

CRAaTER Verification Procedure/Report

Title: (8.5.2) Minimum energy

Document 32-06020.32

Reference: 32-01205 Instrument Requirements Document Section 8.5.2

Requirement: The Silicon detectors shall be capable of measuring a minimum energy deposition of 250 keV or lower.

Procedure: The CRAaTER silicon detectors are delivered from the provider, Micron Semiconductor Ltd, in boards with one thin and one thick detector. Before integration into the telescope stack, these boards will be taken to a beam facility and the minimum energy will be measured.

Results:

The italicized row in this table shows the minimum energy detectable for each thick detector using the detector calibration at MGH in the data files CRA0220070915165634L0, CRA0220070915163126L0, and CRA0220070915155914L0. The minimum energy levels of 90.82, 162.36, and 91.57 KeV are all less than the upper limit of 250 KeV.

Param	Units	Required	D1	D2	D3	D4	D5	D6
Thickness	microns	150/1000	148	1000	149	1000	149	1000
Gain	KeV/ADU		81.55	22.21	82.90	22.44	80.60	22.20
Offset	ADU		-0.34	0.91	-0.47	-2.24	-0.41	0.88
<i>Min E</i>	KeV	250	435.83	90.82	453.54	162.36	436.43	91.57
Max E	MeV		334.04	90.97	339.61	91.95	330.18	90.91
E Error	MeV	0.50%	0.17	0.20	0.20	0.19	0.18	0.20
Min LET	KeV/micron	0.25	2.94	0.09	3.04	0.16	2.93	0.09
Max LET	MeV/micron	2	2.26	0.09	2.28	0.09	2.22	0.09

S/N: 02

Passed/Failed: Passed

Comments:

Performed by: JCKasper

R&QA: _____

Date: 29 November 2007

Date: _____