4.8_V2.4 TURN OFF DEA A

Last Revised: July 12, 2017
Filename: deaa_off

BRIEF FUNCTIONAL DESCRIPTION:
This is an "atomic" procedure which simply turns off the DEA side A. It should be safe to execute under any condition except a spacecraft power or thermal emergency.

The sequence of actions for this procedure will be:

1. Power down all the video boards
2. Turn off and disable DEA power supply side A

ASSUMED INSTRUMENT STATE:

1. Assumes that the PSMC has power from the spacecraft.
2. The instrument should not be executing a science run.
3. The instrument should not be in bakeout mode.
4. Assumes that one side of the DPA is powered and that a BEP is active and ready to execute commands. If not, skip Step 1, which issues the WSVIDALLDN command to the BEP.

SPECIAL INITIAL CONDITIONS:

OPERATIONAL CONSTRAINTS/CAUTIONS:

The DEA power status is normally indicated by the values of the 1DEPSA and 1DEPSB flags, which should not both be 1 simultaneously. However, if neither side of the DPA is receiving power (*i.e.*, if 1DPP0AVO and 1DPP0BVO are simultaneously reading 0.0 ± 0.5 V), the DEA flag values will be unreliable and the DEA voltage channels (1DEP[0123][AB]VO) should instead be used to determine which sides of the DEA are powered).

If neither side of the DPA is receiving power, then the command to power down the video boards should be skipped.

Typically 1DEICACU (and likewise the B-side 1DEICBCU) reads 16-18 A when unpowered, as of Telemetry Database (TDB) v14. This is expected and not a problem.

The instrument should not be executing a science run using DEA side A. If power is removed from DEA side A while a science run is in progress, the science run will terminate producing errors. The data will still be useful, but the processing will be more complicated.

The instrument should not be in bakeout mode. If the DEA side A power is removed during a bakeout, the FP bakeout heater will lose power and the bakeout of the FP will terminate. The DH bakeout heater is unaffected by a power loss to the DEA and will therefore still be executing a bakeout if power is lost to the DEA.

REFERENCES:

CHANGE HISTORY:

V1.2

- changed filenames from "turnoff_deaa" to "deaa_off"
- added text to explain the confusion with the logical verifiers

V1.3

- changed primary verifier to be the DEA +24 V supply
- changed TLM FMT to 1,2,4or6
- changed expected value of DEA A Input Voltage to 28.0–34.0 V

V2.0

- ACIS Team signed-off version, identical to previous version 1.3

V2.1

- Update expected 1DE28AVO range
- Changed formatting of "Tlm Fmt" in table
- Changed time column from units of seconds to minutes in table
- Changed text in table column "Description"

V2.2

- Removed check of 1DEICACU
- Removed reference to 0 W of power from table
- Reordered columns to match that on real-time webpages
- Added error bars to voltages

V2.3

- Moved the text regarding power status issues and expected current behavior from the Functional Description to the Operational Constraints/Cautions section and expanded it.
- Added a step to turn off the video boards to the beginning of the procedure

V2.4

- Re-arranged the power verifers so that they occur in between the command to power the DEA off and the command to disable it.
- Added language stating that if the DPA is unpowered the WSVIDALLDN command should not be issued.

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Table 1: **TURN OFF DEA A(Page 1)**

Step #	Title (Revision 4.8_V2.4)	Time (mins)	Command Description	Command Mnemonic	Telemetry Description	Telemetry Mnemonic	Expected Value
1	**Power down all video boards**						
1.1	Power down all video boards	1	changeConfigSetting	WSVIDALLDN			
2	**Turn off DEA A**						
2.1	DEA Power A Off	1	DEA PS Off A	1DEPSAOF	DEA A ON/OFF DEA Input V A DEA +28 V A DEA +24 V A DEA +15 V A DEA +6 V A DEA -6 V A DEA -15 V A	1DEPSA 1DE28AVO 1DEP3AVO 1DEP2AVO 1DEP1AVO 1DEP0AVO 1DEN0AVO 1DEN1AVO	OFF 25.0–34.0 0.0 ± 0.5 0.0 ± 0.5 0.0 ± 0.5 0.0 ± 0.5 0.0 ± 0.5 0.0 ± 0.5
2.2	Disable DEA PS A	1	DEA PS A Dis	1DEPSADS	DEA A Dis	1DEPSAX	DIS
	Total time:	3					

Table 1: **TURN OFF DEA A(Page 1)**

Step #	Units	Telemetry EGSE	Other Verifier	Crit	Description	Notes	RT Con	Tlm Fmt	Min Alt	SIM Pos
1										
1.1		Verify cmdResult==OK commandEcho 1541		B	Skip this step if a BEP is NOT active and NOT ready to execute commands.					
			pmon	B	10 DEACCD POWEROFF messages					
2										
2.1					Ignore if DPA unpowered			1,2,4,6		
	V			2						
	V			2						
	V			1						
	V			2						
	V			2						
	V			2						
	V			2						
2.2					Ignore if DPA unpowered			1,2,4,6		