Alan recommended I write down the on going problem we have run into since installation.

During the flight to Biloxi, we tested the MMR on N42 HWX mode after a swap of DAU from 43 to 42. It failed approximately 1 hour into the flight with the same ongoing saturation problem. Remembering 43 has shown no signs of saturation on the very few short flights we have been able to accomplish. We have also swapped out the TWT transmitter with our shelf spare. RPs have been swapped during the failure on 30 July 2018. During the HWX mode failure en-route to Biloxi, the IBIT showed an indication of MONO CAL and TGT INJ FAIL. I reset the master, as well as long and short resets on the RP, but the failure persisted.

Other on-going problems on 42:

1.      The tactical display is once again showing us where we are not. This has been an ongoing problem. The main display is correct but the tactical display on both the master and viewer show us in a location other than the correct one. I reset the computer and it still showed us in the incorrect position. The flight directors report this happened often during the TORUS flights in the Midwest.

2.      Sporadic TGT\_INJ\_FAIL on 42.

3.      GPS on 42 still shows sporadic degrading even with a FOM of 1. We are not sure if 43 shows this problem.

4.      Repair of spare DAU with you under warranty. FER has been sent in under a work order.

5.      At times, the viewer does not display any data while master is in HWX or NAW modes. Everything else is displayed properly. We found a work around of going to SS mode for a few sweeps on the master. When the master goes back to NAW or HWX mode it is now normal.

6.      Do both aircraft have the same software on the RP?

We have seen TGT\_INJ\_FAIL on 43 at sporadic moments, but have seen no effects of this indication.

Both aircraft are waiting for the software drop from ELTA in hopes of correcting the CF Radial problems.

Within the data set of the CF Radial, it was questioned by the scientific staff, if we could turn off the HWX\_Range\_Doppler\_Map variable within the Spectral Data. This would give us a substantial saving in the amount of data we would be archiving on the airplane. In an email, you said data recording of the Spectral data could be turned off. Can we do this ourselves?

This is the last response to the CF Radial questions:

Item 1:

The basic HRD/NSSL request is that a CfRadial file be generated on the aircraft that reflects the existing CfRadial file (with the modifications we have communicated previously), but with the HWX\_RANGE\_DOPPLER\_MAP variable removed. This is the CfRadial file that will be used for all future research and operational purposes.

NSSL is still interested in having access to the HWX\_RANGE\_DOPPLER\_MAP variable as is. Therefore, two options exist (we do not care which one...whichever is easiest):

1)  AOC \*also\* archives the CfRadial file with the HWX\_RANGE\_DOPPLER\_MAP variable and all other variables included. This file would be used for no other purpose than having access to the HWX\_RANGE\_DOPPLER\_MAP variable if so desired.

2) AOC \*also\* archives a CfRadial file containing only the HWX\_RANGE\_DOPPLER\_MAP variable.

Item 2:

If I recall correctly from the 3 Oct radar meeting, you can ignore the request regarding BATCH\_BAND\_WIDTH.

Item 3:

NSSL did not care whether SWEEP\_NUMBER was set to 0 or 1. They thought that “1” would be more conventional, however, since volumetric scanning isn’t being done with this radar.

Item 4:

If I recall correctly from the 3 Oct radar meeting, you can ignore the request regarding RCS\_REFERENCE.

Item 5:

I believe there was simply a request for additional info on how to interpret dBZ in the NAW files. How do we translate what is provided in the NAW file into a reflectivity value?

Additionally,

Item 6: We requested that the WIDTH variable (spectrum width) and NCP variable (normalized coherent power) be included in all CfRadial files. It was assumed that their radar engineers understood these standard radar quantities. We acknowledge that radar processing like SIGMET RVP-900 does not compute/output NCP, rather only SQI. If we can have NCP for the MMR, that would be great. [NCP is described in at least one legacy publication with NCAR coauthor(s) as effectively the “ratio of the Lag 1 power to the total power”.  I assume that “Lag 1 power” corresponds to the power contained in the portion of the velocity spectrum that the processor used to compute the mean velocity. NCP provides the best unambiguous measure I know of for removing range-folded echoes.]

Item 7: We requested that if the VEL and DBZ cannot be properly flagged (we do not consider 0 to be a proper flag since the data can have that value), then the data flag attribute needs to be changed to reflect the actual flag (i.e., 0) being used.