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REQUEST FOR FCC PROGRAM EXPERIMENTAL LICENSE:
CUBIC/GATR X-BAND TEST NETWORK

I. GENERAL INFO

1. Is this for IR&D or Military/Government Sponsor Test/Demo. Government sponsor

2. If it's for Military/Government Sponsor Test/Demo, provides the Government POC (Name, Office, Phone Number and Email Address and the objective/s of the Test/Demo and Contract Number.

Contract Number: W15QKN-13-D-0099;
Period of Performance: 27 September 2013 through 26 September 2023.

License will support repair, replacement, and improvement of DoD satellite terminals acquired under the contract listed above. Questions can be directed to:

Michael Coria
Assistant Program Manager
PM Tactical Network, PdM SATCOM
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SIPR: michael.j.coria.civ@mail.smil.mil
Office: 443-395-7123
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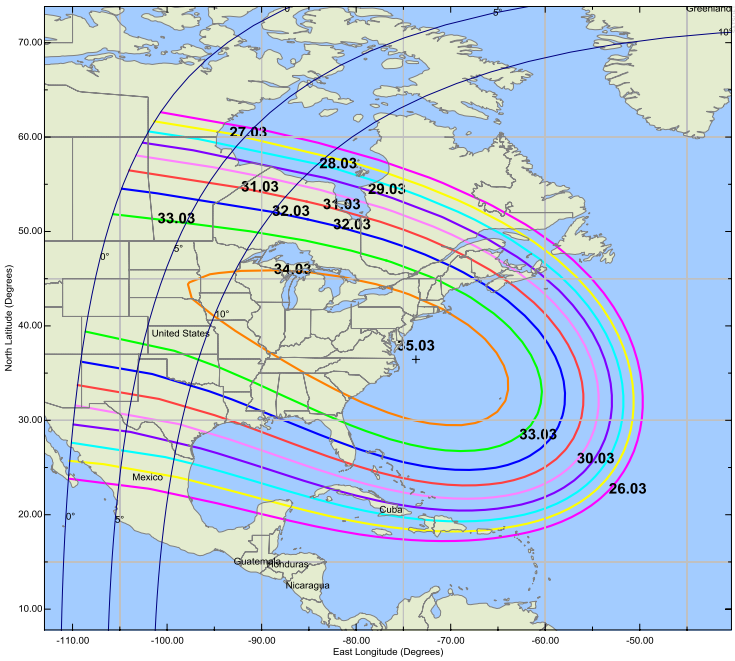
3. Requires starting date and duration. Experimental license starts ASAP with duration matching the contract or one year minimum.

II. SATELLITE DOWNLINK

1) GSO longitude of Satellite. XTAR-LANT (Spainsat) at 30°W.

2) Main beam gain of the satellite downlink transmitting antenna in the requested band/s, the point on the earth where the peak of the beam be pointed, and the downlink gain contours relative to that point on the earth. The main beam gain of the satellite downlink antenna is 35.03 dBi at 7.70 GHz. The point on the earth where the peak of the beam is pointed and the downlink gain contours relative to that point are provided on the downlink map below.



3) Maximum input spectral power density (SPD) of any downlink carrier. A diagram of the satellite network is appended at end. There are two carriers in the iDirect Evolution satellite network. The carrier transmitted from the 9m antenna in Hamilton, Ontario, Canada is a DVB-S2 carrier that can be received by any remote terminal (1.2m or 2.4m GATR terminals). The downlink power spectral density at the input to the onboard satellite antenna is -66.3 dBW/Hz. The carrier transmitted from the remote terminals is a time division multiple access (TDMA) carrier with a worst case downlink power spectral density at the input of the onboard satellite antenna of -64.3 dBW/Hz.

4) Center frequency and emission designator of any downlink carrier. There are two carriers being transmitted in the network. The 9m terminal will transmit a 1265 kbps carrier with an emission designator of 1M04G1D and center frequency of 7,664.717 MHz, 7,690.323 MHz or 7,693.113 MHz (LHCP) downlink. The remote terminals will transmit a 310 kbps carrier with an emission designator of 215K3G1D and center frequency of 7,665.455 MHz, 7,691.060 MHz or 7,693.852 MHz (LHCP) downlink.

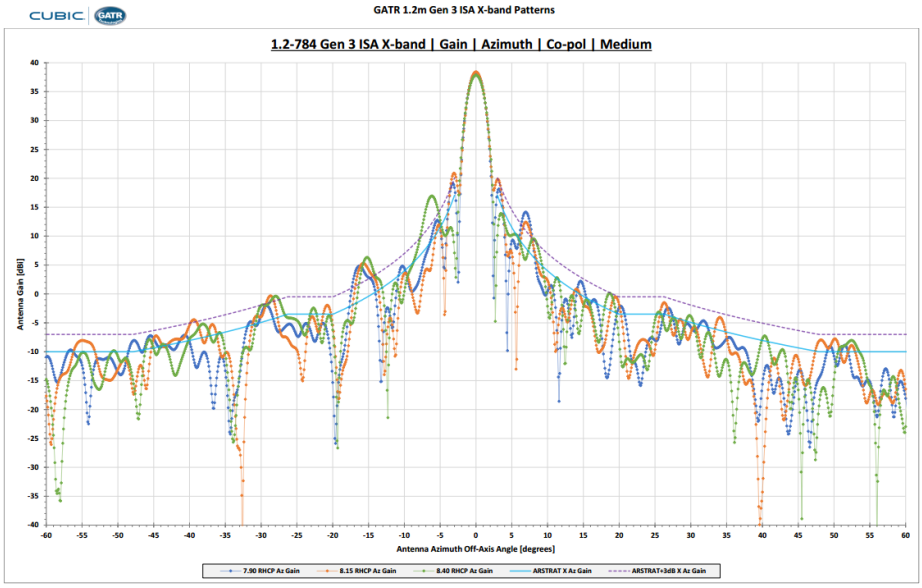
5) If it is multiple carriers, provides all emissions designators and downlink EIRPs for each. If it is a single carrier, then how many of those single carriers can be operated into the same downlink beam simultaneously during the testing. Both carriers specified will be simultaneously downlinked onto the beam described in question 2 above. The downlink EIRP of the 1265 kbps carrier in the direction of beam center is 28.7 dBW. The downlink EIRP of the 310 kbps carrier in the direction of beam center is 24.1 dBW.

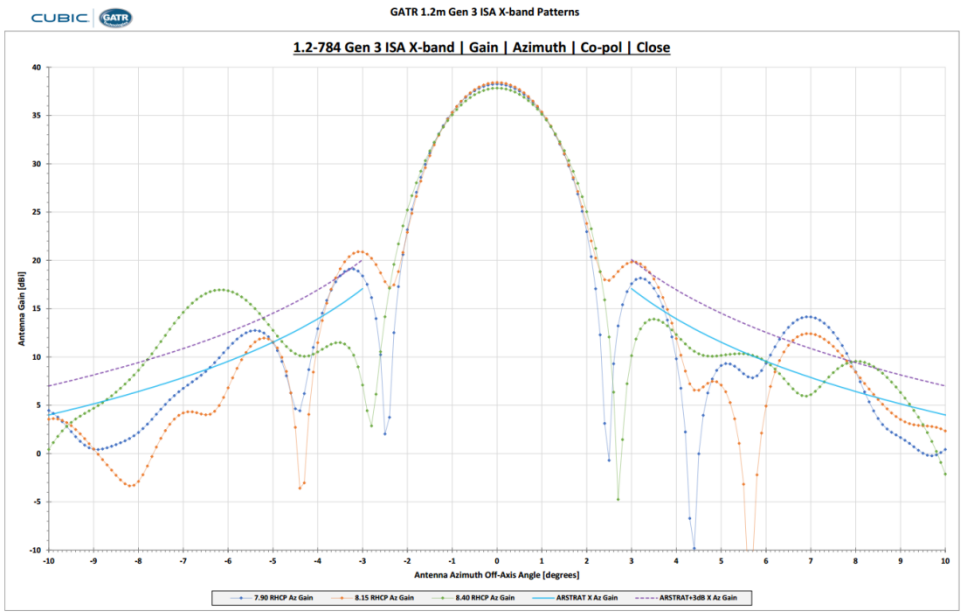
III. EARTH STATION UPLINK

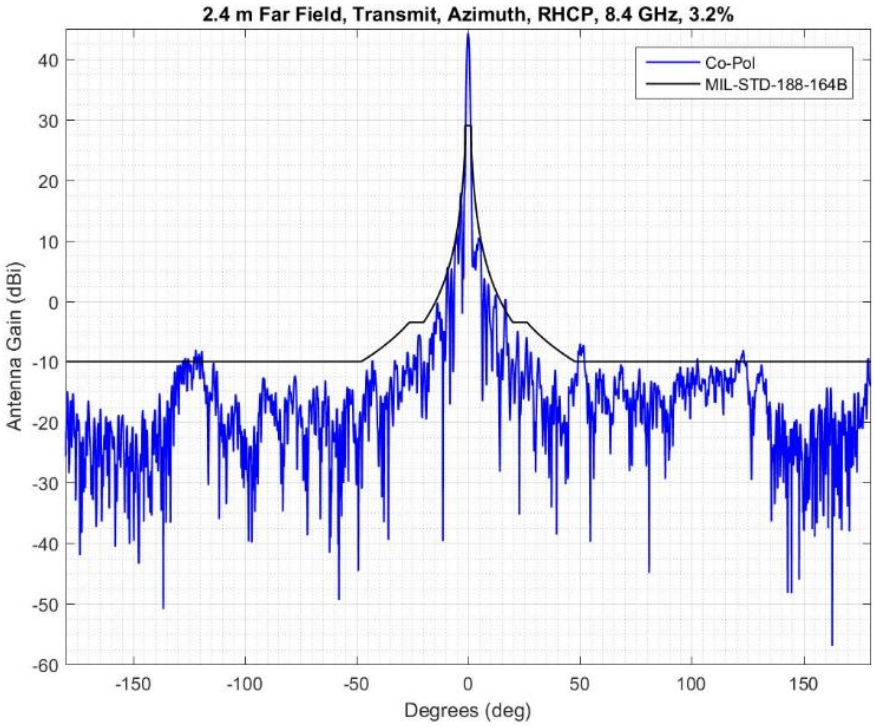
1) Coordinate of earth station. The remote earth station will be located anywhere in Eastern CONUS with a worst case location of New Orleans, LA at approximately 30.0°N, 90.05°W. The hub terminal in Canada is located at approximately 43.18° N 79.66° W.

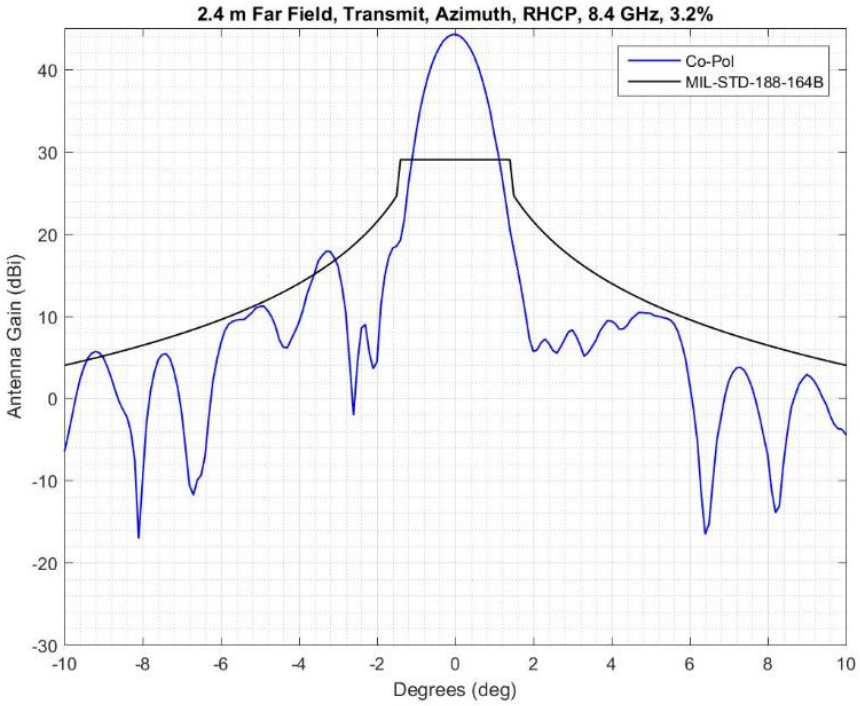
2) Name and/or nomenclature of the terminal, if known/assigned. The remote terminal is a GATR 1.2m or 2.4m terminal. The terminal in Canada is a 9m.

3) Main beam gain of the transmitting earth station antennas to be used for the test and the measured off-axis antenna pattern. Antenna peak gain of the 1.2m and 2.4m GATR terminals at 8.15 GHz are 38.0 dBi and 44.0 dBi respectively. The measured off-axis antenna patterns are provided below:






2.4 m Far Field, Transmit, Azimuth, RHCP, 8.4 GHz, 3.2%
Co-Pol
MIL-STD-188-164B
Antenna Gain (dBi)
Degrees (deg)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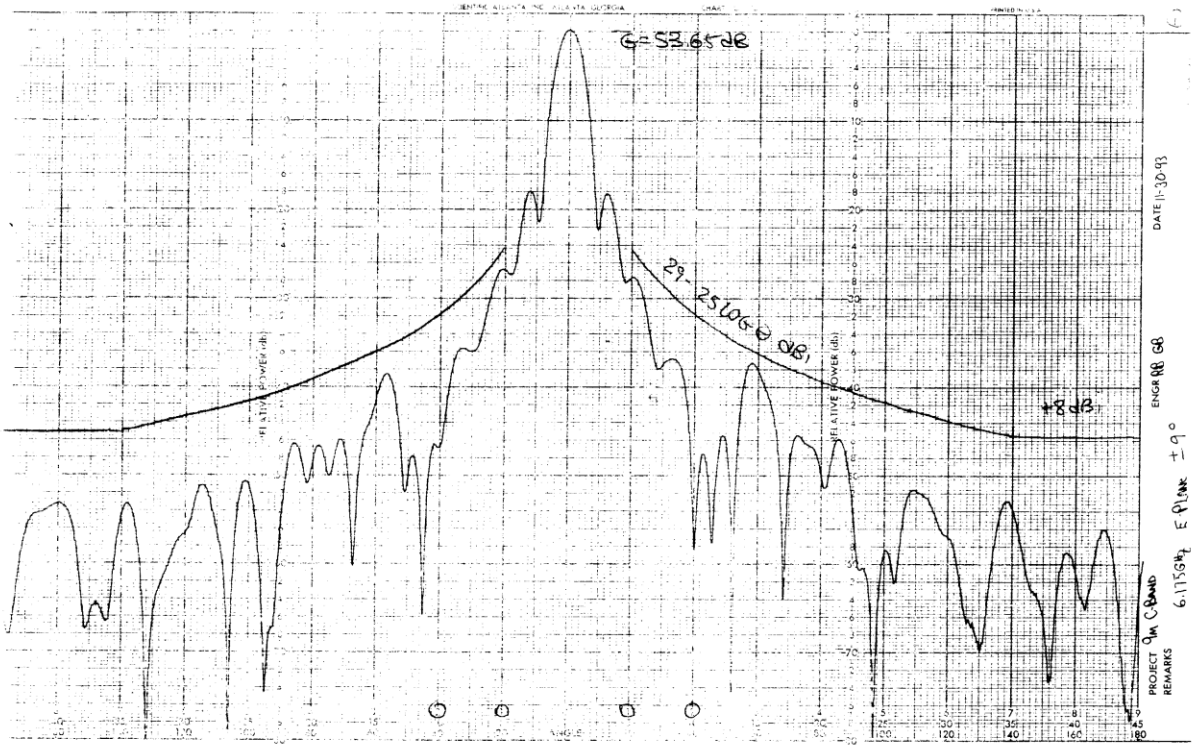
An off-axis pattern for the 9m antenna in Canada at C-Band is provided below. The antenna has been retrofitted to operate at X-Band.



4) Maximum input spectral power density (SPD) of any uplink carrier. The input spectral power density of the 310 kbps uplink carrier transmitted from New Orleans, LA is -56.1dBW/Hz. The input power spectral density of the 1265 kbps carrier is -77.0 dBW/Hz.

5) Center frequency and emission designator of any uplink carrier. The 9m terminal will transmit a 1265 kbps carrier with an emission designator of 1M04G1D and center frequency of 8,314.717 MHz, 8,340.323 MHz or 8,343.113 MHz (RHCP) uplink. The remote terminals will transmit a 310 kbps carrier with an emission designator of 215K3G1D and center frequency of 8,315.455 MHz 8,341.060 MHz or 8,343.852 MHz (RHCP) uplink.

6) If it is multiple carriers, provide all center frequencies and associated emissions designators and uplink EIRPs for each. If it is a single carrier, then how many of those single carriers can be operated into the same uplink beam simultaneously during the testing? Only a single carrier will be transmitted from the remote earth station (1.2m or 2.4m GATR).

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NETWORK DIAGRAM