4.2_V2.0 TURN ON DPA A & B AND DEA A (SCS version)

Last Revised: June 28,1999
Filename: dpaab_deaa_scs

BRIEF FUNCTIONAL DESCRIPTION:
This is an "atomic" procedure which simply powers up the DPA sides A and B and DEA side A. It should be safe to execute under any condition except a spacecraft power or thermal emergency. This version should be implemented as an SCS which sends all 6 commands autonomously without a realtime verification. This procedure powers up the DEA side A first so that the default values can be loaded into the DEA when the DPA side A is powered up.

The sequence of actions will be:

1. enable and turn on DEA power supply side A
2. enable and turn on DPA power supply side A
3. enable and turn on DPA power supply side B
4. verify that ACIS is in the correct state

ASSUMED INSTRUMENT STATE:
Assumes that the PSMC has power from the spacecraft.

SPECIAL INITIAL CONDITIONS:

OPERATIONAL CONSTRAINTS/CAUTIONS:

REFERENCES:

CHANGE HISTORY:

V1.2

- power up the DEA side A first, then the DPA A and DPA B
- changed name of files from "turnon_dpaab_deaa_scs" to "dpaab_deaa_scs"

V1.3

- changed HW TLM verifier in step 4.3 to "1DEN1AVO" from "DEN1AVO"
- changed criticality of ENABLE/DISABLE and ON/OFF HW TLM verifiers to 2 and DPA +5 V and DEA +24 V to 1
- changed TLM FMT required to 1or2
- added step 4 to verify the expected state

V2.0

- ACIS Team signed-off version
- changed HW TLM verifier in step 4.4 to "1DEN1BVO"
- changed expected value of "1STAT7ST" to "0" in step 4.6

Table 1: **Turn On DPA A & B and DEA A (SCS version)**

Step #	Title (Revision 4.2_V2.0)	Time Req (s)	Command Description	Command Mnemonic	Telemetry Description	Telemetry Mnemonic	Expected Value	Units
1.0	Turn on DEA A							
1.1	Enable DEA PS A	1.0	DEA PS A En	1DEPSAEN				
1.2	DEA Power A On	10.0	DEA PS On A	1DEPSAON				
2.0	Turn on DPA A							
2.1	Enable DPA PS A	1.0	DPA PS A En	1DPPSAEN				
2.2	Turn on DPA PS A	10.0	DPA PS A On	1DPPSAON	DPA A ON/OFF	1DPPSA	ON	
3.0	Turn on DPA B							
3.1	Enable DPA PS B	1.0	DPA PS B En	1DPPSBEN	DPA B Enb	1DPPSBX	ENB	
3.2	Turn on DPA PS B	1.0	DPA PS B On	1DPPSBON	DPA B on	1DPPSB	ON	
4.0	Verify proper state							
4.1	Verify DPA A is on				DPA A ON/OFF	1DPPSA	ON	
					DPA A ENB/DIS	1DPPSAX	ENB	
					DPA +5V	1DPP0AVO	4.9–5.5	V
					DPA Input V	1DP28AVO	28.0–34.0	V
					DPA Input I	1DPICACU	0.35–0.43	A
4.2	Verify DPA B is on				DPA B on	1DPPSB	ON	
					DPA B ENB/DIS	1DPPSBX	ENB	
					DPA +5V	1DPP0BVO	4.9–5.5	V
					DPA Input V	1DP28BVO	28.0–34.0	V
					DPA Input I	1DPICBCU	0.26–0.32	A
4.3	Verify DEA A is On				DEA A ENB/DIS	1DEPSAX	ENB	
					DEA A ENB/DIS	1DEPSA	ON	
					DEA Input V A	1DE28AVO	28.0–34.0	V
					DEA Input I A	1DEICACU	0.62–0.75	A
					DEA +24 V A	1DEP2AVO	24.0–26.0	V
					DEA +6 V A	1DEP0AVO	5.6–6.7	V
					DEA -6 V A	1DEN0AVO	-7.0– -5.7	V
					DEA +15 V A	1DEP1AVO	15.0–17.0	V
					DEA -15 V A	1DEN1AVO	-17.0– -15.0	V
					DEA +28 V A	1DEP3AVO	>26.0	V
4.4	Verify DEA B is off				DEA Input I B	1DEICBCU	<0.2	A

Table 2: (CONT) **Turn On DPA A & B and DEA A (SCS version)**

Step #	Telemetry EGSE	Other Verifier	Crit	Description	Notes	RT Con	Tlm Fmt	Min Alt	SIM Pos
1.0									
1.1				Use currents &			1or2		
1.2							1or2		
2.0									
2.1				No verifier before			1or2		
				power is on					
2.2			2				1or2		
3.0									
3.1			2				1or2		
3.2			2				1or2		
4.0									
4.1			2				1or2		
			2						
			1						
			2	Expect 12 W for side A, power consumption					
			2	should be more stable than I or V.					
4.2			2				1or2		
			2						
			1						
			2	Expect 9 W for side B, power consumption					
			2	should be more stable than I or V.					
4.3			2				1or2		
			2	Expect DEA side A ower 21 ± 3 W,					
			2	current is noisy so an average is needed.					
			1						
			2						
			2						
			2						
			2						
			2						
4.4							1or2		

Table 1: **Turn On DPA A & B and DEA A (SCS version)(Page 2)**

Step #	Title (Revision 4.2_V2.0)	Time Req (s)	Command Description	Command Mnemonic	Telemetry Description	Telemetry Mnemonic	Expected Value	Units
					DEA +6 V B	1DEP0BVO	0.0 ± 0.2	V
					DEA -6 V B	1DEN0BVO	0.0 ± 0.2	V
					DEA +15 V B	1DEP1BVO	0.0 ± 0.2	V
					DEA -15 V B	1DEN1BVO	0.0 ± 0.2	V
					DEA +24 V B	1DEP2BVO	0.0 ± 0.2	V
					DEA +28 V B	1DEP3BVO	0.0 ± 0.2	V
4.5	Check BEP A Boot							
4.6	Check HW LEDs				BEP Select	1STAT4ST	0	
					BEP FIFO Not Full	1STAT6ST	1	
					BEP FIFO Not Empty	1STAT7ST	0	
4.7	Check SW LEDs				BEP initialization	1STAT3ST	0	
					Watchdog boot	1STAT2ST	1	
					Science run status	1STAT1ST	1	
						1STAT0ST	0or1	
	Total Time	24						

Table 2: (CONT) **Turn On DPA A & B and DEA A (SCS version)(Page 2)**

Step #	Telemetry EGSE	Other Verifier	Crit	Description	Notes	RT Con	Tlm Fmt	Min Alt	SIM Pos
4.5	Check bepStartupMessage:		A				1or2		
	bepTickCounter < 10; version =11;		A						
	watchdogFlag = 0, patchValidFlag =1		A						
	warmbootFlag = 0		A						
	Check swHousekeeping messages:								
	startingBepTickCounter < 10;		B						
	endingBepTickCounter=		B						
	=startingBepTickCounter+640								
	version =11		A						
4.6			2	0 indicates BEP A is selected			1or2		
			2	1 means FIFO not full					
			2	1 means FIFO not empty					
4.7			1	0 means BEP SW is running			1or2		
			2	1 means no watchdog boot					
			2	1 means science idle					
			2	this bit toggles to indicate BEP is running					