ANTENNA POINTING

Do not move the antenna while the antenna is transmitting a signal unless instructed to do so by the access center.

For permanent services, the antenna should be pointed when the satellite is in the center of the box. Satellite operators have tools on their websites to estimate the time of day for a center of the box event.

It is recommended to point the antenna using a spectrum analyzer to measure the received satellite signals levels.

Make sure you calculated the azimuth and elevation angle of the antenna for the antenna location.

Set the elevation, and then move the antenna on the azimuth axis around the calculated azimuth. Once signals appear on the spectrum analyzer, verify that you are pointing to the correct satellite. If not on the correct satellite, keep moving the antenna on the azimuth axis.

Once on the correct satellite, verify that the satellite is on the main lobe of the antenna and not a side lobe, by moving on the azimuth axis until you find the maximum signal strength. Then move on the elevation axis to maximize the received signal strength.

For linear polarization systems, proceed to align the polarizer of the antenna (rotate the feed) to maximize the received signal level.

OPERATOR CERTIFICATION

Uplinker certification training is important for preventing adjacent satellite, cross-pol and other interference causes. If you are operating a manually controlled uplink station, you should hold RFI-EUI Basic or Advanced Technical Operator certification. If you are operating an auto-point terminal with a VSAT (managed) modem, you should hold RFI-EUI Basic Autopoint Operator certification, and if your terminal is not type approved per GVF 104 or equivalent, you should hold General Autopoint Operator certification. If you are installing a fixed terminal (including VSAT), you should hold GVF Advanced Satcom Professional certification. For details, visit www.rfi-eui.org and www.gvf.org.

ADDITIONAL INFORMATION

Power Levels. The required transmit power level is calculated using a link budget analysis. Make sure that you have sufficient power for your transmission.

Time of Day. The time of day for occasional use services is given in UTC (Universal Coordinated Time). Make sure you know the conversion factor for your local time.

Inclined Orbit Satellites. Special antenna tracking equipment is required for transmission to inclined orbit satellites.

Mobile Earth Stations and Fly Aways. Make sure that the antenna is properly secured and not on a platform that could move (e.g., long bridge, windy, unanchored truck, etc.)

Comms on the Move Earth Stations. It is important that the terminal stops transmission to the satellite if it loses tracking to the assigned satellite.

Guide to

GENERAL ACCESS PROCEDURES (GAP)

for Satellites

Your guide for an interference free satellite users community.

This is a summary of the Universal Access Procedures (UAP) for Satellite Transmissions document which can be found in the Radio Frequency Interference – End Users Initiative web site www.rfi-eui.org and Satellite Interference reduction group at www.satirg.org.

The objective of these procedures is to reduce the number and the impact of satellite interference incidents on satellite services. These procedures apply to fixed stations, mobile (SNG, DSNG, Trailers) stations, fly-aways, fixed VSATs, auto deploy terminals, and comms on the move (ships, vehicle mount systems).

BASIC GUIDELINES

These guidelines must be followed at all times.

1. **Call** your designated access center before transmitting to the satellite.
2. **Call** your designated access center before making any adjustments to your carrier.
3. **Call** your designated access center at the end of the transmission.
4. Any instructions issued by the access center must be adhered to immediately.

THE FOUR KEY ELEMENTS

A successful satellite access is one that provides the intended service without affecting other satellite user services. Four elements must be correctly set for a successful access:

1. Antenna alignment to the assigned satellite. Accurate pointing of the antenna and alignment of its polarizer.
2. Carrier Center Frequency and Bandwidth.
3. Transmission Schedule.
4. Carrier Power Level.

Not having all four elements right will result in poor or no service and interference with other users.

ACCESS PROCEDURES

Know Your Transmission Plan

Have ready your name, phone number, earth station registration code, technical contacts, and assigned satellite, frequency, transponder, polarization, transmission time (UTC), and carrier power level.

Inspect Your Equipment

Verify that all equipment is functioning as designed: antenna reflector is clean, not dented, secured; cables are properly terminated and shielding is not compromised; waveguide is not cracked and not filled with water; etc.

Get Your Equipment Ready

All transmitting equipment should be muted and outputs disabled. Modulator set to CW mode. Make sure the equipment is warmed up for at least fifteen (15) minutes before start of testing.

Setup for Transmission

Ensure a clear line-of-sight to the satellite. Peak the antenna to the correct satellite using the satellite beacon or a known carrier on the satellite. Adjust the elevation, azimuth, and polarizer for maximum receive signal levels.

Set your modulator parameters: carrier center frequency, modulation, forward error correction (FEC), and roll off factor for digital carriers.

Make sure you are ready 10 minutes prior to the assigned transmit time.

Transmit when Granted Permission

Contact the access center. If the access center cannot be contacted, **DO NOT PROCEED** with any transmissions. Once in contact with the access center, verbally state the satellite, transponder, frequency, and polarity that you will be using for your transmission.

The access center verifies or adjusts these parameters for accuracy. Follow the access center instructions from this point on. The access center may ask you to bring up a CW at a test frequency to verify your antenna polarization. Always start your transmission at a very low power level and raise the power as instructed by the access center. Once the pointing and polarization is verified, the access center will ask you to come up with a modulated carrier on your assigned frequency. Again, start your transmission at a low power level and raise the power as instructed by the access center.

Bringing Carrier Down

When ready to bring the carrier down, contact the access center and provide the satellite, transponder, frequency, and polarity of the carrier whose transmissions you are terminating. The access center will verify that you have stopped the transmission and that the space is clear. Exchange names (or initials) with the access center.