



Longterm multimodule tests at Louvain la Neuve

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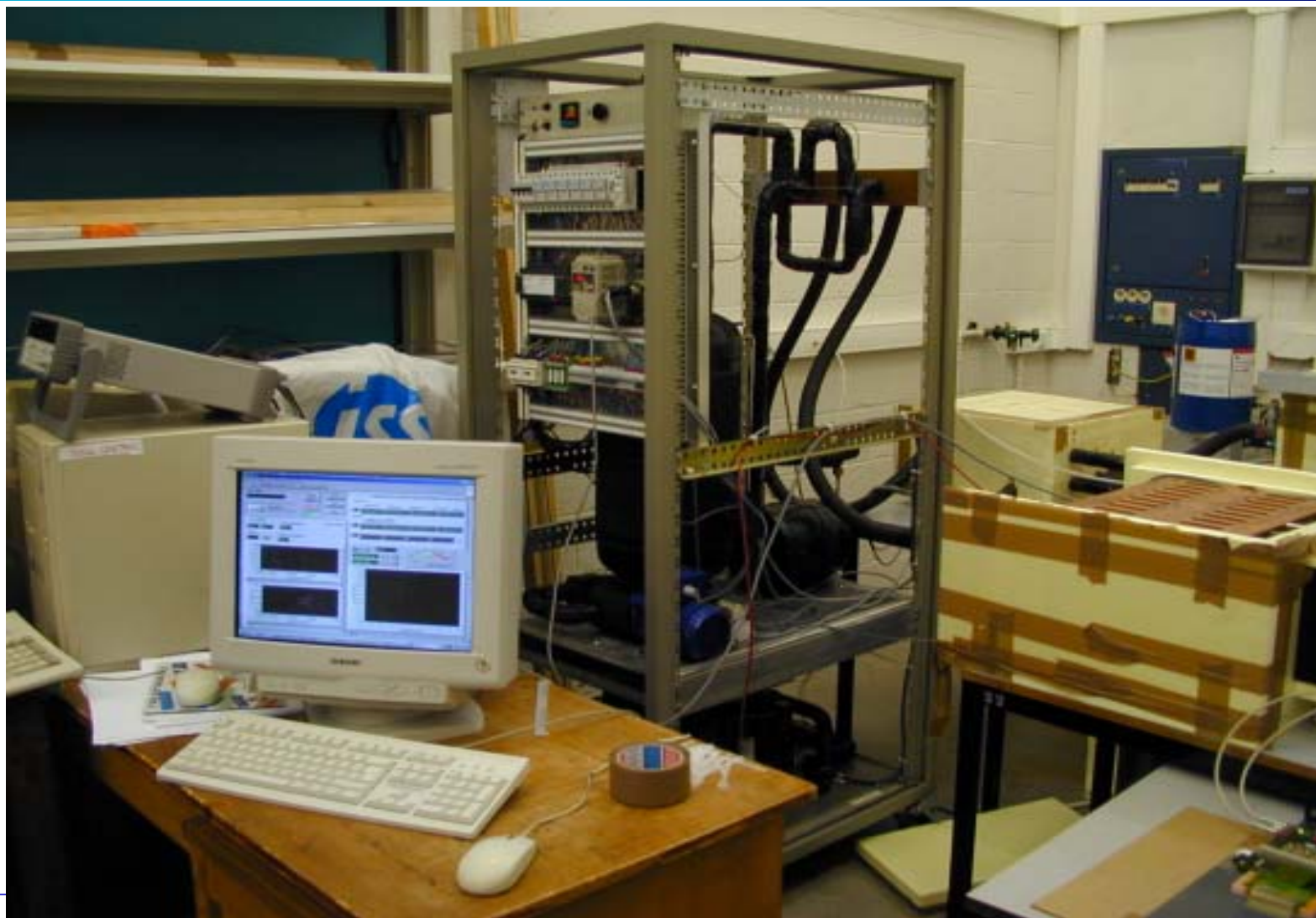


Longterm tests setup



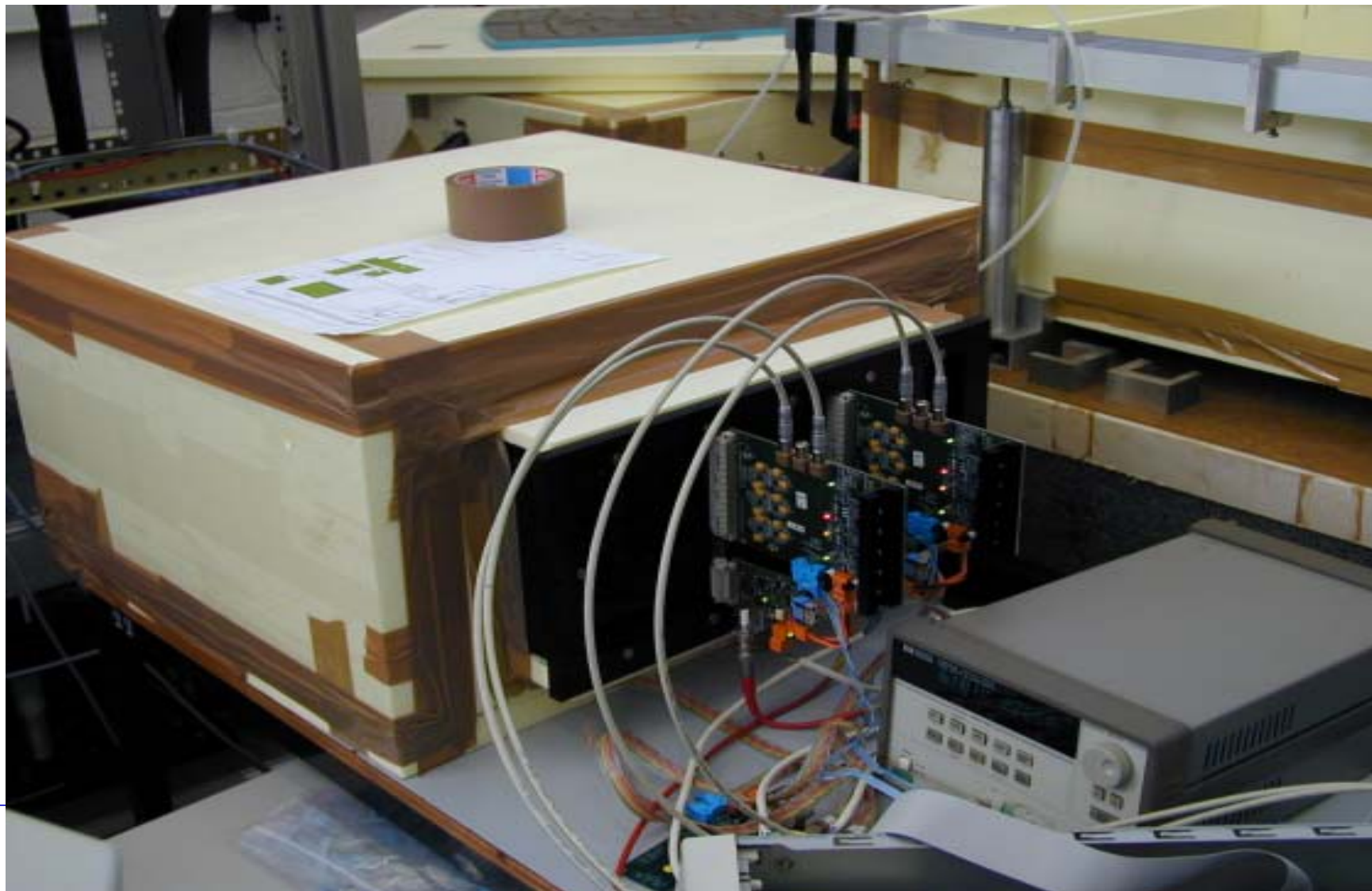


Longterm tests setup





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Longterm tests setup





Hardware:

- N470 HV (connected to the PC via CAENET A303A card)
- Dual Floating Current Digitizer (double bipolar electrometer, NI M); sensitivity varies in the range 10 nA to 100 microA with a 0.001 full scale resolution);
- Cold box: T and RH sensors Honeywell HI H 3602C and pt100 (connected to Agilent 34970A)
- 9500P CAL CONTROLS as temperature controller.

- DAQ: -TPO, CCU, FED, FEC, TSC;
-2 VUTRI s, 2 paacb;
-2 VUTRI to hybrid adapter cards;
-1 LV power supply (3 channels);

Software:

- PC: pentium III, 500 MHz, 256 MB RAM
- Linux RED HAT 6.2
- Long term software, version It.0.09
- Slowcontrol program (LabView 6.1) that communicates via TCP/IP with daq software (version from 15 febr. 2002)



New **TEC** module in our lab with:

- the hybrid id number: 30216630200-105
- sensors 30221116054855 -Vdepl ~ 210V
-I (500V) ~ 0.3 μ A

30221216054955 -Vdepl ~160V
-I (500V) ~ 0.21 μ A

missing bond sensor-sensor at channel 495 (strip nr.18)



Longterm tests setup



Measurements done with the scenario:

1	Start	0	74740	SaveRec	6	119030	CalProfRun	i2ccalpeak
10	SaveRec	0	74750	ChangeHV	250	122630	SaveRec	14
30	ChangeCool	+20	74770	PedRun	i2cpedpeak	122640	CalProfRun	i2ccaldec
600	IVRun	default	74830	SaveRec	7	126240	SaveRec	15
1200	SaveRec	1	74840	PedRun	i2cpeddec	126250	SaveFile	mylfttest
1210	ChangeHV	250	74900	SaveRec	8	126260	ChangeHV	0
1220	PedRun	i2cpedpeak	74910	ChangeHV	0	126270	ChangeCool	+20
1260	SaveRec	2	74920	ChangeCool	-22	126280	Stop	0
1270	PedRun	i2cpeddec	118120	IVRun	default			
1330	SaveRec	3	118720	SaveRec	9			
1340	ChangeHV	0	118730	ChangeHV	250			
1360	ChangeCool	-22	118750	PedRun	i2cpedpeak			
15760	IVRun	default	118810	SaveRec	10			
16360	ChangeHV	250	118820	PedRun	i2cpeddec			
16380	PedRun	default	118880	SaveRec	11			
16420	SaveRec	4	118890	CalRun	i2ccalpeak			
16430	PedRun	i2cpeddec	118950	SaveRec	12			
16470	SaveRec	5	118960	CalRun	i2ccaldec			
16480	CalRun	i2ccalpeak	119020	SaveRec	13			
16540	SaveRec	5						
16550	CalRun	i2ccaldec						
16610	ChangeHV	0						
59740	ChangeCool	+20						
74140	IVRun	default						

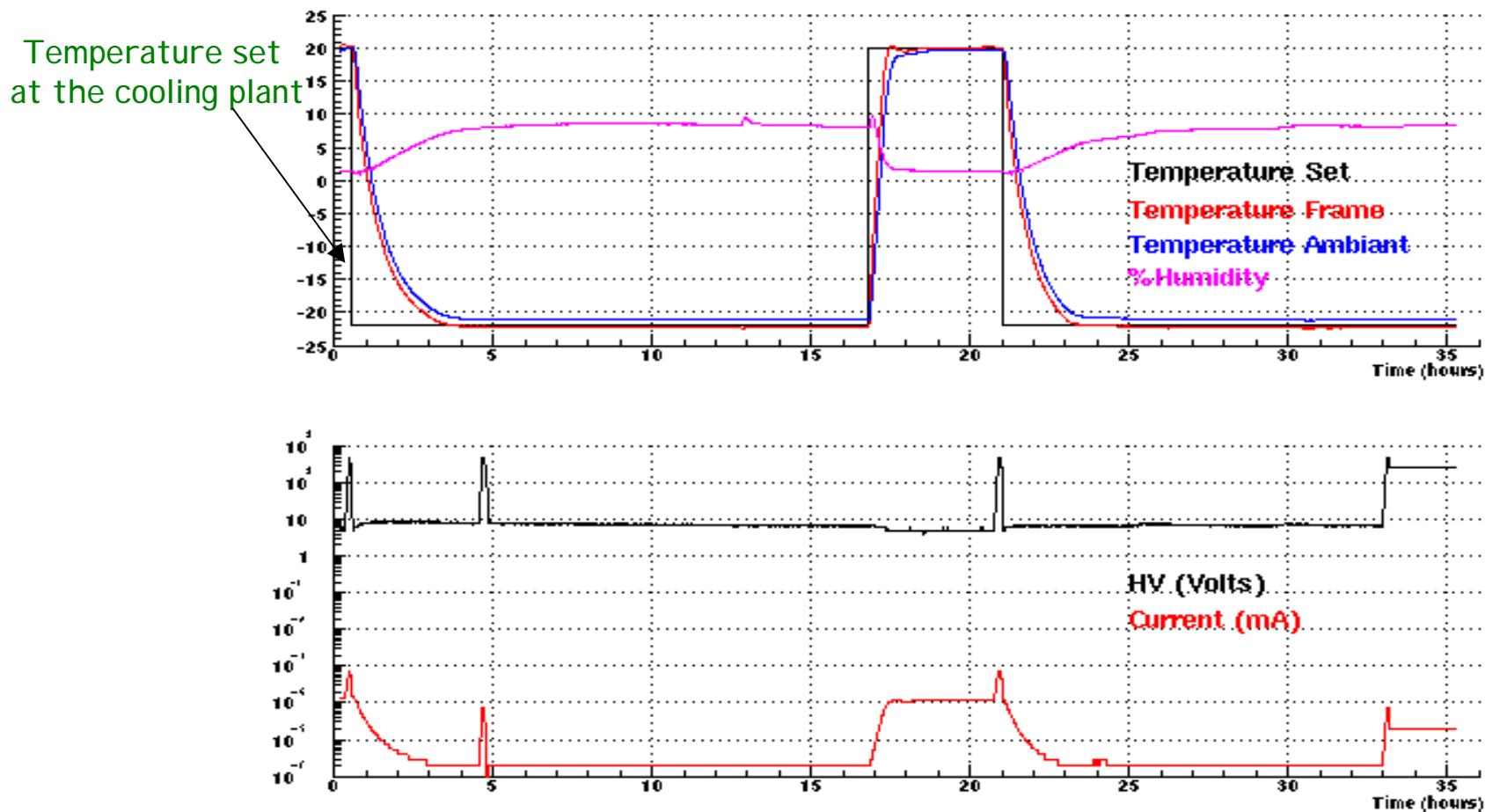
Not accurate results !



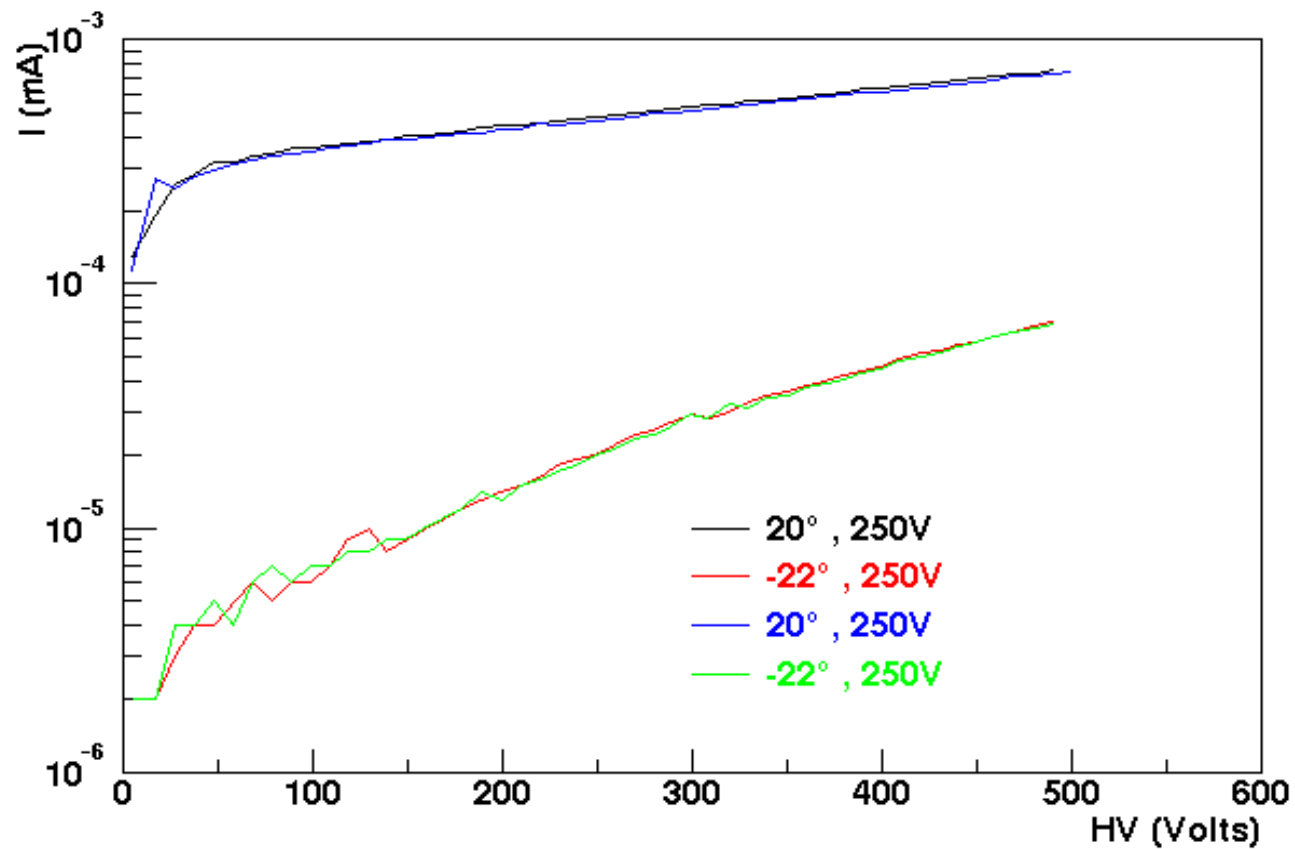
Longterm tests



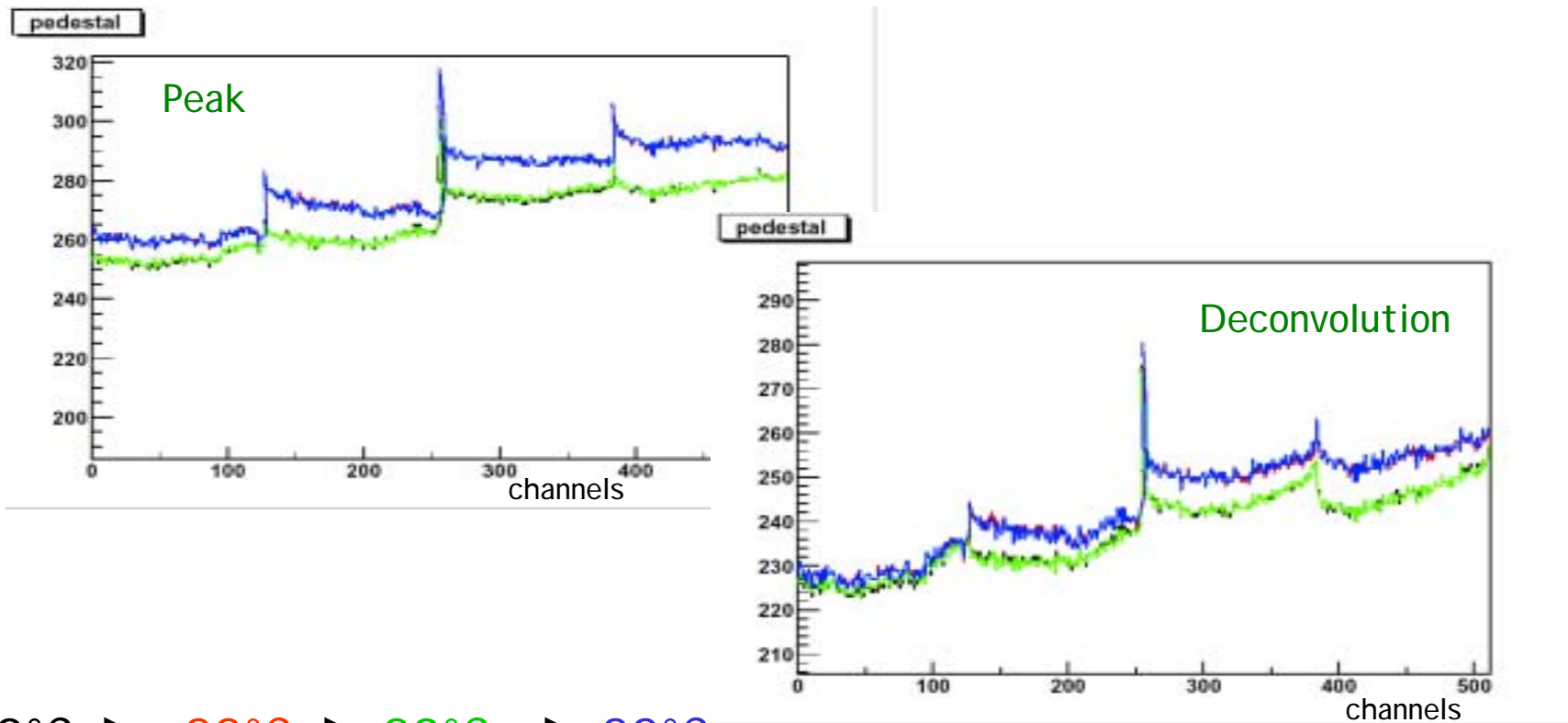
Temp, RH, HV and current variation during the longterm test ...



IV curves during the longterm test ...



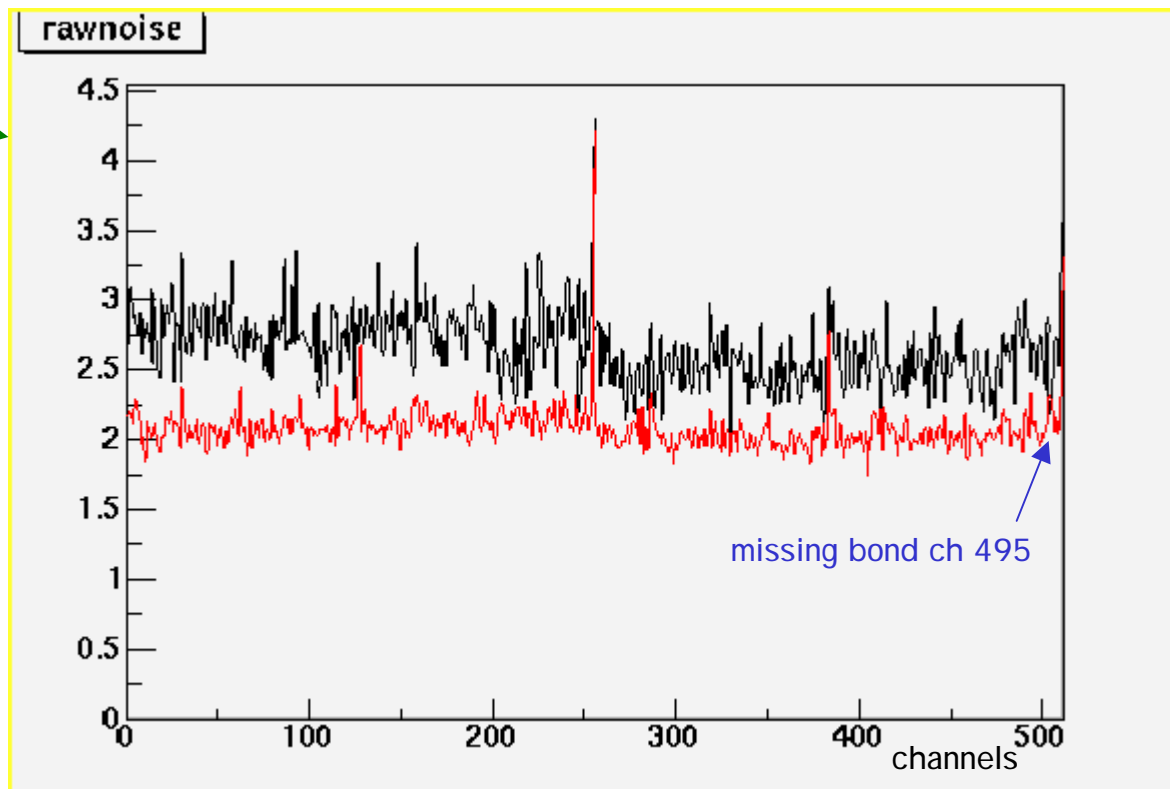
pedestal variation during the scenario:



20°C → -22°C → 20°C → -22°C

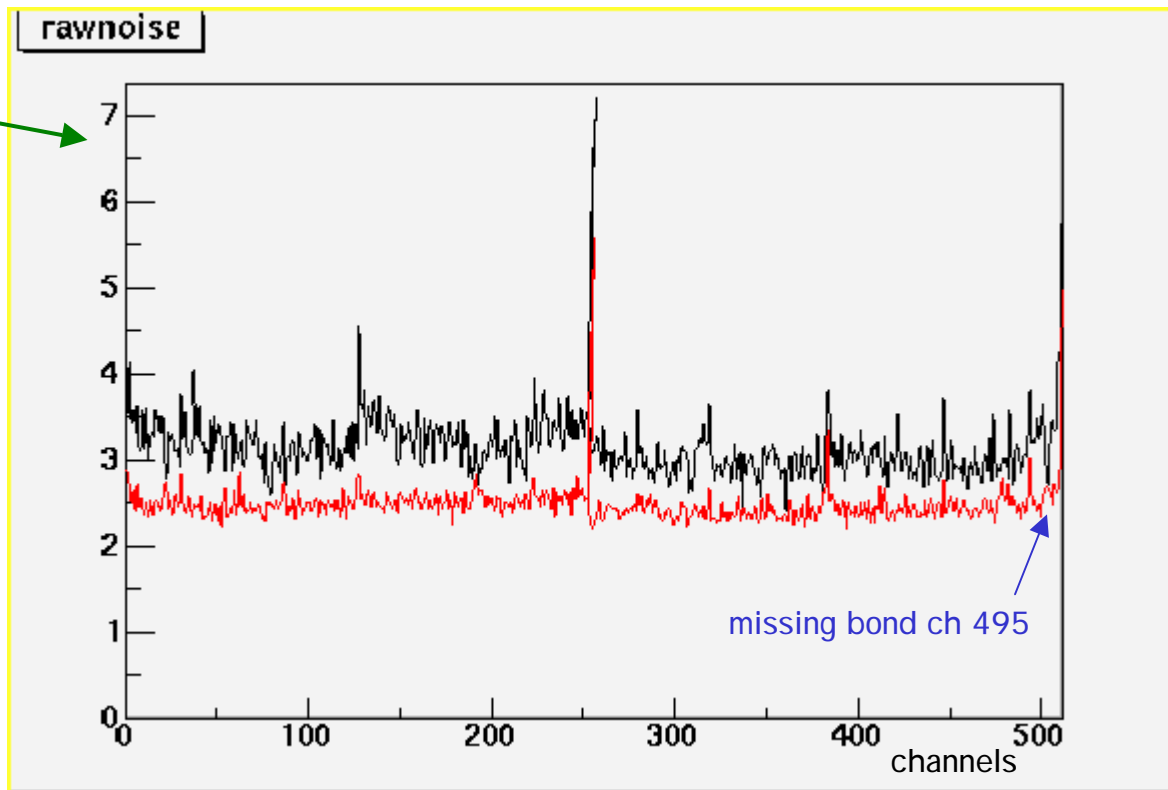
noise before and after common mode subtraction (20°C)

Peak mode



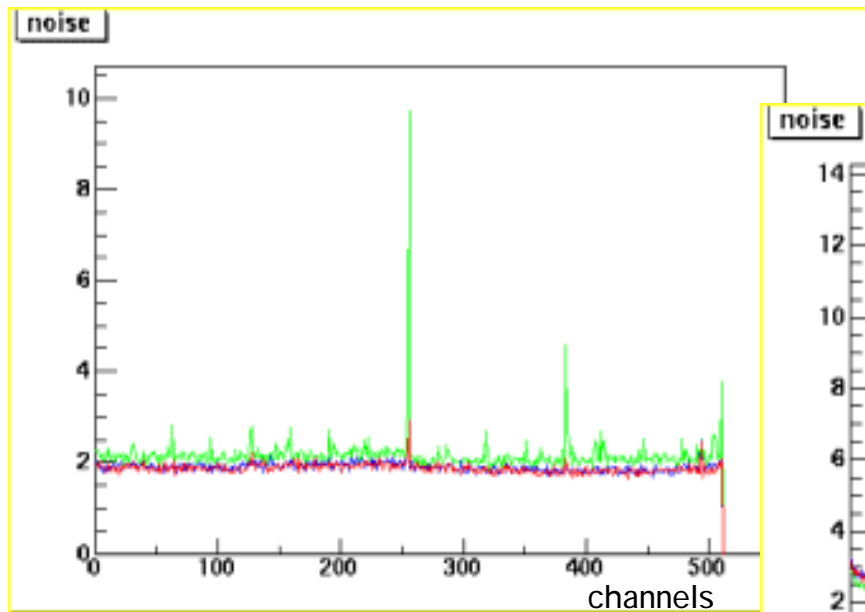
noise before and after common mode subtraction (20°C)

Deconvolution mode

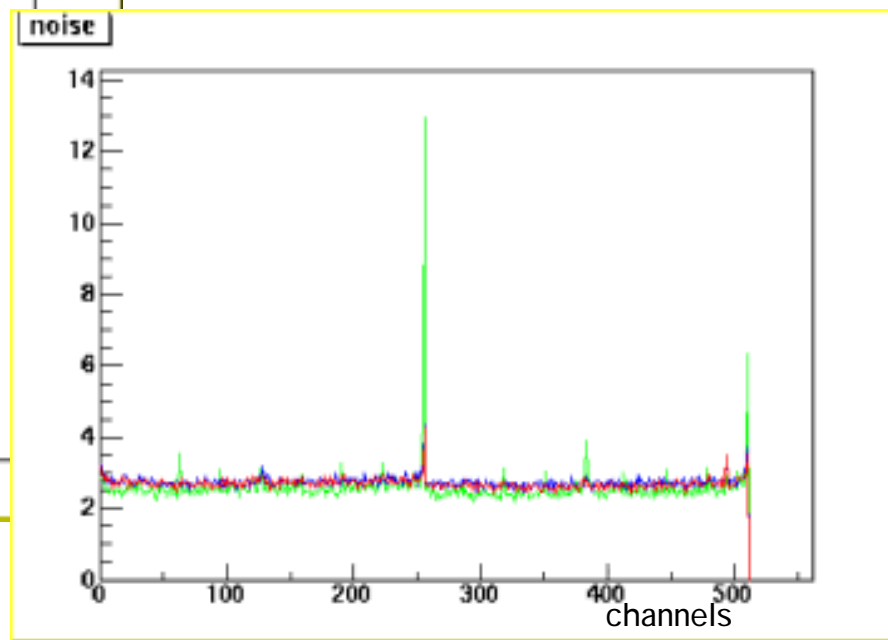


noise distribution during the scenario:

Peak mode



Deconvolution mode

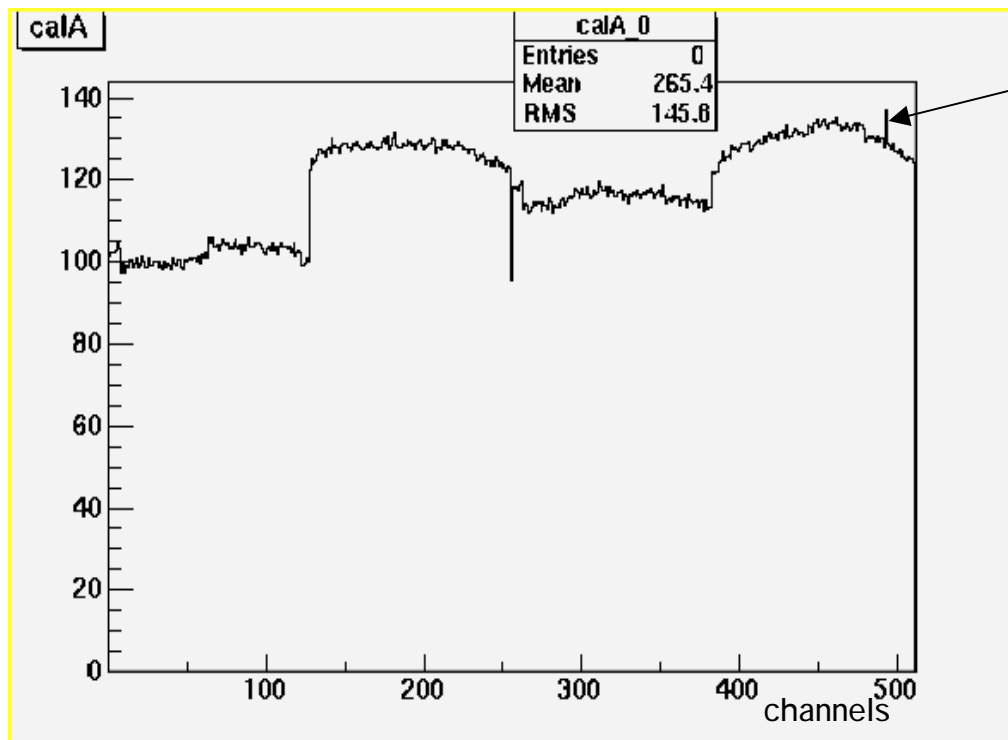


$-20^{\circ}\text{C} \rightarrow 20^{\circ}\text{C} \rightarrow -20^{\circ}\text{C}$



CalRun test:

-22°C, 250V bias, Peak mode



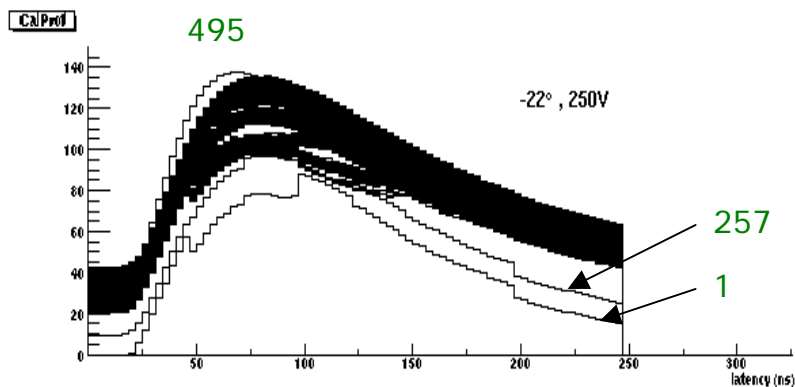
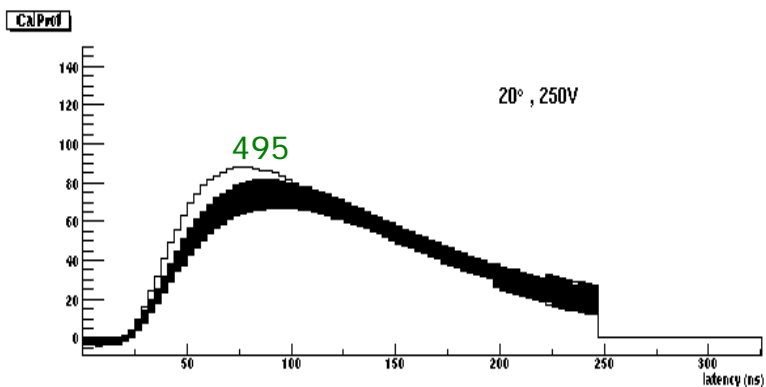
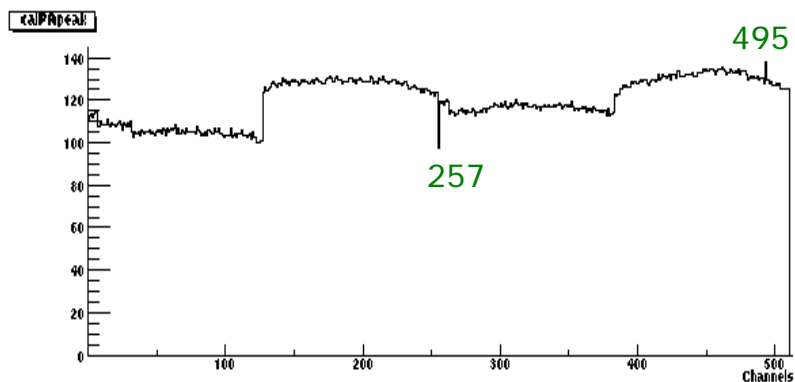
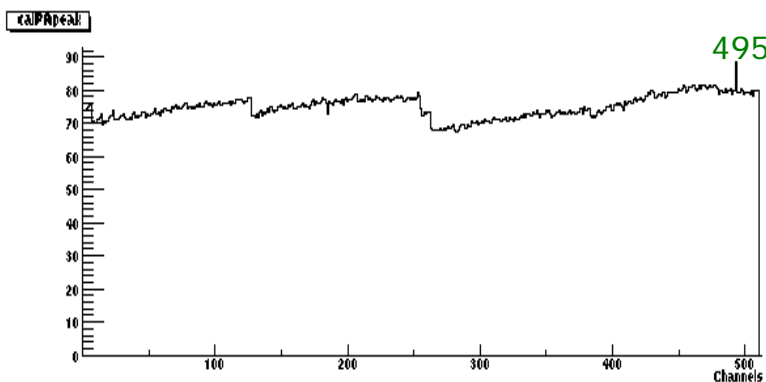
Missing bond ch 495



CalProfRun tests:

20°C, 250V bias, Peak mode

-22°C, 250V bias, Peak mode

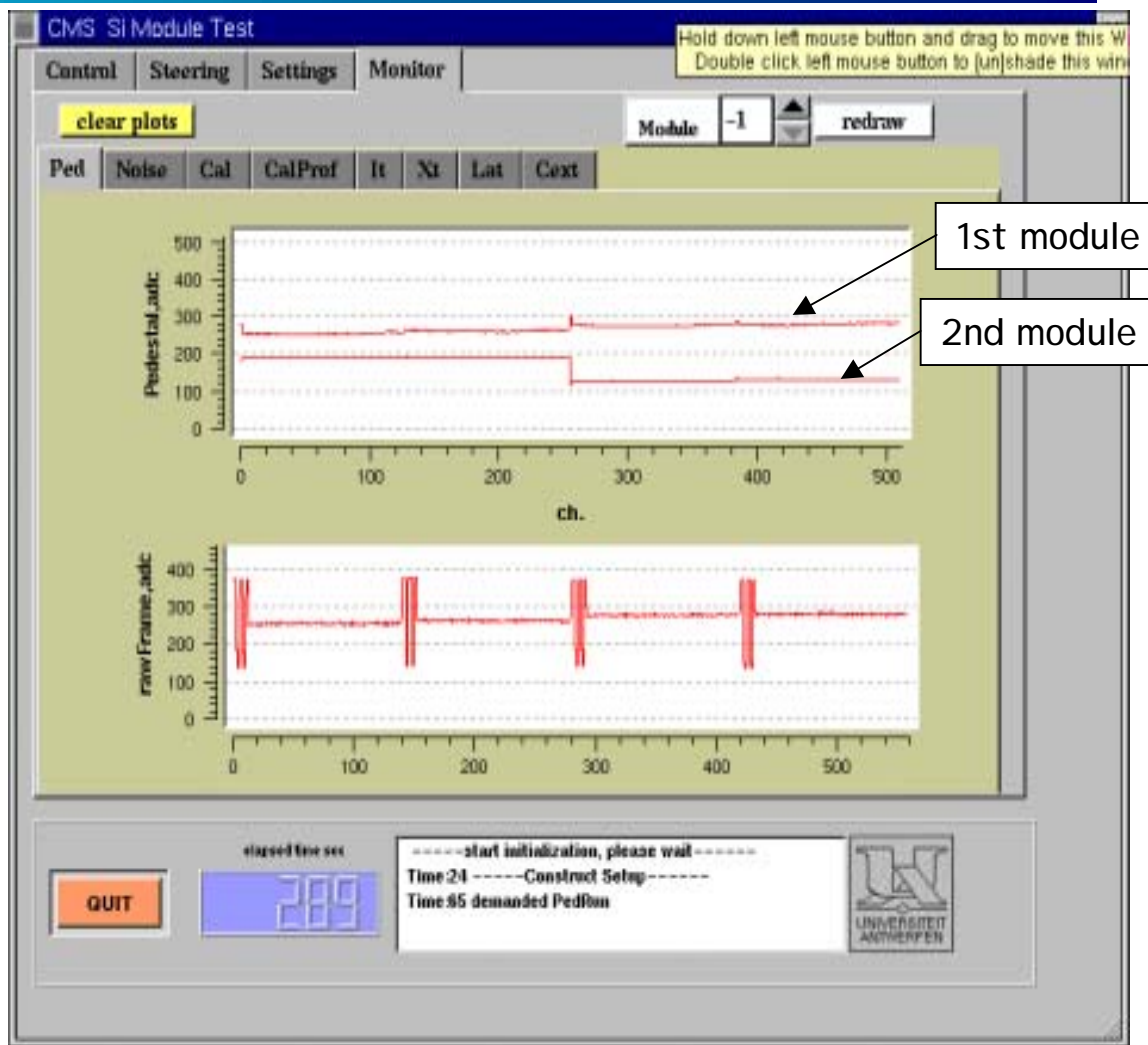




Multimodule tests:
preliminary observations...
the **second** module test get wrong results for what concerns pedestal and noise (inverting the modules, the same behavior was observed)

-the hardware components were tested individually and no bad functionality was observed for both setups (VUTRI , paacb, FED inputs, CCU inputs)

BUT : Lt.0.09 ??





- The long term test works properly in Louvain la Neuve;
BUT: -problem for the deconvolution mode in CALProfRun;
-multimodule tests still to be improved;

- Install Lt.0.81 on a new PC with CERN Linux 7.2 version and check the longterm scenario and multimodules tests;

- Improve the cooling time during the scenario, cooling the dry air flushed into the cold box;

- The cold box is ready for 6 modules, so we would be happy to welcome new modules, VUTRI , paacb, VUTRI hybrid adapter cards;