4.5_V2.1 TURN ON DEA A (realtime version)

Last Revised: July 17, 2015
Filename: deaa_on

BRIEF FUNCTIONAL DESCRIPTION:
This is an "atomic" procedure which powers up the DEA side A and tests its 10 video boards. It should be safe to execute under any condition except a spacecraft power or thermal emergency. The telemetry verifiers for the "Enable" and "On" can be confusing depending on if either side of the DPA was on before the procedure started. If both sides of the DPA were off, the Enable and On will read Enabled and On even though both sides of the DPA are off. Once the the On command has been executed the Enable and On will still read Enabled and On. The only sure way to tell is to check the input current and the voltages. If one side of the DPA happened to be on, then the Enable and On would correctly read disabled and off before this procedure is run and would change state after the DEA was powered.

The sequence of actions will be:

1. enable and turn on DEA power supply side A
2. verify that DEA B is still off
3. power up all 10 video boards
4. execute two bias-only science runs to capture video housekeeping
5. power down the 10 video boards

ASSUMED INSTRUMENT STATE:
Assumes that the PSMC has power from the spacecraft.
Assumes that DEA B is off.

SPECIAL INITIAL CONDITIONS:

OPERATIONAL CONSTRAINTS/CAUTIONS:
After execution, *FP temperature is set to 0 K,*
and *DEA interface A/D is in 8-bit mode.*

REFERENCES:

CHANGE HISTORY:

V1.2

- changed filenames from "turnon_deaa" to "deaa_on"
- added text to explain the confusion with the logical verifiers

V1.3

- changed HW TLM verifier in step 1.2 to "1DEN1AVO" from "DEN1AVO"
- changed criticality of +24 V to 1
- changed TLM FMT to 1,2,4or6
- added step 1.3 to verify that DEA B is still off
- added comments to warn that the FP temp will be set to 0 K if either DPA is

V2.0

- ACIS Team signed-off version
- changed HW TLM verifier in step 1.3 to "1DEN1BVO"
- edited "Operational Constraints & Cautions"

V2.1

- Update expected 1DE28AVO range
- Add commands to power video boards on and off
- Add bias-only science runs

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Table 1: **TURN ON DEA A (realtime version)(Page 1)**

Step #	Title (Revision 4.5_V2.1)	Time (mins)	Command Description	Command Mnemonic	Cmd EGSE	Seq Key	Telemetry Description	Telemetry Mnemonic
1	**Turn on DEA A**							
1.1	Enable DEA PS A	1	DEA PS A En	1DEPSAEN			DEA A ENB/DIS	1DEPSAX
1.2	DEA Power A On	1	DEA PS On A	1DEPSAON				1DEPSA
							DEA Input V A	1DE28AVO
							DEA Input I A	1DEICACU
							DEA +24 V A	1DEP2AVO
							DEA +6 V A	1DEP0AVO
							DEA -6 V A	1DEN0AVO
							DEA +15 V A	1DEP1AVO
							DEA -15 V A	1DEN1AVO
							DEA +28 V A	1DEP3AVO
1.3	Verify DEA B is off						DEA Input I B	1DEICBCU
							DEA +6 V B	1DEP0BVO
							DEA -6 V B	1DEN0BVO
							DEA +15 V B	1DEP1BVO
							DEA -15 V B	1DEN1BVO
							DEA +24 V B	1DEP2BVO
							DEA +28 V B	1DEP3BVO
2	**Power up all boards**							
2.1	Power up all video boards	1	changeConfigSetting	WSVIDALLUP				
								1DEPSA
							DEA Input I A	1DEICACU
							DEA +15 V A	1DEP1AVO
2.2	Power up all FEPs	2	changeConfigSetting	WSFEPALLUP				
2.3	Dump System Config.	1	dumpSysConfig	RS_0000001				
3	**Science run on ACIS-I**							
3.1	Load Faint TE pblock	1	loadTeBlock	WT00C66014				
3.2	Start bias-only run	3	startScience	X2Z0000005				

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Step #	Expected Value	Units	Telemetry EGSE	Other Verifier	Crit	Description	Notes	RT Con	Tlm Fmt	Min Alt	SIM Pos
1											
1.1	ENB				2	Ignore if DPA unpowered			1,2,4,6		
1.2	ON				2	Ignore if DPA unpowered			1,2,4,6		
	25.0–34.0	V			2	Expect DEA side A power 21± 3 W,					
	0.62–0.75	A			2	current is noisy so average needed.					
	24.0–26.0	V			1						
	5.6–6.7	V			2	**FP Temp set to 0 K !!!!**					
	-12.7	V			2						
	15.0–17.0	V			2						
	-32	V			2						
	>26.0	V			2						
1.3	<0.2	A							1,2,4,6		
	0.0 ± 0.2	V									
	0.0 ± 0.2	V									
	0.0 ± 0.2	V									
	0.0 ± 0.2	V									
	0.0 ± 0.2	V									
	0.0 ± 0.2	V									
2	**Power up all boards**										
2.1			Check cmdResult==OK commandEcho==768		A	Wait for all video boards to power up					
	ON				2	Fail if DEA-A powers down					
	0.62–0.75	A			2						
	15.0–17.0	V			2						
2.2			Check cmdResult==OK commandEcho==89		A			Y	1,2	60k	
2.3			Check cmdResult==OK commandEcho==66		B			Y	1,2	60k	
3	**Science run on ACIS-I**					Skip if video housekeeping not desired					
3.1			Check cmdResult==OK commandEcho==14458		A			Y	1,2	60k	
3.2			Check cmdResult==OK commandEcho==48	scienceReport	A	Verify terminationCode==2 in scienceReport		Y	1,2	60k	

Table 1: **TURN ON DEA A (realtime version)(Page 2)**

Step #	Title (Revision 4.5_V2.1)	Time (mins)	Command Description	Command Mnemonic	Cmd EGSE	Seq Key	Telemetry Description	Telemetry Mnemonic
4	**Science run on ACIS-S**							
4.1	Load Faint TE pblock	1	loadTeBlock	WT00C68014				
4.2	Start bias-only run	3	startScience	X2Z0000005				
5	**Power down all boards**							
5.1	Power down all boards	1	changeConfigSetting	WSPOW00000				
5.2	Dump System Config.	1	dumpSysConfig	RS_0000001				
	Total Time	16						

Table 1: **TURN ON DEA A (realtime version)(Page 2)**

Step #	Expected Value	Units	Telemetry EGSE	Other Verifier	Crit	Description	Notes	RT Con	Tlm Fmt	Min Alt	SIM Pos
4	**Science run on ACIS-S**					Skip if video housekeeping not desired					
4.1			Check cmdResult==OK commandEcho==14460		A			Y	1,2	60k	
4.2			Check cmdResult==OK commandEcho==48	scienceReport	A	Verify terminationCode==2 in scienceReport		Y	1,2	60k	
5	**Power down all boards**										
5.1			Check cmdResult==OK commandEcho==773		A			Y	1,2	60k	
5.2			Check cmdResult==OK commandEcho==66		B			Y	1,2	60k	

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