Amb-OS Satellite Az/El Antenna Peaking Procedure

This procedure assumes that the antenna is already receiving C-Band signals from AMC-3 TR-17 (H-pol (down)).

1. For maximum benefit the antenna peaking and x-pol adjustment process should be accomplished when the spacecraft is at its Center of Box (COB). COB predictions can be accessed by going to the operator's web page at:
   http://www.ses-worldskies.com/worldskies/support/centerofbox/index.php
   Choose "AMC-3" from the menu ..Note that times quoted in COB predictions are GMT..

2. With a pencil or marker make a mark on the antenna's mount such that a "baseline" reference is established for existing azimuth and elevation. A polarization reference mark should be made on the feed assembly to indicate the pre-adjustment starting point..These references can serve as "fall-back" positions should acquisition be lost and will also indicate the magnitude of any changes made later in the adjustment steps below.

3. While observing a spectrum analyzer adjusted to display the AMC-3 CRC carrier centered at 4043.42 mHz. (or 1106.58 mHz L-Band) on Transponder C-17 (H-pol (down)), optimize the antenna's azimuth by first moving the reflector in an easterly direction. To verify that the antenna is not on a lower-strength satellite sidelobe, continue the easterly movement past the point of loss of signal and beginning acquisition of the next satellite in the arc. Once it's apparent that further easterly movement will not yield an increased desired signal, slowly move the reflector back in a westerly direction until the correct signal is at a maximum. Make a mark on the antenna mount to indicate this easterly peak.

4. While still observing the spectrum analyzer, now move the reflector in a westerly direction. To verify that the antenna is not on a lower-strength satellite sidelobe, continue the westerly movement past the point of loss of signal and beginning acquisition of the next satellite in the arc. Once it's apparent that further westerly movement will not yield an increased desired signal, slowly move the reflector back in an easterly direction until the correct signal is at a maximum. Make a mark on the antenna mount to indicate this westerly peak.

5. As a final azimuth adjustment move the reflector to a point which is equidistant between the easterly and westerly peaks previously marked. Depending on the antenna geometry, this final azimuth set point may coincide with the easterly & westerly peak points.

6. While still observing the spectrum analyzer, optimize the antenna's elevation by first moving the reflector in an upward direction. To verify that the antenna is not on a lower-strength satellite sidelobe, continue the upward movement past the point of loss of signal. Once it's apparent that further upward movement will not yield an increased desired signal, slowly move the reflector back in a downward direction until the correct signal is at a maximum. Make a mark on the antenna mount to indicate this upward peak.

7. While still observing the spectrum analyzer, now move the reflector in a downward direction. To verify that the antenna is not on a lower-strength satellite sidelobe, continue the downward movement past the point of loss of signal. Once it's apparent that further downward movement will not yield an increased desired signal, slowly move the reflector back in an upward direction until the correct signal is at a maximum. Make a mark on the antenna mount to indicate this downward peak.

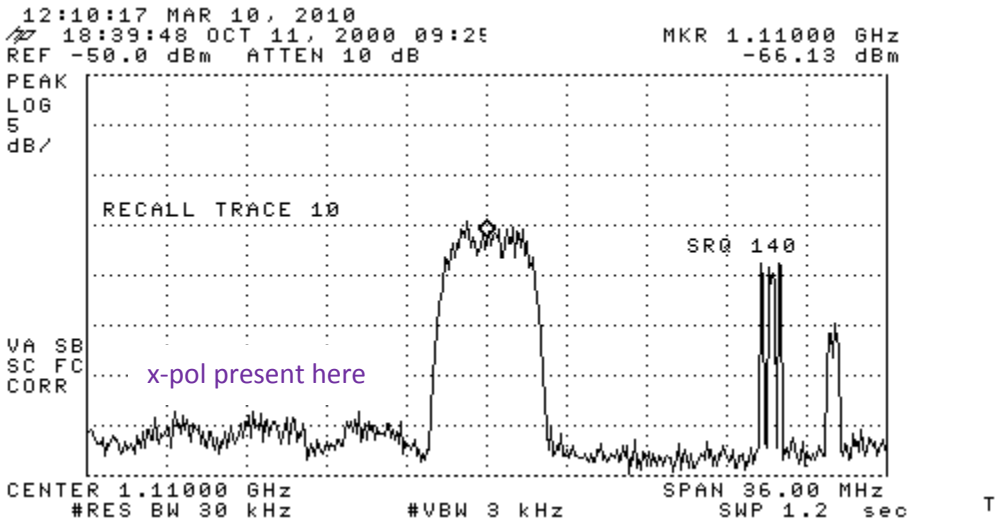
8. As a final elevation adjustment move the reflector to a point which is equidistant between the upward and downward peaks previously marked. Depending on the antenna geometry, this final elevation set point may coincide with the upward & downward peak points.

X-pol Energy Minimization

Rotate the antenna's feed while watching the spectrum analyzer display. Note that the x-pol (undesired) and co-pol (desired) signals change in amplitude. Stop the rotation of the feed when any x-pol signals are at a minimum. This should also be the proper polarization setting to maximize the desired signals.

Typical spectrographs:

Before Adjustment (non-optimal)



After Adjustment (optimized)