

**8-bit continuum test at S-band**  
**Three Sources = J070306, J070810, J060805**

Observations at VLA S-band were made in continuum mode using the 8-bit samplers with a total bandwidth of 2 GHz. The sources were located at 10deg declination – uncomfortably close to the ‘satellite belt’ centered at -5deg declination and there was significant RFI in the data. This observation is considered to be a ‘typical VLA S-band observation’. The data were edited & reduced carefully by hand in AIPS (by Rick Perley) and also run through the VLA pipeline with no prior flagging or other processing. The resulting calibrated data was imaged identically.

A comparison of the images using the AIPS and pipeline processed data are given below where the Peak & RMS values are given in microJy/beam:

Source	AIPS processing Peak / RMS / Dyn Range	Pipeline processing Peak / RMS / Dyn Range
070306	530. / 2.8 / 189:1	520. / 2.6 / 200:1
070810	6300. / 4.7 / 1340:1	7720. / 5.7 / 1354:1
060805	170 / 3.5 / 49:1	163. / 3.3 / 49:1

For the 3 calibrators used in this observation, a comparison of the flux is given below:

- J1007+1356: AIPS-processed values are 3% higher than pipelined values.
- J1254+1141: AIPS-processed values are 2% higher than pipelined values.
- J1445+0958: AIPS-processed values are lower by 2% at 2 GHz, higher by 2% at 3 GHz, and higher by 6% at 4 GHz than the pipelined values.

This is excellent agreement in the absolute flux density scale.

The differences in the image brightness scales for source 070801 is probably because the satellite compression is stronger on the target source than the calibrators, giving a differential correction. In this case, it is not clear which result (AIPS-processed or pipeline-processed) is correct.

**Bottom line:**

The VLA pipeline is doing as good a job on editing and calibration as a black-belt radio astronomer can do with a very careful editing and calibration. The pipeline takes about 5 minutes to set up and run. Manual calibration took about 3 hours.

In Rick’s own words: “Your Pipeline Rocks! :)”