

CAL Test Parameters/Functions

16 June 05, v1

No.	Test Case	Test Case Description	Parameter(s) Measured/Calculated	Function(s) Validated	Notes
1	CALU_INIT	Calorimeter Initialization	a) TEM Measured Voltage b) TEM Current Consumption Step Change		Measured parameters and functions are a best guess.
2	CALF_EXR_P01	Exercise Registers		a) AFEE Communications b) GCRC Communications c) GCFE Communications d) GCCC Communications e) Readback logic	Grove recommends replacing this with system-wide register exerciser.
3	CALF_PEDESTALS_CI	Compute Pedestals	a) HEX1 Pedestals b) HEX8 Pedestals c) LEX1 Pedestals d) LEX8 Pedestals	a) Solicited Triggers b) GCFE Electronic Gain Adjustment c) Readout range select	Eric Grove recommends reducing the number of gain settings to shorten this test.
4	CALF_MU_OPTICAL	Muon Optical Response		a) Trigger (TREQ/TACK) functionality b) Log End Energy Measure c) FLE Threshold Adjust d) FHE Threshold Adjust e) Log Hit Map	1) Trend data is collected during this test to verify CDE relative gain has not changed by more than +/- 10%. 2) Five minutes of mouns is sufficient for this test. All towers can be run in parallel. Further, this could be run in parallel with TKR muon tests.
5	CALF_MU_TREND	Muon Optical Response Trend	a) LE-/LE+ Diode Ratio b) LE+/HE+ Diode Ratio c) LE-/HE- Diode Ratio d) Dead Range Identification		1) Script analyzes data collected by item 4 only. 2) Eric Grove recommends analysis be done online.

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6	CALF_SHP_P01	Calibrate Slow Shaper Delay, Optimal Charge Injection TACK Delay	a) LE Slow Shaping Amp Output b) HE Slow Shaping Amp Output c) Charge Injection TACK Delay	a) Charge Injection DAC set b) Charge Injection c) TACK adjust	Eric Grove recommends reducing the number of TACK delays used, to shorten this test.
7	CALF_GAIN_P01	Gain Calibration with Charge Injection	a) HEX1 relative Gain b) HEX8 relative Gain c) LEX1 relative Gain d) LEX8 relative Gain	a) GCFE Electronic Gain Adjustment b) Charge Injection DAC set c) Charge Injection	Eric Grove recommends reducing the number of gain settings, to shorten this test.
8	CALU_COLLECT_CI_SINGLEX16	4-range Charge Injection Collection	a) 4-range Energy Measurement (EM) Linearity	a) Log End Energy Measure d) Charge Injection DAC set e) Charge Injection f) Charge Injection enable	
9	CALF_ADC_P02	Front End Non-Linearity and Noise	a) 4-range Mean Pulse Amplitude (MPA) b) 4-range MPA Max Deviation c) 4-range RMS Noise		Script analyzes data collected by item 8.
10	CALU_COLLECT_CI	Charge Injection Collection		a) Trigger functionality b) Log Hit Map c) Log End Energy Measure d) Charge Injection DAC set e) Charge Injection f) CI masks (all enab)	Grove recommends deleting this acquisition for LAT level. This is a collect-only step.
11	CALF_ADC_P05	Track and Hold Droop	a) GCFE Track and Hold Droop	a) Trigger functionality b) Log Hit Map c) Log End Energy Measure d) Charge Injection DAC set e) Charge Injection f) Calibration masks	Eric Grove recommends deleting this test for LAT Level. This script analyzes data from previous step.

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12	CALF_TRG_P01	CAL-Lo/CAL-Hi Trigger Enable/Disable		a) CAL-Lo Trigger mask b) CAL-Hi Trigger mask c) Low Rate Science counters d) Charge Injection DAC set e) Charge Injection f) CI masks	
13	CALF_TRG_P03	FLE/FHE DAC Trigger Threshold	a) FLE Trigger Threshold b) FHE Trigger Threshold	a) FLE threshold b) FHE threshold c) Charge Injection DAC set d) Charge Injection	Eric Grove recommends greatly reducing this test by measuring thresholds at only 3 settings.
14	CALF_TRG_P04	FLE/FHE Trigger Time	a) FLE Trigger Peaking Time b) FHE Trigger Peaking Time	a) Low Rate Science counters b) FLE, FHE peaking time d) Charge Injection DAC set e) Charge Injection	Eric Grove recommends greatly reducing this test by using only a few settings or deleting the test all together.
15	CALF_SUPP_P01	LAC DAC Trigger Threshold	a) Log Accept Threshold	a) LAC DAC Threshold set b) Log Hit Map d) Charge Injection DAC set e) Charge Injection	Eric Grove recommends greatly reducing this test by using only a few settings for each threshold measurement.
16	CALF_SUPP_P02	Lowest Effect LAC DAC Setting	a) Log Accept DAC Lowest Effective Threshold b) Noisy Channel Identification	a) LAC DAC Threshold set b) Log Hit Map c) Log End Energy Measure d) Charge Injection DAC set e) Charge Injection	Eric Grove recommends deleting this test for LAT Level.

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17	CALF_RNG_P01	ULD DAC Trigger Threshold	a) Upper Level Discriminator (ULD) DAC Threshold	a) ULD DAC Threshold set b) Log Hit Map c) Log End Energy Measure d) Charge Injection DAC set e) Charge Injection f) Auto range selection	Eric Grove recommends greatly reducing this test by using only a few settings for each threshold measurement.
18	CALF_DTM_P01	Deadtime Measurement	a) Average Deadtime	a) Log Hit Map b) Log End Energy Measure c) Low Rate Science counters d) Charge Injection DAC set e) Charge Injection f) Solicited Trigger	Eric Grove recommends greatly reducing this test by doing only a single range zero suppressed readout. Should be replaced by system-level test.
19	CALF_OVR_P01	Overload Recovery	a) Recovery time	a) Log Hit Map b) Log End Energy Measure c) Low Rate Science counters d) Charge Injection DAC set e) Charge Injection f) Solicited Trigger	Eric Grove recommends deleting this test for LAT Level.