

**Exp Date:** Week of 03/10

**Source:** CasA

**11.432 GHz Source flux:** 305 Jy

**11.432 GHz Current Apt Eff:** ~40%

**11.432 GHz Expected Apt Eff:** ~58%

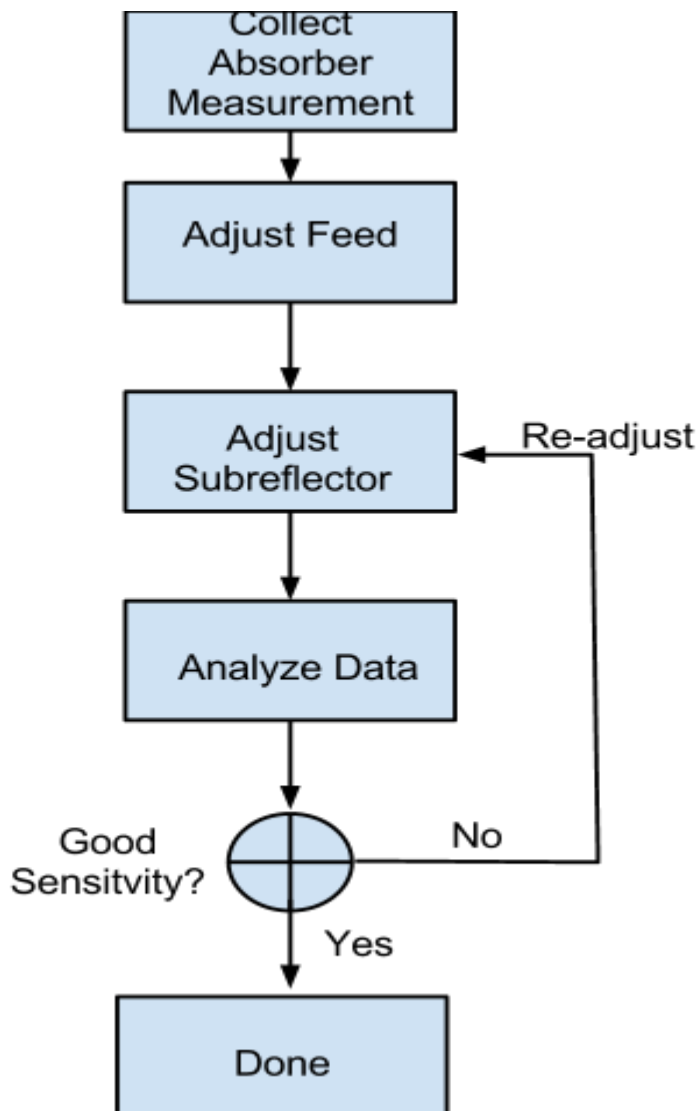
**11.432 GHz Tsys:** ~60K

**Expected increase in total on-source power :**  $1.27 - 0.91 = 0.36$  dB relative to 60K Tsys

**Preliminary Setup:**

- 1 Handheld controller functional?
- 2 Reference markers for pre-adjustment positioners of Dewar and subreflector
- 3 Determine thread pitch of subreflector mounting bolts.
- 4 Setup UDC for Ku band observing (Luff = 8250 MHz)
- 5 Configure mk4/fs for Ku band observing

**Process:**



### Absorber Measurement procedure:

- Place absorber in front of feed
  - measurement broadband spectrum
  - measure VC total power counts

### Feed adjustment procedure:

- Only necessary to perform once since focal depth of optics is ~4 inches long
- Position adjusted from ground with handheld controller [Katie/Jay]
  - 2nd set of eyes watching reference marker on Dewar to avoid hard limit
- Coordinated in real-time over phone/RDP SA monitoring [CJB]
  - Search for peak in SA total power as a function of feed position over ~6 inch
  - ***Use length of wire tied to positioner extended to ground compare against ruler on pedestal as a temporary measure of payload translation from ground. Ultimately, drive motor encoder will be monitored for this purpose***
  - Search time should not exceed ~30 seconds to avoid temporal decoherence
  - no mk4 measurements in these procedure

### Subreflector adjustment procedure:

- Antenna at stow for adjustments
- Adjustments in increments of 0.125 inches [Katie/Jay]
  - Adjustment by equal turn of threads
  - + movement towards receiver with current position defined as origin
  - - movement away from receiver with current position defined as origin
- SEFD used as metric of optical alignment [Ed/CJB]
  - execute mk4 five-pt to adjust pointing
  - on-off to estimate SEFD
  - collect broadband on/off measurements with SA

### Data analysis procedure:

- Mk4 SEFD processed by fs [Ed]
- Broadband sensitivity computed using MATLAB script [CJB]

### Decide

- Done
  - Keep making adjustments until a maximum is located, this requires that adjustments are continued until a discernable peak in the aperture efficiency is identified.
  - After moving past peak, re-position SR to location of maximum and repeat sensitivity data collection
- Re-adjust
  - if peak has not been identified