

Tests at the PSI Proton Irradiation Facility PIF



Wojtek Hajdas
RADNEXT 3st Annual Meeting – 10-11 June 2024

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101008126

Completed TA campaigns (since July 2022)

No	Title	Spokeperson	Test date
1	TA07-172: Proton SEE testing of Lattice Nexus FPGA platform and GRLIB IP cores	Lucas Antunes Tambara	18.03.2024
2	TA07-169: Physical dosimetry of clinical proton beams	Miguel Angel Carvajal Rodriguez	27.11.2023
3	TA08-249: SEU detection test for ScOSA Flight Experiment	Daniel Lüdtkke	09.10.2023
4	TA06-131: Da Vinci Satellite Bit Flip Payload	Kim Regnerij	12.09.2023
5	TA07-176: Long term reliability effects of proton irradiation on SiC power MOSFETs	Kimmo Niskanen	28.08.2023
6	TA07-179: Assessment of SSD survivability in LEO and proton energy dependence	Alexander Dyer	17.07.2023
7	TA04-57: Sensitivity analysis of a COTS CMOS sensor for radiation detection	Josua Florczak	02.08.2022

Cancelled or shifted TA campaigns

No	Experiment title	Spokeperson	Test date
1	TA07-192: Applying CMOS image sensors for radiation effects monitoring, neutron spectroscopy and SEE simulation validation	David Lucsanyi	shifted
2	TA07-187: Development of a portable system for standardized online beam monitoring	Vanessa Wyrwoll	cancelled

Action needed TA campaigns

No	Experiment title	Spokeperson	Test date	Test date
1	TA07-182: Review of proton induced SEEs in power components	Alexander Dyer	13.02.2024	renew , set the date

Change of the contact : Sauli Kunnas <sauli.kunnas@iceye.fi>

Scheduled TA campaigns

No	Experiment title	Spokeperson	Decision	Last action
1	TA10-314: Effect Characterization of Proton Radiation on LeapOBT	Matthias Hendel	Facility accepted	31.05.2024
2	TA10-328: Fault Resilience Analysis on Custom Fault Tolerant Interleaved Multi Threading processors	Marcello Barbirotta	Facility accepted	31.05.2024
3	TA10-335: Proton SEE Testing Power Electronics for the Satellite ROMEO	Thorben Löffler	Facility accepted	31.05.2024
4	TA10-336: Study of Displacement Damage Effects on Optocouplers with Proton	Yolanda Morilla	Facility accepted	31.05.2024
5	TA10-347: Characterization of a commercial High-Performance RISC-V System-on-Chip for space applications	Luigi DILILLO	Facility accepted	31.05.2024
6	TA10-339: Autonomous Timing and Orbit Determination for Microsatellite Constellations	Markus Markgraf	Facility accepted	31.05.2024

Some characteristics

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No	Test	Shifts	energies	Fluxes	Users	Remarks
1	TA07-172	3	30- 230	1.00E+09	2	narrow beam
2	TA07-179	3	70 - 230	2.00E+08	3	high fluences
3	TA08-249	4	7.5 - 230	1.00E+04	3	broad energy range
4	TA06-131	2	16-200	1.00E+08	4	space qualification
5	TA07-176	3	100,200	1.00E+08	2	High fluences
6	TA07-179	2	20-200	1.00E+07	2	few collimators
7	TA04-57	2	20-200	1.00E+03	2	Tilted DUT

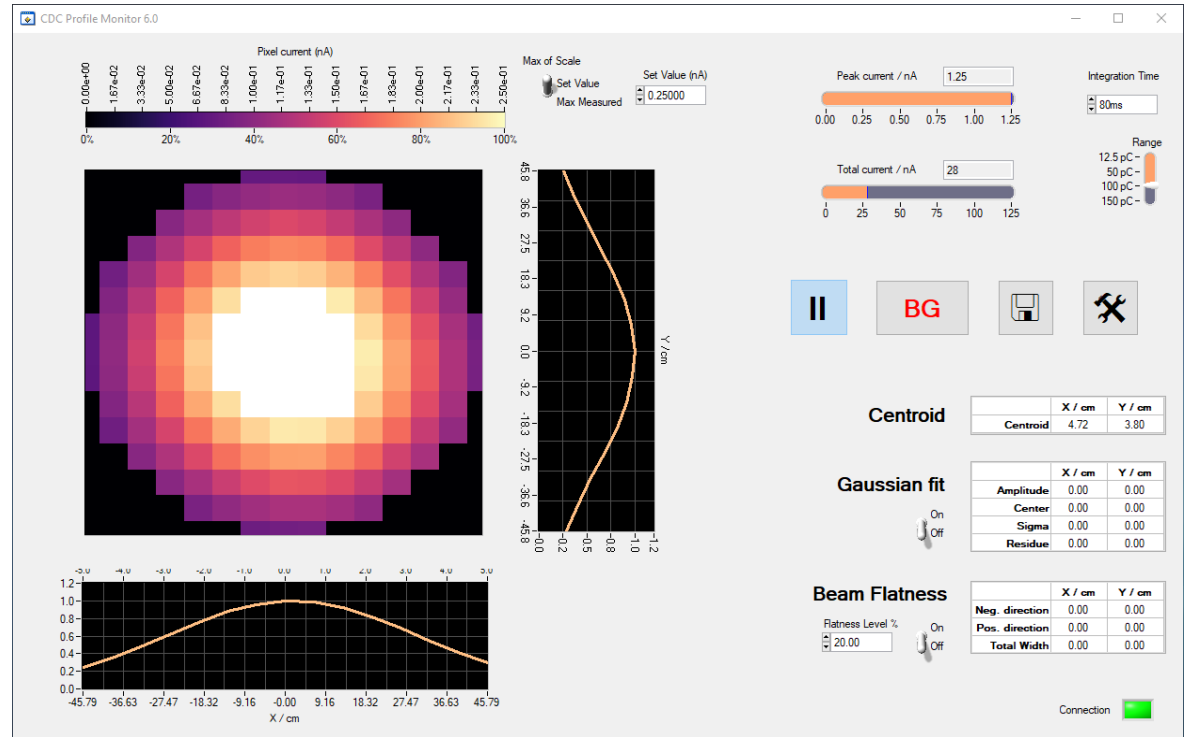
User financial support

Requested for two campaigns only
Budget still available

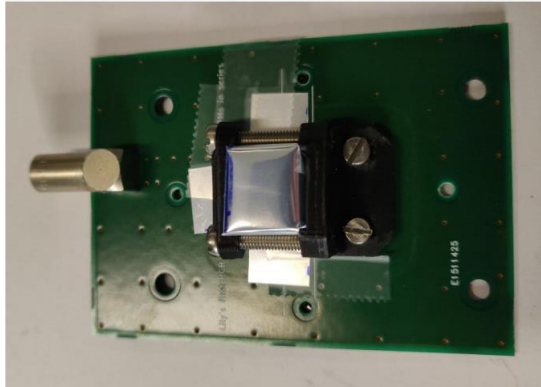
Impressions

Campaigns and tests in collaborations
Experimental diversity higher comparing to industry
More demanding requests on beam and setup

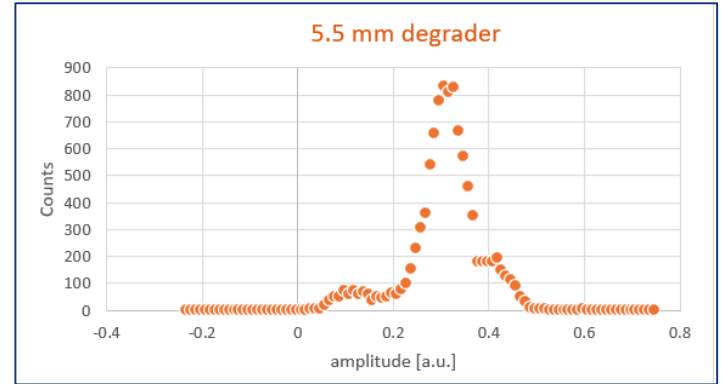
New developments – pixelated ionization chamber



New developments – detector for low energies



Crystal cube



Thanks for your attention!

