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January 14, 2020

REQUEST FOR *FCC CONVENTIONAL EXPERIMENTAL (FORM 442) LICENSE - TAMPA MICROWAVE X-BAND TEST NETWORK*

I. GENERAL INFO

1. Is this for IR&D or Military/Government Sponsor Test/Demo: AF 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: H92401-18-D-0005;
Period of Performance: 01 Aug 2018 through 31 July 2023; 5 year contract with no options years.

STA will support repair, replacement, and improvement of DoD satellite terminals acquired under the SOCOM Deployable Node (SDN) and other DoD programs. Questions about the SDN program can be directed to:

Timothy N Theaker
Spectrum Manager
Satellite Operations, J636-S
Comm: 813-826-5899
DSN: 312-299-5899
Red: 299-3309
SOCOM SPECTRUM <SOCOM_SPECTRUM@socom.mil>

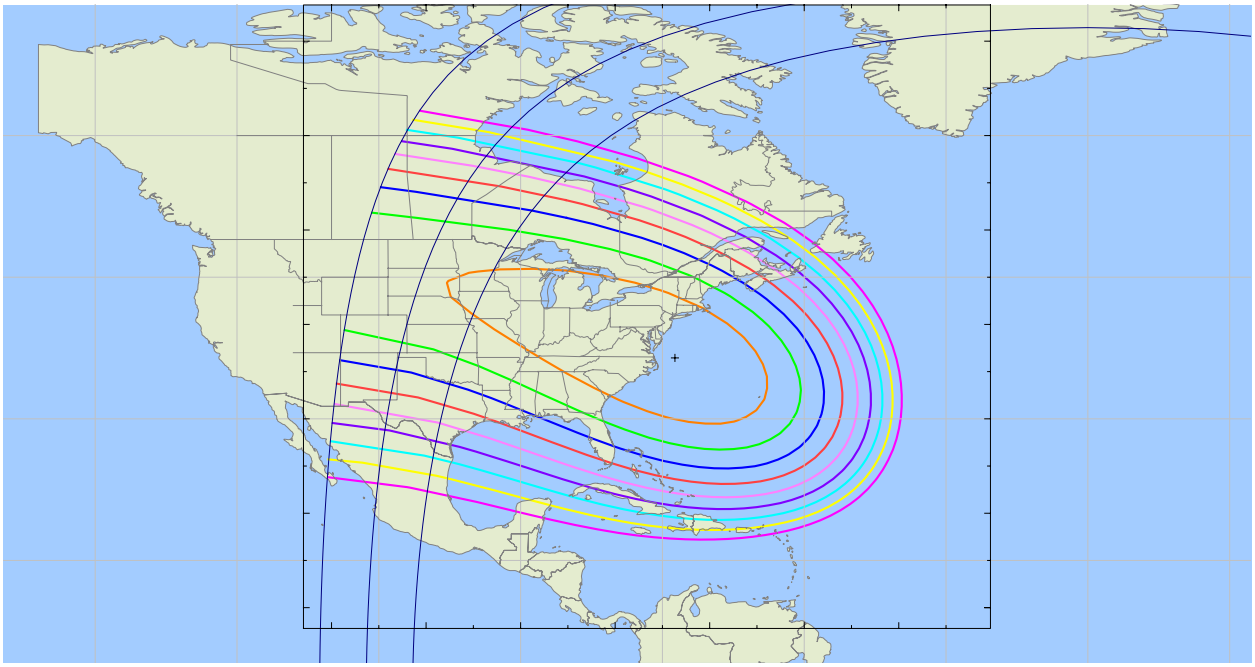
SDN-L Program Manager
D. Jarrett Potts
HQUSSOCOM
Acquisition Program Manager SDN
COMM: 813-826-7011
DSN: 299-7011
RED: 299-5962
Potts, Daniel J CIV USSOCOM HQ <Daniel.Potts@socom.mil>

3. Required starting date and duration: SoS ASAP with duration of 2 years, automatically renewable to date of contract expiration (if possible) to reduce DoD and federal (FCC) paperwork required to support an ongoing, multiyear DoD satellite terminal program.

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 either the 1.3m or 2.4m in St. Petersburg, FL is a time division multiplexed (TDM) carrier that can be received by any remote terminal (65cm, 95cm, and 1.3m Tampa Microwave terminals). The downlink power spectral density at the input of the satellite antenna is -64.4 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 satellite antenna of -65.8 dBW/Hz.

4) Center frequency and emission designator of any downlink carrier. There are two carriers being transmitted in the network. The 1.3m or 2.4m hub terminal will transmit a 1130 kbps carrier with an emission designator of 1MG1D and center frequency of 7,665.287 MHz, 7,690.931 MHz or 7,692.539 MHz (LHCP) downlink. The remote terminals will transmit a 310 kbps carrier with an emission designator of 220K8G1D and center frequency of 7,666.600 MHz, 7,692.244 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 1130 kbps carrier in the direction of

beam center is 33.8 dBW. The downlink EIRP of the 310 kbps carrier in the direction of beam center is 25.9 dBW.

III. EARTH STATION UPLINK

1) Coordinate of earth station. The 2.4m earth station is located in St. Petersburg, FL at approximately 27.80°N, 82.65°W. The remote earth stations could be anywhere within the footprint of the satellite beam in Eastern CONUS. The assumption is that the worst case for the remote terminal will be a 65cm located in St. Petersburg, FL.

2) Name and/or nomenclature of the terminal, if known/assigned. The 2.4m terminal is a General Dynamics Series 1244. The remote terminals are the Tampa Microwave 65cm, and 95cm manpack terminals and the Tampa Microwave 1.3m terminal. This 1.3m terminal will be also be used initially for the hub until the 2.4m terminal is available.

3) Main beam gain of the transmitting earth station antennas to be used for the test and the off-axis antenna pattern expressed as one of the ITU patterns or measured data. Antenna patterns for all remote terminals including peak gain at 8.15 GHz are annotated in the plots below. The peak gain at 8.15 GHz for the Series 1244 2.4m hub antenna shown in the last plot is 44.5 dBi.

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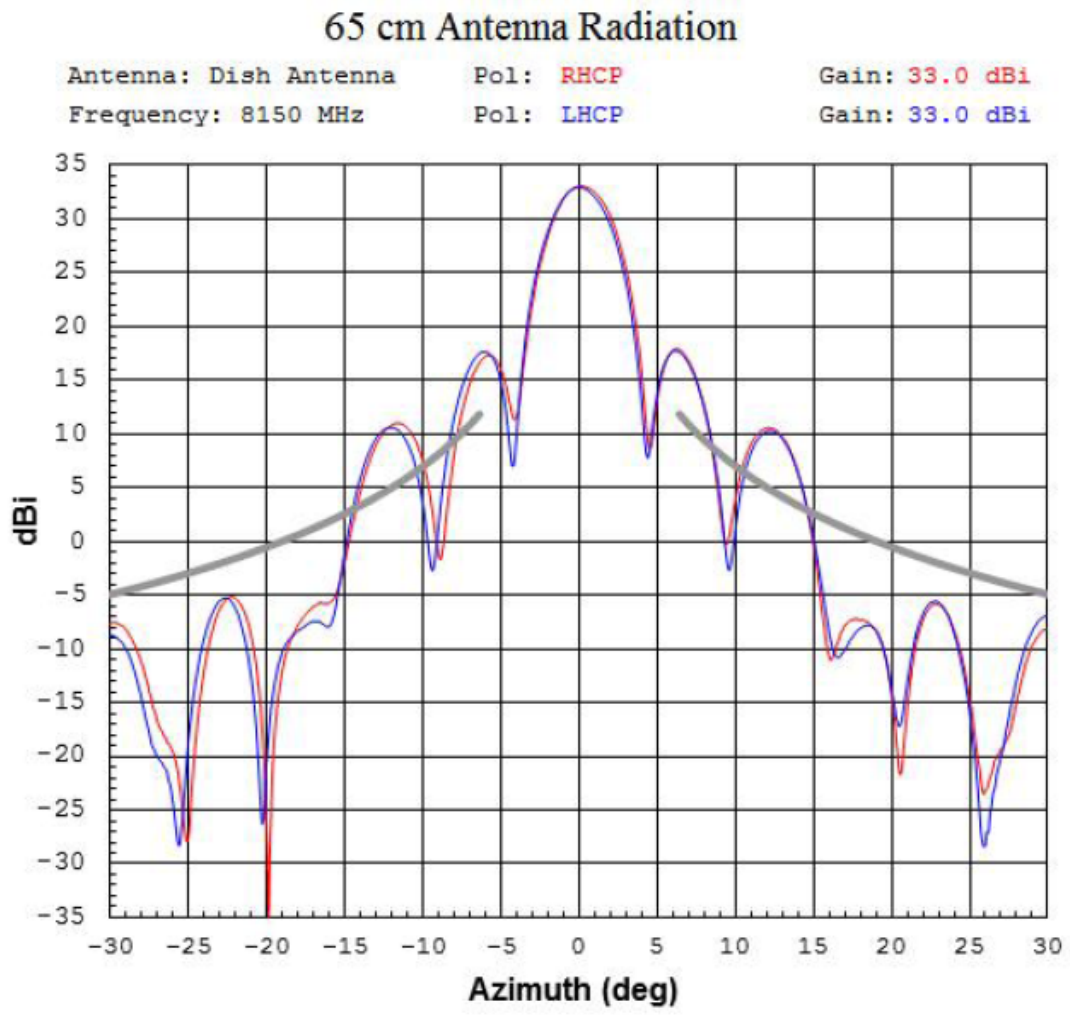
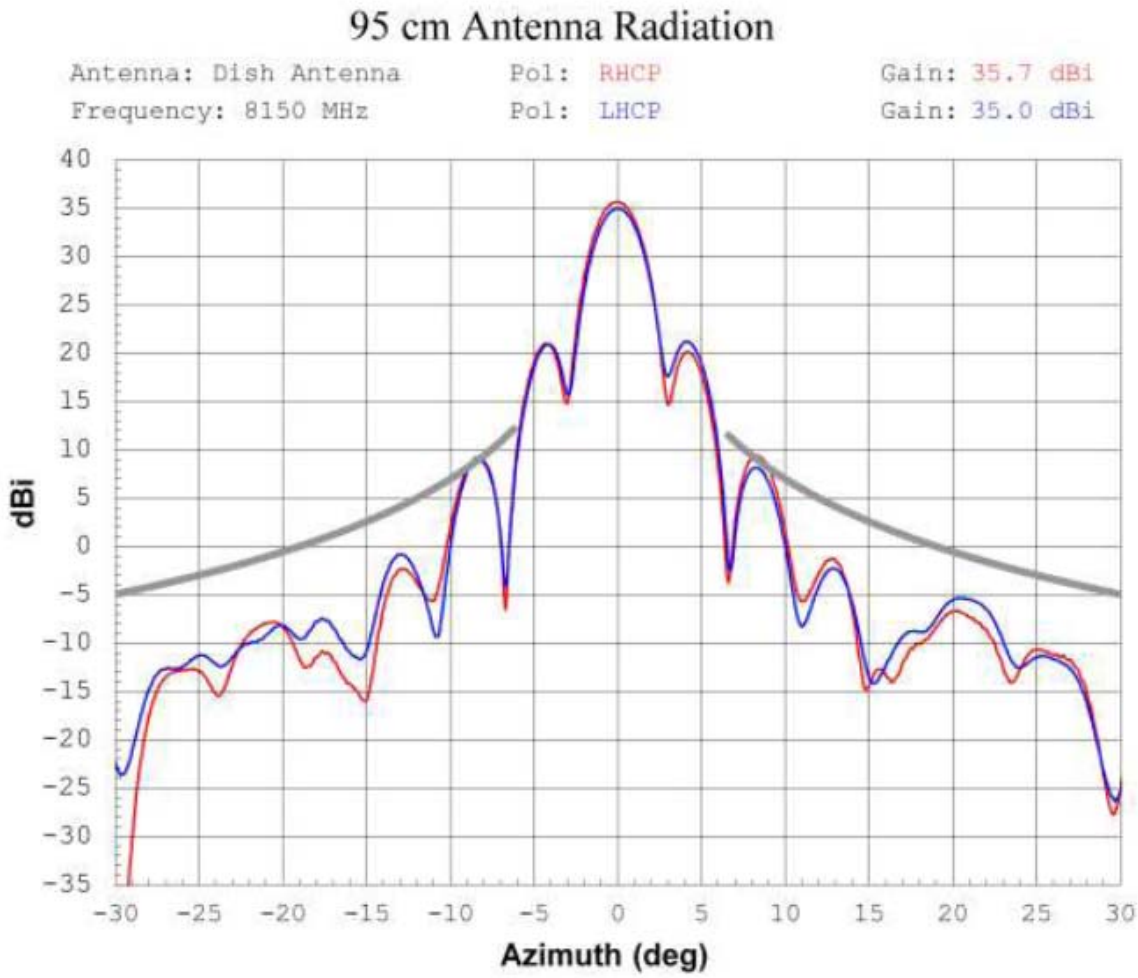


TM-X850MP-95
Certification Test Report (Rev 1)



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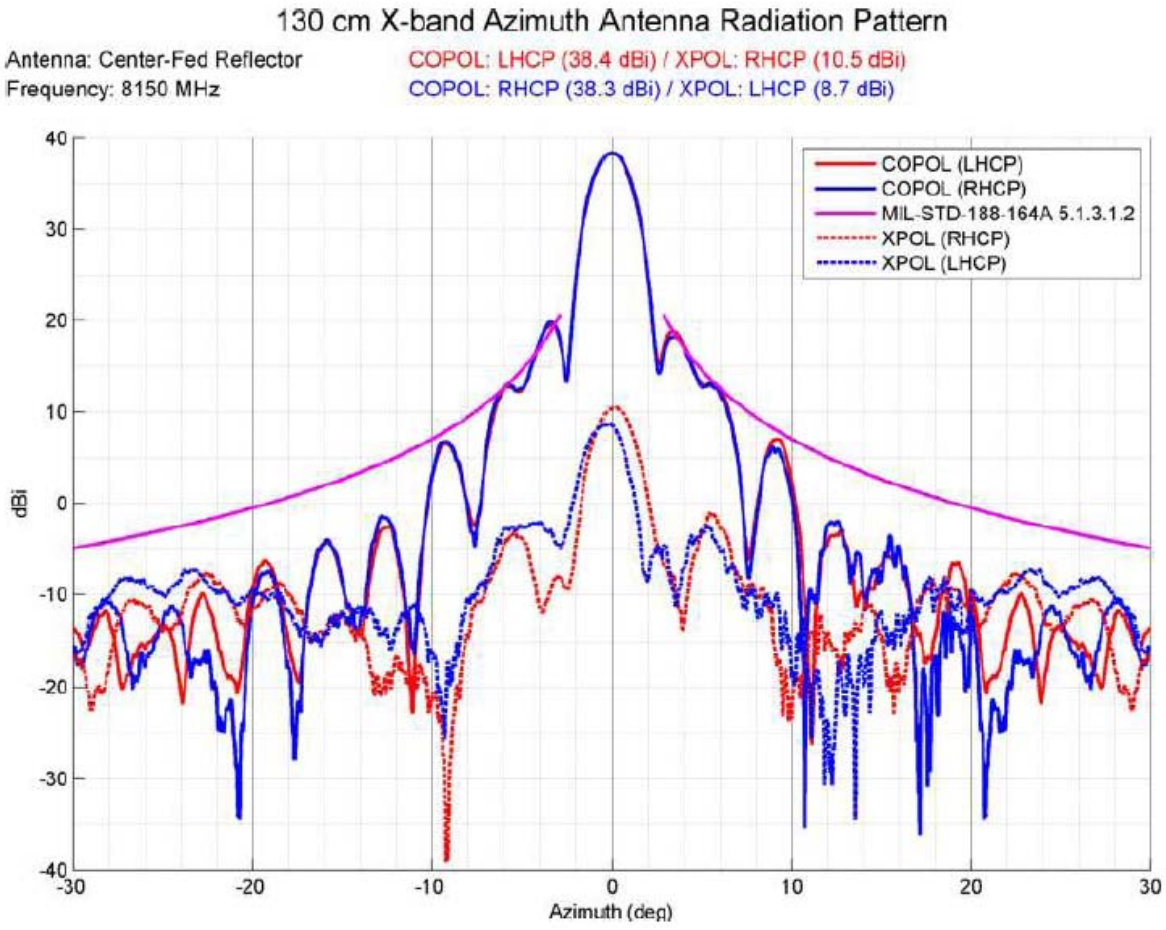

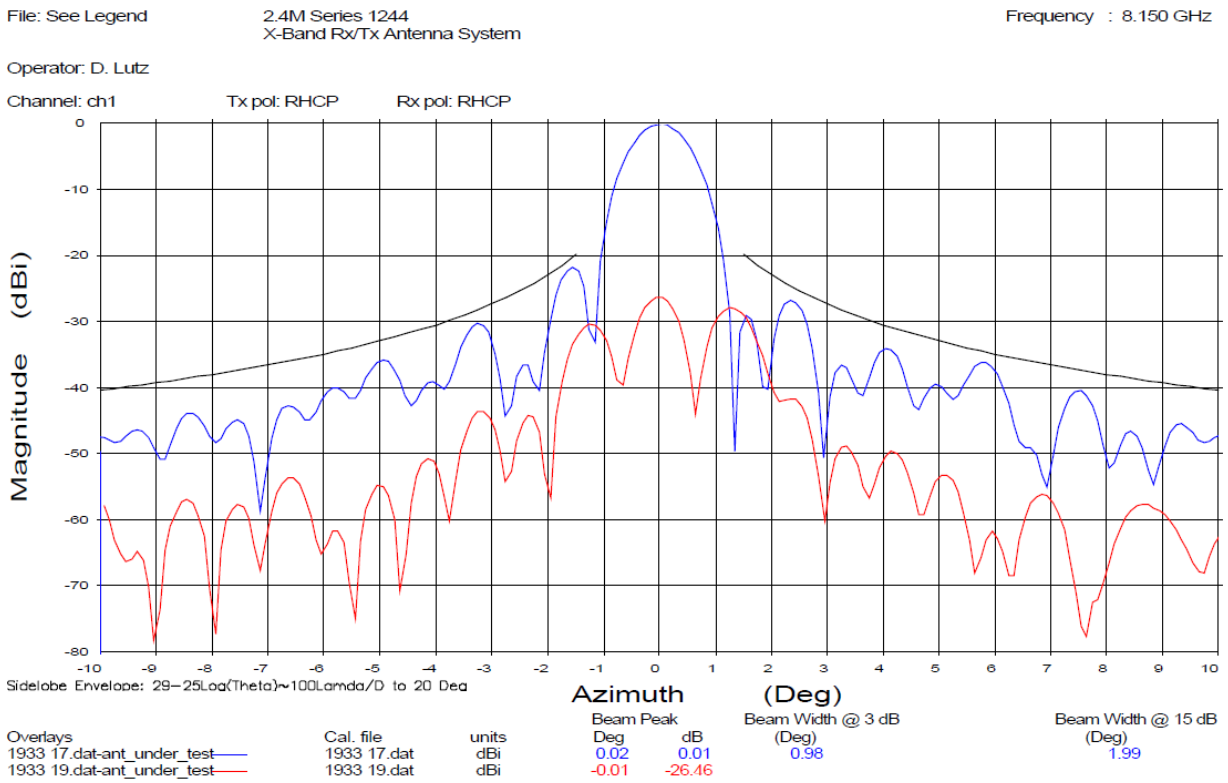

4) Maximum input spectral power density (SPD) of any uplink carrier. The input spectral power density of the 1130 kbps uplink carrier transmitted from the 2.4m or 1.3m hub station in St. Petersburg, FL is -64.0 dBW/Hz and -56.7 dBW/Hz respectively. The input spectral power density of the 310 kbps uplink carrier transmitted from a 65cm terminal in St. Petersburg, FL is -54.0 dBW/Hz.

5) Center frequency and emission designator of any uplink carrier. The center frequency for the 1130 kbps carrier is 8,315.287 MHz, 8,340.931 MHz or 8,342.539 MHz (RHCP) uplink with an emission designator of 1MG1D. The center frequency for the 310 kbps carrier is 8,316.600 MHz, 8,342.244 MHz or 8,343.852 MHz (RHCP) uplink with an emission designator of 220K8G1D.

6) If it is multiple carriers, provides 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 any earth station in the network.

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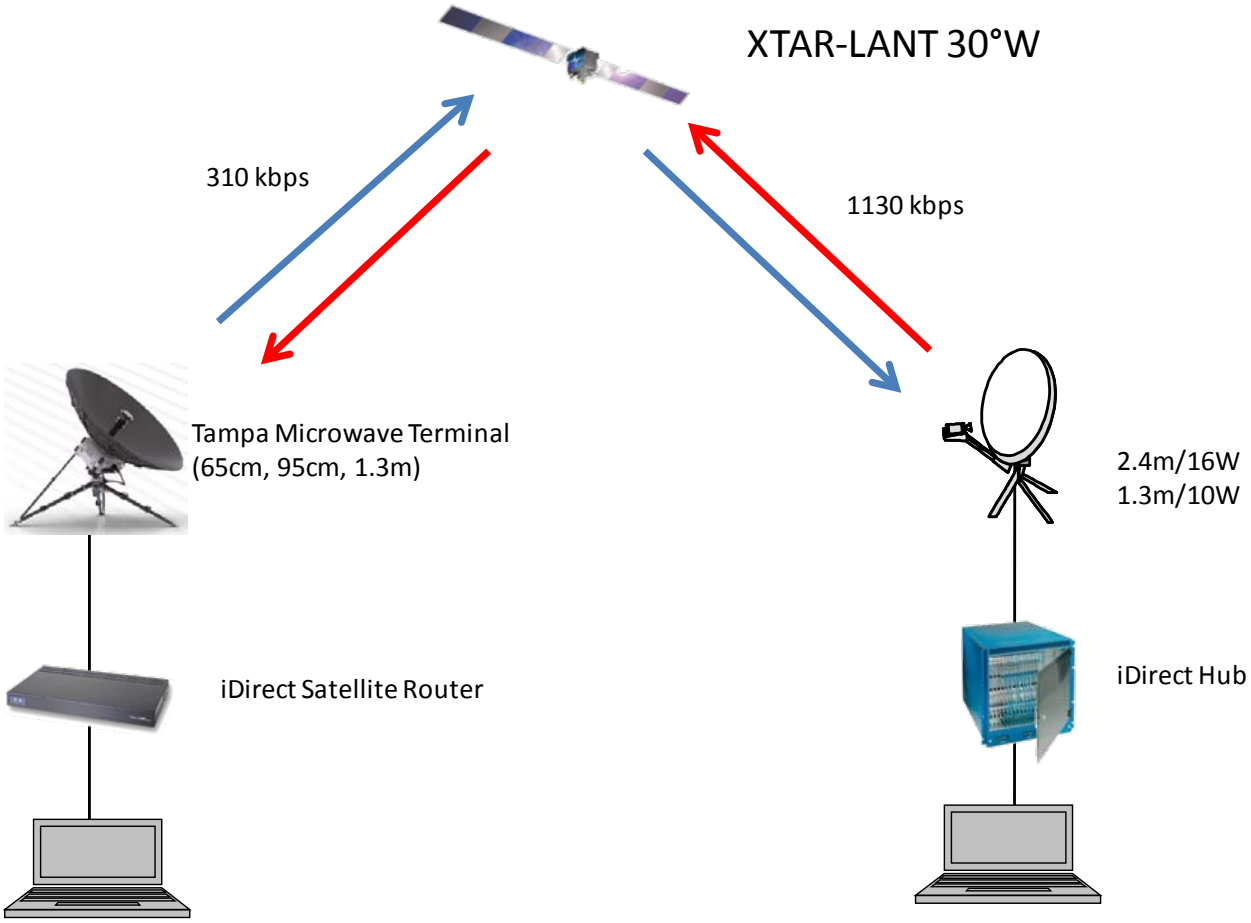
NETWORK DIAGRAM



Remote Terminal
Eastern CONUS
St. Petersburg, FL (worst case)

Hub Station
St. Petersburg, FL