

REQUEST FOR SPECIAL TEMPORARY AUTHORITY

Telesat Network Services, Inc. (“TNSI”), pursuant to Section 25.120 of the Commission’s rules, hereby requests Special Temporary Authority (“STA”) to operate two transmit and receive earth station antennas, located at Mt. Jackson, Virginia, to conduct testing and a demonstration via LEO 1, a non-geostationary orbit (“NGSO”) space station in low earth orbit operated by Telesat Canada (“Telesat”). TNSI seeks an STA for the 30-day period beginning on August 20, 2021.

Terms of STA Request

STA operations at Mt. Jackson will be limited to two bands, 28.6 - 29.1 GHz (Earth-to-space) and 18.8 -19.3 GHz (space-to-Earth), which the Commission’s Ka-band plan allocates on a primary basis to NGSO operations. The earth station will consist of two co-located antennas, the technical specifications for which are set forth in Attachment 2 hereto, which provides the information that would appear in Schedule B of FCC Form 312 if regular authority were being sought. Radiation hazard studies for each of the two antennas is provided in Attachment 3 hereto.

Telesat will conduct one or more demonstrations during the 30-day term of the requested STA. A typical demonstration would consist of one day of set-up and verification; three days of testing and demonstration during which there would be 2-3 passes during the day lasting 6-12 minutes each; and a final day for any remaining tests and for equipment removal. In accordance with Section 25.120, the earth stations at Mount Jackson will operate on a noninterference basis. The communications to be made under the STA will be used to test and demonstrate certain design features of LEO 1, including antenna tracking, RF performance, and end-to-end network performance. These operations will set the stage for providing highly innovative broadband services in the United States. Grant of TNSI’s STA request is, therefore, in the public interest.

LEO 1

LEO 1 was launched in January 2018 with a mission orbit of 99.5° (circular) at an altitude of 1000 km. TNSI hereby incorporates by reference a detailed orbital debris assessment report (“ODAR”) prepared by NXTRAC for LEO 1 that was submitted to the Commission in connection with a June 2019 STA request.¹ The ODAR confirms

¹ Telesat Canada, Request for Special Temporary Authority to Construct and Operate an Earth Station to Test, Validate, and Demonstrate Communications with Telesat’s LEO 1 Satellite, IBFS File No. SES-STA-20190604-00724, Attachment 3: ODAR.

compliance with U.S. government orbit lifetime and orbital debris mitigation regulations.²

In September 2020 TNSI filed another STA request, which was granted, wherein it reported that orbit-lowering maneuvers for LEO 1 were being initiated and would take approximately 6-9 months.³ For operational and technical reasons, the de-orbit implementation schedule was subsequently extended, and LEO 1's orbit is largely unchanged. It is currently in an eccentric orbit at approximately 833 x 1000 km and will remain in this position during the term of the requested STA. TNSI anticipates maneuvers will commence shortly thereafter for moving LEO 1 to a lower orbit before the spacecraft is removed from orbit.

There will be no material change during the term of the requested STA in the technical parameters for LEO 1, which will be substantially as identified in Telesat's Petition for Declaratory Ruling to Grant Access to the U.S. Market for Telesat's NGSO Constellation ("PDR"), including Schedule S thereto, which was granted by the Commission by *Order and Declaratory Ruling*, released November 3, 2017.⁴

As indicated above, operations will be limited to the portions of the Ka-band in which NGSO operations have primary status. Accordingly, EPFD limits are inapplicable.

² In addition, the orbital debris plan for LEO 1 has been reviewed by the Canadian licensing authority for the satellite. Innovation, Science and Economic Development Canada ("ISED"), for compliance with the guidelines issued by the Inter-Agency Space Debris Coordination Committee, and the ISED license for LEO 1 requires compliance with these guidelines.

³ Telesat Network Services Inc., Application for Special Temporary Authority to Construct and Operate an Earth Station to Test and Demonstrate Communications with Telesat's LEO 1 Satellite for 30 days, IBFS File No. SES-STA-20200918-01029, granted Sep 25, 2020.

⁴ Telesat Canada, Petition for Declaratory Ruling to Grant Access to the U.S. Market for Telesat's NGSO Constellation, *Order and Declaratory Ruling*, 32 FCC Rcd 9663 (2017); *see also* IBFS File No. SAT-PDR-20161115-00108, Schedule S.

Coordination

TNSI will coordinate its STA operations with the U.S. federal government under footnote US334⁵ of the United States Table of Frequency Allocations and is coordinating with the National Radio Astronomy Observatory.⁶ Ephemeris data will be shared in accordance with Section 25.146(e) of the Commission's rules. With regard to matters of physical coordination, there are no operators using similar orbits.

Accordingly, and for good cause as shown herein, TNSI requests that the Commission grant its STA request.

⁵ There have been discussions with the Commission as to the applicability of US334, and TNSI is coordinating with the federal government out of an abundance of caution.

⁶ TNSI notes that it answered question E18 in the Schedule B that is provided in Attachment 2 as "No" (i.e., that frequency coordination is not required) based on its understanding that the question relates to non-federal government coordination requirements, if any.