Cassini End Of Mission

- S101 Rev 293
  - Includes
    - RSS In Situ Occultation
      - Times in CIMS: 258/0154 to 258/1252 SCET
        » Overlap Canberra coverage
      - Target of opportunity observation
        » Configuration not optimized for RSS
  - 2-way/3-way mode until the end
    - In case DST loses lock, be prepared to switch receivers
  - Telemetry ON throughout
    - Not optimal for occultation
    - Will record wide bandwidths on the open-loop receivers to capture telemetry
  - Switch to thrusters
    - Not good for gravity, but we'll collect anyway since we're in coherent mode
  - Expected LOS as of today: 258/115516 (Friday, 4:55 am)

DSN and ESA Antennas

- DSN Coverage

		Pre	BOT	EOT	Post					
17	257	2040	2145	0340	0355	DSS-25 CAS	TKG PASS EOM L1	7294	N006	1A1
17	257	2045	2145	0340	0355	DSS-14 CAS	TKG PASS EOM L1	7294	N020	1A1
17	258	0145	0315	1415	1430	DSS-35 CAS	TP RSSOCC EOM L1	7295	N750	1A1
17	258	0215	0315	1415	1430	DSS-43 CAS	TP RSSOCC EOM L1	7295	2659	1A1
17	258	0530	0615	1430	1445	DSS-74 CAS	RSS OCC EOM	7296	0142	1A1

- All DSN Level 1 supports
- S- and Ka-band will be ON during the Goldstone supports, but no equipment were scheduled
- Will monitor beginning of Goldstone support

S101 Rev 293 Open-Loop Receiver Assignment

DSS Prdx Mode	Operator	Ops Machine	Open-loop Receiver	Channels	Subchannels	Bandwidths KHz/16 bits unless otherwise noted
14 1-/2-way	Aseel	MSA via rsops2	RSR3	RSR3A -> XRCP RSR3B -> XRCP	1, 2, 3, 4 1, 2, 3, 4	1, 16, 50, 100 1, 16, 50, 100
25 1-/3-way	Aseel	MSA via rsops2	RSR1	RSR1A -> XRCP RSR1B -> KRCP	1, 2, 3, 4 1, 2, 3, 4	1, 16, 50, 100 1, 16, 50, 100
43 3-/2-way	Aseel/Elias	MSA via rsops1	RSR1	RSR1A -> XRCP RSR1B -> SRCP	1, 2, 3 1, 2, 3, 4	1, 16, 2 MHz/4 bits 1, 16, 50, 100
43 1-way	Aseel/Elias	MSA rsr2.cdscc	RSR2	RSR2A -> XRCP RSR2B -> SRCP	1, 2, 3 1, 2, 3, 4	1, 16, 2 MHz/4 bits 1, 16, 50, 100
43 2-way	Jay	rsops5	WVSR1	WVSR1A -> XRCP WVSR1B -> SRCP	1, 2, 3, 4 1, 2, 3, 4	1, 16, 50, 2 MHz/8 bits 1, 16, 50, 100
43 1-way	Jay	rsops5	WVSR1	WVSR1A -> XRCP WVSR1B -> SRCP (new EXP ID "share")	5, 6, 7, 8 5, 6, 7, 8	1, 16, 50, 2 MHz/8 bits 1, 16, 50, 100
35 3-way	Aseel/Elias	MSA via rsops1	VSR	VSR1A -> XRCP VSR1B -> KRCP	1, 2, 3, 4 1, 2, 3, 4	1, 16, 50, 2 MHz/8 bits 1, 16, 50, 100
35 3-way	Danny	rsops4	WVSR2	WVSR2A -> XRCP WVSR2B -> KRCP	1, 2, 3, 4 1, 2, 3, 4	1, 16, 50, 2 MHz/8 bits 1, 16, 50, 100
35 1-way	Danny	rsops4	WVSR2	WVSR2A -> XRCP WVSR2B -> KRCP (new EXP ID "share")	5, 6, 7, 8 5, 6, 7, 8	1, 16, 50, 2 MHz/8 bits 1, 16, 50, 100
74 3-way	Aseel/Elias	MSA via psdg5	PRSR 134.159.181.84	PRSR -> XRCP	1, 2, 3, 4	1, 16, 50, 2 MHz/8 bits
74 1-way	Aseel/Elias	MSA via psdg5	PRSR 134.159.181.84	PRSR -> XRCP (new EXP ID "share")	5, 6, 7, 8	1, 16, 50, 2 MHz/8 bits

Prime receivers in MSA
Clement: Ops room displays, WebEx, backup monitoring as needed

Don't record

DSN Open-Loop Receiver Status

Canberra

Status based on email from Danny on 9/11:

RSR1 – Green

RSR2 – Green

VSR1 – Green

PRSR1 –Red

WVSR1 – Green w/ with fgain bug

WVSR2 – Green w/ with fgain bug

Goldstone

No change to status from 5/18:

RSR1 – Green (X-band power jumps observed on RSR1A)

RSR2 – Green with date rate != num_samples warnings

RSR3 – Green

VSR1A – "Orange" - DP Internal Error Error may occur; try restarting; reliability in question

VSR1B – "Red" - DP Internal Error Error may occur; try restarting; reliability in question

WVSR1 – Green w/ with fgain bug

WVSR2 – Green w/ with fgain bug

No PRSR

Real-Time Support

Aseel will check beginning of Goldstone supports
Only 1-way period is at beginning of Goldstone. Use that to determine offsets for Canberra receivers

MSA:
- Aseel & Elias
- Will monitor all prime receivers
- Only DSS-43 X- and S-band will be displayed and broadcasted
- One workstation only!
- VOCA:
  - Use RSSG1 to connect
  - Communications with project on SCO's line
  - Will not use CAS OPS (unless called on CAS OPS)

RS ops room:
- Danny, Jay & Clement
- Monitor backup receivers (WVSRs)
- No VOCA communications
- No first floor access
  - Enter building through North side, second floor
- Aseel will bring up WebEx displays for DSN using MAC
  - Clement is alternate host

Predicts

- Last NAV OD will be delivered on September 13th at 10 am (256/1700)
    - LOS time will change by a few seconds
    - Also predicts for Goldstone
- Expect SPS to provide ETX predicts available by 10:30 am
- Elias and Danny to begin predicts generation soon after
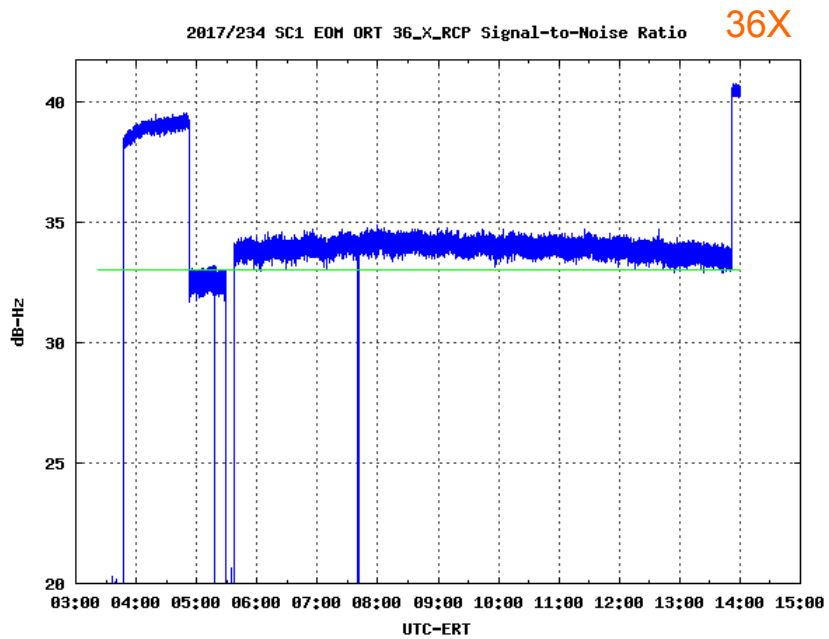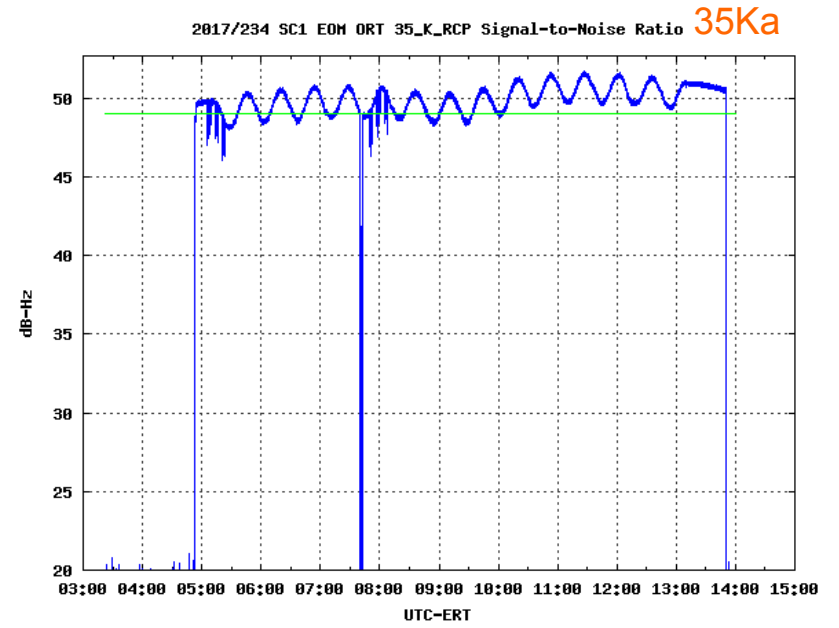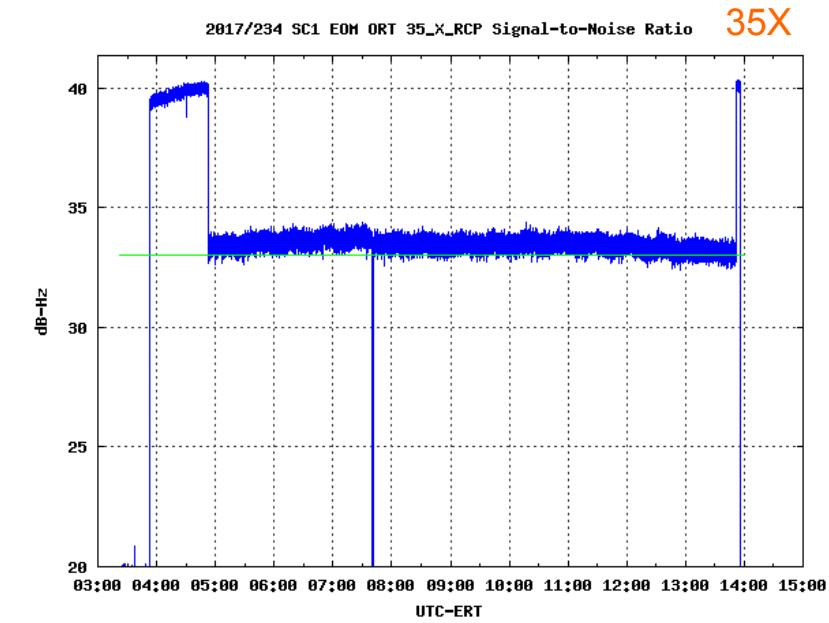
ORTs

All Completed

ORT on DOY 234 (Aug 22) over DSS-35 (and DSS-36), X- and Ka-band
17 234 0320 0450 1355 1410 DSS-35 CAS   TP RSS EOMORT MC 7271 N750   1A1
17 234 0320 0450 1355 1410 DSS-36 CAS   MONOCAL   0234 F007 5 2C3
- DSS-35 prime
- Covered by Danny
- Verified Monopulse and conduct on-point phase cals
- DR C112876 opened for RSR2 GUI sticking issue
- DSN had their own EOM ORT
    - Aseel provided open-loop displays via WebEx

ORTs Cont'd

35X

2017/234 SC1 EOM ORT 35_X_RCP Signal-to-Noise Ratio

35Ka

2017/234 SC1 EOM ORT 35_K_RCP Signal-to-Noise Ratio

36X

2017/234 SC1 EOM ORT 36_X_RCP Signal-to-Noise Ratio

36Ka

2017/234 SC1 EOM ORT 36_K_RCP Signal-to-Noise Ratio

Observed ——— Expected ———
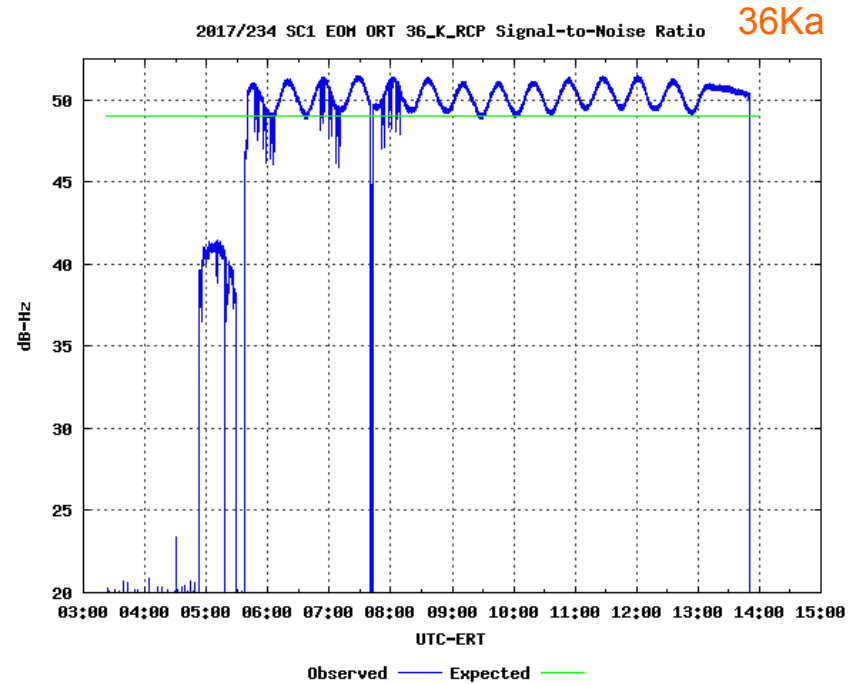
ORTs Cont'd

ORT on DOY 244 (Sep 1) over DSS-74 (shadow DSS-43), X- and S-band

17 244 0830 0915 1210 1225 DSS-74 CAS

17 244 0205 0305 1210 1225 DSS-43 CAS   TKG PASS   7281 N003   1A1

- DSS-43 prime

- Covered by Aseel

- Real-time command to turn S-band ON

- DSS-43 no S-band equipment scheduled, but station added in real-time

  - S-band predicts generated by Ops Chief

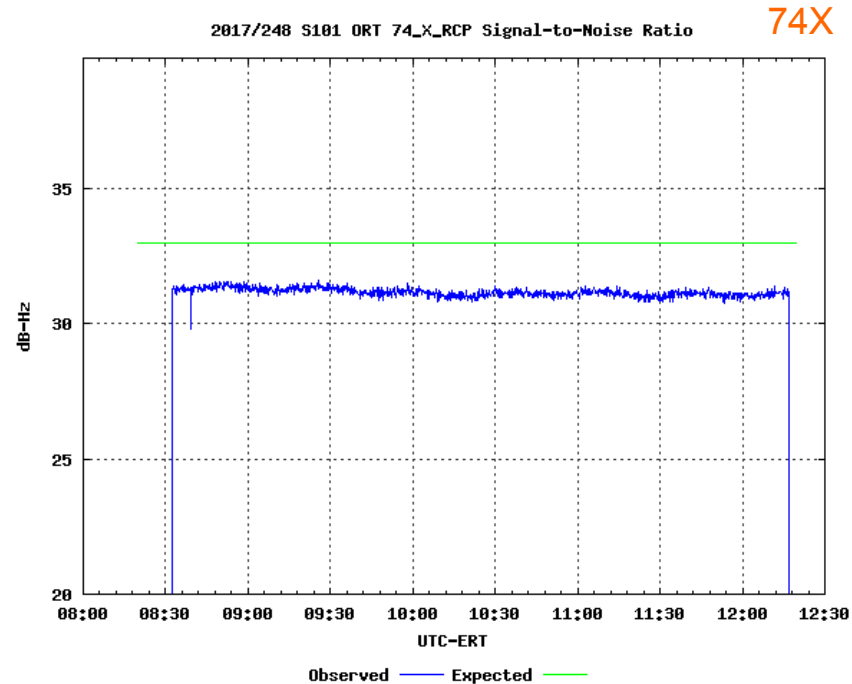- Monitored X-band on PRSR at DSS-74

- Verified X- and S-band signal levels at DSS-43
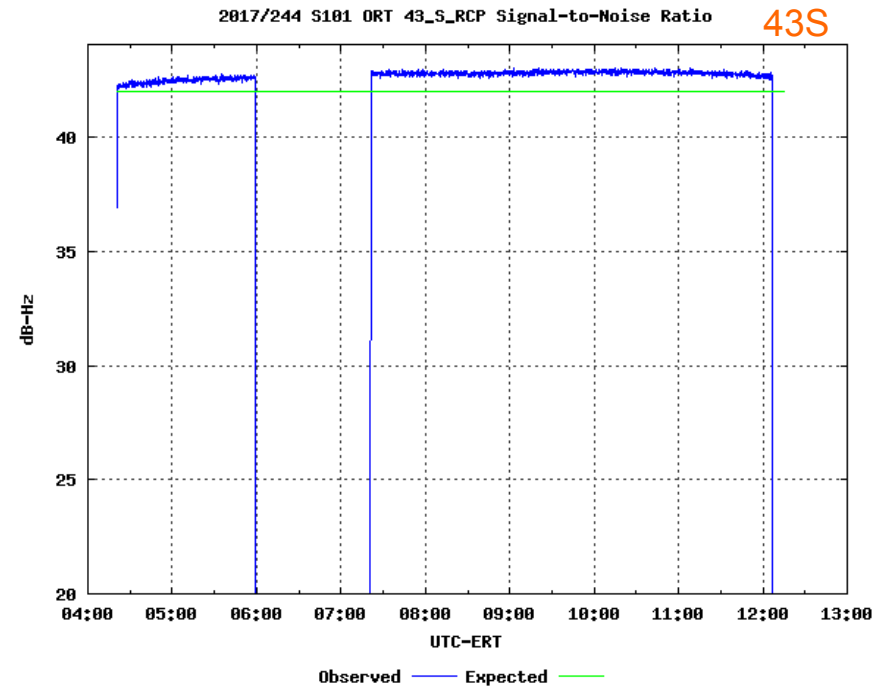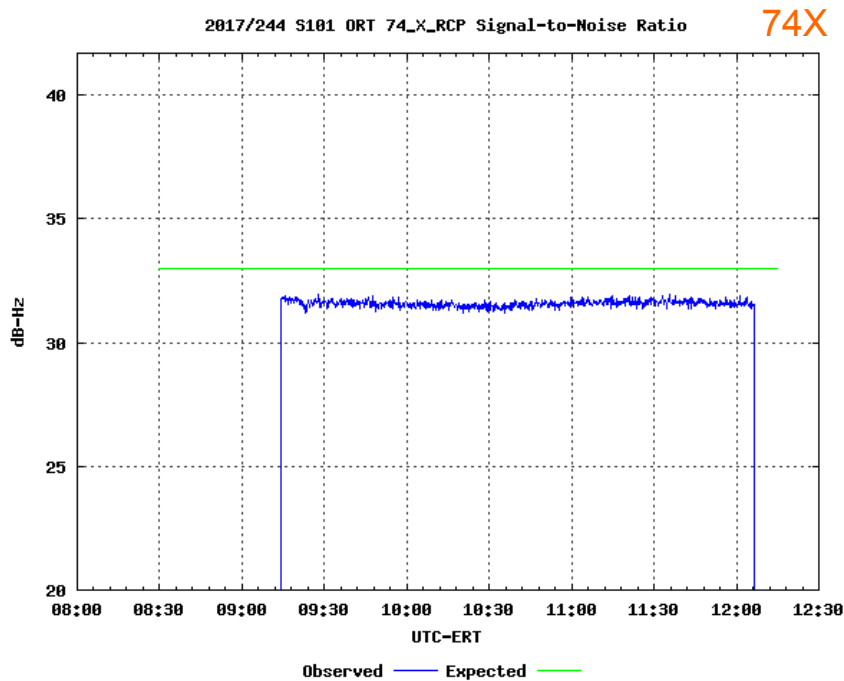
ORTs Cont'd

ORT on DOY 248 (Sep 5) over DSS-74 (shadow DSS-35), X-band

17 248 0830 0915 1215 1230 DSS-74 CAS

17 248 0445 0545 1300 1315 DSS-35 CAS   TP OTM-475   7285 N003   1A1

- DSS-35 prime
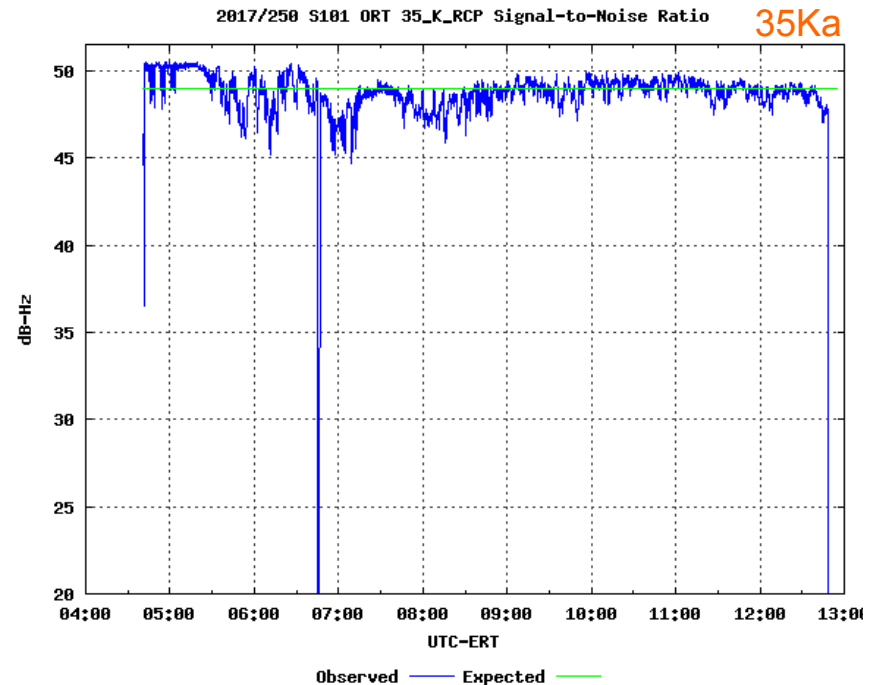- Covered by Aseel
- Monitored X-band on PRSR at DSS-74

2017/248 S101 ORT 74_X_RCP Signal-to-Noise Ratio   74X
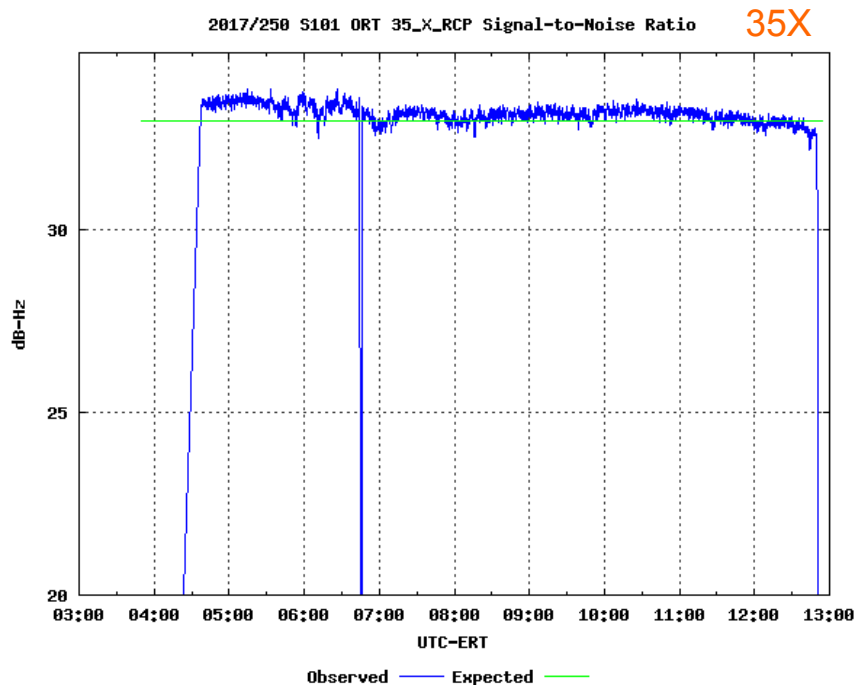
ORTs Cont'd

ORT on DOY 250 (Sep 7) over DSS-35, X- and Ka-band

17 250 0400 0530 1250 1305 DSS-35 CAS   TP RSS EOMORT MC 7287 N750   1A1

Partial overlap with DSS-25

17 250 0250 0350 0545 0600 DSS-25 CAS   TKG PASS   7286 N006   1A1

- DSS-25 and DSS-35 prime

- Covered by Aseel

- Verified Monopulse and conduct on-point phase cals

  - Weather overcast and windy

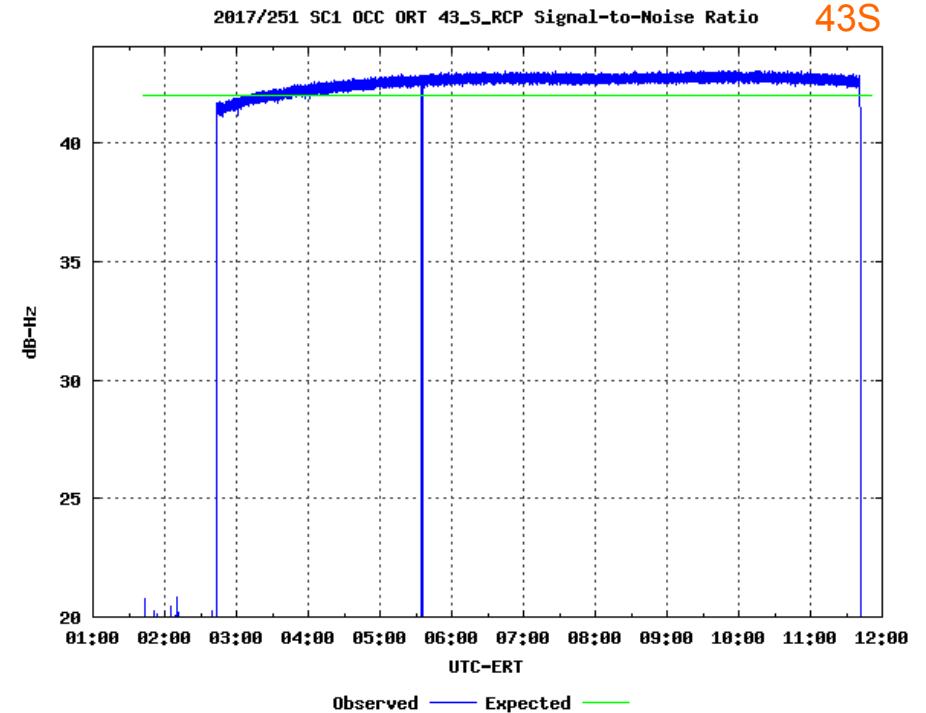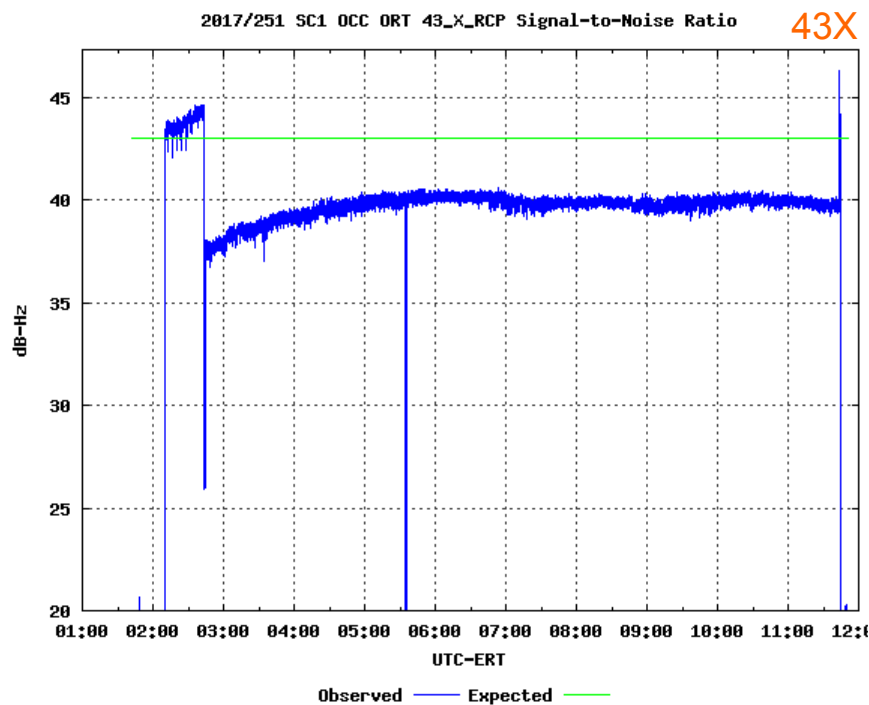- RSR2 GUI sticking. Brought up GUI directly on RSR and that resolved problem

ORTs Cont'd

ORT on DOY 251 (Sep 8) over DSS-43, X- and S-band

17 251 0140 0240 1145 1200 DSS-43 CAS   TP RSS EOMORT   7288 1647   1A1

- DSS-25 and DSS-35 prime
- Covered by Clement, partially by Aseel
- Verified X- and S-band signal levels

Misc

Uplink Strategy
- DSS-14, 18 kW, ramped
  - DSS-25 backup
- DSS-43, 18 kW, ramped   (transfer from DSS-14)
  - DSS-35 backup

Subreflectors at DSN and ESA
- Moving

BLF
- Same as before: 7,175,028,000 Hz
- Value set on June 30, 2017

Monopulse
- DSS-35 BOT is at 29 degrees
- Enabled Monopulse soon after Ka-band signal acquisition and keep enabled until the end

Use 1-way offsets from Goldstone for Canberra 1-way receivers
- Only planned 1-way period is at beginning of Goldstone

Check RSR disk space for wide (telemetry) bandwidth recordings
- Start later on RSRs