

883 T101 Titan Bistatic &
Occultation
DOY 137, DSS-43 & DSS-34

5/17/14 (1)
DOY 137
T101

NOPE: Lu & Sandy

ACE: Bill M.

OPS: Aseel, Dustin, Elias, Danny
Essam, Jeff, Dick
Earl stopped by @ beg. of bistat
Scott for occ

Station: Crew D

100430 Voice check
Station, NOAA, ACE

100450 Briefing
Weather: Fine. No wind.

1007 Bill^(ACE) called

1011 Lu to 34
when done with normal pre-cal activities
don't move to point. Let us know so that
RS can do their activities.

1040 Lu asking 43 to stay on point after done w/ coils for RS

43: Air Blower is on (default is on)

1043 (Normal procedure during night)
Lu called. Stations almost done
→ Air Blower. During winter. Changed procedure.

Fgain	43 XR	60
	43 XL	37
	43 SR	50
	43 SL	30
	34 XR	55
	34 KR	55
	34 KL	35

1051 43 & 34 ready for bistat.

Asked 34 for name of 4th order model

1058

34 coils

Asked 43 & 34 to complete steps on pages 7-10

1059

34 completed all steps

& let us know when ready

1001

Asked 43 if they have also completed steps

→ Affirm. On page 12 @ moment

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DOY 137

1103 Lu asking 43 & 34 if they've also completed directives on page 10
→ Affirm. As close to stow as can be

1105 Started Pre-Cool bistatic calibrations

~1126 Remembered that forgot to ask 34 to put switch 43 in B position!!! Told them will complete X-band & then go back & do Ka-band. Was on step 5 of procedure.
(Asked 34 which position switch 43 was in, & confirmed it was A).

114335 34 switch 43 in B position.
Go over steps again, but Ka-band only

1212 34 Cools done.

1214 Told 34 Ka-band values look good. At this time, you can go to point.

1252 43 Cools done.

125250 Told 43 SSCP values look good, we are done with calibrations. At this time, you can go to point

1300 43/34 saying both antennas on point.

1305 Lu asking stations to change diodes to prepare for SNT. To prevent

1307 Stations reported diodes changed

1308 Lu called on phone & said stations ready
for SNT

131144 SNT measurement

131340 43 X 19.0 } Consistent w/
S 32.9 } edMD

1314 34 X 21.2 } Consistent w/
Ka 36.1 } edMD

131450 Told 43 & 34 done w/ SNT meas.
Reconfigure per steps 7 & 8 on page 21

131515 43 & 34 completed steps 7 & 8

131545 Switch 43 in A

131950 X-band 1-way signal Rec'd -200 Hz

131955 Ka-band 1-way ... Rec'd -760 Hz
Still seeing spur! +/- 180 Hz

132145 43 & 34 1/L X & Ka

132500 SFRO VSR1A s/c 1 -1110 Ka signal @
about +350

132707 SFRO RSR1A & B s/c 1 -400 ~~Ka~~ signal @
about +200

1329 SFRO WUSR2B s/c 1 -400

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DOY137

133125 S-band

Resid - 55

133500 P_c/N₀

			fgain
43XR	55.27	—————	60
43XL	30.56	—————	37
43SR	42.04	—————	50
43SL	20.98	—————	30
34XR	49.9	—————	55
34KR	49.0	—————	55
34KL (error channel)	49.0 40.0	—————	35

→ 1334 Lu called. DSS-35 is tracking.
Ka-band matches.
X-band 16 dB down. X-band pointing not good.

134145 Mono enabled
nt dB jump in power!
Corrections Az +3 EL -2.5 mdeg elevation 69.7

134610 Told 34 we still see Ka-band spurs
±180 Hz around carrier. Same ones we
saw during recent tracks. Open DL for
that.

140405 C110221
Seeing spur @ 35 as well!

1405 Called Lu on phone
spurs @ 35 as well!
Must be something they share that is
causing interference.
Haven't seen it @ 25 : (but track was
~ a month ago)

1415 Lu called. First DR for spurs:
213/236

Now have 8 DRs total (from last year
to today's track).

1435 Ace to 43;
Reminders that 10-11 mins away is
transmitter on time

43
144611 Xmtr on

1458 Set SFROs before histat in
X band drifted ~130 in 1hr 40min
~~was~~ @ -330
Put @ ~~in~~ +200

145856 SFRO RSR1A & RSR1B S/C 1 -SSO
Put X-band in 1K @ +210

~1459 SFRO WSR2B S/C 1 -SSO

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POY 137

1502 Mono correct
A3 1.3 EL -5.49 elev. 61°

1503 Ka-band 1K resid -210

-1110	current SFRO
210	current location
250	desired location
<hr/>	
1570	

1505 SFRO VSR1A & VSR1B 1K -1570
→ Ka-band @ 226

1506 SFRO WVSRIA 34 X -550

150830 Ka-band 16K @ -1350
Put @ 2000
SFRO 2 - 3350

151000 ACE telling 43 Reminder for xmtr off
152117 43 xmtr off

152330 Weather update from 43

152430 Told 34 to disable mono @ 152800
w/o clearing offsets

152800 34 mono disabled
Offsets A3 -0.42, EL -4.65

152830 Told 43 & 34 will be doing
mini cal @ 153200. Already on step 1.
Start 2 @ 153200

153140 Switch 43 in B

Ka-band
Power
fluctuations
looks like
rolling!
Due to
weather?!

Page 17 for 43
18 for 34

153200 Start mini cal

153230 34 LOS

153410 34 mini cal done

153830 43 mini cal done

154230 Told 43 & 34 that we are about to start ingress bistatic observation. From now until ~ 171427, you won't be able to lockup on signal

Looking for echoes $\bar{0}\bar{0}$

Dick betting we'll see one by 1655... #1 each

16:55 No echo!

#7 !!

170611 Told 34 to put switch 43 in A @ 171348

171025 Told 43 & 34 they should be able to acquire signals @ 171427

171100 Prdx switch 3way w/ 3

1713 1-way signal

- ~~649~~ ^{int} ~~880~~

- ~~2400~~ Ka-Band

171348 34 switch ~~43~~ in A position

1715 Coherent signal

171730 34 mono enabled
no visible jump in power

171930 Told 34 to disable Mono
@ 172200 w/o clearing offsets

1721 WUSR1B SFRO S/C1 -2810 (1-way Ka)

172130 WUSR2B SFRO S/C1 -850 (1-way X)

172200 Mono disabled

Corrections Az -1.02 EL -0.22 elevation 35.4°

172400 Told 34 to make switch 43 ~~switch~~
changes @ 172730 & 173700
(for Mini Cal #2)

172520 34 LOS Ka Inghers

172730 34 Switch 43 in B ← Mini Cal #2

173700 34 Switch 43 in A

1739 1-way signal ... & very soon after... ↘

173920 2-way signal !! Very fast

174300 Mono enabled
No visible jump

Corrections Az -0.44, EL 0.52, elev. 31

174545 Told 34 to disable mono @ 174920
w/o clearing offsets.

WUSR2B
173911 1-way
signal?

174920 Mono disabled

1-way signal X resid -700

1750 43 & 34 in back 1-way

175120 Switch 43 in B

175128 RSRIA & IB SFRO 1 -1000 (to put X signal @ +300)

175141 USRIA/IB SFRO 1 -3000 (to put Ka signal @ +350)
& WSRIB

ECHOES !!!

Over lake!
First ever Ku-band
echo!

1809 Echoes gone

180942 Back

191130 Told 43 & 34 timeline has SNT
meas @ 191600 but we're going to
delay that until 197000. Steps on
Page 21

Still seeing Echoes!

191622 Echoes gone tl

6

1917 SNT measurement

1919 SNT completed

192030 ³⁴ Switch 43 in A

1921 43 & 34 1/L

X 1K residual 219 (w/ SFRO -1000)

Ka 1K residual 33 (w/ SFRO -3000)

193002 Told 34 to enable mono @ 193500

193500 Mono enabled.
~~Elevation~~ jump 3-5 dB jump !!!

Az 5.19 @ 7.46 8.3° elev.

193623 34 Mono dis

193630 34 switch 43 in B

1945 GOT @ 6.3°!
Asked stations to go to stop

1950 End recording All except 16K

194930 Told 43 & 34 when get to stow,
follow steps on page 10 except last step

195550 43 & 34 completed steps on
page 10

Post-Cal calibrations

Release stations:

Calibration values look good so we are
done. we are v. grateful for your outstanding
supports & all the work in preparation for
today. The experiments were a big success.
Thank you v. much.

Playback:

Pre-Cal 110600 - 121200 34
110500 - 125200 43

2-way 1650 - 1810 Occ 2-way

1-way w/ offset 1711 - 1750 Occ 1-way w/ offset } Rep
only

Bistat in 1250 - 1711

Bistat out 1749 - 1950

Post-Cal 1950 - 2035 34 & 43