

Radiation test - PSI

Date	Equipment Owner	Test group	DUT
May 20th	EN/STI	EN/STI	OSL, TLD
	BE/BI	BE/BI	Detector
June 1st	TE/EPC	EN/STI	Mosfet
			Voltage regulators
			Voltage reference
July	TE/EPC	EN/STI- TE/EPC	PWM
	EN/STI	EN/STI	Profibus module
August	TE/EPC	TE/EPC	FGC critical components

- BE/BI: Request to test components for the BPM equipment. Date?
- TE/EPC: Date for August?

Radiation test CEA – 1 MeV facility

- ❖ Request of beam time in September for calibration purpose (RADMONs)
 - ❖ No confirmation yet
- ❖ No further requests from other groups

Radiation test - CNRAD

- ❖ BPM components
- ❖ LED warning system
- ❖ QPS
- ❖ Ethernet Switches
- ❖ Cryo power supply

- ❖ TE/EPC components – later on
- ❖ New RadMON – not sure yet

RADMON- Operation

- ❖ Deployment of the new software
- ❖ New TIMBER configuration
- ❖ Unexpected rate of reset → Debug on-going

RADMON V6 - Hardware

- ❖ Prototype tested at PSI
 - ❖ NanoFip
 - ❖ Maxim ADC
 - ❖ New components (current sources, regulators)
- ❖ Weak points
 - ❖ Temperature sensor
 - ❖ Analog switches

RADMON V6 - Sensors

❖ HEH fluence

- ❖ Cypress – 90 nm, 8 Mbit
- ❖ 4 chips on board (16 Mbit $\sigma=1.5\text{e-}13$ @230MeV → 1 count → $2\text{e}5 \text{ p/cm}^2$)

❖ TID (Si)

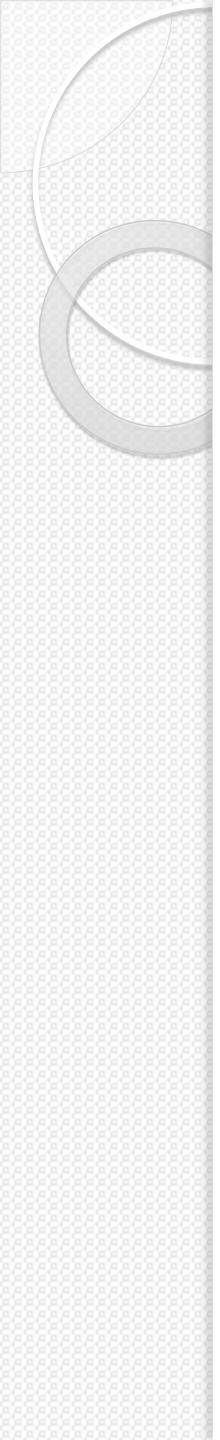
- ❖ Tyndall radfet 100nm
- ❖ TRAD radfet 1600 nm
- ❖ Sensor response curve under investigation

❖ 1 MeV equivalent neutron fluence

- ❖ BPW diode
- ❖ LBDS diode

RADMON V6 – Next steps

- ❖ HEH fluence
 - ❖ Test Memory 16 Mbit
- ❖ TID (Si)
 - ❖ Comprehensive analysis in Co60 source
 - ❖ Validation on LHC field
- ❖ 1 MeV equivalent neutron fluence
 - ❖ Test at CEA for BPW and
- ❖ Prototype
 - ❖ Test at H4IRRAD and/or CNRAD



Back-up

Radiation test- PSI

Date	Equipment Owner	Test group	DUT
1 February	EN/STI	EN/STI	PXI power supply
18-19February	EN/STI	EN/STI	Voltage regulator
			Cypress
			Toshiba
			Diff Amp
	TE/EPC	TE/EPC	AC/DC
17-18 March	BI	BI	BPM electronics
24-25 March	EN/STI	EN/STI	Analog switches
			current regulator
			RadFet
21-22 April	TE/EPC	EN/STI	Mosfet-1
	EN/STI	EN/STI	RadMon prototype
	BI	BI	Beam Loss Monitor

SEU events in LHC

Date	Title	LHC point	Area	Type	SEU?	Beam Dump	Equipment
04/05/2012	Cryogenic compressor stop in P8	Point 8	US85	soft SEE	TBC	FALSE	CRYO
03/05/2012	RF trip module M2B2, L8B2	Point4	UA47	soft SEE	TBC	TRUE	RF
19/04/2012	QPS Wfip lost	Point 5	DS	soft SEE	YES	FALSE	QPS
16/04/2012	Power converter- FGC	Point 7	ARCs	soft SEE	TBC	TRUE	EPC
13/04/2012	Power Converter Fault	Point 1	RR17	hard SEE	YES	TRUE	EPC
10/04/2012	QPS-Protection 600 A	Point 5	UJ56	soft SEE	TBC	TRUE	QPS
09/04/2012	Power Converter Fault	Point 1	UJ16	hard SEE	YES	TRUE	EPC
04/04/2012	Trip of QPS 4R8 - loss of cryo maintain	Point 8	LSS	-	TBC	TRUE	QPS

SEU events in LHC

- ❖ QPS: 3 events (ISO150 not counted)
- ❖ 1 Dump (Confirmed)

- ❖ PC: 3 events with dump
- ❖ 3 Dumps (2 Confirmed)

- ❖ Cryo: 1 event
- ❖ No Dump

SEU events in LHC

- ❖ QPS events in xls file
 - ❖ G:\Projects\R2E\QPS
 - ❖ Which is the updated file?
- ❖ PC:
 - ❖ Web site
 - ❖ Does **Radiation under investigation** means TO BE CONFIRMED?
- ❖ Cryo:
 - ❖ Mail update