

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 90 days, commencing on April 16, 2021 and ending on July 15, 2021, to relocate MSAT-2 (call sign AMSC-1) from 106.5° WL to 107.5° WL and then operate at that location pending the International Bureau’s approval of a modification to MSAT-2’s authorization.¹ During the relocation, MSAT-2’s communications payload hardware will remain powered on but will not provide 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, SkyTerra-1, and, as a backup satellite, does not currently carry customer traffic. MSAT-2 currently operates in inclined orbit mode at 106.5° WL, an orbital position under Canadian authority.²

The orbital location at 107.5° WL is the former location of Ligado’s Canadian satellite, MSAT-1. Ligado has separately applied to ISED for authorization to commence drifting MSAT-2 and will file such authorization with the Commission when received. Ligado requests that the Commission indicate to ISED that it consents to relocating MSAT-2 to 107.5° WL.³

Please note that while MSAT 2 will be authorized in the nominal Canadian orbital slot at 107.3°WL it will be physically located and operate at 107.5° WL in order to avoid overlapping with the Anik-F1R and Anik G-1 satellites, which Telesat has confirmed have station-keeping operations within a 0.05° tolerance.

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.⁴ 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

¹ Ligado will file an amendment to a pending fleet modification notification to instead request authorization to change MSAT-2’s orbital location. *See* FCC File No. 2021-0316-00034 (filed Mar. 16, 2021).

² *See* FCC File No. SAT-MOD-20180912-00070 (granted Nov. 29, 2018) (authority to move MSAT-2 to current location); FCC File No. SAT-MOD-20201201-00138 (granted Feb. 17, 2021) (extending MSAT-2 operations through Dec. 31, 2022).

³ *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).

⁴ *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).

design specifications, MSAT-2's operating characteristics and interference envelope are identical to those of MSAT-1,⁵ which has operated in that location without causing any harmful interference to other operators. Moreover, L-Band operation has already been coordinated with other L-band operators assuming use by a 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. The public interest, convenience and necessity is served because relocation will facilitate Ligado's continued efficient management of its satellites and orbital locations, and will also preserve the availability of backup service at an orbital location that Ligado has operated from for many years, thus helping to ensure continuity of service to its customers.

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 106.5° WL to 107.5° 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 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. Less than 1 kg of propellant has been allocated for this 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 two solar array circuit failures (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, MSAT-2 in 2010 from 101.3° WL to 103.3° WL and again of MSAT-2 in 2018 from 103.3° WL to 106.5° WL without incident. Ligado and Telesat thus

⁵ 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 used 11.70275 GHz as a backup. This difference is not material, however, to interference with any other operator.

have substantial and 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.