Final Data Taking with LAT @ SLAC (Data for Instrument Analysis Workshop 7)

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Final Data Taking Runs : LAT

Test ID	Description	FSW Filter	GASU	Comments	Time (h)
LAT 701	Flight configuration on the GND	OFF	Primary	LAT oriented vertically	48
LAT 701	Flight configuration on the GND	OFF	Primary	LAT oriented horizontally	16
LAT 702	Flight configuration on the GND	OFF	Secondary		8
LAT 711	Flight configuration on the GND: CAL muon gain	OFF	Primary		16
LAT 801	Flight configuration on the GND	OFF	Primary	28V PS min value	1
LAT 811	Flight configuration on the GND	OFF	Primary	28V PS max value	1
LAT 821	Flight configuration on the GND	ON (GND)	Primary	External Pulser for high trigger rate	1
LAT 841	Flight configuration on the GND	ON (GND)	Primary	External Pulser and 28V PS min value	1
LAT 851	Flight configuration on the GND	ON (GND)	Primary	External Pulser and 28V PS max value	1

56 h x 3600 s/h x ~ 500 Hz ~ 100 M triggers in vertical orientation and flight configuration

Threshold	Units			Comments
	DAC	MeV	MIP	
CAL_LE		100		Values to be determined from calibrations
CAL_HE		1000		Values to be determined from calibrations
CAL_LAC		2		Zero suppression. Values to be determined from calibrations
TKR	~30		~0.3	Values to be determined through calibrations to optimize efficiency
ACD Veto			0.3	Values to be determined from calibrations
ACD CNO			7.8	lowest possible value on the GND
ACD_	15			Zero suppression is defined as a constant offset of 15 counts above pedestal

PRELIMINARY!

Trigger Engines

Engine number	Condition Summary for Trigger Engines								Trigger Context			Notes
	External	solicited	periodic	CNO	CAL-HI	CAL-LO	TKR	ROI	Zero Suppress	CAL FE	Prescale	
0	1	X	x	x	x	x	x	x	Enable	1-range	Inhibit	Should never happen
0	X	X	x	x	x	x	0	1	Enable	1-range	Inhibit	Should never happen
0	0	0	0	0	0	0	0	0	Enable	1-range	Inhibit	Should never happen (Null condition must be defined)
1	0	1	x	x	x	x	x	x	Enable	1-range	Inhibit	Solicited triggers for a special purpose
2	0	0	1	x	x	x	x	x	Disable	4-range	Inhibit	Pedestals, both clean pedestals and random sample of typical LAT state
3	0	0	0	1	x	x	x	x	Enable	4-range	1:01	May need to prescale CNO triggers, in particular if not in coincidence with CAL-LO or -HI
4	0	0	0	0	1	x	x	x	Enable	1-range	Inhibit	CAL-HI photons with and without backsplash, primary science HE photons
5	0	0	0	0	0	x	1	0	Enable	1-range	Inhibit	Primary science photons, with or without CAL-LO
6	0	0	0	0	0	1	0	0	Enable	1-range	1:02	Mostly CAL-only photons. Will need to prescale CAL-LO only. I've arbitrarily chosen minimal, factor-of-two scaling.
7	0	0	0	0	0	1	1	1	Enable	1-range	1:01	Medium-energy photons with backsplash. May need to prescale.
8	0	0	0	0	0	0	1	1	Enable	1-range	1:01	On orbit: Deliberate leakage of GCR protons, strong prescaling On ground: Prescaling not inhibited, but prescale countdown = 0

X means we don't care about that trigger type for this engine

Events with different trigger types will be scrambled and the offline analysis code will change (hopefully slightly)!

What else?

- **We will also RECALIBRATE the LAT**
  - **baseline/reference for calibrations**