

1 February 2024

English only

**Committee on the Peaceful
Uses of Outer Space
Scientific and Technical Subcommittee
Sixty-first session
Vienna, 29 January–9 February 2024
Item 11 of the provisional agenda*
Long-term sustainability of outer space activities**

**United Kingdom of Great Britain and Northern Ireland
update on its reporting approach for the voluntary
implementation of the Guidelines for the Long-term
Sustainability of Outer Space Activities**

The present conference room paper was prepared by the Secretariat on the basis of information received from the United Kingdom of Great Britain and Northern Ireland. The information was reproduced in the form it was received.

* A/AC.105/C.1/L.412.



United Kingdom update on its reporting approach for the voluntary implementation of the Long-term Sustainability Guidelines of Outer Space Activities

1. Following a decade of hard and exceptional work, the United Nations Committee on the Peaceful Uses of Outer Space Scientific and the Technical Subcommittee successfully adopted the preamble and 21 guidelines for the long-term sustainability of outer space activities at the Committee's 62nd session, in 2019. The United Kingdom joined consensus on a Committee report encouraging parties to take measures voluntarily to implement the guidelines to the greatest extent feasible and practicable. The United Kingdom expressed its strong belief in the value of member States not only implementing the guidelines, but in also sharing the approaches, practices and lessons learned in doing so.

2. At its fifty-eighth session, in 2021, the Working Group on the Long-term Sustainability of Outer Space Activities was convened and a Terms of Reference with an associated work plan was identified. The working group established a framework with 3 pillars; identifying and studying challenges and considering possible new guidelines for the long-term sustainability of outer space activities, sharing experiences, practices and lessons learned from voluntary national implementation of the adopted Guidelines and Raising awareness and building capacity, in particular among emerging space nations and developing countries.

3. Accordingly, the United Kingdom presented its approach to implementation reporting at the 57th (A/AC.105/C.1/2020/CRP.15), 58th sessions (A/AC.105/C.1/2021/CRP.16) and 59th (A/AC.105/C.1/2022/CRP.22) of the STSC. We are pleased that other United Nations Member States have followed this practice and continue to submit papers. The submissions are a valuable tool to share practices in the voluntary implementation of the guidelines, this has the benefit of uncover common challenges in the implementation of the guidelines which may guide future work and provide capacity-building by informing national approaches of members in their voluntary implementation.

4. To support the capacity-building efforts and broaden the awareness of the Guidelines on the Long-term Sustainability of Outer Space Activities (LTS Guidelines), the United Kingdom Space Agency has funded three phases of the LTS Guidelines project with the United Nations Office for Outer Space Affairs. In 2023, the third phase was successfully completed with four virtual events¹ dedicated to the four sections of the LTS guidelines, a free to access e-module on the LTS Guidelines² and continuing to support the project website and physical booklets.

5. In addition, at the 60th Session of the Science and Technical Subcommittee, the Working Group agreed that easily accessible and searchable open-source repository of such information would be useful and could serve as a tool for building transparency, confidence and capacity. To support this the United Kingdom Space Agency is planning to support the development of the repository which will be hosted on the website of United Nations Office of Outer Space Affairs. We hope that this platform will make submissions made by Member States more accessible and foster greater information sharing regarding the important subject of LTS implementation.

6. At a national level space sustainability continues to be a priority for the United Kingdom. Space sustainability activities since the previous release of the CRP include:

- The Sustainable Markets Initiative launched the Astra Carta, a framework inspired by His Majesty King Charles III, to shape a future of responsible and sustainable space exploration, development, and cooperation. While not United Kingdom government policy, the Astra Carta is welcomed as a positive step, and

¹ <https://spacesustainability.unoosa.org/content/eventseries>.

² https://spacesustainability.unoosa.org/content/elearning_module.

one which underscores the role of the global private sector in considering sustainability efforts in the space domain.

- For the first time, COP28 featured a dedicated Space Pavilion and the United Kingdom were invited to exhibit alongside a select group of other major global space agencies. The United Kingdom were also invited to discuss how to transform and accelerate climate action.
- The United Kingdom national ADR programme completed System Requirements Reviews with both consortia, representing a major step in maturity of the programme.
- Funding opportunities investigating in-orbit refuelling and atmospheric ablation to further promote research in these areas.
- Continued development of “Monitor Your Satellite”, the conjunction analysis service available to all United Kingdom spacecraft operators. This capability provides conjunction analysis and warning along with digitised re-entry and licence compliance which supports our monitoring and enforcement of debris guideline compliance.

7. The United Kingdom is now pleased to provide its 2024 update utilizing the prior proposed reporting format in time for the 61st session of the STSC, under Annex 1 below. The United Kingdom is happy to see the continued use of this template by other Member States as a useful approach to capture key insights into the implementation of the LTS guidelines.

ANNEX 1: United Kingdom updates on LTS Guidelines

A.3	Supervise national space activities	United Kingdom
Thoughts or approach to implementation	All United Kingdom licensed activities require regular compliance reporting to the CAA to verify adherence to licensing conditions. This is supported by independent Space Surveillance and Tracking (SST) verification of in-orbit activities.	
Current progress and/or proposed future activities	<p>As part of the United Kingdom monitoring procedures under its OSA/SIA licensing regime, supervision of United Kingdom space objects forms an integral part of national policy. All United Kingdom licensed activities require regular compliance reporting to the CAA to verify adherence to licensing conditions and to meet United Kingdom obligations under the United Nations treaties to monitor and supervise the activities of its nationals, most notably Article VI of the Outer Space Treaty.</p> <p>The United Kingdom is considering recognition of technical demonstrators and the appropriateness of expertise dependent on mission risk.</p>	
Experiences, challenges and lessons learned	<p>The United Kingdom's non-prescriptive, outcome-based authorization regimes provide flexibility by design. This flexibility, alongside proactive engagement with the space industry and community will be key to ensuring that the rapid pace of change in technology and operational practice can be adequately taken into account.</p> <p>As mission complexity increases, the United Kingdom will look to review and potentially uplift its supervision role to ensure sustainability of activities and safety of operations. These activities are ongoing.</p>	
Comments on specific needs for capacity-building necessary to support implementation	The United Kingdom has had significant experience in licensing activities in orbit and in developing new regulatory frameworks. We are very happy to discuss our experiences with nations considering doing the same.	

B.4	Perform conjunction assessment during all orbital phases of controlled flight	United Kingdom
Thoughts or approach to implementation	The United Kingdom continues to implement this guideline through our Space Surveillance and Tracking (SST) programme and the National Space Operations Centre (NSpOC), and alongside the CAA.	
Current progress and/or proposed future activities	<p>United Kingdom licensing processes require operators to have the capability to perform conjunction assessments during all phases of a mission and enact collision avoidance manoeuvres on platforms capable of adjusting their trajectories. The ability for a licensee to execute their responsibilities as spacecraft operator is assessed by the United Kingdom licensing authority as part of the licensing process, including processes for conjunction assessment and collision avoidance, as well as sources of information and criteria for actions.</p> <p>NSpOC is currently running an Observe Strategy project which will define the future plan for sovereign sensor plans.</p> <p>UKSA provides the Monitor Your Satellite service: a collision assessment alert service for United Kingdom licensed operators. In 2024 this will include Manoeuvre Trade Space Plots: enabling better decisions on manoeuvres by operators. This means all United Kingdom licensed satellite operators will have the information required to perform good conjunction assessment.</p>	
Experiences, challenges and lessons learned	There are significant benefits to a shared civil-military approach to conjunction management and SST more widely.	

Comments on specific needs for capacity-building necessary to support implementation	The United Kingdom welcome the opportunity to discuss collaborative approaches to improving conjunction assessment during all orbital phases of controlled flight.	
B.5	Develop practical approaches for pre-launch conjunction assessment	United Kingdom
Thoughts or approach to implementation	<p>The United Kingdom is in the process of developing an increasingly robust methodology to implement this guideline through our Space Surveillance and Tracking (SST) programme and the NSpoC, and alongside the CAA.</p> <p>There is a need to develop common international standards on this topic, but it is unclear in which forum this should be undertaken. As the population grows, the risk will increase leading to greater closures in the launch window. A need to share screening criteria, catalogues and common assumptions on future populations is evident. The potential challenge of sharing the latter two pieces of information may be due to national security and commercial sensitivities.</p>	
Current progress and/or proposed future activities	<p>As part of its regulatory responsibilities the CAA examines of pre-launch conjunction assessments as part of the flight safety analysis conducted by applicants before launch. In addition, the United Kingdom continues to look at international best practice for launch, including pre-launch conjunction assessments. The ongoing research is considering the risk to space objects from launch and whether screenings should be performed exclusively for manned objects or for a larger catalogue. The research will be used to guide the development of future regulations that will be followed by future United Kingdom launch operators.</p> <p>The United Kingdom's LCOLA (Launch Collision Avoidance Analysis) is currently carried out by US Space Command (USSPACECOM) under an arrangement between United Kingdom and United States Government.</p>	
Experiences, challenges and lessons learned	This activity is ongoing.	
Comments on specific needs for capacity-building necessary to support implementation	The United Kingdom welcome the opportunity to discuss collaborative approaches to improving pre-launch conjunction assessments.	
B.9	Take measures to address risks associated with the uncontrolled re-entry of space objects	United Kingdom
Thoughts or approach to implementation	<p>The United Kingdom has a strong desire to foster international cooperation between nations to develop a coordinated approach to space sustainability, which could include analysis of re-entry risk. To achieve this the United Kingdom is an active participant in various international and national forums performing research into the space environment, such as the Inter-Agency Space Debris Coordination Committee (IADC).</p>	
Current progress and/or proposed future activities	<p>In line with other technical assessments when licensing space activities, risks associated with the uncontrolled re-entry of space objects are also reviewed before issuing a license. This includes detailed analysis of the survivability of an object after re-entry into the atmosphere and assessment of the potential risks to populations and damage to property. The United Kingdom currently provides operational information and prediction analysis on end-of-life re-entries for United Kingdom licensed space objects.</p>	

	<p>The United Kingdom has a number of studies ongoing assessing risk from re-entry. For example, the UKSA has recently launched funding to engage academia on the potential environmental risk of debris re-entering the Earth’s atmosphere which aims to report by the end of 2024.</p> <p>The United Kingdom were also involved in tracking and analysis for the re-entry of the ESA Aeolus end-of-life re-entry. This poses the question as to whether there is sufficient recognition of controlled re-entry for recovery or disposal. This may become increasingly important if launch traffic increases (greater number of controlled re-entries) or if manufacturing on orbit with return to earth becomes profitable.</p>
Experiences, challenges and lessons learned	<p>There are significant benefits to a shared civil-military approach to Space Surveillance and Tracking and Space Domain Awareness activities including sharing of software, data, resources, governance and requirements; promoting a joined-up and efficient approach.</p> <p>Further activities are ongoing.</p>
Comments on specific needs for capacity-building necessary to support implementation	<p>The United Kingdom has had significant experience in licensing activities which include assessment of re-entry risk. We are very happy to discuss our experiences with nations considering doing the same.</p>

C.3	Promote and support capacity-building	United Kingdom
Thoughts or approach to implementation	<p>The United Kingdom has a strong desire to foster international cooperation between nations to develop a coordinated approach to space sustainability. This includes supporting developing space nations to ensure sustainability is a key focus globally.</p>	
Current progress and/or proposed future activities	<p>Over the last year, the United Kingdom has participated in a number of programmes to support capacity and awareness of space sustainability issues. The United Kingdom has supported in two UNOOSA-led Technical Advisory Missions to Costa Rica and Chile, presenting on how safety and sustainability are reflected in the United Kingdom’s regulatory framework.</p> <p>The United Kingdom held a week of events for an African delegation consisting of Kenya, South Africa and Rwanda to give an overview of the United Kingdom’s space sector but also to learn from the experience and developments in the delegation’s space sectors.</p> <p>The United Kingdom also engaged with a number of other European nations who are updating their regulatory frameworks.</p>	
Experiences, challenges and lessons learned	<p>There is a need to share insights into existing or ongoing activities across Governments, academia and industry to ensure a coordinated approach to key sustainability topics.</p>	
Comments on specific needs for capacity-building necessary to support implementation	<p>The United Kingdom welcomes the opportunity to discuss approaches to enhance international cooperation and capacity-building.</p>	