S96 Cassini ESA Uplink Test

- To test uplink handovers (transfers) from/to DSN/ESA in preparation for the ESA Cassini supports during the F-ring and Proximal orbits
  - Continuous uplink will be required
- First of two tests. Second test planned on DOY 312/November 7
- ESA stations participating in DOY 298 test
  - New Norcia (Australia), DSS-74: X- and S-band supports
  - Malargue (Argentina), DSS-84: X- and Ka-band supports
- First ever Cassini uplink from ESA stations
  - First ever DSN/ESA handover? Or been a very long time since performed?
- First Malargue ORT
  - Completed two New Norcia ORTs on 223 (Aug 10) and 240 (Aug 27)
- Test was scheduled during Earth-pointed gap
  - 1896 bit rate throughout
- Downlink at all three frequencies: S-, X- and Ka-band
  - RSS3BRWAF Opmode

DSN and ESA Antennas

- DSN and ESA Coverage

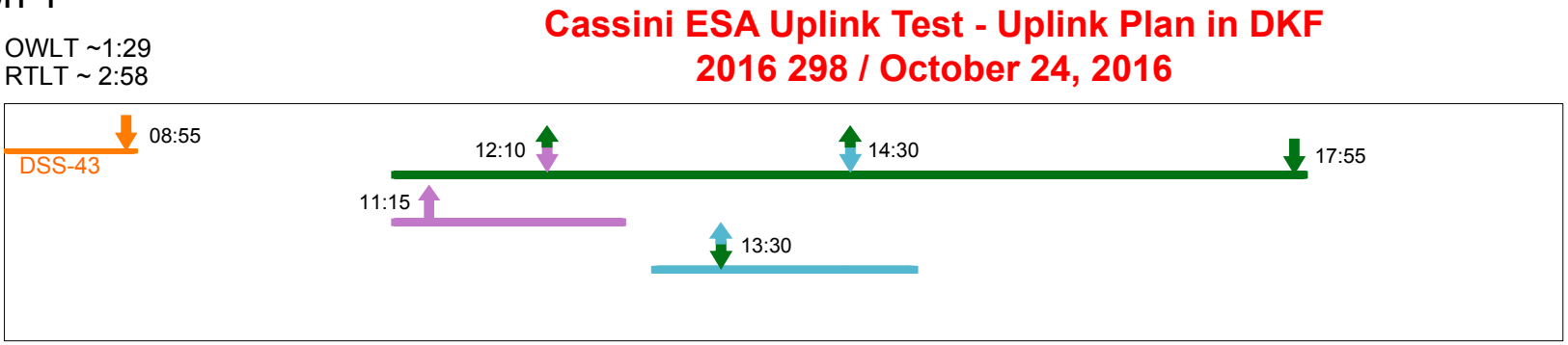
		Pre	BOT	EOT	Post				
16	297	2300	0000	0900	0915	DSS-43 CAS	TKG PASS	6968 N003	1A1 Preceding Track
16	298	0930	1100	1800	1815	DSS-54 CAS	ESA UL TEST RSS	6968 0681	1A1
16	298	1000	1100	1245	1300	DSS-74 CAS	ESA UPLINK TEST	6969 0142	1A1
16	298	1200	1300	1500	1515	DSS-84 CAS	ESA UPLINK TEST	6968 0142	1A1
16	298	2100	0000	0900	0915	DSS-35 CAS	TP RS BISTORT MC	6969 N750	1A1 Following Track

- ESA tracks have 1hr Pre-Cal. Actual is 45min
- RSS will be monitoring the signals in the RSR at DSS-54
- Possible real-time displays via web cam from ESA

Which is a Better Uplink Plan?

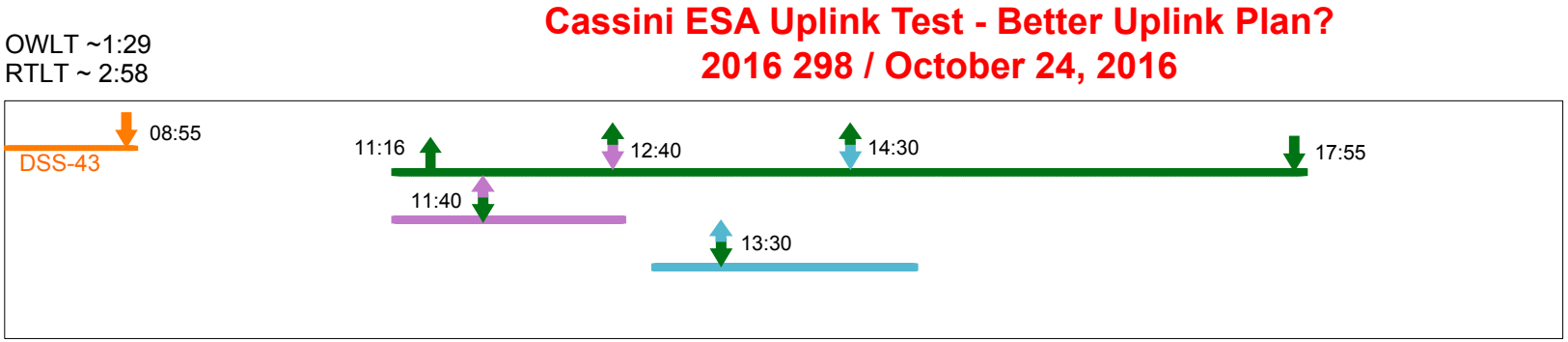
Option 1

OWLT ~1:29
RTLT ~ 2:58



Option 2

OWLT ~1:29
RTLT ~ 2:58



- Option 1 is currently in DKF
- Option 2 has more uplink transfers
  - More opportunities to test/practice transfers
- Option 2 would require real-time changes
  - How difficult to make?
- Is there value in starting the uplink from DSS-54? Telecom?

Predicts

- Ramped uplink predicts
- Sweep at every uplink
- Who generates ESA's uplink predicts?
- How will SPS generate 3-way predicts without ESA uplink?
- RSS to generate downlink predicts and send them to ESA
- Info to provide to ESA for predicts generation:
  Latest BLF

  TFREQ
  - Values provided for August supports

    BLF (or XMTREF) = 7175025000 Hz

    X-band TFREQ = 8427206307

    S-band TFREQ = 2298328993

    Ka-band TFREQ = 32023383967
- Also provide ESA with latest OEM file
  - Has NAV been routinely delivery OEM files on SPS when delivering SPK files?

Misc

- DKF has the correct uplink times for Option 1
- DSS-54 should be prepared for real-time uplink changes in case ESA stations encounter problems
- Utilize Monopulse at DSS-54 but disable if problems are encountered
  - Last Ka-band support at DSS-54 was DOY 181/June 29
- Real-time communications with ESA stations over the VOCA on CAS OPS
  - Ask Ops Chief to connect
- ESA open-loop recording bandwidth: 16 KHz