

S86 T106 Titan Bistatic
Experiment

DOY 296-297, DSS-43 & DSS-34

Oct. 23-24, 2014

①
T106
DOY 296-297

NOPE: Lu

Dusty & Mitch also in ROC

Ops room: Aseel, Elias, Danny, Dustin
Dick, Phil Nicholson, Ralph Lorenz
Earl, Scott, Emily came by

Phone: Essam & David R.

ACE: Grant

Ops team in ops room @ 1:30pm

Started configuring receivers.

Plan: X-band RSR1, S-band RSR2, Ka-band WVR1 & 2
VSR is red
Dustin Elias Danny

Danny reported problem configuring Ka-band LCP on WVR.

Error message: Configuring KLCP, Polarization in RCP,
not LCP

He spoke w/ Sue Finley. She said WVR cannot
access KLCP!

Considered putting S-band on WVR.

Same error message w/ SLCP and also XLCP.

(Elias switched to Ka-band then asked him to switch back to S)

~2115 Called Lu on phone to make him aware of problem. Dusty & Mitch there. Discussed w/ Mitch. He will look into it (will look @ ~~IF~~ map).

One option is to put SL & KaL on RSR & SR & KaR on WRSR, but know that balancing S is higher priority.

Asked Mitch/Dusty to focus on fixing Ka-LCP problem on WRSR.

2130 Called ACE. Any questions? → no ^{me} → Ask stations to do normal pre-cal activities & not to go to point when done

2140 34 Pre-Cal

2145 43 Pre-Cal

2151 43 & 34 Briefing
Per SOE, BM & timeline
~~Have BM~~
Normal pre-cal activities
Do not go to point
34: No TLM @ all ^{ACE} → yes
Ka-band 011047
S-band 010551
Weather fine. \emptyset wind
34 equipment green
43 " =
Lu: What team is working?
→ Team B until 0800
then Team D

Danny on phone w/ Mitch & Duoty trying
to resolve KLCP problem on WUSR

(2)
TIOG
DOY 296-297

Phone message from Graham:

Something about KLCP & switch 43 in A position..

...
mono LNA

2207 Called Essam on cell phone to ~~confirm~~ discuss
rwr situation & confirm plan. Essam agrees
to balance/optimize X first, then S. If have
to give up one, the KLCP.

Therefore, X & S on RSRs, Ka on WUSR
(as currently configured)
(other option was KL & SL on RSR, KR & SR on WUSR)

2218 43 ready for cal. Completed steps 1-10 on
page 10

2220 Asked 43 to reboot WUSR2 (per Mitch's suggestion)

2221 Told 34 having difficulty connecting to Ka LCP on
WUSR. Trying to resolve so standby for calibrations

34 → Complete steps on page 10?
I thought they already did them!

me → go ahead

2226 43 said WUSR2 reboot completed

2233 Graham from Canberra on phone.
Talking about WUSR & KLCP. Will have someone
on their side look into it (Steven March).

Said 34 noise diodes calibrated yesterday
43 noise diodes w/in last week

2228 Start 43 Pre-Cal calibrations Procedure Rev 6

2234 34 done w/ steps on page 10

me → We're still trying to connect to KLCP & working on it. We'll let you know when we are ready

Mitch suggests to put switch 43 in B position (still getting some msgs on WSR after reboot)
Switch position shouldn't be an issue.. It's not on RSR, but..

2252 Asked 34 to put switch 43 in B position
→ Error message gone !!

2254 NOA (Lu) to 34 ka LCP has been corrected

2303 Start 34 Pre-cal calibrations

~~to be~~ Realized 43 XL on RSR does not have correct fgain. Not sure of impact to calibration if make changes later. Will change after 43 X-band cal & repeat after S cal if have time

2309 43 X band cal done

Told station will repeat after S cal if have time

23130 RSRIB (XLCP) fgain change from 60 to 37
then Start 43 S-band calibrations

<u>Fgains</u>	43	XR 60	34	XR 55
		XL 37		KR 55
		SR 50		KL 35
		SL 30		

3

T106

DOY 296-297

2350 Told 34 done w/ pre-cal
calibrations

You can go to point at this time

DOY 297

0002 Told 43 done w/ S-band calibrations & values
look good, but want to go over X-band steps
again quickly, on page 15.

Configure rcvrs for X-band XR & XL

(want to repeat because did again change
after X cal was over)

0029 Told 43 X-band calibrations look good

Re-configure one rcvr to SRCP & go to point

Closed-loop rcvrs

43 X DCC 04

34 X DCC 06

S DCC 07

Ka DCC 08

0108 Told 34 & 43 that @ 0111, SNT meas.

0113 Signals

0116 34 re-config diodes @ end of SNT

(mt Lu had called and asked if can configure
diodes to nominal value after SNT meas., so I asked
stations to do that, but then he told them to
re-configure to 12.5k diode & on phone said that he
forgot about steps 7 & 8 on page 21. I thought they

wanted to monitor SUT during baseline, but no station completed SUT steps per procedure)

011646 34 I/L X & Ka

SFROs @ 34

Ka-band 1, 2, 4 k -1000

16 k -2740

X-band 1k -450

Put signals @ 250 max per Essam's request—
signals were drifting to the right for a while
(due to S & Ka powered on @ same time?), but
then started to drift to left

012600 34 switch 43 in A
Mono enable

Spurs!

43 X \pm 300 Hz

43S \pm 160 Hz, sometimes \pm 80 Hz

34 Ka \pm 246 Hz

021000	P./N.		gain
43 XR	53.75	_____	60
43 XL	26.58	_____	37
43 SR	40.07	_____	50
43 SL	14.13	_____	30
34 XR	48.45	_____	55
34 KR	48.6	_____	55
34 KL	N/A	_____	35

0214 Told 34 still see spurs at +/- 246 Hz & want DR

0220 Told 43 also see spurs at x & s-band
 X +/- 300 Hz
 S need to check post-pass, but appear to be at +/- 160 Hz & smaller at +/- 80 Hz

0229 C110654 DSS-34 DR
 (C110655 DSS-43.. given later)

0249 David on phone (Essam called too)
 Mono load & running w/ new value of Tau
 Antenna running w/ new pointing model
 Cloudy in Camb,
 larger than expected Mono offsets
 Consistent 3-3.5 mdeg constant
 Keep in system when disable Mono
 Continue w/ updating until disable. FF at that time, offsets are consistent w/ what

we want, keep.

FF not, clear & enter manual

-3.5 in EL

XEL leave @ \emptyset

Variation due to overcast.

Essam \rightarrow elev. angle as a factor?

Already -4 mdeg correct in model.

Data suggests wants another \sim -4 on top

Closer to -4 than -3.5 mdeg.

Me: what if weather changes

David: vote for what we see now & assume

w/ low speed wind doubt will change formation of clouds, so go w/ what we have

David checking w/ station

David back. Things to consider:

① 0305 Wind prediction not to change

Content of moisture will go up then down

② Converted ^{error} to XEL

Suggest:

Clear

Enter +1 mdeg in XEL

-3.5 mdeg in EL

Graham Baines will go to ops area to make sure they do it correctly

0303 Ka-band offset to put back
at 250
1, 2, 4 K -1250
16 K -3000 (putting it back at -2000)
oops! Didn't want to change the 16K!

J106
DOY 2062

0307 Told 34 to enter disable monopulse,
clear offsets, & enter manual offsets
+1 mdeg in XEL, -3.5 mdeg in EL

1.2-1.5 drop in Ka-band

0308 Manual offsets cleared & manual offsets
→ Back up

0309 in B position

Mini Cal #1

032115 X-band ffrna 30
43

Then others

Ka-band @ 60

042139 ECHOES!!!

042345 Told 43 & 34 that we see
beautiful echoes at all 3 bands

0427 Ka-band 1, 2, 4 kHz offset -2100

042816 LOS

043609 AOS

044753 LOS

044815 AOS

More Ka-band offsets

0554 still see X-band R & L

0555 Told 43 Q34 @ 0604 will do SNT meas.

060830 34 & 43 re-configured

£

061400 P./No

43 XR 53.3
43 ~~XL~~ 39.43
43 SR 39.77
43 SL 23.06

34 XR 47.98
34 KR 47.86
34 KL 20.77

061350 43 & 34 1/L

062100 Told 34 to change ~~the~~ switch 43 to ~~A~~ position @ 062600 & enable mono @ 062700

34 → & manual offsets

me → leave

after checking w/ David

062600 34 in A position

062700 34 mono enable

David: v. small corrections. No change in sig level
(0.2 @ most dump)

0631 34 asking if disable mono
→ yes

0633 Told station we'll collect ~ 20 min
of noise baseline, then do mini cal,
then go to stow to do post-cal calibrations

065535 Switch 43 in B position

0657 Told 43 & 34 want to do Mini-Cal
start @ 0659

0659 Mini cal. Step 2
43 diode off too soon. Repeat 43 mini
cal start step 2 @ 070300

0710 Told 43 & 34 to go to stow &
complete steps 1-9 on page 10

0711 ACE (Graham) asks if he can leave
→ yes.

0717 34 completed step 9 on page 10
(Ready for cal)

0718 43 completed step 9 on page 10
& step 1 on page 12
(Ready for cal)

0751 Told 34 we are done w/ calls & values look good. The experiment was a big success so our thanks & appreciation for outstanding support.
34 → Glad it went well

0752 Told NOAA we are ready to release 34
→ go ahead

0753 Told 34 you are released. Thank u v much.
Continued w/ 43 calls

0845 Done w/ 43 calls
Told 43 as we told 34, the experiment was a big success & we greatly appreciate your outstanding supports. So thank you v much & u are released

Playbacks

43 Pre-call 222800 - 003000

34 Pre-call 230300 - 234800

Bistatic 1 & 16k 004500 - 071000 (includes minical 2)

50k 004500 - 065500 → stopped before minical

43 Post-call 071800 - 084700

34 Post-call 071800 - 075200