



**COMMENTS OF TELESAT INTERNATIONAL LIMITED**

**In response to the Consultation:  
“Non-geostationary satellite systems  
Licensing updates”**

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*Point of contact:*

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## Summary

Telesat applauds Ofcom's initiative to promote innovative technology development for novel NGSO satellite systems, while at the same time trying to ensure equitable market access among different NGSO satellite operators.

However, Telesat has several concerns with the proposals that Ofcom has put forward in the consultation document. These are summarised below and further elaborated upon in the document:

1. Ofcom's proposal would seem to replace and, to a certain extent, contradict the well-established and internationally recognized ITU coordination procedures with a new domestic regime that appears to not respect the fundamental principles of the ITU Radio Regulations. Given Ofcom's international standing as a regulator, this creates a dangerous precedent, that, if followed by other regulators, would essentially undermine the ITU international procedures. As a technology that inherently covers multiple countries, satellite services require a consistent global approach rather than a patchwork of domestic rules. In addition, regulatory certainty is critical to support the investment of billions of pounds to design, manufacture and deploy NGSO systems.
2. The lack of clarity and details associated with the evaluation of licence applications, and especially the conditions to be applied in the proposed co-existence and competition "checks" will create significant problems for satellite operators. If you know how you are going to be evaluated, you know what you need to submit and you are able to make a judgement as to whether you will pass. But without a clear understating of the technical assessments Ofcom is proposing, the process will unavoidably lack transparency, will create significant regulatory uncertainty, and will discourage, rather than incentivise, competition.
3. Further proposals such as linking a gateway license to a network license and the removal of some exemptions in relation to the network license only seem to add unnecessary bureaucratic hurdles without solving the issue at hand. More in general, the current network licensing framework would seem in need of a general revision and Telesat would suggest extending exemptions rather than removing them.

While Telesat appreciates Ofcom’s efforts, Telesat believes that the proposed policy could not be implemented unless it is further refined. Only in this way, Ofcom would ensure that NGSO systems are not negatively impacted and that fair competition is ensured. In accordance with Ofcom’s long-established practice, it is important that the licensing process for NGSO systems is open and transparent. In particular, Ofcom should ensure that any potential licensee has a clear view of the compliance and evaluation criteria that Ofcom will use to assess its license applications. Anything different would create a confusing and unpredictable process that would undermine the regulatory certainty that NGSO operators need to bring their innovative and capital-intensive satellite projects to fruition for the benefit of UK citizens and consumers. To this end, Telesat is also proposing an alternative way forward for Ofcom’s consideration.

## **1. Introduction**

Telesat appreciates the opportunity to provide comments in relation to the Consultation Document published by Ofcom pertaining to the proposed revisions to the licensing framework for NGSO satellite systems in the United Kingdom. Below, Telesat provides a short introduction on the Telesat connectivity solution, the Telesat Lightspeed™ system, that comprises a constellation of Low-Earth Orbit (LEO) satellites, followed by comments in relation to the questions raised in the consultation document itself.

### **1.1 Telesat Lightspeed™**

Telesat is launching Telesat Lightspeed™, a revolutionary satellite constellation of highly advanced satellites in Low-Earth Orbit (LEO – ~1,000 km of altitude from Earth; ~35 times closer than traditional geostationary satellites)<sup>1</sup>. Telesat announced on 9 February 2021 that it has entered into an agreement with Thales Alenia Space to be the prime manufacturer of the Telesat’s Lightspeed™ system<sup>2</sup>.

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<sup>1</sup> More information about the Telesat Lightspeed™ System is available at: <https://www.telesat.com/leo-satellites>

<sup>2</sup> <https://www.telesat.com/press/press-releases/manufacturer-announcement/>

Telesat Lightspeed™ will deliver fibre-like quality throughput (Gbps links with low latency) anywhere on Earth. The system is also a future-proof solution for backhaul cellular/5G traffic and will provide high-speed broadband access to rural and remote communities, as well as planes, ships, enterprise and government users. Furthermore, as a highly advanced and efficient system with unparalleled economies of scale (multiple Tbps of usable capacity with global coverage), Telesat Lightspeed™ will deliver services at significantly lower cost when compared to traditional alternatives using terrestrial and/or other space technologies.

The frequency bands of Telesat Lightspeed™ include the 17.8-18.6 GHz and 18.8-20.2 GHz bands in the space-to-Earth direction, and the 27.5-29.1 GHz and 29.5-30.0 GHz bands in the Earth-to-space direction for both user terminals – such as Earth Stations In Motion (ESIM) and VSATs – and gateway earth stations.<sup>3</sup>

Telesat Lightspeed™ is a highly flexible system that will allocate capacity dynamically based on demand, thus maximizing system efficiency. Each satellite in the constellation will be designed for maximum flexibility in terms of coverage, by means of steerable beams and inter-satellite links, and in terms of bandwidth and power assignment, by means of onboard processing.

Specifically, Telesat Lightspeed™ will make use of:

- Direct Radiating Array satellite antennas, which will provide independent agile beams, each with beam steering and beam forming capabilities, allowing beams to be generated where and when required, based on traffic demand;
- On-board Processing, which will perform signal regeneration (i.e., demodulation and re-modulation) and routing of traffic on board the spacecraft; and,
- Multiple Optical Inter-Satellite Links (OISL) beams on each satellite which will connect the satellites within the Telesat Lightspeed™ constellation, enabling a highly resilient mesh network and avoiding the need for a spacecraft to be in the visibility of a feeder-link

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<sup>3</sup> Telesat wishes to highlight an inaccuracy in Table 1 of Section 2.12 of the Consultation document. Table 1 erroneously indicates that Telesat Lightspeed™ employs Ku-band for user links. To clarify, the Telesat Lightspeed™ system employs Ka-band for user links as well as gateway links.

earth station to be able to provide connectivity with those user terminals within its field of view.

The Telesat LEO satellites are capable of producing in real-time multiple and independent steerable beams, a feature that allows the system to implement complex and highly efficient frequency reuse schemes. Each beam can be assigned spectrum and power that considers both local demand and spectrum regulatory constraints. Furthermore, in order to serve user terminals which may be randomly scattered across the entire field of view of the satellite, each satellite beam may hop more than 20 different locations within the field of view at a rate fast enough that all user terminals, in practice, share full access to the satellite. Beam hopping is a powerful capability that will allow Telesat Lightspeed™ to efficiently serve highly distributed and highly concentrated demands at the same time.

A wide variety of user terminals (maritime, aero and land) will access Telesat Lightspeed™, and, in particular, terminals equipped with both electronically steered antennas and mechanically tracking reflector antenna terminals.

Feeder-link connectivity to all satellites will be ensured via gateway *Landing Station* sites consisting of up to 15 full motion antennas of approximately four metre diameter that will provide the satellite constellation with the forward uplink and return downlink connectivity required to serve user terminals globally. Initially, approximately 18 Landing Station sites are planned to be deployed around the world, with plans for additional Landing Station sites to accommodate growth.

Minimum avoidance angles between GSO satellites and Telesat's NGSO satellites have been calculated based on relevant limits defined in the ITU Radio Regulations, where applicable. These will be adjusted based on coordination agreements, as required. Steerable beams on each Telesat NGSO satellite allow handover to an adjacent satellite before the minimum avoidance angle is reached. Interference management will be carried by Telesat's Constellation Network Operating System (CNOS), which will manage the overall radio resource allocation for the entire constellation and ensure compliance with the relevant operational and regulatory limits.

The UK is a priority country for Telesat Lightspeed™ user terminals deployment and service provision across land, maritime and aeronautical verticals.

## 2. Response to the Consultation questions

This section contains Telesat's responses to the questions contained in the Consultation Document.

### 2.1. Response to Question 1

**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?

Telesat agrees that the coordination between NGSO systems is challenging, due not only to the reasons highlighted in the Consultation Document (i.e., the dynamic nature of the NGSO systems, the fact that operators have different rates of deployment and the fact that some operators change the architecture of their systems over time), but also because methodologies and criteria to assess and evaluate the potential for interference between NGSO systems are still under development at the International Telecommunications Union (ITU). This is distinct from coordination between GSO networks, where the provisions stated in various ITU-R Recommendations and summarised in Section B3 of the ITU Rules of Procedure provide the basis for relevant technical analyses apply.

Telesat applauds Ofcom's continued support of the ITU coordination procedures whereby operators cooperate with each other to manage the potential of harmful interference between NGSO satellite systems. To address the development of methodologies for the NGSO situation, Telesat encourages Ofcom to actively contribute, in cooperation with interested UK stakeholders, to the studies carried out at the ITU in this respect (e.g. within Working Party 4A) as a matter of priority, with the aim to finalise agreed approaches among the international community as soon as possible.

Like Ofcom, Telesat is of the view that the ITU framework to manage "satellite filings"<sup>4</sup> is efficient in terms of managing coordination between satellite systems and providing a mechanism for resolving interference issues. In particular, should a system be recorded in the Master International Frequency Register (MIFR) under No. **11.41** of the Radio Regulations and cause interference to another system with which coordination under No. **9.12** should be completed but that was the basis

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<sup>4</sup> Throughout this document, with the terms "satellite filing" Telesat indicates the CR/C and/or Notification publications relative to a GSO satellite network or a NGSO satellite system, as applicable, included in the BR International Frequency Information Circulars (BR IFIC)

of an unfavourable finding under No. **11.38**, the provisions under No. **11.42** apply. These provisions provide the necessary regulatory framework to ensure that the “later-filed system” should immediately eliminate any harmful interference caused to the “earlier-filed system” with which coordination had not been completed.

With respect to this important point, there are concerns stated in the consultation document that the ITU process may not resolve interference situations sufficiently quickly to mitigate any negative impacts, including the cases in which cases are referred to the ITU Radio Regulation Board (RRB). Telesat does not share this concern and wishes to highlight that the wording of No. **11.42** makes it unequivocally clear that, should harmful inter-system interference occur, the later system should eliminate it immediately “*upon receipt of a report providing the particulars relating to the harmful interference*”, without waiting for any action with respect to the RRB. In other words, although, in the extreme, a dispute between two or more administrations may be referred to the RRB, in practice administrations and their operators are incentivised, both for operational reasons and for not being in breach of the ITU Radio Regulations, to remove the harmful interference as soon as possible. Therefore, Telesat respectfully clarifies that the concerns expressed in paragraphs 3.14 and 3.15 of the Consultation Document are moot.

Telesat is of the view that Ofcom can solely rely on the ITU framework to deliver competitive NGSO services in the UK. A regulatory framework based on applying the ITU Radio Regulations provides NGSO operators with the regulatory certainty critical to support the investment of billions of pounds to design, manufacture and deploy their NGSO systems. Satellite services require a consistent global regulatory approach rather than a patchwork of domestic implementations. Managing coordination and sharing spectrum and orbital resources among NGSO operators can only be possible by respecting, uniquely, the ITU process: any national or regional initiative that would deviate from that framework and, more in general, from the relevant and applicable provisions contained in Part II of Article **9** and Article **11** of the Radio Regulations would undermine the investments made and technological innovations provided by NGSO operators, ultimately damaging UK citizens and consumers.

With respect to the impact of the deployment of NGSO gateways on competition, the consultation document states that “*NGSO gateways are likely to require large minimum separation distances*”

*(for example 10s of kilometres or more) from the gateways of other systems, in order to avoid harmful interference, even if there is agreement on coordination of the satellite systems as a whole”.*

In fact, in Telesat’s experience with relevant analyses, the distance between NGSO gateways is entirely dependent on the NGSO systems parameters, as well as the methodology and criteria used to assess inter-system interference; therefore, it cannot be determined *a priori* and for all possible pairs of NGSO systems. To allow an objective assessment of this issue, Telesat would appreciate it if Ofcom could publish the analysis that was the basis of its comments in the Consultation Document on this matter. Furthermore, taking into account the fact that an increasing number of NGSO systems will implement Optical Inter-Satellite Links – a feature already implemented by Telesat Lightspeed<sup>TM</sup> and which allows constellations to make the most efficient use of Gateway earth stations by limiting their numbers – Telesat is of the view that there is a relatively low risk of scarcity of sites in the UK and that Ofcom need not take explicit measures to mitigate such risk.

With respect to the impact of the deployment of user terminals on competition, Telesat generally agrees with Ofcom, that, in order for different NGSO systems to be operational and be able to share spectrum and orbital resources effectively, there is a need for coordination, based on the relevant provisions of the ITU Radio Regulations mentioned previously, between the respective NGSO operators. Nevertheless, the statement in the consultation document “*[t]he requirement for a minimum separation distance can in principle be avoided for NGSO user terminals if there is a choice of satellites for the terminal to point at, thus avoiding the possibility of an in-line event*” is misleading as it implies a solution that is a technical impossibility. In fact, this statement ignores the important element that a given NGSO operator does not know the real-time location, type and spectrum used by each of the user terminals of all other NGSO systems operating co-frequency. Therefore, it will not be possible for a given NGSO system to select a satellite of its constellation to serve one or more of its users and be sure that such a choice will not cause interference to another NGSO system. This issue (which is also known in the industry as the implementation of a “minimum avoidance angle”) can only be the subject of bi-lateral coordination between NGSO operators.



## 2.2. Response to Question 2

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

### 2.2.1. Encouraging cooperation

Telesat agrees with Ofcom that “[c]ooperation between operators is key to avoiding the risk of disruption to NGSO broadband users”; therefore, Telesat supports the introduction into NGSO-related licences of an explicit condition requiring NGSO licensees to cooperate, provided that it is stated in the same condition that such cooperation is subject to and does not replace the relevant provisions for the coordination and notification of NGSO systems included in the ITU Radio Regulations. In fact, although Telesat agrees that an earlier-filed system should coordinate in good faith with later-filed systems, such goodwill is limited by the fact that existing satellite systems cannot predict the technology of future satellite systems nor the requirements for coordinating with them. An NGSO operator cannot promise in advance that it can protect a future system that has not yet been deployed or even designed. Therefore, a licence condition in the NGSO network licence requiring the licensee to “cooperate” with other operators can only be acceptable provided that such condition does not mean that the licensee is obliged to accept a reduction of the performance of its system due to harmful interference from later-filed systems.

Secondly, Telesat supports Ofcom’s suggestion to publish applications for new licences before granting them, but with the sole aim of providing publicly the location and identity of future NGSO gateway sites. Like Ofcom, Telesat believes that such information may be useful to other NGSO operators planning to offer services to UK citizens and consumers. Contrary to the proposal of Ofcom, Telesat believes that applications for new licences should not be published for the purpose of subjecting them to public commenting in a predefined period – at least not in the terms that Ofcom proposes. Further clarifications on this matter are provided later in this document.

### 2.2.2. Managing interference

Telesat applauds the Ofcom decision to support the ITU satellite coordination process and to encourage progression of ITU coordination for its UK filings. Coordination between operators is the key to avoid the risk of interference and to ensure the quality of broadband services to end-

users. Nevertheless, Telesat is concerned with Ofcom’s proposal to introduce “[*co-existence checks*]” when considering whether to grant a new NGSO license. In fact, no detail is provided on how Ofcom intends to validate the information provided by applicants on whether systems can coexist or not, which in turn leads to regulatory uncertainty and confusion. As such, the proposals of Ofcom to improve the transparency and predictability of the NGSO licensing process may have the exact opposite effect. Noting that methodologies to assess co-existence between NGSO systems are still being finalized at the ITU, it is not clear which analyses a prospective licensee should carry out to be sure the Ofcom “checks” would provide a positive outcome. Therefore, Telesat urges Ofcom to actively participate – and as a matter of priority – in the development and finalisation at the ITU of the required methodologies, and only then consider whether, if any, “[*co-existence checks*]”, beyond requiring good faith coordination in accordance with ITU obligations, are required in the UK NGSO licensing process. Only with this approach will potential NGSO licensees have a clear and transparent mechanism available to predict whether Ofcom would grant their licence application. Although Telesat respects the fact that Ofcom could use its discretion to determine the outcome of such “[*co-existence checks*]”, this should be the exception and not the rule. More details on this issue and suggested amendments to Ofcom’s proposed course of action to make it compatible with the ITU framework, including methodologies to assess the potential for interference among systems, are available in Section “*Proposed alternative way forward*” under the reply to question 3 below.

Furthermore, Telesat agrees with the proposed new conditions enabling Ofcom to take action to resolve degradation to services if this were to occur at a particular location or location(s) in the UK. However, these new conditions should be consistent with the relevant ITU regulatory procedures and the explicit requirement that later-filed systems protect earlier-filed systems, while respecting the fact that all systems have the obligation to coordinate in good faith. This requirement at the domestic level should be sufficient to address Ofcom’s concern that, currently, it cannot enforce coordination conditions for operators holding foreign filings.

### **2.2.3. Supporting competition**

In the Consultation, Ofcom proposes to introduce a “*competition check*” to guard against the risk that the deployment of NGSO gateways and user terminals could introduce “[*competition*]”

*barriers for future systems*". Similar to the above discussion related to "[co-existence] checks", Telesat has considerable concerns with Ofcom's proposal to introduce "*competition checks*". In fact, it is impossible to quantify the "*technical constraints that the gateway or user terminals could create on future licensees*" without knowing the details of the systems of such prospective future licences, some of which are not even in the design phase. Furthermore, it is not clear what would be the technical basis of such assessment, as the methodologies upon which Ofcom would determine whether the gateways or user terminals of a new NGSO licensee would need "*too much protection*" or have "*too little flexibility*" have not been defined. Ofcom, as a minimum, would need to provide information on the methodology that it will use. Lack of these essential details will discourage, rather than incentivise, competition.

All NGSO systems should be operated in compliance with all relevant provisions of the ITU Radio Regulations. Spectrum and orbital resources in bands subject to Part II of Article 9 of the Radio Regulations are accessed by date of receipt precisely so that an NGSO operator is aware of the technical constraints it needs to consider when designing its system. In other words, any system requesting a license from Ofcom should be protected from later-filed systems at the ITU, whether or not the latter are already licensed by Ofcom at the time of the request, under the same technical constraints that have been established through the application of the well-established ITU coordination and notification procedures. Any national or regional initiative that would deviate from this core principle would undermine the regulatory stability that the ITU Radio Regulations have offered to NGSO and GSO operators alike for decades.

Telesat believes that a licensing process of a world-leading regulator like Ofcom should be both predictable and transparent. The proposals in this consultation contradict previous approaches that Ofcom has adopted in proceedings that are still in force. For example, Ofcom's "Procedures for the Management of Satellite Filings" define the criteria against which an application for the submission of a satellite filing by a UK operator is considered<sup>5</sup>. Telesat applauds the predictability and transparency offered by these procedures. On the contrary, Ofcom's proposals in this present

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<sup>5</sup> See para 6.1 of Ofcom's "Procedures for the Management of Satellite Filings", available at: [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0022/140926/new-procedures-1.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0022/140926/new-procedures-1.pdf)

consultation with respect to the “checks” to be carried out upon receipt of a licence request for a NGSO system lack a transparent technical basis and create a dangerous precedent.

With respect to Ofcom’s proposals to introduce a time limit for the deployment of gateways, and a requirement to maintain transmissions, Telesat is pleased to offer the following comments. Telesat believes that the requirement for gateway licensees to “*commence*” transmissions within 12 months of the authorisation may be too stringent, depending on the circumstances. Therefore, a deadline, if required at all, of no less than 24 months may be more appropriate. In fact, feeder-link connectivity for NGSO satellite systems is typically ensured via landing station sites consisting of multiple earth stations (currently up to 15, in Telesat’s case). Apart from the deployment of these “antenna farms”, the work required for establishing links with selected Point of Presence (PoP) and possible data centres need to be considered, along with unforeseen construction and other delays that may be beyond the control of the licensee. With regard to the proposal to require a licensee to “*maintain*” transmissions, this needs to be considered in the context of the provisions under No. **11.49** of the Radio Regulations that allow an administration to suspend the use of a recorded frequency assignment for up to three years. For example, the transmissions from a gateway station licensed by Ofcom may be interrupted for a certain period of time because the corresponding frequency assignments of the NGSO system under which it operates is suspended in accordance with the ITU Radio Regulations. Therefore, the proposal to require a licensee to “*maintain*” transmissions should be subject to and in accordance with the relevant provisions included in the ITU Radio Regulations, including those under No. **11.49**.

### 2.3. Response to Question 3

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

The consultation document indicates Ofcom would process NGSO gateway and network licences through a four-step procedure: (1) application, (2) co-existence and competition checks, (3) publish and commenting period, and (4) decision on application. In general, Telesat supports such a four-step approach but has considerable concerns with the proposed checks at step (2) and on the commenting period at step (3) as currently drafted. These concerns are expressed above in response to Question 2 and will not be repeated here. However, Telesat offers below an alternative approach to steps (2) and (3) that would address the Ofcom concerns while respecting the overall integrity and authority of the provisions of the ITU Radio Regulations and other applicable ITU-agreed deliverables.

#### 2.3.1. Coexistence with other NGSO systems

The consultation document states that licence applicants should demonstrate how coexistence is possible between their networks and certain other NGSO systems; however, Ofcom provides no guidance on the methodology to be used and merely suggests, through a footnote of the Consultation Document, that “*applicants may consider [...] [a] comparison of the statistical distribution of the interference-to-noise ratio (I/N), impact on average spectral efficiency and availability, etc.*” Indeed, well-established engineering practices dictate that the required technical analysis should use standard, universally agreed methodologies, and for this reason Telesat supports their urgent development at the ITU. Nevertheless, ignoring the absence of such methodologies, Ofcom proposes a time-limited commenting process where views could be provided on the technical analysis accompanying a licence request, but with no opportunity to engage with Ofcom or the licensing applicant about choices made with respect to the methodology applied, or the validity of the analysis as a whole. Therefore, noting the absence of ITU-agreed methodologies to invoke, Ofcom would find itself in the difficult role of a referee setting out its own rules. This would hinder the transparency and predictability upon which the licensing process of a world-leading regulator should be based.

Ofcom proposes in para 4.22 that a prospective new applicant should demonstrate that its NGSO system could coexist with “*existing non-geostationary systems that are already licensed in the UK*”. Telesat believes that this proposal plainly contradicts the spirit of the Radio Regulations, whose relevant provisions of Articles 9 and 11 state that a later-filed system shall remove immediately any harmful interference to earlier-filed systems in the absence of coordination. In other words, any analysis, if required at all, should only be with respect to non-geostationary systems whose date of receipt at the ITU of the corresponding coordination request (CR/C) falls earlier than the date of receipt of the coordination request (CR/C) of the applicant’s system. Anything different from this would undermine the stable regulatory framework that the ITU Radio Regulations have provided to operators and the international community for decades. Therefore, the bullet of this section of the consultation document should, at a minimum, read as: “*Non-geostationary systems that have applied for a licence, whose application has been published for comment and operating under a system whose date of receipt at the ITU of the corresponding coordination request (CR/C) falls earlier than the date of receipt of the coordination request (CR/C) of the applicant’s system*”.

Finally, the same section of the consultation indicates applicants could demonstrate coexistence “*preferably by stating that an agreement with the other party already exists*”. Telesat agrees with Ofcom in case this preference refers to an agreement based on ITU coordination procedures and this preference would further underscore the importance of uniquely applying the provisions of the ITU Radio Regulations. Nevertheless, Telesat would urge Ofcom to clarify which “agreement” it refers to in case the interpretation above is not correct.

### **2.3.2. Ability to coexist with future NGSO systems**

Telesat strongly opposes to Ofcom’s proposed updates based on which a prospective applicant should demonstrate ability to coexist with future NGSO systems when applying for a licence. In addition to being virtually impossible to satisfy as a requirement (in fact, NGSO operators do not have the capability of predicting the technical and operational parameters of future systems, some of which may not be even designed or conceived), it also creates uncertainty and would discourage operators from deploying gateways and/or user terminals in the UK. Moreover, in the absence of an ITU-agreed methodology, it is not clear on the basis of which rules Ofcom would assess the

ability of a NGSO system to coexist with other ones and how it would assess whether “*the measures [NGSO operators] would be able to put in place if another network comes along in the future, and the expected benefits of such measures*” would be sufficient to meet this requirement. Considering the impossibility of identifying any sets of measures that would be able to accommodate *all* future NGSO systems, without following internationally-agreed methodologies, Ofcom would establish a process far from being transparent and predictable, as every licensing process should be.

### **2.3.3. Competitive impact**

The consultation is ambiguous on the information an applicant should provide with respect to the “*competitive impact of issuing the [requested] licence*”. In case the reference is to any required geographical separation between gateways and/or user terminals of the applicant’s NGSO system with respect to another operator, Telesat wishes to highlight that it is not possible to determine in a general way what separation may be needed, as this depends on the characteristics of the systems involved and the methodology to be used for such determination. Not only are these issues part of bilateral coordination discussions among NGSO operators, and therefore cannot be predetermined unilaterally, but also such assumptions are impossible to make with respect to future NGSO systems. Once again, Telesat is of the view that ITU Regulations are sufficient to deal with specific locations of gateway earth stations, since these can be considered in the coordination process so as to eliminate harmful interference caused or received by a Gateway.

In any case, as already mentioned in its reply to Question 2, Telesat believes that there is low risk of scarcity of sites (which could impact competition) and Telesat recommends that Ofcom remove this new proposed requirement.

### **2.3.4. Ability to comply with NGSO conditions**

Telesat notes that applicants for gateway licences would need to state that they are operating a satellite system for which a network licence has been issued. Telesat understands that this requirement is proposed in order to ensure that a single entity will have the responsibility for coordinating the whole satellite system. However, Telesat notes that this requirement creates an unnecessary requirement for entities planning to deploy and/or operate only gateways in the UK.

This is the case for certain UK businesses, such as teleport operators, that may wish to apply for a gateway licence and not for a network licence, the latter of which would be issued to the NGSO operator controlling both gateways and user terminals of the same NGSO system, instead. Furthermore, this requirement may seem redundant in case gateways and user terminals of the same NGSO system operate in different frequency bands. In fact, in such case, coexistence of gateways of different NGSO systems is independent of the coexistence between user terminals of those systems. For the reasons above, Telesat believes that there are cases in which licensees could be granted a Gateway licence even if they do not intend to apply for a network licence. Finally, and possibly more importantly, as explained further below, Telesat is of the view that a network licence is not required to ensure coexistence.

For the reasons above, Telesat proposes that user terminals authorisation and gateway application should not be linked.

### **2.3.5. Proposed alternative way forward**

Contrary to the statement in paragraph 3.15 of the consultation document and based on the considerations above, Telesat strongly believes that the existing ITU framework already allows Ofcom to effectively deal with all concerns impacting NGSO services provided in the UK. Therefore, Telesat believes that most – if not all – of the proposed updates to Ofcom’s process for NGSO gateway and network licences are not needed.

Nevertheless, should Ofcom still believe that some changes to its licensing process for NGSO systems are needed, Telesat strongly encourages Ofcom to adopt a licensing process that is fully compliant with, and does not undermine, the international regulatory framework set out in the ITU Radio Regulations.

With this core principle in mind, Telesat offers below an alternative licensing process as compared to that provided in Section 4 of the Consultation Document. This alternative process would be applicable to both gateway and user terminal licences and is based on the acknowledgment that agreed methodologies to evaluate whether a NGSO system causes harmful interference to another one operating co-frequency still need to be finalised at the ITU.

The six steps that would describe such alternative licensing process are as follows:



- 1 Ofcom receives an application for a new network or gateway licence; the corresponding licensing process starts;
- 2 Within two weeks, Ofcom publishes the application, for information purposes only, including the location and characteristics of proposed gateway earth stations, if applicable;
- 3 Within a reasonable timeframe from the receipt of the licence application, Ofcom issues a *provisional licence*, whose terms may be reviewed once ITU-agreed methodologies to evaluate whether a NGSO system causes harmful interference to another operating co-frequency become available; any *provisional licence* should be operated in compliance with all relevant provisions of the Radio Regulations, including those specified under No. **11.42**;
- 4 Once the ITU-agreed methodologies mentioned in 3) above become available, existing licensees should provide, within a reasonable timeframe, and with respect to any another UK-licensed NGSO system with earlier date of receipt and with which coordination under No. **9.12** of the ITU Radio Regulations (or equivalent national UK provision, if both the licensee and the third party's system operate under UK filings) remains outstanding, a technical analysis demonstrating under which conditions, if any, coexistence is possible;
- 5 Upon receipt of such analysis, Ofcom should promptly publish it on its website and make it available for public comments; comments should be limited to checking whether the Licensee would have applied correctly the ITU-agreed methodologies to the technical analysis provided; and,
- 6 Within a reasonable timeframe from the end of the commenting period, Ofcom would issue a *definitive licence* following the review of the technical analysis and received comments, if any, mentioned above.

## 2.4. Response to Question 4

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

As mentioned in paragraph 5.9 of the Consultation Document, satellite coordination as required under the ITU Radio Regulations is the most important element of the cooperation needed. Furthermore, as already mentioned, Telesat is of the view that a network licence is not required. However, in the context of the Telesat’s proposal on the alternative licensing process outlined above, Telesat is of the view that the aspect of satellite coordination should be reflected in any licence application conditions. To be more specific, Telesat notes that, in the draft license condition 2 in the Consultation Document, there is no reference to the ITU regulatory framework that governs, among other things, the course of action that the involved parties need to take in case harmful inter-system interference occurs. Telesat believes that the commitment of Ofcom that “*the License does not affect any obligations that the licensee may have under the ITU RR*” as stated in paragraph 5.21, should be more explicitly at the core of the draft licensing “condition 2” for the network licence. Therefore, should Ofcom persevere on the requirement for such network licence – while hopefully adopting Telesat’s proposed alternative licensing process –, Telesat would propose amending the draft licensing “condition 2” as follows<sup>6</sup>:

*“The Licensee shall cooperate with all NGSO Licensees such that each satellite system (comprising the satellites, earth stations and user terminals) can co-exist and operate within the United Kingdom without causing harmful radio interference to each other, such that network services can be provided to end users. Such cooperation should be subject to and should not replace the relevant provisions for the coordination and notification of NGSO systems included in the ITU Radio Regulations”*

Following the same principle, Telesat believes that the draft license “condition 3” for the network licence should also be amended as follows:

*“3. In the event that –*

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<sup>6</sup> Throughout this document, proposed amendments to draft conditions are in underlined text

- *one (or more than one) of ~~the~~ other NGSO Licensees operating a system whose date of receipt of the corresponding CR/C falls earlier than that of the system operated by the Licensee and with which coordination under No. 9.12 of the ITU Radio Regulations, if applicable, is not complete, suffers a material and recurring degradation of services to its users at a specific region or location in the United Kingdom; and*
- *the degradation of services is resulting from radio transmissions from the earth stations, the satellite or any other part of the satellite system operated by ~~another of the NGSO Licensees, including~~ the Licensee;*

## 2.5. Response to Question 5

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

### 2.5.1. Proposed requirement to only operate with a system that is covered by a network licence

Telesat understands this requirement stems from the fact that the entity that applies for a gateway (potentially a service provider or a teleport) usually does not have the knowledge or the required control over the whole system. However, as mentioned in its reply to Question 3 above, Telesat believes that this requirement creates an unnecessary link between the gateway licence and the operation of user terminals in the same NGSO system. Therefore, Telesat proposes to remove the draft “condition 2” for gateway licence and instead to include a condition requiring cooperation of NGSO gateway applicants with other licensees, via the satellite operator. In other words, Telesat believes that the entity that controls the gateway earth station should be able to apply for a gateway licence only and that the NGSO operators, including existing licensees, shall be responsible for the coordination and coexistence of the gateways in the UK, irrespective of whom owns the gateway licence of the corresponding NGSO system.

Similar to the draft licence “condition 2” of the network licence, draft “conditions 2 and 3” of the Gateway licence could be revised as follows:

*“The Licensee shall cooperate with all NGSO Licensees such that each satellite system (comprising the satellites, earth stations and user terminals) can co-exist and operate within the UK without causing harmful radio interference to each other, such that network services can be provided to end users. Such cooperation should be subject to and should not replace the relevant provisions for the coordination and notification of NGSO systems included in the ITU Radio Regulations”.*

And,

“3. In the event that –

- one (or more than one) of ~~the~~ other NGSO Licensees operating a system whose date of receipt of the corresponding CR/C falls earlier than that of the system operated by the Licensee and with which

*coordination under No. 9.12 of the ITU Radio Regulations, if applicable, is not complete suffers a material and recurring degradation of services to its users at a specific region or location in the United Kingdom; and*

- *the degradation of services is resulting from radio transmissions from the earth stations operated by the Licensee;”*

Additional comments with respect to requirement to commence operations of Gateways within 12 months of the authorization of the Gateway licence are addressed in the response to Question 2.

## 2.6. Response to Question 6

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

Telesat does not agree with this proposal.

As mentioned above, Telesat is of the view that a NGSO network licence in Ka-band would not resolve the issue Ofcom is trying to address. Furthermore, it would create an imbalance, a competitive disadvantage and an unnecessary precedent with respect to GSO systems operating in the same band.

Before considering any extension of the current network licence, the overall framework should be revised, as it is not clear to which terminals it is currently applied and the reasoning behind the application, considering also the exemptions<sup>7</sup> under The Wireless Telegraphy (Exemption) Regulations 2021<sup>8</sup>. Therefore, Telesat would appreciate it if Ofcom could give further clarifications as to which types of NGSO and GSO earth stations in the Ka-band the current network licence<sup>9</sup> applies, and the associated supporting rationale.

The proposal in para 7.2 of the Consultation Document also requires some clarification. It states that “*NGSO land terminals are no longer exempt under HDFSS or ESOMPS and therefore must be operated under a network licence*”. Nevertheless, Telesat also notes that, under para 7.5 of the Consultation Document, “*most satellite operators do hold network licences. This is because satellite operators serve multiple markets and other sectors such as maritime or aviation would require a network licence*”. However, Telesat understands that currently, maritime ESOMPs are being licensed by a Notice of Variation to the Ship radio licence. Therefore, Telesat would appreciate it if Ofcom clarified whether it plans to change the existing licensing framework concerning maritime ESOMPs, including those operating with GSO networks. Furthermore, Telesat notes that NGSO aeronautical ESOMPs, included those operating in accordance with the November 2020 revision of ECC/DEC(15)04, are not covered by the UK licensing framework at

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<sup>7</sup> [https://www.ofcom.org.uk/data/assets/pdf\\_file/0030/84774/IR\\_2066.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0030/84774/IR_2066.pdf) and [https://www.ofcom.org.uk/data/assets/pdf\\_file/0030/84684/ir\\_2093.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0030/84684/ir_2093.pdf)

<sup>8</sup> <https://www.legislation.gov.uk/uksi/2021/493/regulation/4/made>

<sup>9</sup> [https://www.ofcom.org.uk/data/assets/pdf\\_file/0021/19434/networkearthstation.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0021/19434/networkearthstation.pdf)

the moment and are not mentioned in the consultation. Telesat kindly requests clarification in relation to Ofcom's plan for this type of user terminals.

Finally, Telesat wishes to highlight that, specifically for land-based ESOMPs, following the approval of ECC/DEC(13)01 and ECC/DEC(15)04, the CEPT has already concluded that these may operate in any location just like uncoordinated earth stations and therefore no change to the current interference environment in the bands available for uncoordinated earth stations is expected. In addition, the risk of interference from an ESOMP to other FSS networks is mitigated by the implementation of the ITU Radio Regulations, which contain procedures for notification and coordination of satellite networks and have the force of international treaty. Once again, Telesat is of the view that the ITU regulatory framework uniquely should be used for the management of interference of satellite networks including ESOMPs.

Therefore, Telesat proposes that Ofcom keep the authorisation of land-based ESOMPs (GSO and NGSO) on a licence-exempt basis when in the same frequency bands the same treatment is granted to uncoordinated earth stations.

Overall, rather than extending a regulatory tool with unclear future benefits and current applications, Telesat advocates for a more general exemption from the requirement for a network licence for all terminal types operating in Ka-band or other frequency bands, when subject to ECC Decisions similar to ECC/DEC(13)01 and ECC/DEC(15)04 (e.g. ECC/DEC/(05)11 for the Ku-band). This would seem more in the spirit of Ofcom's exemplary and pragmatic attitude towards licensing, always tending to avoid unnecessary complications and bureaucratic hurdles.

In any case, Telesat strongly opposes inclusion of provisions in the network licence that would stem from any Ofcom "domestic first come-first served" coordination process whose terms may be different from those of the well-established ITU framework.

If, however, Ofcom perseveres on retaining the network licences, the associated approach and conditions should be consistent with the alternative licensing process that Telesat proposes in response to Question 3, above.

### **3. Conclusions**

To conclude, Telesat would respectfully propose that any new NGSO licence condition that may be necessary should refer to and be consistent with the ITU regulatory framework, which is used internationally by operators for the effective coordination and coexistence of their NGSO systems. While Telesat believes that most – if not all – of the proposed updates to Ofcom’s licensing process for NGSO gateway and user terminals are unnecessary, Telesat is also suggesting a possible alternative process (see response to Question 3 above) that Ofcom is encouraged to consider. Telesat believes that the alternative NGSO licensing process would allow Ofcom to effectively address the issues it may encounter with respect to its national licensing, while still being fully consistent with the well-established ITU regulatory process, without undermining it. In any case, Telesat is of the view that any decision Ofcom will take should be based on an open and transparent regulatory framework, defined by clear methodology and criteria against which applications will be assessed. This is to avoid regulatory uncertainty, which, rather than promoting, would discourage, competition. Furthermore, in Telesat’s view, gateway licences should be independent from any user terminal-related authorisation. Also, based on the Ofcom proposal, Telesat does not see a valid justification for the introduction of a network licence for NGSO systems in Ka-band. On the contrary, Telesat is of the view that the overall Ofcom authorisation framework (for GSO networks and NGSO systems alike) may benefit from more general review and clarifications, considering that the current exemptions from the network licence requirement may be extended also to other frequency bands, including the Ku-band.

Overall, Telesat appreciates this opportunity to provide comments on the important matters raised in this Consultation, remains available for possible additional clarifications and looks forward to continuing the discussion and collaboration with Ofcom.