THE 2024 MANFRED LACHS SPACE LAW MOOT COURT COMPETITION

INTERNATIONAL COURT OF JUSTICE

Case Concerning The Protection Of Dark And Quiet Skies And The Freedom Of Scientific Investigation

REPUBLIC OF ANGANI

(APPLICANT)

vs.

FEDERAL STATE OF BOLVANGER

(RESPONDENT)

AGREED STATEMENT OF FACTS

Case Concerning The Protection Of Dark And Quiet Skies And The Freedom Of Scientific Investigation

Agreed Statement of Facts:

1. The Federal State of Bolvanger is a highly-developed spacefaring nation, with a comprehensive national space law in place since 1988 and regulatory frameworks gradually implemented over time. These legal instruments apply to space activities that are carried out by Bolvanger's governmental agencies, and by non-governmental entities that conduct space activities from and in the territory of Bolvanger, as well as by its nationals conducting such activities from anywhere in the world. Non-governmental entities that conduct space activities from Bolvanger must obtain a 'Federal Space Licence' from the Bolvangerian Space Agency before commencing their activities. Federal Space Licences are sequentially numbered in the order that they are granted.

2. On 1 October 2025, Bolvanger granted Federal Space Licence No. 7877 to a Bolvangerian satellite manufacturer and operator, KRONOS Limited, to launch a large constellation of satellites called 'TandaNet' from Bolvanger's primary spaceport, Spaceport Argus. Federal Space Licence No. 7877 also authorised KRONOS to operate TandaNet from a tracking, telemetry, and control centre located next to Spaceport Argus.

3. TandaNet is described in Federal Space Licence No. 7877 as a satellite constellation "of up to 30,000 satellites" that aims to "provide reliable broadband internet access across the world, particularly for remote regions and conflict areas." In its written application for Federal Space Licence No. 7877, KRONOS noted that, due to the large number of satellites to be launched as part of the TandaNet constellation, "minor technical issues" were expected to accompany "a small percentage of TandaNet satellites". At the time that Federal Space Licence No. 7877 was granted, multiple global media outlets praised KRONOS' efforts, reiterating statements directly made by the KRONOS Chief Executive Officer concerning this type of advanced technology and how it "would benefit all humankind."

4. KRONOS has since implemented advanced technology to prolong the lifespan of TandaNet satellites from 5 years, the average satellite lifespan when Federal Space Licence No. 7877 was granted, up to 10 years. This reduced KRONOS' operational costs and promoted the long-term use of the TandaNet constellation. Before receiving Federal Space Licence No. 7877, KRONOS additionally announced that all TandaNet satellites would "safely deorbit at the end of their operational lifetime."

5. KRONOS launched the first batch of TandaNet satellites in a series of monthly launches that took place throughout 2026. Each of the 12 launches consisted of exactly 250 satellites taking place on the 15th day of each month.

6. Shortly after the first launch of TandaNet satellites on 15 January 2026, astronomers and scientists raised concerns regarding the reflection of, and brightness emitted by the TandaNet satellites, which had not been anticipated by KRONOS' management beforehand. These concerns were articulated in an open letter containing a statement of intent and concern, signed by a wide variety of leading astronomers and scientists from around the world. The letter was published by multiple global media outlets on 29 January 2026. Neither KRONOS nor the Bolvangerian authorities responded to these concerns or to the open letter.

7. On 29 March 2026, KRONOS announced that 175 of the already launched TandaNet satellites had suffered "technical complications arising from geomagnetic storms, as well as various sub-system anomalies," but that all affected TandaNet satellites "had been safely deorbited."

8. On 1 April 2026, KRONOS announced upgrades aimed at reducing brightness for the second generation of TandaNet satellites. The second-generation TandaNet satellites would be launched on a monthly basis throughout 2027. KRONOS' announcement regarding the second-generation TandaNet satellites also stated that, "as a responsible space business", KRONOS would "use this redesign opportunity to resolve minor technical issues exhibited by a small percentage of first-generation TandaNet satellites."

9. HJR-3 was a first-generation TandaNet satellite, launched on 15 December 2026. KRONOS lost contact with HJR-3 on 2 November 2027, and publicly announced the loss of contact one month later after a viral Tweet from a citizen astronomer stated that HJR-3 was

"tumbling and apparently out of control." Further observations from other citizen astronomers reported that HJR-3's reflectivity had increased significantly as from 2 November 2027, suggesting that HJR-3 had suffered an onboard explosion that exposed its highly-reflective internal components. These citizen astronomers also noted that HJR-3's deorbiting mechanism had failed to operate, leaving HJR-3 uncontrollable but in orbit at an altitude of 550km.

10. In response, KRONOS announced that it would investigate whether recovery of HJR-3 was feasible, but warned that its orbital parameters and the fact that it was tumbling made recovery extremely complicated and "well beyond humanity's current space capabilities". In addition, KRONOS noted that tracking HJR-3 was "difficult," as its high-reflectivity tended to dazzle tracking sensors.

11. The Gallivespian Space Organisation ("GSO"), a regional international intergovernmental organisation, was established with 31 Member States, including the Republic of Angani, on 1 January 2028. At the GSO's establishment ceremony, the Director of the GSO announced that the organisation's first project would be the development of a space-based telescope, KirR, that would build upon decades of development and billions invested in similar programmes by various GSO Member States. The GSO Director stated that KirR would "give scientists an unobstructed view of the universe" and "revolutionise scientific investigations across many fields of astronomy and cosmology".

12. The GSO publicly released a KirR briefing document on 25 January 2028. The briefing document stated that KirR would orbit the Earth at "approximately 600km" in order to allow for easier on-orbit servicing ("OOS") missions to inspect, operate and repair it. KirR's planned lifespan was stated as "at least 20 years," and that due to "innovative, expected OOS technologies, including servicing by satellites instead of astronauts, KirR's lifetime expectancy could be even longer". The briefing document stated that KirR was expected to launch "by 2030 at the latest".

13. The KirR project encountered several technical setbacks and postponements of the original launch date of 19 August 2030. On 1 December 2030, multiple media outlets reported on a batch of leaked GSO documents – all of which were marked 'GSO CONFIDENTIAL – For GSO internal use only' – that detailed the intense internal financial and political pressure for early launch, as well as pressure exerted by selected GSO's Member States, in relation to the KirR project. The documents also revealed that KirR and its launch vehicle had been ready

to launch since November 2030, but that the KirR project team was waiting for GSO's experts to complete further space debris data collection and analysis before launching. The leaked documents stated that this further space debris data collection and analysis would be complete "no earlier than 1 March 2031".

14. The leaked documents generated extensive debate among the GSO Member States regarding the KirR project. On 15 December 2030, the GSO Director held a press conference where she stated that the GSO was "comfortable with the space debris data and analysis collected to date" and that further data collection and analysis, while initially planned, was "unlikely to be of additional benefit." She announced that KirR would launch "before the end of the year." On 31 December 2030, KirR was launched from a spaceport located in Angani.

15. Following the launch, KirR was released from the launch rocket's upper stage and started its process of transit and structural deployment on its way to reaching its final orbital altitude. However, KirR collided with HJR-3 during transit and, as a result, KirR is no longer operational. The collision generated a large number of debris from both KirR and HJR-3, some of which can be tracked, whilst smaller fragments cannot.

16. The resulting debris has caused the satellites of the TandaNet constellation to conduct an increased amount of automated collision avoidance manoeuvres, reducing each satellite's lifespan on average by 20%.

17. Diplomatic consultations in relation to this incident commenced on 1 February 2031, led by Angani and Bolvanger. Gallivespian geopolitical circumstances have, however, made it impossible for a negotiated compromise on matters in this dispute to be reached, as most of the participating GSO Member States (other than Angani) maintain strong trading relationships with Bolvanger and some also rely on the TandaNet constellation for internet access in their remote regions.

18. Following international backlash against the TandaNet project and the growing outcry by the scientific astronomical community several spacefaring nations and international organisations, including the GSO and Bolvanger, signed a document titled "Memorandum of Understanding on the Protection of Dark and Quiet Skies" (hereinafter referred to as "MOU") on 4 June 2031 to mitigate the negative effects of future planned constellations.

19. On 1 July 2031, Bolvanger announced that a state-of-the-art, ground-based wide-field telescope – called 'TAU' – would be constructed at the TAU Observatory. The TAU Observatory is located in Bolvanger and is funded by Bolvanger as a part of its national science academy. The announcement stated that TAU is designed for "deep-imaging surveys of the entire sky", with the goal of "observing the universe like no other ground-based telescope has done before". The announcement included a wide variety of technical details, including details of the wavelengths that TAU would be calibrated to detect. The announcement also stated that TAU would play a key role in detecting near-Earth asteroids.

20. The international scientific community commended the project, deeming it useful to help broaden humanity's knowledge of the Universe and also to help with planetary defence efforts. Construction of TAU commenced on 2 September 2031.

21. On 15 September 2031, the GSO Director held a press conference to announce that the GSO would build and deploy a "multi-orbital large constellation" of 800 satellites called NYX³. The project was intended to provide secure communication services on a regional level. The GSO Director stated that twelve GSO Member States, including Angani, would participate in the NYX³ project. In response to journalists' questions during the press conference, the GSO Director clarified that none of the participating Member States, nor the GSO itself, had engaged in prior consultations with any other states regarding NYX³. However, the GSO Director stated that the project is not considered to interfere with any other state's space activities, "due to its smaller size and multi-orbital nature," and that the GSO would "of course" comply with the MoU. In response to further questions regarding the continued reliance of some GSO Member States on the TandaNet constellation, the GSO Director stated that, while GSO Member States were "free to use any constellation they wish," the availability of a GSO alternative – that is, NYX³ – was important in order to preserve "regional space autonomy".

22. The first batch of approximately 200 NYX³ satellites were launched from Angani's spaceport on 14 February 2032 to Low-Earth Orbit. They were registered by the GSO within its internal registry on 3 March 2032, shortly after they became operational.

23. At the time of launch of the first batch of NYX³ satellites, the satellites were considered highly advanced due to their use of novel re-entry technology. This technology takes the form of a special coating such that even if the satellites completely lose power and key sub-systems, they will still re-enter the Earth's atmosphere in accordance with their expected 10-year

lifespan due to the effects of solar drag. During ground testing, the special coating was shown by the GSO's scientific experts to be non-reflective.

24. On 30 October 2032, the TAU telescope started operations. Despite the growing excitement surrounding the data to be collected by TAU, scientists from the TAU Observatory quickly discovered that the images collected by the telescope were largely distorted and unclear. In an announcement on 3 November 2032, the TAU Observatory outlined how satellite constellations were adversely affecting the TAU telescope's search for potentially threatening near-Earth objects, limiting early detection capabilities and orbit determination of potential objects. The TAU Observatory stated that their ability to provide "warning time before impact" is directly affected by the "distortion caused by constellations".

25. At a press conference held the following day, a spokesperson for the Government of Bolvanger noted that "the sheer number of satellites, combined with the brightness of the objects and the frequency of sightings, is a serious threat to the dark sky community. Here in Bolvanger, the TAU telescope is highly affected and will most probably need to put operations on hold indefinitely, until a solution is found". The spokesperson specifically mentioned the newly deployed NYX³ constellation as the "prime constellation emitting reflective wavelengths and thereby distorting the data", as NYX³ satellites' special coating "emitted light on the specific, non-visible wavelengths that the TAU telescope is calibrated to detect".

26. On 30 November 2032, Bolvanger initiated diplomatic consultations with the GSO Member States participating in the NYX³ project; however, the negotiations proved inconclusive. Angani commenced proceedings by application to the International Court of Justice. Bolvanger accepted the Court's jurisdiction and the parties submitted the foregoing Agreed Statement of Facts. There are no issues of jurisdiction before the Court.

27. The Republic of Angani requests the Court to adjudge and declare that:

a. Bolvanger violated international law by failing to properly supervise KRONOS' space activities with respect to the TandaNet constellation, including the satellite HJR-3;
b. Bolvanger is liable under international law for all damages for the total loss of the KirR telescope, including any loss of profit;
c. Angani is not responsible and liable under international law for the diminished lifespan of the TandaNet satellites or for the inoperability of the TAU telescope;

And to dismiss all claims to the contrary.

28. The Federal State of Bolvanger requests the Court to adjudge and declare that:

a. Bolvanger acted in conformity with international law by properly authorising and continuously supervising KRONOS' space activities, including with respect to the satellite HJR-3;
b. Bolvanger is not liable under international law for the loss of the KirR telescope ;
c. Angani is responsible and liable under international law for the diminished lifespan of the TandaNet constellation and for the inoperability of the TAU telescope;

And to dismiss all claims to the contrary.

29. Both Angani and Bolvanger are Parties to the UN Charter. Angani and Bolvanger have ratified the Outer Space Treaty, the Agreement on the Rescue and Return of Astronauts (ARRA), the Convention on International Liability for Damages Caused by Objects Launched Into Outer Space (LIAB), and the Convention on Registration of Objects Launched Into Outer Space (REG). The GSO has accepted the rights and obligations enshrined in ARRA, LIAB, and REG, and made all necessary declarations, and the majority of the GSO's Member States are also party to these treaties. All participating states in the NYX³ constellation, as well as Bolvanger, have signed the "Memorandum of Understanding on the Protection of Dark and Quiet Skies". Neither Bolvanger nor Angani has requested the establishment of a Claims Commission under the Liability Convention.

Annex I

Memorandum of Understanding on the Protection of Dark and Quiet Skies

The Signatories to this Memorandum, understanding the importance of protecting global astronomical observation capabilities from adverse and significantly harmful interference, and recognising the mutual benefits of collaboration and cooperation, commit to the following principles:

Section 1 | Encourage Cooperation
The Signatories intend to encourage and promote international and regional cooperation among all relevant stakeholders in the space industry, as well as enhance collaboration with non-spacefaring actors.

Section 2 | Develop Best Practices and Guidelines
The Signatories recognise the need to collaboratively develop a set of adaptable best practices and guidelines that outline efforts to minimise the negative impact of satellite constellations, especially on astronomical observations.

Section 3 | Raise Awareness
The Signatories intend to raise the attention of the international community to the harm caused by the uncontrolled expansion of satellite constellations, not only to ground-based and space-based astronomy, but also to other scientific areas.

Section 4 | Consultation Prior to Satellite Constellation Authorisation
a. The Signatories commit to engaging in consultations with other Signatories on any issue arising from the operations, whether planned or current, of satellite constellations, and strive to resolve issues in accordance with best practices and guidelines.

b. Any Signatory that has reason to believe that any activity related to the authorisation, launch, or operation of a satellite constellation planned by another Signatory could have an adverse impact on their own space activities or the space activities of another Signatory may request consultation concerning the said activity.

Section 5 | Sustainable Technology Development
The Signatories affirm the importance of continuously working on developing and promoting new technologies that foster and enhance the sustainable use of outer space, and emphasise the importance of aiming to produce and use technology without reflective materials in order to minimise the adverse effects of satellite constellations on astronomical observations.

Section 6 | Maintenance and Circulation of this Memorandum
The Government of Angani will maintain the original text of this Memorandum and transmit to the Secretary-General of the United Nations a copy of this Memorandum, which is not eligible for registration under Article 102 of the Charter of the United Nations, with a view to its circulation to all the members of the Organisation as an official document of the United Nations.

Done on 4 June 2031, in the English language.