

**Request for Special Temporary Authority to Conduct In-orbit Testing of the
Telstar 12V Satellite (Call Sign S2933)**

Skynet Satellite Corporation (Skynet) hereby requests Special Temporary Authority (STA) for a period of 30 days beginning Dec. 1, 2015¹ to conduct in-orbit testing (IOT) of the Telstar 12V satellite. The IOT will be conducted on an unprotected, non-interfering basis.

The Commission has authorized² Skynet to operate the Telstar 12V satellite at 15°W. Following launch, Skynet proposes to place T12V in the geostationary arc at 16°W and to drift slowly eastward to 15°W. The testing will be conducted in the arc between 16°W and 15.7°W. Flexibility over this orbital range facilitates physical and frequency coordination with nearby satellites. Skynet cannot conduct T12V IOT at the licensed orbital location of 15°W because of the risk of interference with services that are carried on Telstar 12 (T12). These services will be transferred to T12V only following successful completion of IOT and collocation of T12 and T12V at 15°W.

Service transition between T12 and T12V will need to be carefully orchestrated. The two satellites have very different frequency plans and coverage, and so a number of customers will need to change frequencies and/or polarization, which requires that some services be carried simultaneously on both satellites for a period of time while the necessary adjustments are made to the customers' ground segment equipment. Telesat Canada ("Telesat"), an affiliate of Skynet, controls both satellites and will maintain them during the transition in the same orbital box of 15° W ± .05° while executing maneuvers to ensure adequate physical separation at all times.

Skynet anticipates that the T12/T12V traffic transfer will be completed by the end of Q1 2016. At that time, T12 will either be relocated or de-orbited, subject to any required FCC approvals.

The following satellites (in addition to Telstar 12, for which Skynet is the licensee) are physically located in the geostationary arc between 16°W and 15°W, inclusive:

Luch 5B at 16°W

Inmarsat 3F2 at 15.5°W

ABS3 (to be located at 15.75°W prior to the T12V IOT)

In order to minimize risk of physical collision with other satellites during the T12V drift, Skynet is coordinating directly with the operators of the above-listed satellites, namely Russian Space Systems (RSS), Inmarsat, and ABS. Coordination has already been successfully completed with ABS.

In order to protect against collisions with other orbiting objects, including debris, Telesat has a contract with MIT/Lincoln Labs to provide notification and high-precision orbits for drifter objects when close

¹ The current planned launch date for Telstar 12V is Nov. 24, 2015.

² File No. SAT-LOA-20141010-00107.

approaches with our satellites are projected. Processing of the notifications is fully automated to ensure efficient response should avoidance maneuver(s) be required to eliminate any threat of collision with the drifter object. Telesat will also provide ephemerides to the Space Data Center and the Joint Space Operations Center (JSpOC). The JSpOC also provides notifications to Skynet for any object they see approaching a Skynet satellite.

During IOT, test signals will be transmitted in the unplanned Ku-band, the Appendix 30B Ku-band, and the Ka-band. The following satellites are currently operational in one or both of these bands in the portion of the orbital arc between 22°W and 9°W (i.e. 6 degrees west of 16°W and 6 degrees east of 15°W):

Operator	Satellite Name	Orbital Location (°W)	Status
NSS	NSS 14	22.0	Coordination underway, no foreseen concerns
	NSS 7	20.0	
Intelsat	Panamsat 7	18.2	Coordination underway, no foreseen concerns
	Intelsat 901	18.0	
RSS	Luch 5B	16.0	Coordination underway, no foreseen concerns
Intersputnik – ABS	ABS 3	15.7	Coordination successfully completed
RSCC	Express A1R	14.0	Coordination underway, no foreseen concerns
	Express AM8	14.0	
	Express AM44	11.0	
Eutelsat	Atlantic Bird 1	12.5	Initiated Coordination, awaiting response
	Atlantic Bird 1	12.5	
US government	TDRS 9	12.1	Initiated coordination with NASA and NTIA

In order to minimize risk of electromagnetic interference with these satellites, Telesat is coordinating with the relevant operators, with coordination status as noted in the table above.

During the IOT, test signals will be transmitted to T12V and received from T12V at the following locations: Allan Park, Canada; Aflenz, Austria; Johannesburg, South Africa; and Benevidez, Argentina. Since no US-licensed earth station will be transmitting or receiving test signals, Skynet is not requesting an IOT-related STA for any earth station.

Three IOT tests will be performed: Satellite PA Transfer Characteristics, Antenna Mapping and Frequency Translation^[j1].

Satellite PA Transfer Characteristics

This test will be done in all unplanned Ku-Band, Ap30B Ku-band and Ka-Band transponders. Checks will be done on the spare satellite PAs as well.

A wideband digital carrier will be uplinked starting at a low level and increased to saturation. The maximum uplink EIRP densities are 5.6 dBW/Hz at Ku-band (both unplanned and Ap30B) and 7.8 dBW/Hz at Ka-band. The maximum downlink EIRP densities are -17dBW/Hz at unplanned Ku-band, -21 dBW/Hz at Ap30B Ku-band, and -14 dBW/Hz at Ka-band.

Antenna Mapping

This test will be done in one transponder of each polarization for each beam. The antenna patterns will be mapped by slewing the satellite east-west and north-south. The maximum uplink EIRP densities are 5.6 dBW/Hz at Ku-band (both unplanned and Ap30B) and 7.8 dBW/Hz at Ka-band. The maximum downlink EIRP densities are -17dBW/Hz at unplanned Ku-band, -21 dBW/Hz at Ap30B Ku-band, and -14 dBW/Hz at Ka-band.

Frequency Translation Test

A CW carrier will be uplinked from various sites at selected frequencies in the unplanned Ku-band, the Ap30B Ku-band, and the Ka-band. The maximum uplink EIRP is 46 dBW at Ku-band (both unplanned and Ap30B) and 43 dBW at Ka-band. The maximum downlink EIRP is 32 dBW at unplanned Ku-band, 25 dBW at Ap30B Ku-band and 32 dBW at Ka-band.

Tests will be conducted on an unprotected, non-interference basis and will be halted or modified in the event that actual harmful interference is reported. The 24/7 point of contact during the IOT is the Telesat Technical Control Centre, 1-519-371-6107.

Accordingly, and for good cause shown, Skynet's STA request should be granted.