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ACE:  
Ops: Lu & Jack  
NSOps:

S36 Rev 5A  
Ring & Sat. Occ  
(In) (In & Es)

12/18/07  
DOY 353

Pass 3727

DSS-63 BOT

Equipment Status: Green except for master equatorial should be tracking an encoder or computer mode (which they've been doing since last support [part that Elias covered]).

Weather: Overcast

0147 checked w/ SS if they were successful in loading the LQG coefficients file\*  
→ station confirmed.

0149 Nope connecting DSS-55 XLCP microwave configs.

### Fgain

DSS-63 X59  
S47

DSS-55 X54  
Ka 54

DSS-63 LCP 35  
DSS-55 LCP 30

Start recording 02:20

ffthi a 1  
ffth a 2 15

\* filename should have LQG in name. Probably 55-LQG.asc (antenna servo controller).

Next time request must come from Project. This time, Mike went agreed to write a CAD, but not enough time. This time local request from engineer at station: Pablo Perez. But request has to be in passive mode. Antenna brakes need to be on during issue of command

SNT measurements:

DSS-63: Enable .25k diode (X & S)

DSS-55: Enable 1k diode (X & Ka). Provides value closest to .25 K.

Enable for 2 min.

MFG already set to 20 (standard configuration).

Doing SNT in open-loop so that value is reported in the NMLog.

Measurement #1:

DSS-55: X: 24.17  
Ka: 98.84

⇒ Overcast!

DSS-63: X: 19.93  
S: 17.35

0300

SNT measurement #2

DSS-55: X 24.12  
Ka 5830 (not a valid value)

DSS-63: X 20.02  
S 16.92

0303 55 has X & Ka 1/L

0304 55 monopulse enabled  
SNT in open-loop.

1/L before turn to Earth completed.  
Wiggle @ Ka-band before monop. enabled.  
Prob. due to secondary axis change.

031500 55 clear monopulse & disable offsets  
(to see if wiggles were due to pointing  
or turn). Turn complete at 0315.

Wiggles still there! & drop in SNR (13 dB).

0319 Disable monop. & keep offsets.

0324 Wind speed 12 km/hr

(2) 0328 Baseline starts

0330 Pc/No recording:

SNR	63 XR	56.08
	63 SR	44.52
	55 XR	49.51
	55 KR	48.87
	63 XL	23.0
	63 SL	20.0
	55 XL	24.5
	55 KL	17.0

0330 Switch 43 in B position.

0353 Nope asked 55 to configure all channel 8 in open-loop mode (so that SNT values are recorded in NMC log when revrs are out of lock).

(outer part of ring B much less optically thick)

0434 55 has X & Ka inlock

0334 63 has S inlock. Trying X-band

0335 63 X 1/L

0438 Ka-band drifting

0519 SNT measurement #3

DSS-63 X 19.67  
S 16.3

DSS-55 X 23.33  
Ka 4236!

Station suggesting to make change to get better Ka SNT readings. Nope investigating Ka SNT values.

Told Nope OK as long as it doesn't impact recording or microwave configuration.

0554 Revrs 1/L

Asked Nope why 1st reading was OK.

Noticed oscillations @ Ka-band during egress.

Suspect there is a problem w/ LQG controller & may use some time at end to try to diagnose the problem.

Swap LQG w/ PJ controller. Suspect brakes have to be on to swap controllers.

Station said takes seconds to enter two directives.

062400 Swap controllers. (change to default controller). Station said had to put brakes ON, but recovered signal before rurs went O/L.

Oscillations worse!

Told station not to clear monopulse offsets during this. Want to keep them in system.

062740

~~06288~~ monopulse offsets cleared  
signal dropped when offsets cleared!

Wind speed: 15.7 km/hr.

063045 monopulse enabled!

signal dropped.

Station reported min. is not steady & signal is low.

⇒ Disable, clear offsets.

Asked station to enter +5 mdeg manual offset in elevation. First they entered .5, then 5

0636 +5 mdeg offset in elevation.

⇒ ~9 dB improvement in signal level  
(38.7 to 47.4)!

0637 asked station to try enabling monopulse

⇒ OK for few sec, then drop!

0639 station disabled monopulse

cut of time! S/C coming away from Earth point.

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Oscillation's diagnosis cont.:

Asked station for value of monopulse phase offset  
Entered for this track:

(Calibration values)

→ Phase  $-12.138^\circ$   
Gain  $-1.432$  dB

Entered calibration  $-97.0$  deg~~0654~~  
0654

Nope noted they saw fluctuations in signal level  
at Ka-band at Az  $160^\circ$  although controller  
is good until  $260$ .

Told him we started seeing them at beg. of expt.

0700 SNT Measurement # 4

X  $19.45^\circ$ S  $16.59$ X  $23.23$ Ka  $56.4$ good value! change that station  
made worked.

Ingress Files:

0220 - 0524

Egress: 0524 - 0710

0133 Oopppsss! reason why monopulse wasn't working  
is because switch 43 was in B position &  
we should've switched back to A position  
⇒ Nope confirmed it's still in B position.

DR # M104566 for Ka-band fluctuations.