S-BAND SUBSYSTEM INITIAL ACTIVATION AND TEST ON FLIGHT 4A

NOTE
Verify with the ODIN flight controller that the NCS S-Band Application software is currently running.

1. INHIBIT BUS FDIR ON BSP, XPDR, AND RFG
   C&T: S_Band_4A_Overview: Bus FDIR/IO
   LB_SYS_LAB_2_RT_Status
   'RT Address and Name: 17 BSP 2'

   cmd Inhibit FDIR(T)
   √Inhibit FDIR(T) - Inh

   'RT Address and Name: 16 XPDR 2'

   cmd Inhibit FDIR(T)
   √Inhibit FDIR(T) - Inh

   'RT Address and Name : 15 RFG 2'

   cmd Inhibit FDIR(T)
   √Inhibit FDIR(T) - Inh

2. ENABLE CYCLIC I/O FOR BSP, XPDR, AND RFG
   C&T: S_Band_4A_Overview: Bus FDIR/IO
   LB_SYS_LAB_2_RT_Status
   'RT Address and Name: 17 BSP 2'

   cmd Enable(T)
   √Enable(T) - Ena

   'RT Address and Name : 16 XPDR 2'

   cmd Enable(T)
   √Enable(T) - Ena

   'RT Address and Name: 15 RFG 2'

   cmd Enable(T)
   √Enable(T) - Ena

3. POWER ON BSP, XPDR, AND RFG
   C&T: S_ Band_4A_Overview
   S_Band_4A_Overview

   sel RPCM Z1-3B B RPC 4

   RPCM Z1-3B B RPC 4

√Close Cmd - Ena

'RPC Position'

cmd Close
√RPC Position - Cl

S_Band_4A_Overview

sel RPCM Z1-3B B RPC 3

RPCM Z1-3B B RPC 3

√Close Cmd -Ena

'RPC Position'

cmd Close
√RPC Position - Cl

S_Band_4A_Overview

sel RPCM Z1-3B B RPC 2

RPCM Z1-3B B RPC 2

√Close Cmd - Ena

'RPC Position'

cmd Close
√RPC Position - Cl

4. VERIFY BSP, XPDR, AND RFG HEALTH
   C&T: S_Band_4A_Overview
   S_Band_4A_Overview

   sel Baseband Signal Processor 2

   S_Band_4A_BSP_2
   'BIT Summary'

   √POST/ECM - Pass
   √Environmental - Pass

   S_Band_4A_Overview

sel Transponder 2

S_Band_4A_Transponder 2
'BIT Summary'

√POST/ECM - Pass
√Environmental - Pass

S-Band 4A Overview

sel Radio Frequency Group 2

S_Band_4A_RFG_2
'BIT Summary'

√POST/ECM - Pass
√Environmental - Pass

5. RUN BSP, XPDR, AND RFG SELF TESTS
C&T: S_Band_4A_Overview: Test
S_Band_4A_ORU_Test
'ORU Self Test Selection'

cmd BSP Self Test
cmd Xpdr Self Test
cmd RFG Self Test

6. VERIFY BSP, XPDR, AND RFG SELF TEST STATUS
C&T: S_Band_4A_Overview
S_Band_4A_Overview

sel Baseband Signal Processor 2

S_Band_4A_BSP_2
'BIT Summary'

√Equipment Self Test - Pass

S_Band_4A_Overview

sel Transponder 2

S_Band_4A_Transponder_2
'BIT Summary'

√Equipment Self Test - Pass

S_Band_4A_Overview

sel Radio Frequency Group 2

S_Band_4A_RFG_2
'BIT Summary'

√Equipment Self Test - Pass

7. RUN S-BAND XPDR BASEBAND BSP LOOPBACK SYSTEM TEST
C&T: S_Band_4A_Overview: Test
S_Band_4A_ORU_Test
'System Test Selection'

cmd Xpdr BB BSP Fill CADU Lpbk

'BIT Function Configuration'

√BSP2 - System Fill CADU Loopback
√Xpdr2 - Baseband Loopback

NOTE
Allow test to run for one minute.

8. VERIFY BSP THROUGHPUT STATUS AND FWD LINK PROCESSING ERRORS
C&T: S_Band_4A_Overview
S_Band_4A_Overview

sel Baseband Signal Processor 2

S-Band_4A_BSP_2
'Throughput Status'

√CADUs Received: 92 --- 95
√Fill CADUs Received: 92 --- 95
√Fill CADUs Transmitted: 92 --- 95

'Fwd Link Processing Errors'

√Demux Packet Length Errors: 0
√Demux R-S Decoder Failures: 0
√Demux Sequence Errors: 0
√CADU Headers Received in Error: 0
√Fill CADUs Received in Error: 0
√VCDUs Lost to Demux Overflow: 0

9. STOP S-BAND XPDR BASEBAND BSP LOOPBACK SYSTEM TEST
C&T: S_Band_4A_Overview: Test
S_Band_4A_ORU_Test

cmd Stop Test

'BIT Function Configuration'

√BSP2 - Inactive
√Xpdr2 - Inactive

10. RUN S-BAND XPDR RF BSP LOOPBACK SYSTEM TEST
C&T: S_Band_4A_Overview: Test
S_Band_4A_ORU_Test
'System Test Selection'

cmd Xpdr RF BSP Fill CADU Lpbk

'BIT Function Configuration'

√BSP2 - System Fill CADU Loopback
√Xpdr2 - RF Loopback

NOTE
Allow test to run for one minute.

11. VERIFY BSP THROUGHPUT STATUS AND FWD LINK PROCESSING ERRORS
C&T: S_Band_4A_Overview
S_Band_4A_Overview

sel Baseband Signal Processor 2

S_Band_4A_BSP_2
'Throughput Status'

√CADUs Received: 92 --- 95
√Fill CADUs Received: 92 --- 95
√Fill CADUs Transmitted: 92 --- 95

'Fwd Link Processing Errors'

√Demux Packet Length Errors: 0
√Demux R-S Decoder Failures: 0
√Demux Sequence Errors: 0
√CADU Headers Received in Error: 0
√Fill CADUs Received in Error: 0
√VCDUs Lost to Demux Overflow: 0

12. VERIFY XPDR TELEMETRY, ACQUISITION STATUS, AND FUNCTION STATUS

C&T: S_Band_4A_Overview

S_Band_4A_Overview

sel Transponder 2

S_Band_4A_Transponder_2

'Telemetry'

√RF Pwr Out (dBm) > 9dbm	Record RF Pwr Out: _____ dbm
√Receiver AGC (V)	Record Receiver AGC: _____ V
√Digital AGC	Record Digital AGC: _____
√Carrier Loop Err (Hz)	Record Loop Err: _____ Hz

'Acquisition Status'

√Carrier Lock - Lock
√Long Code - Lock
√Short Code - Lock
√PN Main Lobe - Lock
√Bit Detector - Lock

'Function Status'

√Transmitter Coherency - Noncoh
√DSP Data Rate: 192 Kbps
√DSP Mode: 2
√Transponder Configured - Yes
√Processor Reset - No

13. STOP S-BAND XPDR RF BSP LOOPBACK SYSTEM TEST

C&T: S_Band_4A_Overview: Test

S_Band_4A_ORU_Test

cmd Stop Test

'BIT Function Configuration'

√BSP - Inactive
√Xpdr - Inactive

14. ENABLE BUS FDIR ON BSP, XPDR, AND RFG

C&T: S_Band_4A_Overview: Bus FDIR/IO

LB_SYS_LAB_2_RT_Status

'RT Address and Name: 17 BSP 2'

cmd Enable FDIR(T)
√Enable FDIR(T) - Ena

'RT Address and Name: 16 XPDR 2'

cmd Enable FDIR(T)
√Enable FDIR(T) - Ena

'RT Address and Name: 15 RFG 2'

cmd Enable FDIR(T)
√Enable FDIR(T) - Ena

15. <u>VERIFY S-BAND NO-OP CONFIGURATION</u>
C&T S_Band_4A_Overview: Configuration
S_Band_4A_Configuration
'Pending'

√Decryption	- Off
√Key Select	- 0000
√Xpdr Mode	- NonCoh
√Antenna Pointing Mode	- Disabled
√Transmitter	- Off
√SSPA	- Muted

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