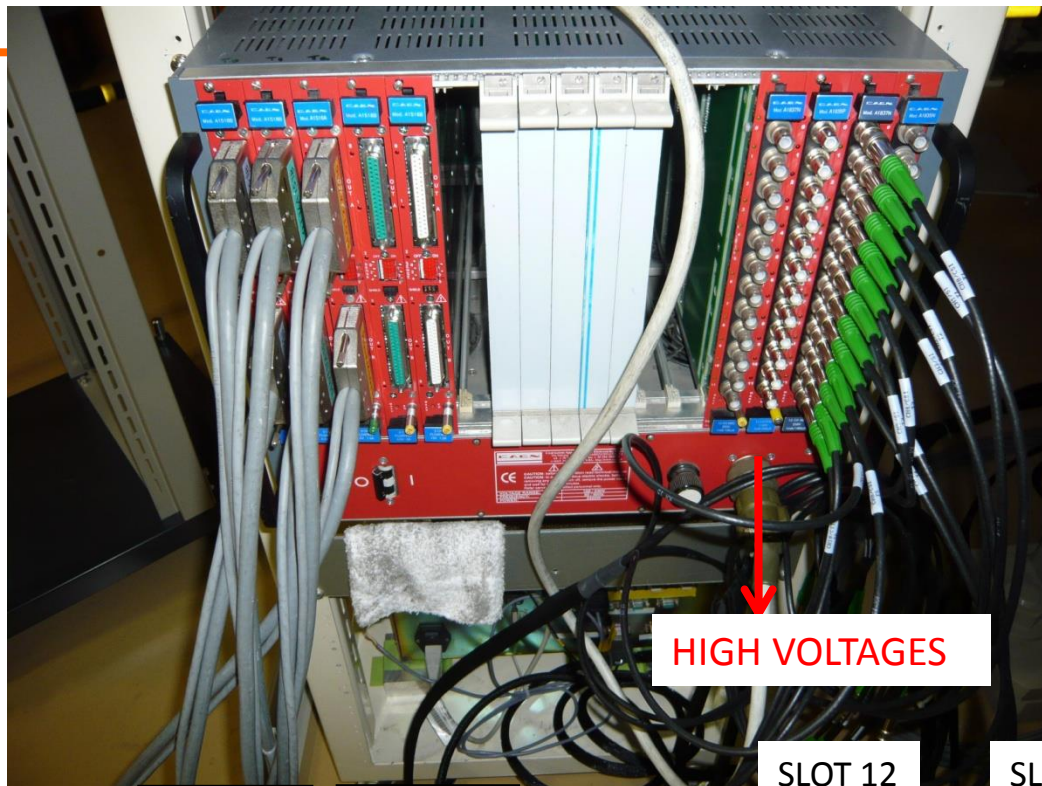


# Power supply CAEN SY1527 USUAL FULL configuration for 8 telescopes LOW/ HIGH VOLTAGES

SY1527 max number  
of boards per crate 16  
19" wide  
depth 720 mm  
8U-high  
Euro-mechanics rack



SLOT 14  
A1837N  
12ch.

**A1837N**  
-250V/1mA  
(100µA)  
-50V( Csl),  
-100V (Si)

**HIGH VOLTAGES**

SLOT 12  
**A1837N**  
12ch.

SLOT 13  
**A1835P**  
12ch

**A1835P**  
+1.5kV /7mA  
(200µA)  
+HT Sili  
Julich

SLOT 0  
**A1518B**  
OUT A  
3X +2.5V  
  
OUT B  
3X -2.5V

SLOT 1  
**A1518B**  
OUT A  
3X +2.5V  
  
OUT B  
3X -2.5V

SLOT 2  
**A1516A**  
OUT A  
1X +3.3 V  
2X -5V  
  
OUT B  
2X +5V  
1X +10V

SLOT 3  
**A1518B**  
"1"  
3X +2.5V  
  
"2"  
3X -2.5V

SLOT 4  
**A1518B**  
"3"  
2X -5V  
1X +3.3 V  
  
"4"  
2X +5V  
1X +10V

Configuration for 8 telescopes

Slot In SY1527	Module	Quantity	Type	Nb of channels	Power for MUFEE
0	A1518	2	4.5V/6A	6	+2.5V, -2.5V
1	A1518	2	4.5V/6A	6	+2.5V, -2.5V
2	A1516	1	15V/1.5A	6	+3.3V, +5V, -5V, +10V
4	A1518	2	4.5V/6A	6	+2.5V, -2.5V
5	A1518	1	15V/1.5A	6	+3.3V, +5V, -5V, +10V
12	A1835P	1	+1.5kV/7mA(200μA)	12	+HT SiLi de Julich
13	A1837N	1	-250V/1mA(100μA)	12	-50V (CsI), -100V(Si)
14	A1837N	1	-250V/1mA(100μA)	12	-50V (CsI), -100V(Si)
15					

Grey cables

Black cables

## Configuration (6 telescopes) for Power supply with SY1527 CAEN CRATE

BT and HT for 8 telescopes, DSSD, SiLi Csl

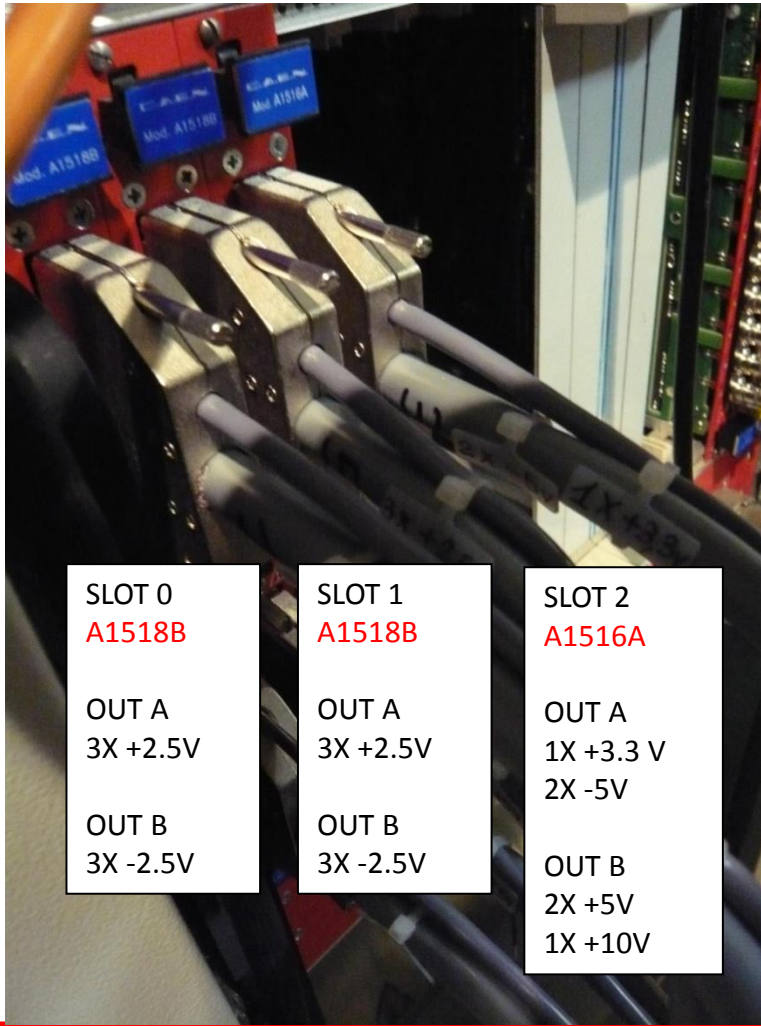
Slot In SY1527	Module	Quantity	Type	Nb of channels	Power for MUFEE	Cables
0	A1518B	1	4.5V/6A	6	+2.5V, -2.5V	Grey "outA -1 "outB -2"
2	A1518B	1	4.5V/6A	6	+2.5V, -2.5V	Grey "3""4"
1	A1516A	1	15V/1.5A	6	+3.3V, +5V, -5V, +10V	Grey "5""6"

*Slots 0,1,2 for distribution box of Low voltage for telescopes T1 to T6*

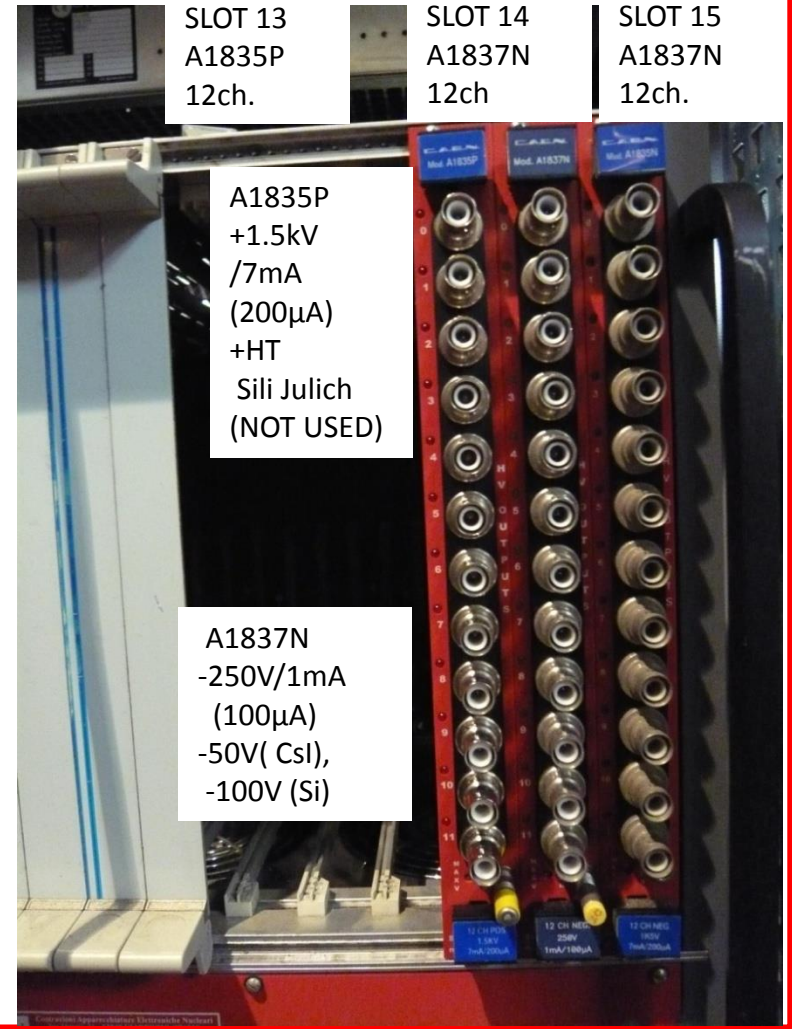
## CAEN SY1527 configuration for 6 telescopes LOW/ HIGH VOLTAGES

*Distribution box for telescopes T1 to T6  
with power supply (low voltage)  
from Slots 0, 1 and 2*

*For telescopes T1 to T6  
power supply (high voltage)  
Slots 13, 14, 15*



SLOT 0	SLOT 1	SLOT 2
<b>A1518B</b>	<b>A1518B</b>	<b>A1516A</b>
OUT A 3X +2.5V	OUT A 3X +2.5V	OUT A 1X +3.3 V 2X -5V
OUT B 3X -2.5V	OUT B 3X -2.5V	OUT B 2X +5V 1X +10V



SLOT 13	SLOT 14	SLOT 15
<b>A1835P</b>	<b>A1837N</b>	<b>A1837N</b>
12ch.	12ch	12ch.

A1835P  
+1.5kV  
/7mA  
(200μA)  
+HT  
Sili Julich  
(NOT USED)

A1837N  
-250V/1mA  
(100μA)  
-50V( CsI),  
-100V (Si)

# Power supply Modules CAEN HIGH VOLTAGE

Red: 4 MUST2  
purple TIARA

SLOT	Slot /board 10	Slot /board 11	Slot /board 12	Slot 13	Slot 14
Module	A1737	A1737	A1835P	A1837N	A1837N
	-HT	-HT	+HT		-50V (Csl), -100V(Si)
	(I <sub>o</sub> =5μA)	(I <sub>o</sub> =5μA)	+1.5kV/7mA(200μA)	-250V/1mA (100μA)	-250V/1mA(100μA)
Ch0	<b>IB1 50V</b> 0.3	<b>OB5 150V</b> 1.2	<b>CATS 1 640 V</b> IOset =2μA ( I < 0.2)		Csl/T1 50V
Ch1	<b>IB2 50V</b> 0.0	<b>OB6 150V</b> 0.6	<b>CATS 2 640 V</b> IOset =2μA ( I < 0.2)		T1 Si DSSD 80
Ch2	<b>IB3 50V</b> 0.0	<b>OB7 150V</b> 1.3			T2 Csl 50V
Ch3	<b>IB4 50V</b> 0.1	<b>OB8 150V</b> 1.2			T2 Si DSSD 70V
Ch4	<b>IB5 50V</b> 0.0	<b>W1 50V</b> 1.2			T3 Csl 50V
Ch5	<b>IB6 50V</b> 0.6	<b>W2 50V</b> 1.2			T3 Si DSSD 80V
Ch6	<b>IB7 50V</b> 0.1	<b>VOID</b>			T4 Csl
Ch7	<b>IB8 50V</b> 0.0	<b>W4 50V</b> 0.3			T4 Si DSSD 80V
Ch8	<b>OB1 150V</b> 0.7	<b>W5 50V</b> 1.2			
Ch9	<b>OB2 150V</b> 1.1	<b>VOID</b>			
Ch10	<b>OB3 150V</b> 4.2	<b>VOID</b>	<b>DE Charissa</b> 28V (5μA) 0.7		CslCharissa 45V( I=3μA) 0.7
Ch11	<b>OB4 150V</b> 1.6	<b>W3 50V</b> 0.1	<b>E Charissa</b> 131V (10μA) 3.0		<b>W6</b> 50V (I <sub>o</sub> =5μA) 0.4



Do not use Manche Arrêt on MUST2 for BT !!  
 Use Alim-Cam and switch on each BT one by one

VOLTAGES MUST2  
 B1 B2

T4	T1-3
T5	T4-6
T6	T1-6
T4	T1-3
T5	T4-6
T6	T1-6

PANORAMA - UNIT1 - alimcam - Conduite

Fichier ? Opérateur: must2 Profil: exploitant Date: 09/03/2014 Heure: 05:42:06

TELESCOPE SECURITE Refroidisseur DEFAUTS Alim CAM MUST2 must2 Connexion SORTIE

B0	B1	B2	B3	B4	B5	B10	B11	B12	B13	B14	B15
T1	T4	T5			T9	T7	T7	T7	T1	T1	T
T2	T5	T6			T10	T7	T8	T8	T2	T2	T
T3	T6	T1-6			T11	T8	T8	T8	T2	T2	T
T3	T4	T1-3	T7		T7-9	T9	T9	T9	T3	T3	T
T2	T5	T4-6	T8		T10-11	T9	T9	T9	T3	T3	T
T1	T6	T1-6	T9		T7-12	T10	T10	T10	T4	T4	T
						T11	T11	T11	T5	T5	T
						T12	T12	T12	T6	T6	T
						T13	T13	T13	T6	T6	T

Evénement Opérateur  
 Presente Presente

Date	Heure	Groupe	Libelle Alarme
03/03/2014	15:15:39	GENERAL	default sonde PT100 T6
03/03/2014	15:15:39	GENERAL	default sonde PT100 T6

demarrer

BOARD 10  
 TIARA

BOARD 11  
 TIARA

BOARD 12  
 CHO CATS2 630V  
 CHL CATS2 630V  
 ch10 -> ΔE / ch11  
 ch12 -> E

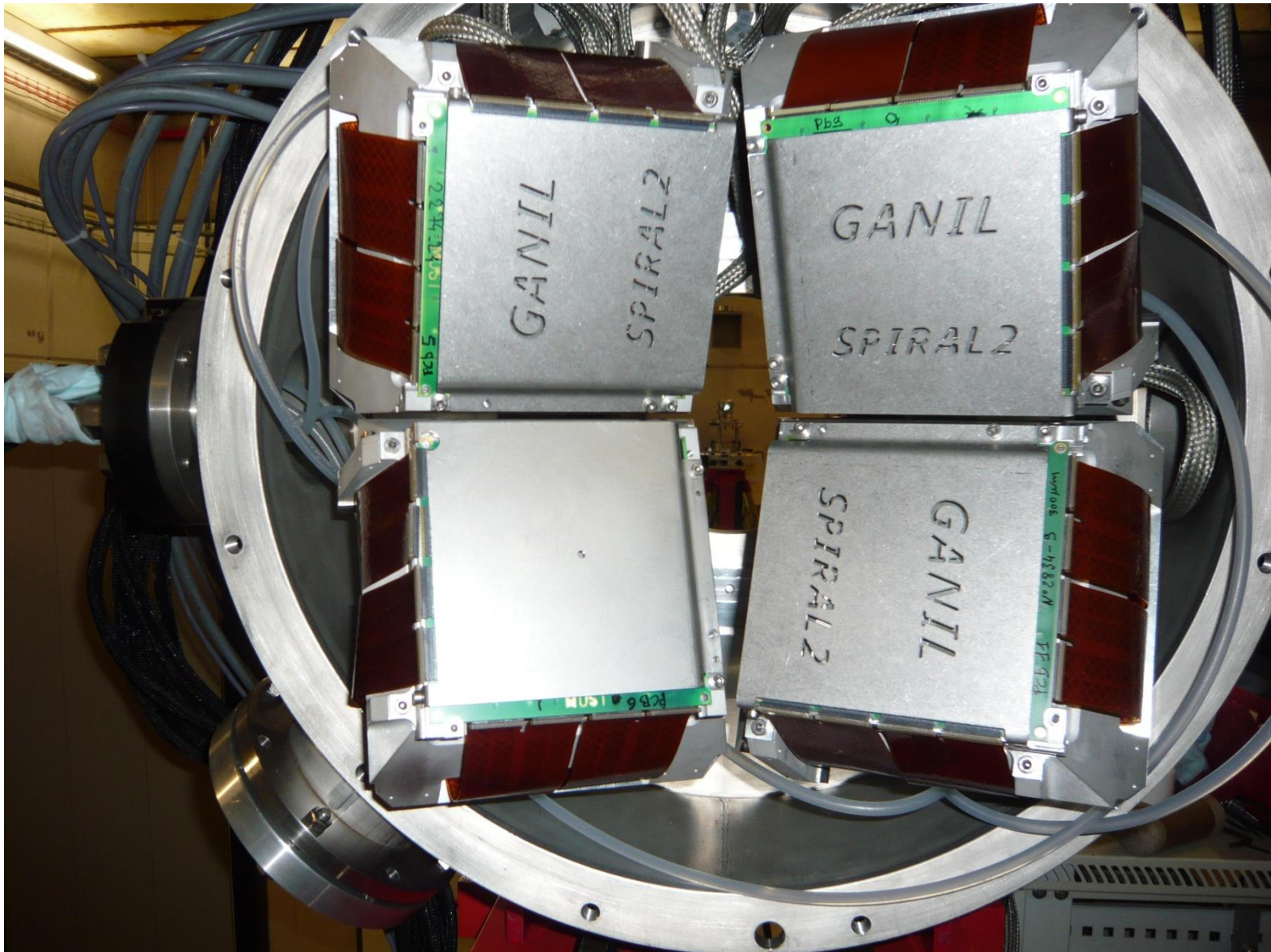
BOARD 14  
 CHO GEI / MUST2  
 ch7

ch10 -> *Capacitance*  
 ch11 -> *WIG*

Alimcam  
 PANORAMA

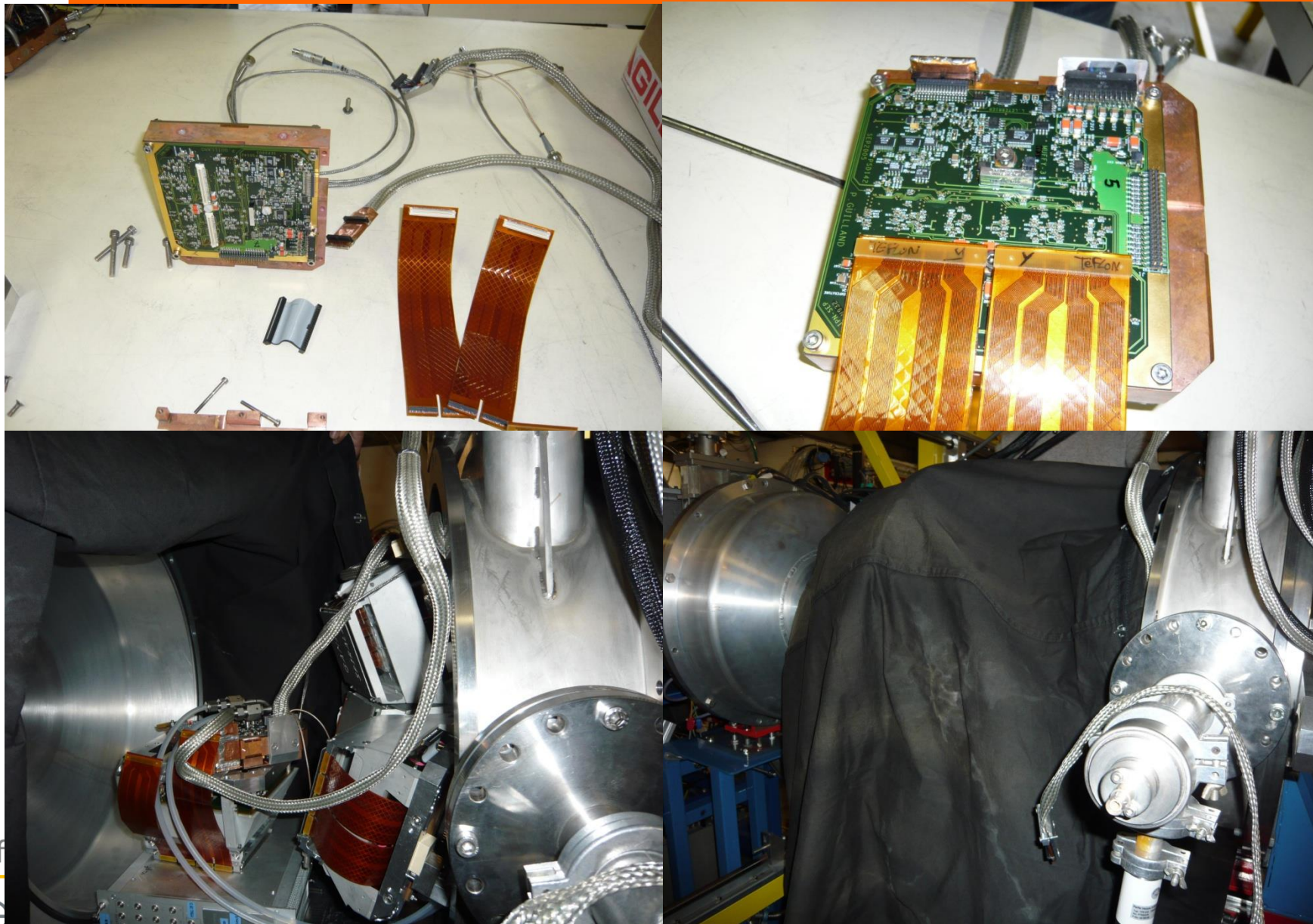
IP: 172.16.139.10  
 PORT: 4027

# Montage MUST2





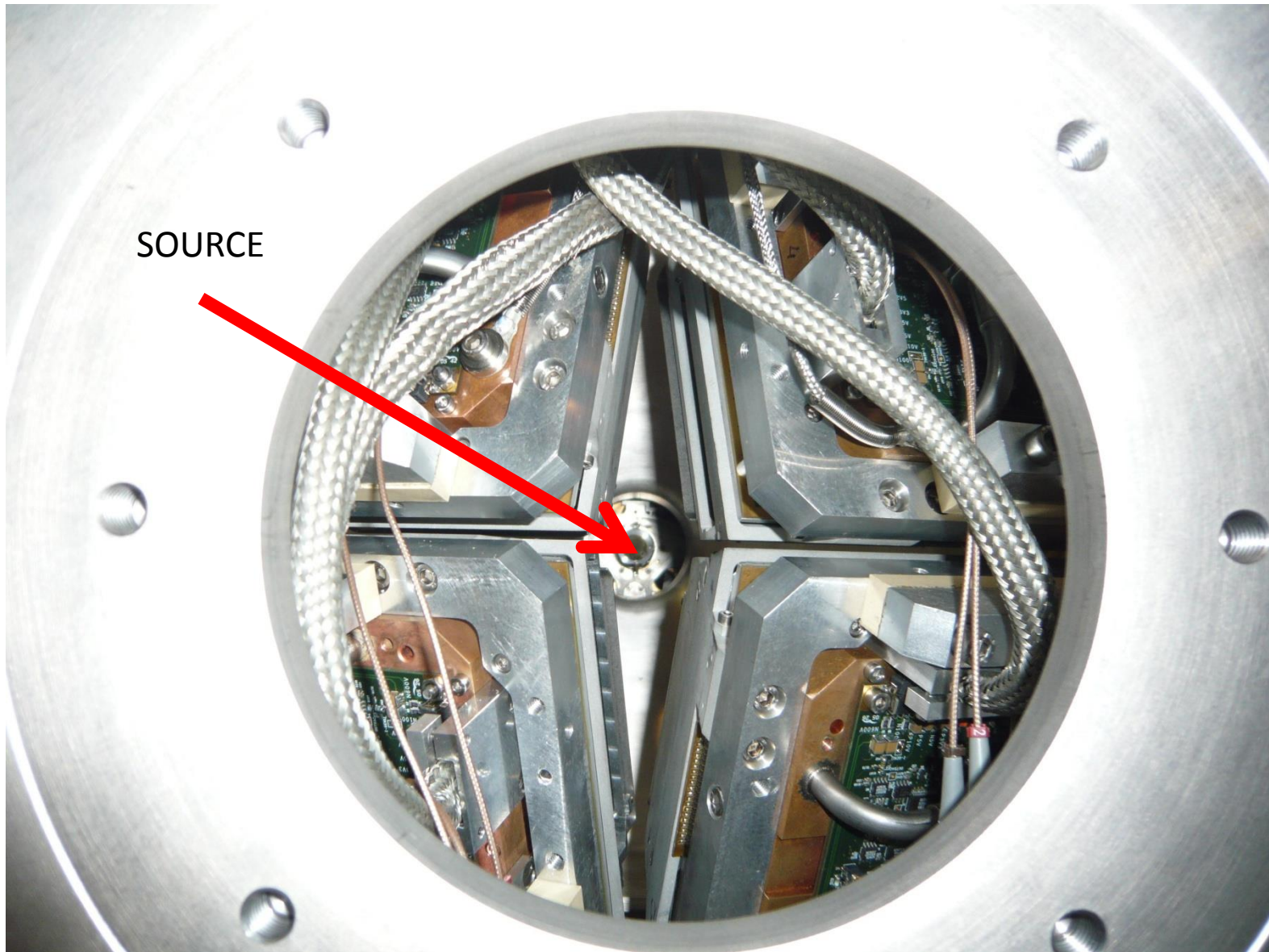
# Télescope T3 en kit et Banc de test des câbles montés sur T3



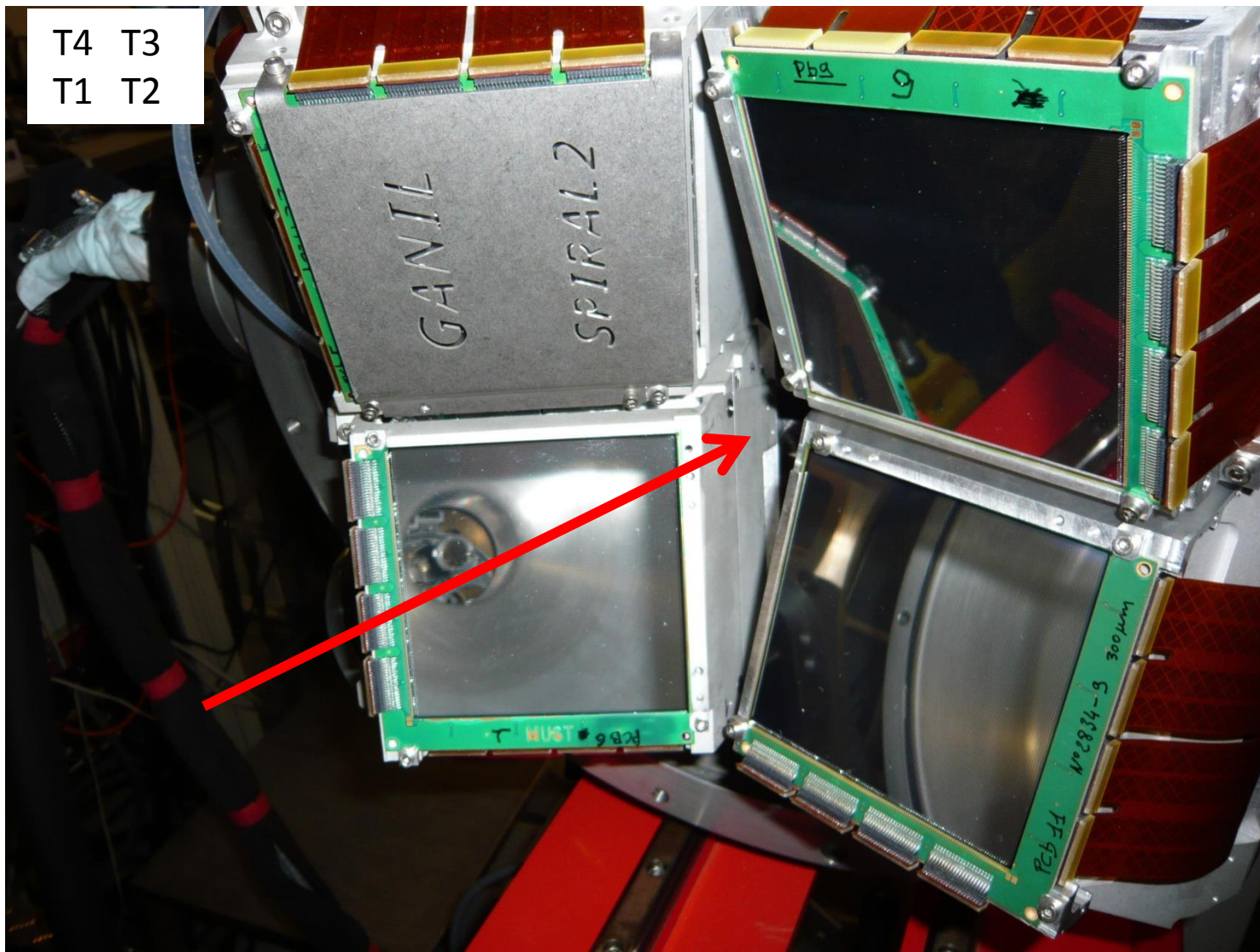
Vide 5  $10^{**} \cdot 4$  ; 2°C (consigne -5°C)

TEL NUMBER	Module DSSD pcb /dssd	DSSD HT V ; I(μA)	Csl V, (I μA)	Remarks T=-5°C Cooling Problems (Leakage, Currents)
1	<b>Pcb6</b> Notation « pcbT6 »	-60V; (0.59)	-50V (Csl)	From E655S: X-ET,Y-ET ok
2	<b>pcb 11</b> End of Nov/ DEC: <b>USED FOR T3</b>	-80V TRIPPE	-50V (Csl)	
3	<b>pcb 9</b> Notation pb9 <b>End Nov/Dec:</b> <b>CHANGED</b>	-80V; (0.65)	-50V (Csl) TRIPPE	From E655S: cards from T5 X-E,Y-ET ok Sonde °C
4	<b>pcb5</b> « 2274-24 »	-70V; (0.26)	-50V (Csl)	From E655S: X-ET,Y-ET ok Sonde °C

*NB Telescope T5 exp E655S pcb 4 (-70V; (3.78)) TO BE USED FOR T2*



## configuration E628



Test en source alpha 3 pics GT288 - 241Am 244Cm 239Pu 2989 Bq au 22/06/2007

# Tests Acquisition Source Alpha (2 branches acquisition/Nov 13)

GANIL DAS v13.06-27 [Language : English(en)] e628

File Utilities Update Acquisition Visualization Option Reserved Help

Add Crate Delete Crate Online e628

CATS MUST2

VXI Crate : 1 Cpu : ganlx14 Add Module Delete Module Move module Change CPU

\_INSPECTION\_ GMT CENTRUM MUVI ADC

[MUVI Slot(6), Type(MUVI)]

User Interface Generic Interface Parameters

Electronics Setup  
Physicist Setup

MUVI

- CAS/TELESCOPE 1
- CAS/TELESCOPE 2
- CAS/TELESCOPE 3
- CAS/TELESCOPE 4

-Mode Acquisition  
Temps mort commun

-Mode Lecture Donnee  
VME Standard

-Cycle d'acq courants de polarisations  
Executer Lecture

-Entree STOP terminee sur 50 Ohms  
oui

-RAZ Automatique  
oui

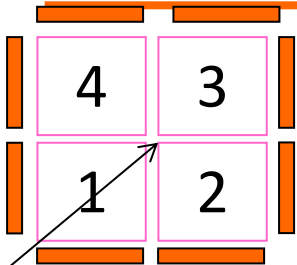
-Horloge Locale  
oui

Echelles

Nom	Comptage	M/A
ORD1	30865	<input checked="" type="checkbox"/> Lire RAZ
DECS1	24732	<input checked="" type="checkbox"/> Lire RAZ
STOP1	24733	<input checked="" type="checkbox"/> Lire RAZ
ORD2	4905	<input checked="" type="checkbox"/> Lire RAZ
DESC2	3875	<input checked="" type="checkbox"/> Lire RAZ
STOP2	3875	<input checked="" type="checkbox"/> Lire RAZ
ORD3	41133	<input checked="" type="checkbox"/> Lire RAZ
DECS3	33019	<input checked="" type="checkbox"/> Lire RAZ
STOP3	33019	<input checked="" type="checkbox"/> Lire RAZ
ORD4	2205	<input checked="" type="checkbox"/> Lire RAZ
DECS4	1732	<input checked="" type="checkbox"/> Lire RAZ
STOP4	1733	<input checked="" type="checkbox"/> Lire RAZ
VAL	63353	<input checked="" type="checkbox"/> Lire RAZ

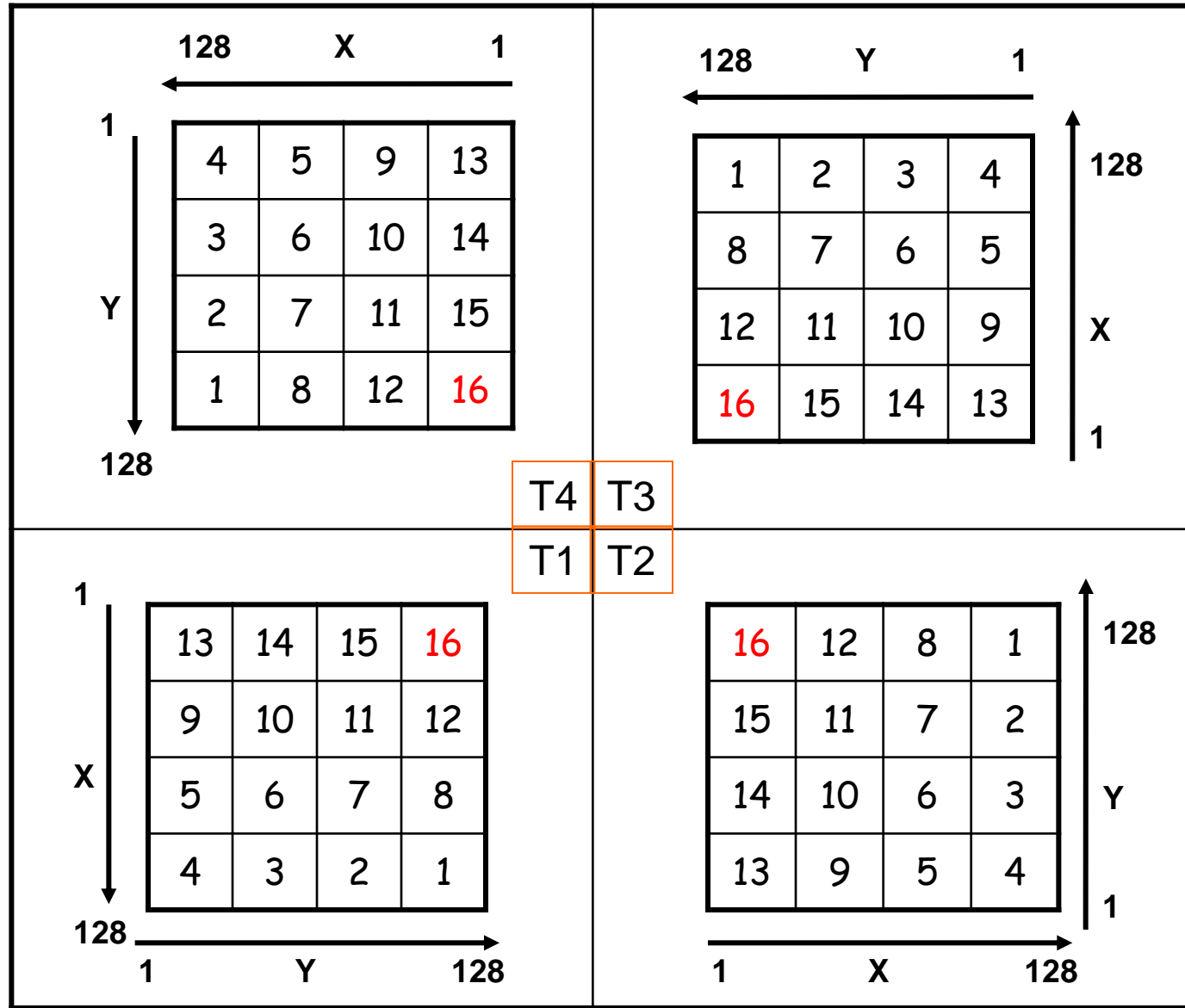
Modified Thursday, November 21, 2013 7:47:24 PM ADC : Add Module < e628.das >

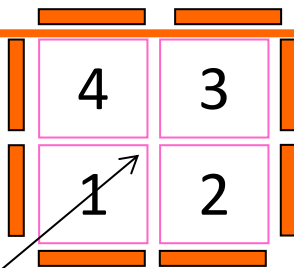
# Configurations of MUST2: numbers of CsI Pads



Si-strip Telescopes  
2 stages DSSD+CsI  
MM1 to MM4:

128 X and Y strips ;  
Energy and time for each ;  
CsI divided into 16 pads  
per telescope  
DAS Configuration for MUVI  
Threshold discri on Strips  
XE and YE set to 400 keV  
CsI : threshold set to 2.6 MeV,  
Shaping time 3 $\mu$ s Gain : 0.6 pF  
TAC range (each strip) 600 ns





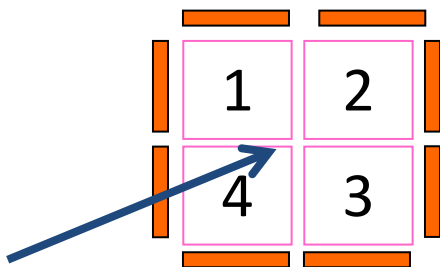
Vacuum  $5 \cdot 10^{-5}$  ; Temperature of the cooling system set to  $-5^{\circ}\text{C}$   
 Probes on T1-2:  $-3.2^{\circ}\text{C}$ ; pn T3-T4  $-2^{\circ}\text{C}$  ; **Probe  $T^{\circ}\text{C}$  on T3 T4**

NB: MufeeY for T3 is from Telescope T... of E655S

TEL NUMBER	Module DSSD pcb /dssd	DSSD HT V ; I( $\mu\text{A}$ ) Init 05/03	DSSD I( $\mu\text{A}$ ) 06/03	DSSD I( $\mu\text{A}$ ) 07/03 08/03	Run 1356 09 /03 5h18	DSSD I( $\mu\text{A}$ ) 09/03 22h	DSSD I( $\mu\text{A}$ ) End 10/03 12h	Csl V, (I $\mu\text{A}$ )~0	Remarks Cooling Problems (Leakage, Currents)
1	<b>Pcb6</b> Notation « pcbT6 »	-80V; (0.59)			1.0		1.1	-50V	(E655S): X-ET,Y-ET ok
2	<b>pcb 7</b>	-70V			0.7		0.7	-50V	
3	<b>pcb 11</b> Notation pb	-80V; (0.65)			2.3		2.4	-50V	New one (09/2013)
4	<b>pcb5</b> « 2274-24 »	-80V; (0.26)			1.2		1.2	-50V	(E655S): X-ET,Y-ET ok

# Labels of MUST2 telescopes

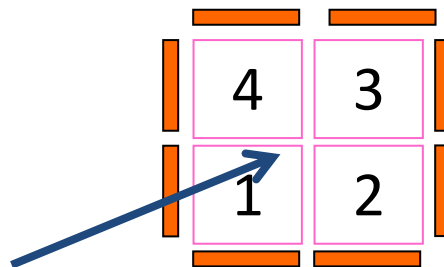
Usually we have  
MUST2



MUST2 Impact Matrix  
(from back)

2	1
3	4

E628 configuration



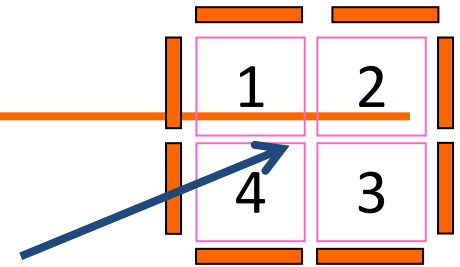
e628.detector must be changed and written with this  
labeling  $1 \leftrightarrow 4$ ,  $2 \leftrightarrow 3$   
→ be careful with the old (dec 13, Feb 14)  
calibration files through NPTOOL

MUST2 Impact Matrix  
(from back)

3	4
2	1



# Present e628.detector to be changed



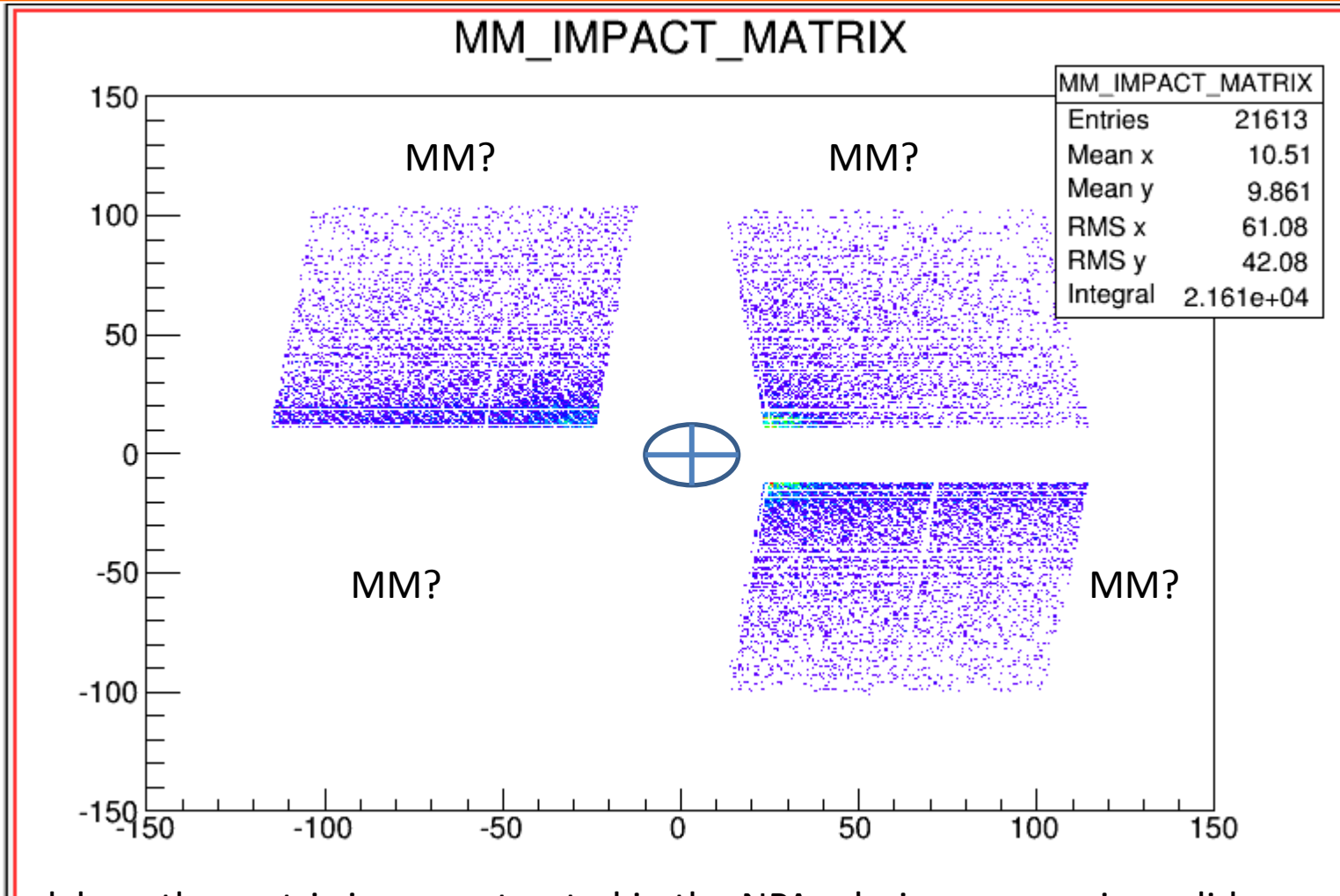
```
%%%%%%%%% Telescope 1 %%%%%%%%%%  
M2Telescope  
X1_Y1= 10.85 105.03 146.16  
X1_Y128= 22.8 9.84 175.95  
X128_Y1= 104.09 105.03 108.76  
X128_Y128= 116.04 9.84 138.55  
SI= 1  
SILI= 0  
CSI= 1  
VIS= all
```

```
%%%%%%%%% Telescope 2 %%%%%%%%%%  
M2Telescope  
X1_Y1= -116.04 9.84 138.55  
X1_Y128= -22.8 9.84 175.95  
X128_Y1= -104.09 105.03 108.76  
X128_Y128= -10.85 105.03 146.16  
SI= 1  
SILI= 0  
CSI= 1  
VIS= all
```

```
%%%%%%%%% Telescope 3 %%%%%%%%%%  
M2Telescope  
X1_Y1= -10.85 -105.03 146.16  
X1_Y128= -22.8 -9.84 175.95  
X128_Y1= -104.09 -105.03 108.76  
X128_Y128= -116.04 -9.84 138.55  
SI= 1  
SILI= 0  
CSI= 1  
VIS= all
```

```
%%%%%%%%% Telescope 4 %%%%%%%%%%  
M2Telescope  
X1_Y1= 116.04 -9.84 138.55  
X1_Y128= 22.8 -9.84 175.95  
X128_Y1= 104.09 -105.03 108.76  
X128_Y128= 10.85 -105.03 146.16  
SI= 1  
SILI= 0  
CSI= 1  
VIS= all
```

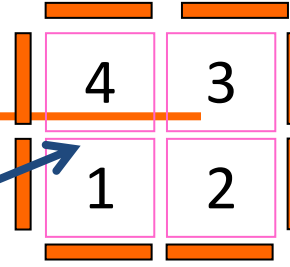
# IMPACT Run 1299 (view at the back of the MUST2 array)



Check how the matrix is reconstructed in the NPAnalysis ; see previous slides  
is it MM3 (old labelling) or MM2 (new) reconstructed bottom left?  
Maybe the old labelling is applied T1 to T4 ( quite in agreement with the problem  
of the MufeeY card n°3)

2 | 1  
3 | 4

# New e628.detector (to be loaded in NPTOOL, check)



%%%%%%%%% Telescope 1 %%%%%%%%%%

M2Telescope

X1\_Y1= 116.04 -9.84 138.55

X1\_Y128= 22.8 -9.84 175.95

X128\_Y1= 104.09 -105.03 108.76

X128\_Y128= 10.85 -105.03 146.16

SI= 1

SILI= 0

CSI= 1

VIS= all

%%%%%%%%% Telescope 2 %%%%%%%%%%

M2Telescope

X1\_Y1= -10.85 -105.03 146.16

X1\_Y128= -22.8 -9.84 175.95

X128\_Y1= -104.09 -105.03 108.76

X128\_Y128= -116.04 -9.84 138.55

SI= 1

SILI= 0

CSI= 1

VIS= all

%%%%%%%%% Telescope 3 %%%%%%%%%%

M2Telescope

X1\_Y1= -116.04 9.84 138.55

X1\_Y128= -22.8 9.84 175.95

X128\_Y1= -104.09 105.03 108.76

X128\_Y128= -10.85 105.03 146.16

SI= 1

SILI= 0

CSI= 1

VIS= all

%%%%%%%%% Telescope 4 %%%%%%%%%%

M2Telescope

X1\_Y1= 10.85 105.03 146.16

X1\_Y128= 22.8 9.84 175.95

X128\_Y1= 104.09 105.03 108.76

X128\_Y128= 116.04 9.84 138.55

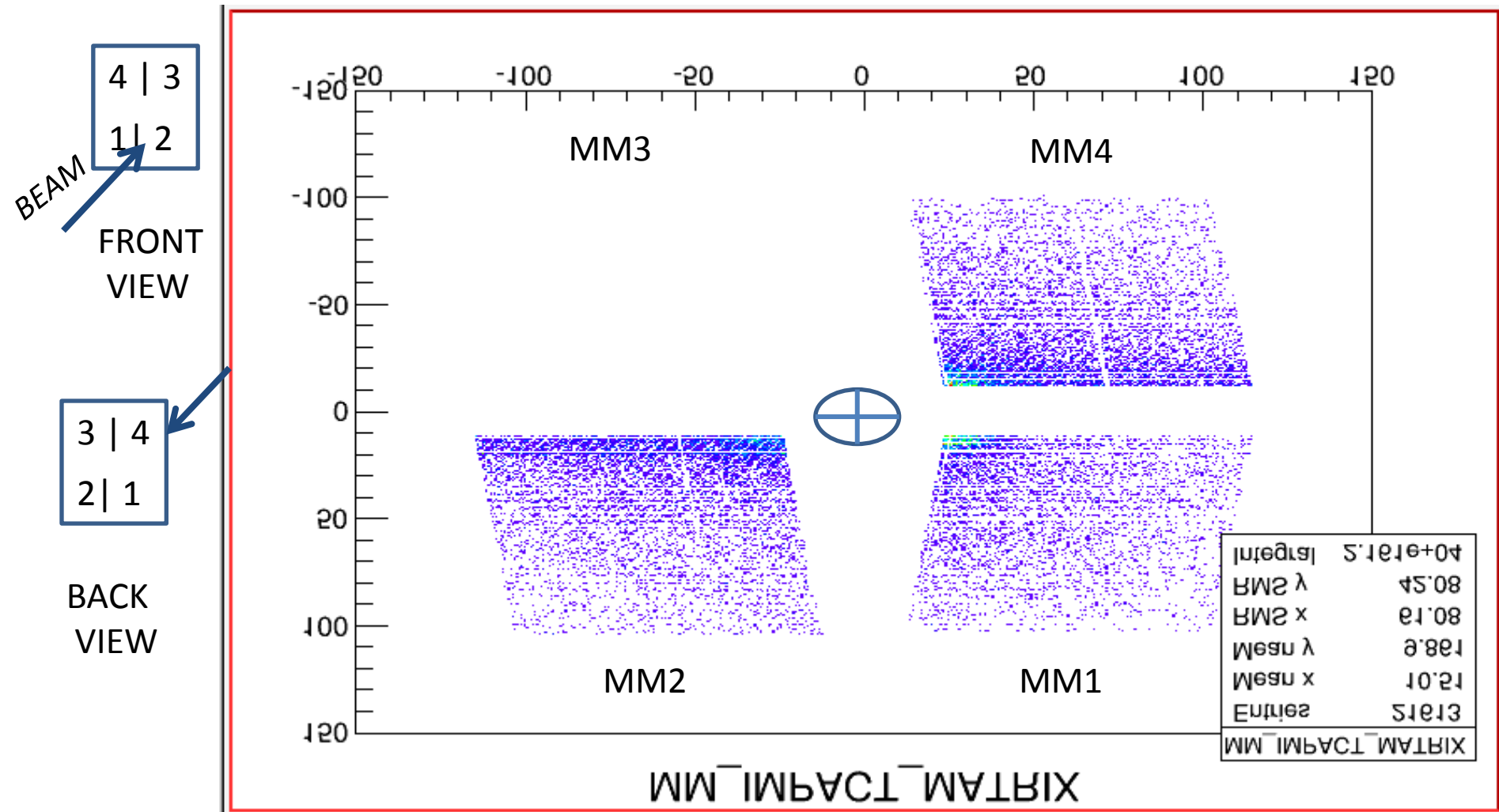
SI= 1

SILI= 0

CSI= 1

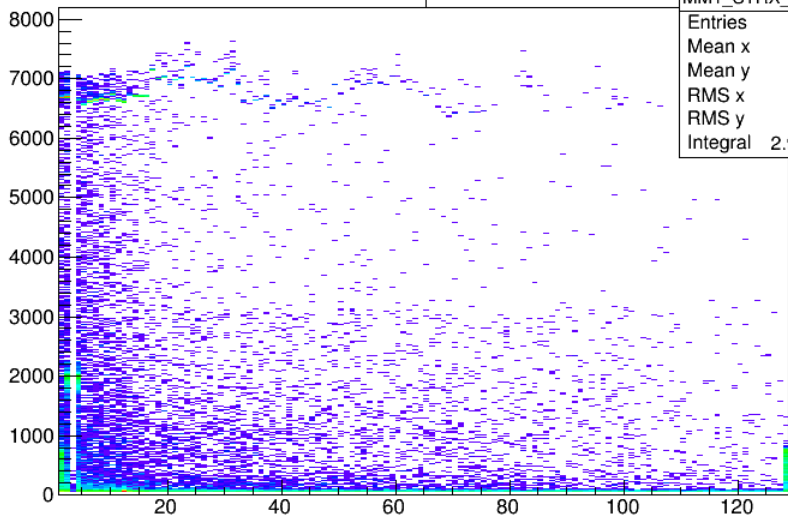
VIS= all

# IMPACT Run 1299 (view at the back of the MUST2 array)



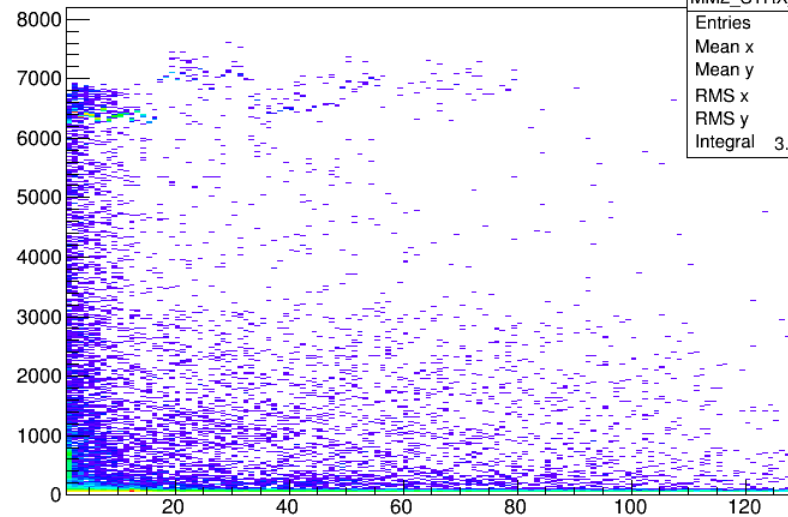
We had problem with the Csi pads of Tel 3 (the MufeyY card n°3)

### MM1\_STRX\_E\_RAW



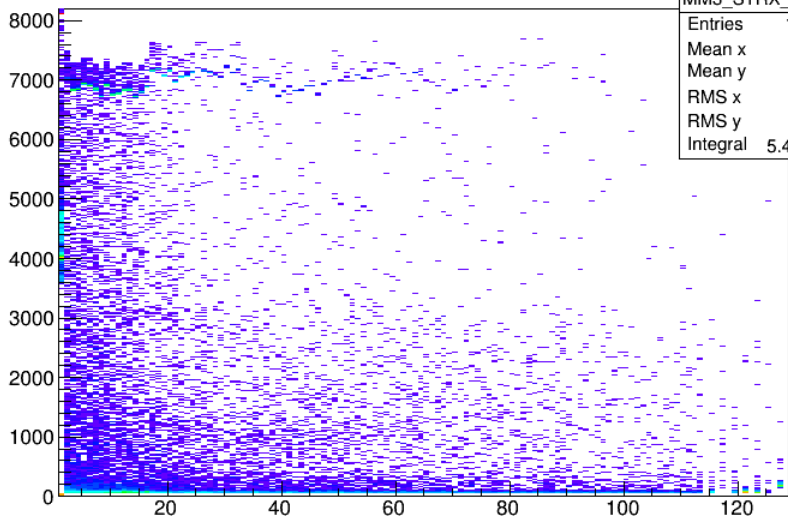
MM1_STRX_E_RAW	
Entries	40848
Mean x	28.6
Mean y	2219
RMS x	36.83
RMS y	2716
Integral	2.96e+04

### MM2\_STRX\_E\_RAW



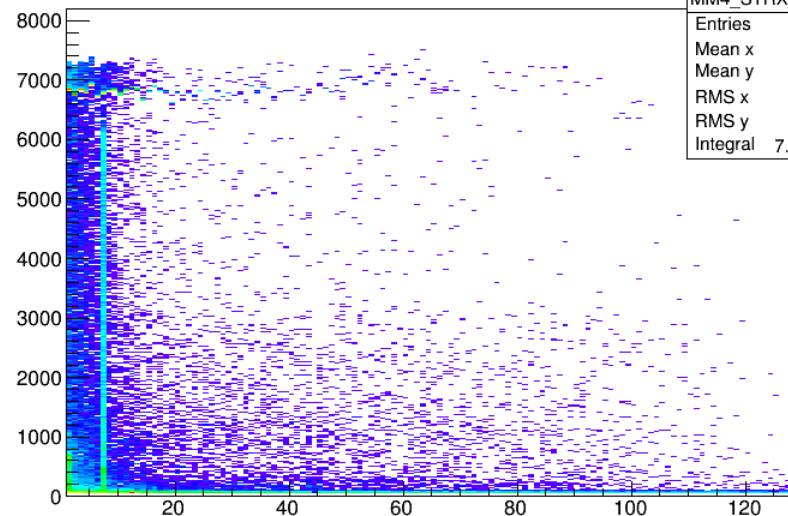
MM2_STRX_E_RAW	
Entries	35394
Mean x	26.71
Mean y	1560
RMS x	33.81
RMS y	2456
Integral	3.496e+04

### MM3\_STRX\_E\_RAW



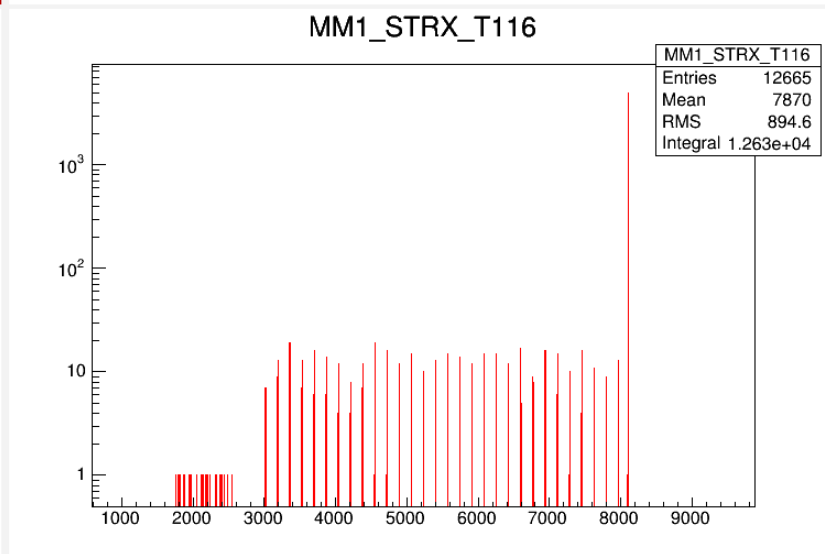
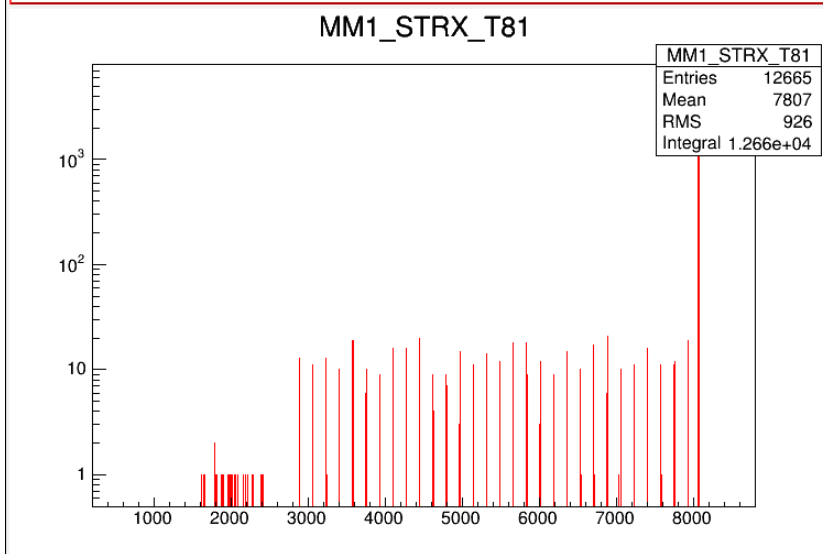
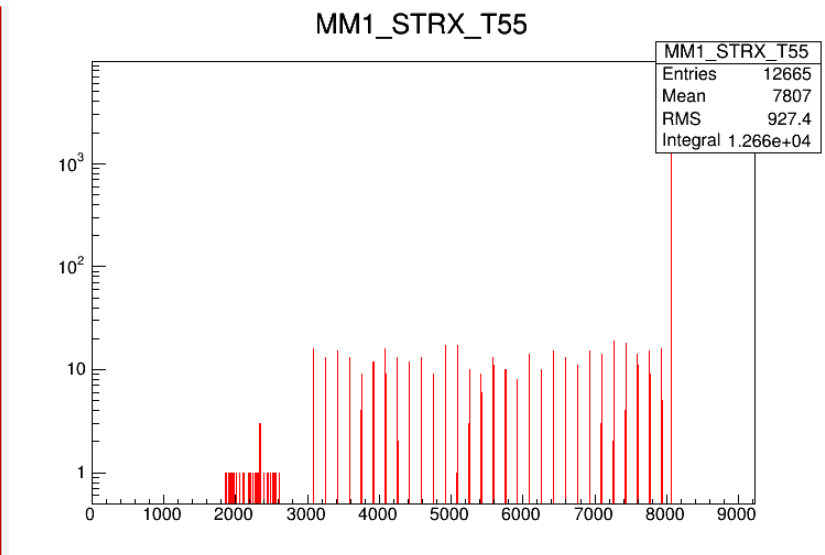
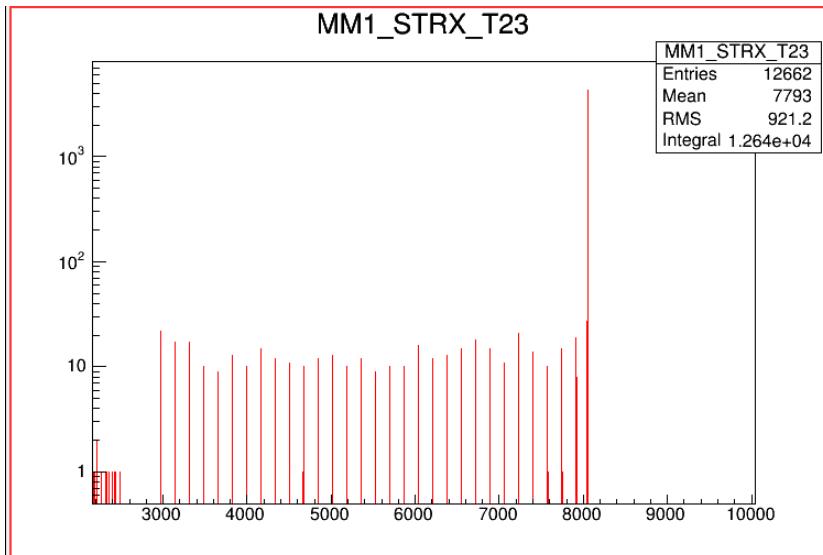
MM3_STRX_E_RAW	
Entries	1235681
Mean x	33.74
Mean y	5556
RMS x	52.77
RMS y	3574
Integral	5.463e+05

### MM4\_STRX\_E\_RAW



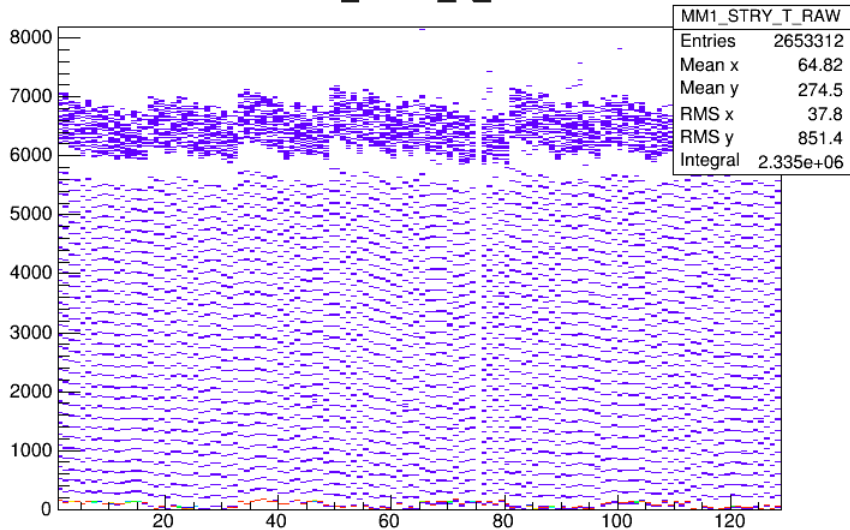
MM4_STRX_E_RAW	
Entries	226687
Mean x	20.09
Mean y	2853
RMS x	33.12
RMS y	3000
Integral	7.699e+04

# Calimero Time calibration of MUST2 – March 16th

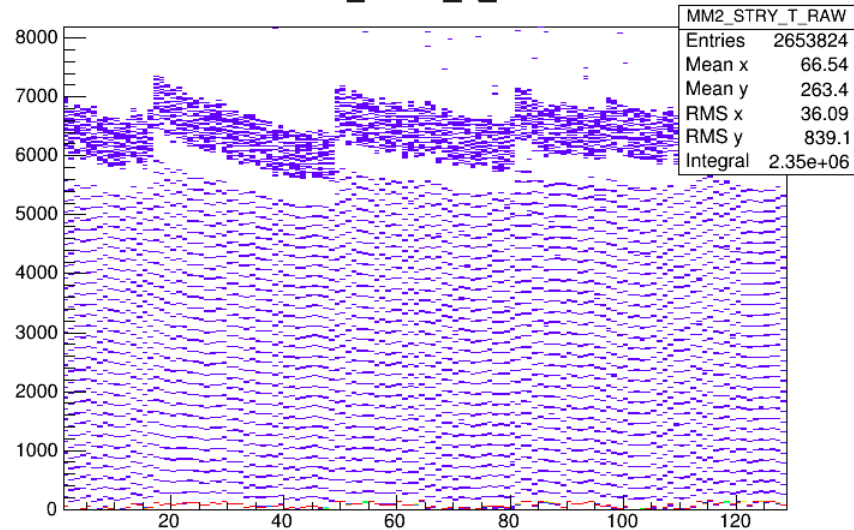


# Calimero Time calibration of MUST2 – March 16th

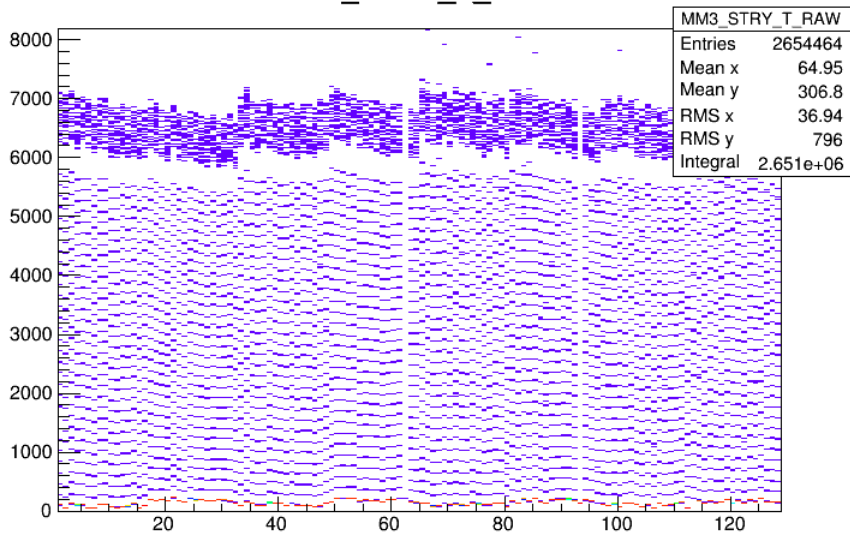
## MM1\_STRY\_T\_RAW



## MM2\_STRY\_T\_RAW



## MM3\_STRY\_T\_RAW



## MM4\_STRY\_T\_RAW

