of the amount of spectrum and power allocated to them”.

- 2.6 More detailed information regarding the likely impact of their service on existing licenced services in terms of throughput and unavailability can be found in the annex of the Telesat application.

- 2.7 With respect to specific co-frequency earth stations registered with the ITU, Telesat has stated the following:

“With respect to the applicable specific co-frequency earth stations registered with the ITU mentioned in point c) above, Telesat is coordinating its NGSO system with the relevant operator(s) for those earth stations under the applicable provisions of Article 9 of the Radio Regulations. Telesat commits to take any necessary technical and operational measures not to cause interference into those earth stations.”

- 2.8 Our preliminary view is that Telesat Lightspeed should be able to coexist with existing NGSO licence holders with the approach described. However, we encourage all parties to continue coordinating in good faith between now and the launch of the Lightspeed constellation.

Question 1: Do you anticipate this satellite network will pose coexistence challenges to existing services?

Coexistence with future systems

- 2.9 As outlined in our Statement on Updates to NGSO Licensing, we want to enable as many NGSO systems as possible, to provide services and increase choice for people and businesses in the UK. We therefore anticipate additional applications for NGSO licences in the future to support other NGSO systems in the UK.
- 2.10 Although we do not expect licensees to foresee the characteristics or the number of future systems that will apply for a licence in the UK, we do ask applicants to:
- a) explain how their existing network design and operating model might facilitate coexistence with other NGSO satellite systems and any limitations; and
 - b) outline any additional measures, which would allow improved coexistence with other systems.

- 2.11 We also ask them to be aware that they may be expected to take reasonable measures to accommodate such future applicants, in order to avoid material degradation to services in the UK.
- 2.12 Telesat proposes in its application to manage coexistence with future systems through the use of alternative satellites and avoidance angles to avoid in-line events. The exact procedure for avoiding in-line events would be negotiated during coordination discussions. The impact of inline events can further be lessened through dynamic assignment of spectrum and the power allocated to each beam. Further information can be found in the answers to D2 and D3 in their application.
- 2.13 We are interested in obtaining comments on Telesat's views on its coexistence plans. Our initial view is that it provides sufficient comfort that Telesat's systems will be capable of coexisting with new and future NGSO gateway and terminal operators.

Question 2: Are the measures set out by the applicant to enable coexistence with future systems reasonable?

Competition

- 2.14 As outlined in the approach to competition in Annex 3 of our [statement on NGSO licensing updates](#):
- “Our starting position with any competition check is to authorise applications, where possible. We have outlined that we take into account four factors:
- a) the extent of the likely risks to competition;
 - b) the potential benefits from granting NGSO licence applications;
 - c) ensuring that time and resources devoted to the licensing process are proportionate to the risks and benefits; and
 - d) that NGSO services are currently in their infancy”.
- 2.15 We have outlined below some of the risks and benefits of granting this authorisation.

Risks to competition

- 2.16 In the same document, we explain:
- “In principle competition concerns could arise from the constraints that systems operating under a network licence might impose on subsequent entrants due to the technical barriers to coexistence between systems (e.g. due to a lack of flexibility in the design of systems). If there was a limited prospect of the applicant's system and future systems being able to technically coexist, then this could form a barrier to future entry to the market. This would be a particular concern if it results in market power. However, the magnitude of this risk is currently unclear”.

- 2.17 As noted above, Telesat has set out how it would manage coexistence with future systems. In addition, under condition 7.2 of the network licence, Telesat will be required to cooperate with other licensees.
- 2.18 On this basis, our initial view is that there would not be a material risk to competition.

Benefits

- 2.19 As described in our approach to competition:
- “A network licence is necessary for an operator to deploy user terminals in the UK... Granting NGSO network licence applications is thus likely to benefit customers and consumers and supports Ofcom’s strategic priority to get everyone connected (see above). Since issuing a new network licence allows market entry it also has the potential, if a service is deployed, to promote greater competition (assuming that it can coexist with other authorised systems).”
- 2.20 Telesat sees growing demand for satellite connectivity supporting enterprise and telecommunications companies, the aviation industry, the UK maritime and off-shore energy sector and government services. They state that the Lightspeed network can provide multiple Gbps in each beam and can dynamically place beams in hotspot areas where demand might be greater e.g. along busy shipping routes or airports. A fuller explanation can be found in section D2 of their response.
- 2.21 As a consequence, our preliminary view is this Telesat’s Lightspeed has the potential to provide services that provide further connectivity options to customers in the UK, in addition to those of the three existing NGSO licence holders.

Question 3: Do you believe this application would benefit or harm future competition between NGSO services in the UK? Please provide details.

Other concerns

- 2.22 Coexistence and competition are the two issues on which we expect to make our licensing decisions (as set out in the NGSO Licensing updates Statement).

Question 4: Do you have any additional concerns or comments regarding this application?

Proposal to grant application

- 2.23 Taking the evidence presented by Telesat and our assessment of the risks and benefits of granting this application, we propose to grant Telesat’s application for an Earth Station Network licence.

3. Next steps

- 3.1 This application will be available on [our website](#) under “Applications received for NGSO Earth Station Network licences”. We welcome comments on this application, and the deadline for responses is 5pm on Friday 22 July 2022. Responses should be submitted electronically to ngso.licensing@ofcom.org.uk.
- 3.2 Following this, we will review responses and publish our decision. We aim to publish our decision on Monday 12 September 2022.

A1. Responding to this consultation

How to respond

- A1.1 This commenting period will be open for 20 working days. Ofcom would like to receive views and comments on the issues raised in this document, by 5pm on **Friday 22 July**.
- A1.2 You can download a response form from <https://www.ofcom.org.uk/consultations-and-statements/category-3/telesat-network-licence-application>. You can return this by email or post to the address provided in the response form.
- A1.3 If your response is a large file, or has supporting charts, tables or other data, please email it to ngso.licensing@ofcom.org.uk, as an attachment in Microsoft Word format, together with the [cover sheet](#).
- A1.4 In order to ensure we can receive, review and assess all comments in a timely manner, we will not be receiving applications via post. We welcome responses in formats other than print, for example an audio recording or a British Sign Language video. To respond in BSL:
- Send us a recording of you signing your response. This should be no longer than 5 minutes. Suitable file formats are DVDs, wmv or QuickTime files. Or
 - Upload a video of you signing your response directly to YouTube (or another hosting site) and send us the link.
- A1.5 We will publish a transcript of any audio or video responses we receive (unless your response is confidential)
- A1.6 We do not need a paper copy of your response as well as an electronic version. We will acknowledge receipt if your response is submitted via the online web form, but not otherwise.
- A1.7 You do not have to answer all the questions in the consultation if you do not have a view; a short response on just one point is fine. We also welcome joint responses.
- A1.8 It would be helpful if your response could include direct answers to the questions asked in the consultation document. The questions are listed at Annex 4. It would also help if you could explain why you hold your views, and what you think the effect of Ofcom's proposals would be.
- A1.9 If you want to discuss the issues and questions raised in this consultation, please contact Elizabeth Quintana by email to ngso.licensing@ofcom.org.uk.

Confidentiality

- A1.10 Consultations are more effective if we publish the responses before the consultation period closes. In particular, this can help people and organisations with limited resources or familiarity with the issues to respond in a more informed way. So, in the interests of transparency and good regulatory practice, and because we believe it is important that

everyone who is interested in an issue can see other respondents' views, we usually publish all responses on [the Ofcom website](#) as soon as we receive them.

- A1.11 If you think your response should be kept confidential, please specify which part(s) this applies to and explain why. Please send any confidential sections as a separate annex. If you want your name, address, other contact details or job title to remain confidential, please provide them only in the cover sheet, so that we don't have to edit your response.
- A1.12 If someone asks us to keep part or all of a response confidential, we will treat this request seriously and try to respect it. But sometimes we will need to publish all responses, including those that are marked as confidential, in order to meet legal obligations.
- A1.13 Please also note that copyright and all other intellectual property in responses will be assumed to be licensed to Ofcom to use. Ofcom's intellectual property rights are explained further in our [Terms of Use](#).

Next steps

- A1.14 Following this commenting period, Ofcom will publish our assessment by 12 September 2022.
- A1.15 If you wish, you can [register to receive mail updates](#) alerting you to new Ofcom publications.

Ofcom's consultation processes

- A1.16 Ofcom aims to make responding to a consultation as easy as possible. For more information, please see our consultation principles in Annex 2.
- A1.17 If you have any comments or suggestions on how we manage our consultations, please email us at consult@ofcom.org.uk. We particularly welcome ideas on how Ofcom could more effectively seek the views of groups or individuals, such as small businesses and residential consumers, who are less likely to give their opinions through a formal consultation.
- A1.18 If you would like to discuss these issues, or Ofcom's consultation processes more generally, please contact the corporation secretary:

Corporation Secretary
Ofcom
Riverside House
2a Southwark Bridge Road
London SE1 9HA
Email: corporationsecretary@ofcom.org.uk

A2. Ofcom's consultation principles

Ofcom has seven principles that it follows for every public written consultation:

Before the consultation

- A2.1 Wherever possible, we will hold informal talks with people and organisations before announcing a big consultation, to find out whether we are thinking along the right lines. If we do not have enough time to do this, we will hold an open meeting to explain our proposals, shortly after announcing the consultation.

During the consultation

- A2.2 We will be clear about whom we are consulting, why, on what questions and for how long.
- A2.3 We will make the consultation document as short and simple as possible, with a summary of no more than two pages. We will try to make it as easy as possible for people to give us a written response. If the consultation is complicated, we may provide a short Plain English / Cymraeg Clir guide, to help smaller organisations or individuals who would not otherwise be able to spare the time to share their views.
- A2.4 We will consult for up to ten weeks, depending on the potential impact of our proposals.
- A2.5 A person within Ofcom will be in charge of making sure we follow our own guidelines and aim to reach the largest possible number of people and organisations who may be interested in the outcome of our decisions. Ofcom's Consultation Champion is the main person to contact if you have views on the way we run our consultations.
- A2.6 If we are not able to follow any of these seven principles, we will explain why.

After the consultation

- A2.7 We think it is important that everyone who is interested in an issue can see other people's views, so we usually publish all the responses on our website as soon as we receive them. After the consultation we will make our decisions and publish a statement explaining what we are going to do, and why, showing how respondents' views helped to shape these decisions.

A3. Consultation coversheet

BASIC DETAILS

Consultation title:

To (Ofcom contact):

Name of respondent:

Representing (self or organisation/s):

Address (if not received by email):

CONFIDENTIALITY

Please tick below what part of your response you consider is confidential, giving your reasons why

Nothing

Name/contact details/job title

Whole response

Organisation

Part of the response

If there is no separate annex, which parts? _____

If you want part of your response, your name or your organisation not to be published, can Ofcom still publish a reference to the contents of your response (including, for any confidential parts, a general summary that does not disclose the specific information or enable you to be identified)?

DECLARATION

I confirm that the correspondence supplied with this cover sheet is a formal consultation response that Ofcom can publish. However, in supplying this response, I understand that Ofcom may need to publish all responses, including those which are marked as confidential, in order to meet legal obligations. If I have sent my response by email, Ofcom can disregard any standard e-mail text about not disclosing email contents and attachments.

Ofcom seeks to publish responses on receipt. If your response is non-confidential (in whole or in part), and you would prefer us to publish your response only once the consultation has ended, please tick here.

Name

Signed (if hard copy)

A4. Consultation questions

A4.1 We are seeking comments from stakeholders on the application from Telesat for an NGSO Earth Station Network licence in relation to the following questions

Question 1: Do you anticipate this satellite network will pose coexistence challenges to existing services?

Question 2: Are the measures set out by the applicant to enable coexistence with future systems reasonable?

Question 3: Do you believe this application would benefit or harm future competition between NGSO services in the UK? Please provide details.

Question 4: Do you have any additional concerns or comments regarding this application?