

DSS-47  
First time

539 Rev64  
Rings Occ (Chord) +  
grazing ionospheric Occ

4/10-11/08  
Rev 64 (1)  
DOY102

ACE: Herlen  
NOpe: Lu  
Rs Ops: Aseef, Danny, Elias, Don

DSS-43	Pre-Cal 102/0540, BOT 0645, <del>1045</del> 1120, Pass # 3842
DSS-14	0545, 0645, 1045, 3841
DSS-25	0545 0645 1045 3841
DSS-34	0545 0645 1120 3842

DSS-47	0602 0632 1030 Pos 1100 3589
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↳ Not direct line w/ Narrabri. Talking w/ Canberra

Goldstone Weather: Partly cloudy skies, 7-10 mph winds  
Canberra Weather: Fine, s-band Maser rec'd at 43

Again:	DSS-43 550 X61	LCP	DSS-43 X37 \$35	NO KLCP
	DSS-14 550 X61		DSS-14 X37 \$35	supporting antenna
	DSS-25 X56 K56			
	DSS-34 X56 K56			
	DSS-47 K60		NO SLCP at 43	NO BWG-XLCP

Pidx: 1-way & 2-way/3-way w/ 25

→ There's a preceding DSS-25 (OTM) pass that EOTs at 0525 (end post-cal 0540) but can't have long can't pass so had to break it. Station said they'd have to bring antenna down to make TLC green & configure manually

FFHi a ↓  
FFtna 2 IS

Glass monitored but not recorded  
051925 Ka-band signal



Change to DKF:

Stations were supposed to be 2-way or 3-way at BOT, but real-time decision to turn XMTR off at 0310 ERT, so they'll be 1-way at BOT (1-way at 0310 + 0224 RTLT = 0534)

054020 Station 47 on the net

054121 All stations pre-call

70-m DIL only support, no TLM support

DSS-34 weather: Scattered high clouds, eq. green

DSS-25 weather: Partly cloudy

DSS-47 RSR error message: IFS error: 'out RSR2A. In 47\_K\_RCP' Returned  
Verify failed: IFS-IF

set auto ifs off

← she said to do

make sure you have input to RSR. There's no IFS.  
She will ask Chuck to put this in the script.

VSR at Camberra has Outchik errors. Called Sue Finley & she said not to worry about it. Suggested he brings VSR down & then back up.

- DSS-47 desired Amp -10.0, ATT setting  $\emptyset$ , ADC Amp -215  
Attenuator never going to be over  $\emptyset$ .  
She told them it's too low, but they said it's OK.

- 14 signal ~ 0602

0617 14 has ca in-lock

0618 25 1/L w/ Ku-band

061925 25 mon. enabled. ~ 2 dB improvement in SNR

062320 43 1/L

NO 34 or 47 signal yet

w/0629 DSS-47 signal in open-loop!

063312 47 has CL 1/L !!

0646 Told 47 we're seeing spikes around ca & on the noise floor. If they are seeing it & know what's

0648 ↓ Running FFT on CL receiver, not seeing <sup>causing</sup> it  
47 said

0654 Station said that they not seeing spikes in FFT doesn't mean they are not there. They are looking at OK & don't have good resolution

0655 50 Hz resolution

Power frequency they are using is 50 Hz  
Station thinks may be power generator.

Lesson:  
Periodic modulation

Tried to change subchannel to see if spikes were in other

0709 P<sub>r</sub>/N<sub>0</sub> Values, TLM ON

14X	47.4	14XL	22.15
14S	44.83	14SL	21.17
43X	45.33	43XL	23.23
43S	42.06	43SL	42.02
25X	40.82		
25K	49.51		
34X	39.72		
34K	48.33		
47K	50.72		

0713 Asked all stations to enable SNT on all d/L channels

14X	19.8
14S	20.9
43X	30.155
43S	35.62
25X	24.532
25K	52.041
34X	32.384
34K	76.227

Done 0717

0718 Asked 47 if they have SNT enabled & if so, value cannot enable SNT they don't have equipment  
21.22° K for antenna arrays  
45 estimate byt doing calculations & will give us better value

0719 Best estimate that overall system SNT is  $\uparrow$  54 K  
raise system noise temp w/ array

Monopulse decision: offset seems to be constant at 34 dB.

0725 Asked 47 what correlator BW they are using for the arrays

Correlator BW  $\Rightarrow$  Canberra checking w/ Narrabri (not direct line)  
500 kHz  $\Rightarrow$  64 MHz !!  
500 kHz is used

0729 Asked 25 to disable monopulse & keep offsets

073030 Asked 34 to disable monopulse & clear offsets

0730 TLM off. Started baseline.  $\approx$  9 dB jump in  $K_a$ .

0733 P<sub>c</sub>/No, TLM OFF

14X	56.45	14XL	32.1
14S	44.85	14SL	21.38
43X	55.05	43XL	32.54
43S	42.27	43SR	42.35
25X	49.75		
25K	49.10		
34X	49.14		
34K	48.74		
47K	50.06		

0730

~~47~~ prob. w/ Ca residuals. Think it is an anomaly in RCVR. Wouldn't want to halt RCVR wouldn't impact RS.

47 Intensity showing modulation as well!

~~If they divide 64 MHz~~ to 120 channels  
 How many channels are in the 64 MHz

0743 Nope told 47 that they checked their prdx against 34 & they are close.

0745 Asked 47 how many channels are in the 64 MHz BW?  
 ⇒ 128 channels

David: effective BW of 500 kHz per channel.

0746 Don said P<sub>c</sub>/No drops are about 5 mms apart.  
 Assum: Intensity modulation as well!  
 ~ .5-1 dB drop.

0751

0751 Narrabri has just changed the signal channel.  
& that increased the power. But they'll keep configuration  
⇒ we stopped seeing drop every 5 min.

0754 Told stations that we are starting to go through  
the rings & expect that they'll maintain lock until  
we get to ring B at ~0800.

47 spikes went away when signal level dropped.  
leakage from strong carrier?!

David:  
47 Doesn't have dynamic range to go as far (in power compared  
to 34)  
its noise floor is higher

080002 14 LOS (ring B)  
080014 25 LOS

0801 Nope asking 25 to configure d/L channel in open-loop  
mode & keep it until 080707 (end of ring B).

47 tracking signal well.

0812 conv. w/ Nope & 47.. 47 not locking up  
on signal.. think they are locking up on  
spurious signal.. seems large doppler residual...  
rcvr real until they go there & fix rcvr..  
clarify spurious sig<sup>due</sup> equipment faulty DSP board of rcvr  
Why didn't have valid rcvr lock (slc signal)  
call pass. Didn't affect BS open-loop.

0817 Lu<sup>called</sup> they have not locked on slc signal but on spike

0816	Pc / No	Baseline between rings
14X	50.06	14XL 31.58
14S	44.61	14SL 21.58
43X	55.73	43XL 33.11
43S	42.4	43SL 42.76
25X	49.59	
25K	48.89	
34X	49.74	
34K	49.55	
47K	51.76	

Multiplying by Ca .. strengthen Ca, stronger noise proportional to Ca noise  
 Multiplicative noise  
 no additive noise  
 same independent of Ca power

0820 Told 47 that the spikes seem to be related to Ca power.. they appear when Ca is strong & disappear when Ca is weak

0832 Asked 25 for weather update clear skies, 5 mph wind

0832 Fine & clear conditions

0833 47 weather clear, wind 0

0834 Nope asking 25 to configure D/L channel 8 to open-loop mode & keep it in O/L mode until 084038

0835 // 34

0841 25 has both rurs 1/L

08420 34 "

08430 43 "

084247 unable to get anywhere w/ DCC8, so they declared it real. They don't have another DCC.

47 won't have CL rurs capability at Narrabri until DOY 126.

084945 25 reported LOS  
3A drop in ka-band

0924 Told 34 that we're seeing degradation  
in ka-band power & wondering if this  
is what it could be  
=> thought it might be atmosphere  
=> not seeing it on other bands or 25 ka  
=> cleared up since we still clear or wind  
=> they have someone outside checking

Pointing degraded!

0930 R/No Baseline

14X	55.63
14S	43.79
43X	56.3
43S	43.01
25X	49.25
25K	48.12
34X	49.87
34K	48.94
47K	52.33

14XL	29.08
14SL	21.99
43XL	32.31
43SR	43.09

1071 Asked 34 to enable monopulse.  
2-5 dB increase!  
34 ka-data degradation

102830 Asked 25 to enable monopulse, in 1dB increase  
n1031 LOS over station



1040 Asked all stations to enable SNT  
on all d/L channels

14X 34.1

14S 29.8

43X 21.382

43S 26.237

25X 38.403

25K 90.674

34X 25.522

34K 50.261

1045 Released 14 & 25

1052 Asked 34 & 43 to disable SNT

1055 released 43 & 34

Playback 14, 43, 25, 34 0730-1100  
47 06 -1100