

APPLICATION FOR SPECIAL TEMPORARY AUTHORITY

Ligado Networks Subsidiary LLC (“Ligado”), pursuant to Section 25.120 of the Commission’s Rules, hereby requests special temporary authority (“STA”) for 30 days, commencing on September 4, 2018 and ending on October 4, 2018, to relocate MSAT-2 (call sign AMSC-1) from 103.3° WL to 106.5° WL, an orbital position under Canadian authority. During the relocation, MSAT-2’s communications payload hardware will remain powered on but will not be providing downlink services. During the drift, Telesat Canada Inc. (“Telesat”), Ligado’s contractor for flight operations, will operate only (1) MSAT-2’s telemetry, tracking, and command (“TT&C”) payload on 11.701 GHz (primary), 11.7005 GHz (backup), 14.0005 GHz (backup) and 14.4995 GHz (Primary) and (2) MSAT-2’s beacon frequencies at 10.7535 GHz (primary) and 10.751 GHz (backup).

MSAT-2 serves as a backup satellite to Ligado’s other U.S. satellite, ST-1 and, as a backup satellite, does not currently carry customer traffic. MSAT-2 operates in inclined orbit mode at 103.3° WL.¹

The orbital location at 106.5° WL is the former location of Ligado’s Canadian satellite, MSAT-1, which was moved from 106.5° WL to 107.5° WL in October, 2015. Ligado will file an application in the near future to modify MSAT-2’s satellite license and associated U.S. earth station and mobile earth terminal licenses. Innovation, Science & Economic Development (“ISED”) Canada is aware of this application, and Ligado requests that the Commission indicate to ISED that it consents to relocating MSAT-2 to bring back into use the orbital location at 106.5° WL.²

Grant of this application is entirely consistent with the Commission’s policy of granting Special Temporary Authority when doing so will not cause harmful interference and will serve the public interest, convenience and necessity.³ The public interest, convenience and necessity is served because, currently, MSAT-2 is operating in a location that only allows operation on a non-interference basis. The relocation of the satellite, without interference or harm to other operators, will thus result in MSAT-2 being better accommodated in a fully coordinated orbital location, thus providing future certainty for backup MSS operations.

With regard to interference, there is no risk of harmful interference from MSAT-2 operating in the new location. As MSAT-2 and MSAT-1 were built to the same design

¹ See FCC File No. SAT-MOD-20100412-00075 (granted Nov. 8, 2010) (granting authority to move MSAT-2 to current location); FCC File No. SAT-MOD-20171215-00172 (granted Jan. 23, 2018) (extending MSAT-2 operations through Dec. 31, 2018).

² See ITU, Radiocommunication Bureau, *WRC-12 decisions included in the Minutes of Plenary meeting relating to space services procedures*, Circular Letter CR/333 (2012) at 2 (citing (§3.12 Doc. CMR12/554); see also ITU, Radiocommunication Bureau, *Decisions of past WRCs concerning the application of the Radio Regulations*, Circular Letter CR/380 (2015) at 3 (same).

³ See e.g., *Newcomb Communs., Inc.*, 8 FCC Rcd. 3631, 3633 (1993); *Columbia Comms. Corp.*, 11 FCC Rcd. 8639, 8640 (1996); *Am. Tel. & Tel. Co.*, 8 FCC Rcd. 8742 (1993).

specifications, MSAT-2's operating characteristics and interference envelope are identical to those of MSAT-1,⁴ which operated in that location for 20 years without causing any harmful interference to other operators. Moreover, this location has already been coordinated with other L-band operators assuming use by an MSAT-class satellite. Thus, placement of MSAT-2 will not create any new interference risk that has not already been discussed and resolved by the relevant operators.

With regard to the relocation itself, Ligado and Telesat will communicate and coordinate all activities associated with the MSAT-2 drift plan, including telemetry, tracking and command frequency coordination, with potentially affected in-orbit operators prior to and during the "fly-by" events. Ligado will maintain an acceptable and agreed to total separation distance for each satellite passed along the orbital arc throughout the move from 103.3° WL to 106.5° WL. As noted above, the communications payload system hardware will be powered on but will not transmit any downlink signals throughout the duration of the drift. Moreover, MSAT-2's TT&C communications pursuant to the STA requested herein will be on a secondary, non-interference basis. Ligado and Telesat will notify JSPOC, CANSPOC and MIT's Lincoln Laboratories of the drift and of updated orbital parameters.

In planning for the relocation, Ligado Networks has assessed the current health and performance status of the MSAT-2 satellite and reviewed possible risks associated with performing longitude relocation activities. The expected commanding of thrusters to execute the drift plan is identical to nominal East/West station keeping maneuvers, which MSAT-2 conducts regularly without experiencing operational issues. All of MSAT-2's twelve (12) thrusters, including both primary and redundant branches (propulsion lines) and tanks, are available. The liquid propulsion subsystem continues to perform nominally with full redundancy available. Approximately 5 kg of propellant have been allocated for orbital relocation in MSAT-2's fuel budget. MSAT-2's remaining fuel will include an additional 9.5 kg of propellant allocated for de-orbiting the satellite to a minimum altitude of 300 km above the geostationary orbit at the end of the satellite's operational life. In addition, both primary and redundant command receiver and telemetry transmitter units are available. The telemetry, command, and ranging subsystem has been and continues to perform nominally with full redundancy available. Both satellite control processors are operational and available. Finally, sufficient solar array and battery power margins are available on the MSAT-2 satellite, which has experienced zero battery cell failures and only one solar array circuit failure (which will not impact the planned relocation). Notably, Ligado and Telesat performed similar drifts of MSAT-1 in 2015 from 106.5° WL to 107.5° WL and of MSAT-2 in 2010 from 101.3° WL to 103.3° WL without incident. Ligado and Telesat thus have directly applicable experience in handling such drifts and do not anticipate that this drift will present any different circumstances.

Accordingly, and for good cause shown, Ligado respectfully requests that its STA request be granted.

⁴ MSAT-2 does differ from MSAT-1 in only one respect: MSAT-2 uses 11.7005 GHz as a backup TT&C frequency, while MSAT-1 uses 11.70275 GHz as a backup. This difference is not material, however, to interference with any other operator.