ACD Early Integration Test

11 Aug 05
v2

Test Objectives (in descending order of priority)

1) Verify ACD, CAL, and TKR are healthy post-ACD installation.
2) Time-in the ACD
3) Validate ACD, ACD scripts, and ACD schemas work in the integrated LAT environment.
4) Verify CAL and TKR performance is not affected by ACD integration.
5) Collect data to arrive at the LATC configuraed LAT Level Test baseline configuration.
6) Collect data to understand how the LAT works and how to use it on-orbit.
7) Verify the ACD calibration in the LAT environment

Test Priority

0 - Must run
1 - High priority
2 - Medium priority
3 - Low priority

Item	Sub-Series	Test	Purpose	STR Author	Time (hr)	Priority	Totals	Time (hr)
1a	IVT	STR17- GASU to EM Freecard Tests	LAT interface verification	Baun	8	0		
1b	EICIT	STR17 - LAT ACD Cable EICITs	LAT side interface safe-to-mate	Baun	48	0		
1c	EICIT	STR17 - BEA Connector EICITs	ACD side interface safe-to-mate	Baun	48	0	**EICIT:**	**96**
2	IVT	STR18 - ACD Integration Health Checks	Verify ACD pre and post- installation health	Hartman	2	0		
3	IVT	STR19 - AEM/ACD Clock Phase Bit Set/Timing Characterization	Determine GARC Clock Phase Bit settings	Baun	2	0		
4	IVT	STR20 - Dataflow (AEM/ACD) Tests	AEM/ACD timing, etc.	Baun	1	0	**IVT:**	**13**
5	LAT CPT	STR22 - ACD Full Functional (with CAL & TKR Off)	Full ACD post-install CPT	Hartman	8	0		
6a	TRIGGER	STR21 - ACD TREQ Full Time-in	TREQ alignment	Su Dong	2	0		
6b	TRIGGER	STR21 - ACD TACK Full Time-in	TACK optimization	Su Dong	6	0		
7a	LAT CPT	STR23 - TkrSimOcc	Set TKR occupancy for LAT LPT	Wai	0.5	2		
7b	LAT CPT	STR23 - LAT Parallel CPT - ACD Section (All Detectors On)	Verify ACD functional in LAT environment	Baun	6	1		
7c	LAT CPT	STR23 - LAT Parallel CPT - TKR Section (All Detectors On)	Verify TKR functional in LAT environment	Baun	4	1		
7d	LAT CPT	STR23 - LAT Parallel CPT - CAL Section (All Detectors On)	Verify CAL functional in LAT environment	Baun	4	1	**LAT CPT:**	**30.5**
8a	TRIGGER	STR24 - ACD Trigger Efficiency	Measure ACD Trigger efficiency in LAT	Su Dong	6	2		
8b	TRIGGER	STR24 - GEM ROI and TKR Test	Show Cosmics are vetoed, VETO Timing	Su Dong	3	2		
8c	TRIGGER	STR24 - ACD as a Muon Telescope	Demo ACD use as Muon Telescope	Su Dong	3	2	**TRIG:**	**20**

ACD Early Integration Test **11 Aug 05 v2**

Item	Sub-Series	Test	Purpose	STR Author	Time (hr)	Priority	Totals	Time (hr)
9a	SVAC	STR27 - ACD Performance amd TKR Readout Redundancy	Show readout redundancy not affected by hit multiplicity	do Couto e Silva	2	2		
9b	SVAC	STR27 - Multiple Trigger Engine Test	Verify functions for on-orbit operations	do Couto e Silva	4	3		
9d	SVAC	STR27 - Full Mode HE Muon Gain (Bxx)	SVAC data collection	do Couto e Silva	0.5	3		
9e	SVAC	STR27 - Full Flight Mode Gain (Short Run) (Bxx)	SVAC data collection	do Couto e Silva	0.5	3		
9f	SVAC	STR27 - Full Flight Mode Gain (Long Run) (Bxx)	SVAC data collection	do Couto e Silva	2	3		
9g	SVAC	STR27 - Muon Calibration Auto Range (Bxx)	SVAC data collection	do Couto e Silva	15	3	**SVAC:**	**24**
10	TKR	STR26 - TKR Trigger Study with ACD & CAL	TKR Efficiency Studies	Tajima	4	3	**TKR:**	**4**
11a	CALIB	STR25 - ACD Threshold Calibration Data Collection	ACD Calibration	do Couto e Silva	2	3		
11b	CALIB	STR25 - ACD Threshold Calibration Verification	ACD Calibration	do Couto e Silva	2	3	**CALIB:**	**4**
							TOTAL:	**183.5**