

## 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 a transmit and receive earth station antenna, located at a Verizon facility in Westlake, Texas, 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 February 1, 2021.

### Terms of STA Request

STA operations in Westlake will be limited to two bands, 29.0-29.1 GHz (Earth-to-space) and 19.2-19.3 GHz (space-to-Earth), which the Commission’s Ka-band plan allocates on a primary basis to NGSO operations. The technical specifications for these operations 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. A radiation hazard study for the earth station 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 station in Westlake will operate on a non-interference 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 and has been operating at 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 previously submitted to the Commission.<sup>1</sup> The ODAR confirms compliance with U.S. government orbit lifetime and orbital debris mitigation regulations.<sup>2</sup>

A modified schedule that was developed after the NXTRAC ODAR was prepared has accelerated the timetable for moving LEO 1 to a lower orbit. The ODAR contemplated LEO 1 would commence maneuvers around April 2021 to lower the spacecraft to a 425 x 975 km orbit from which atmospheric drag would remove it from orbit. Under the modified schedule, LEO 1 recently commenced maneuvers to lower the spacecraft to a 450 x 990 km orbit. Telesat plans to implement a further lowering to a 425 x 975 km orbit before the spacecraft is removed from orbit. There will be no material change during the term of the requested STA in the technical

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<sup>1</sup> 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.

<sup>2</sup> 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.

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.<sup>3</sup>

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.

### **Coordination**

TNSI will coordinate its STA operations with the U.S. federal government under footnote US334<sup>4</sup> of the United States Table of Frequency Allocations.<sup>5</sup> 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.

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<sup>3</sup> 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.

<sup>4</sup> 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.

<sup>5</sup> 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.