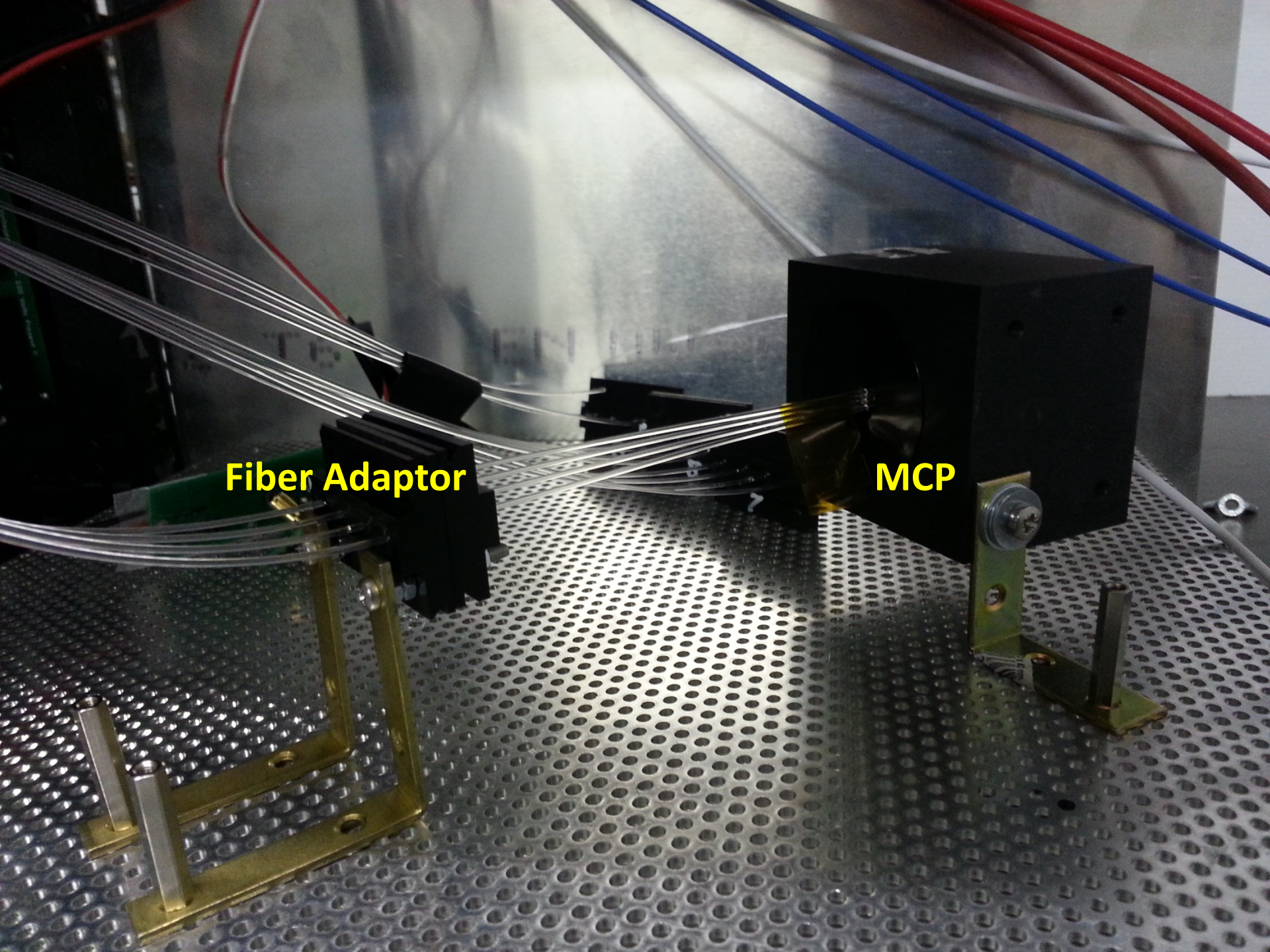


July SH Timing TB CERN

Adi

Fiber Adaptor

MCP



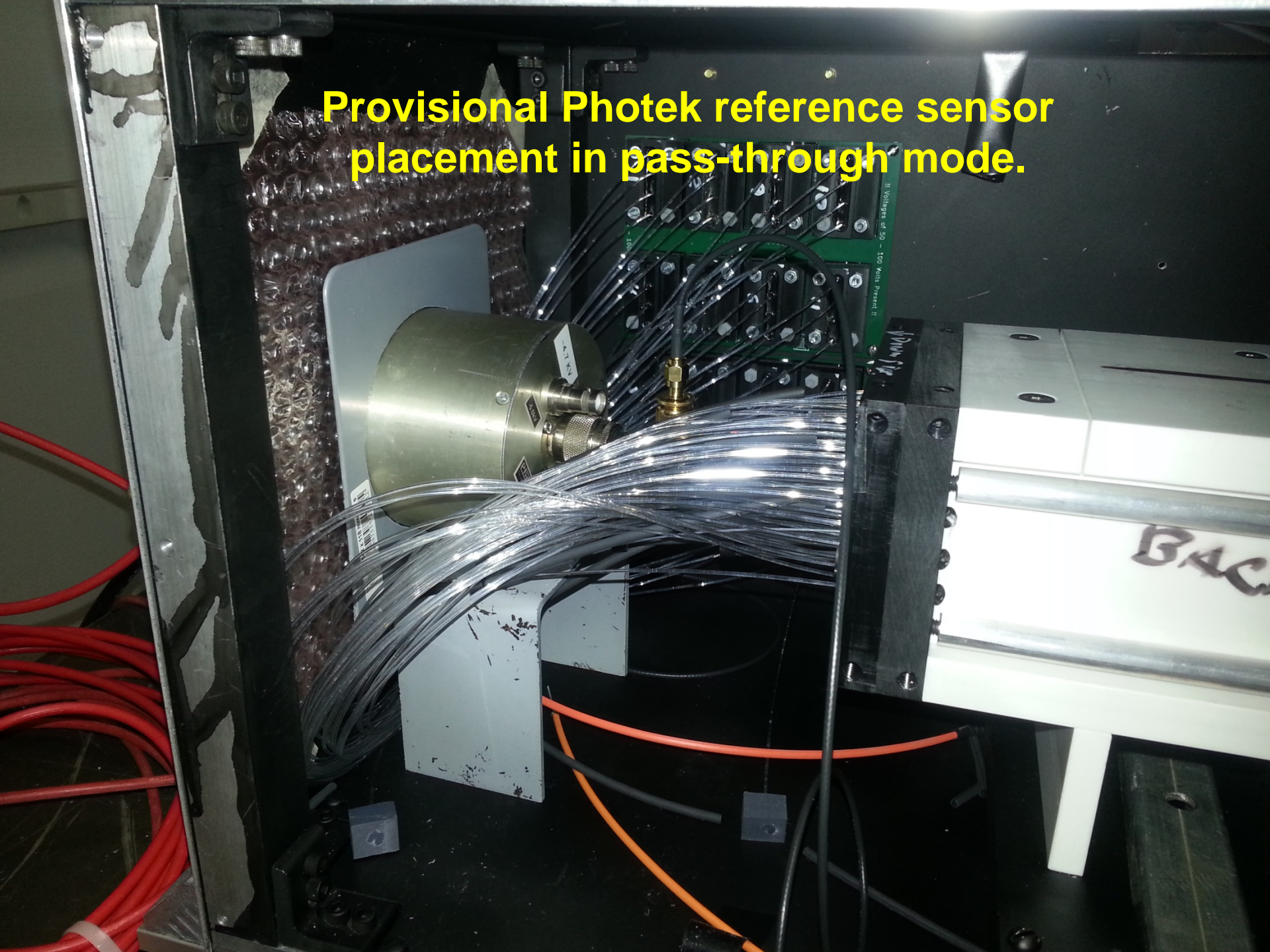
SH Box



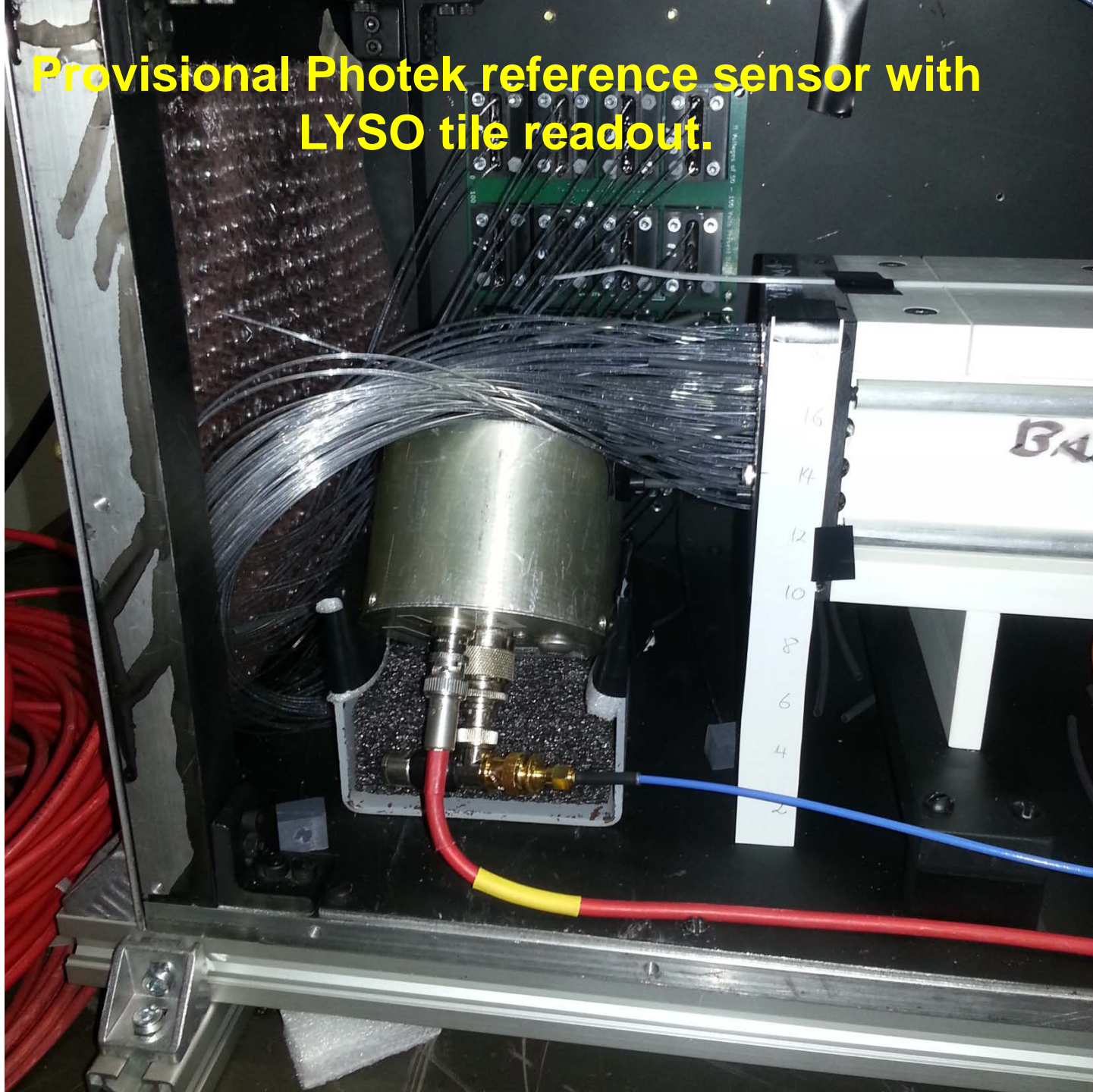
Timing sensor extension

24-600-100

**Provisional Photek reference sensor
placement in pass-through mode.**

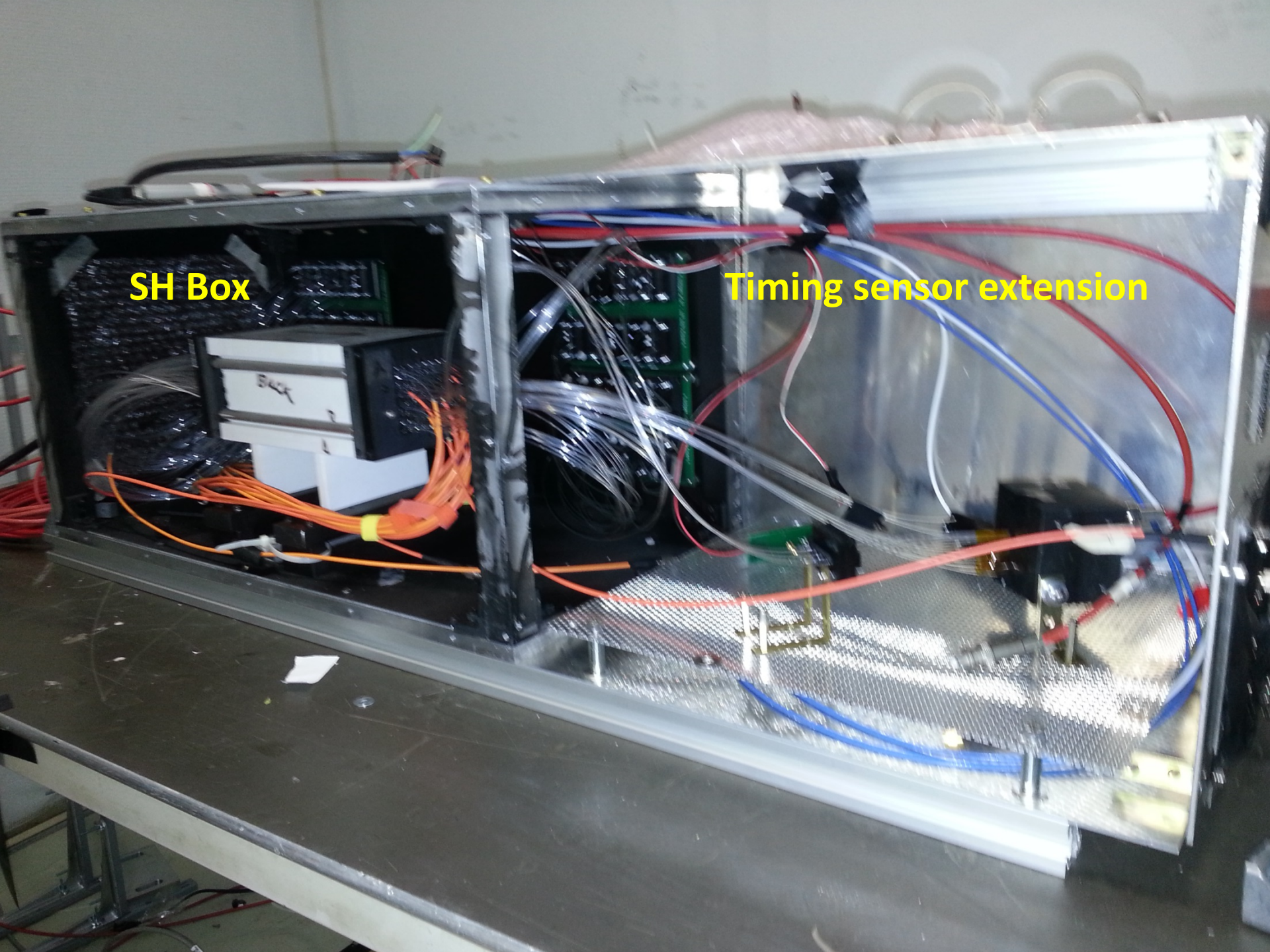


**Provisional Photek reference sensor with
LYSO tile readout.**



SH Box

Timing sensor extension



Test Beam Setup (I)

Right CAEN HV Unit :

- HV (red tape mark) : Photek MCP , 4.7 kV, right CAEN HV unit

Left CAEN HV Unit :

- CH0 : New HV cable, Hamamatsu MCP, 3 kV max
- CH1 : Old HV cable, Hamamatsu MCP, 3 kV max
- CH2 : small trigger PMT, 1 kV max

LV Unit :

- Blue LV cable : connected to plus on LV unit, SiPM, 70 V MAX

Test Beam Setup (II)

DRS4 readout :

Plugging in the USB into the laptop initializes the DRS4 board. Two USB cables next to the DAQ laptop are labeled.

DAQ Laptop :

The DAQ laptop is currently located next to the crates for HV, LV, table movement on the ground floor, under the H2 barracks.

Login “muon”, PW to be communicated

Remote access via : ssh [muon@pb-d-128-141-105-100.cern.ch](ssh://muon@pb-d-128-141-105-100.cern.ch) (may change since dynamic IP).

When logged in, get root access: “sudo su”

To run DAQ two options :

- DRS scope app : /home/muon/drs-5.0.2/drsosc**
- DRS dual board readout : /home/muon/drs-5.0.2_v3/drs_ext2 Timing run #Run #Events**

DRS4 Readout

ch1

#1

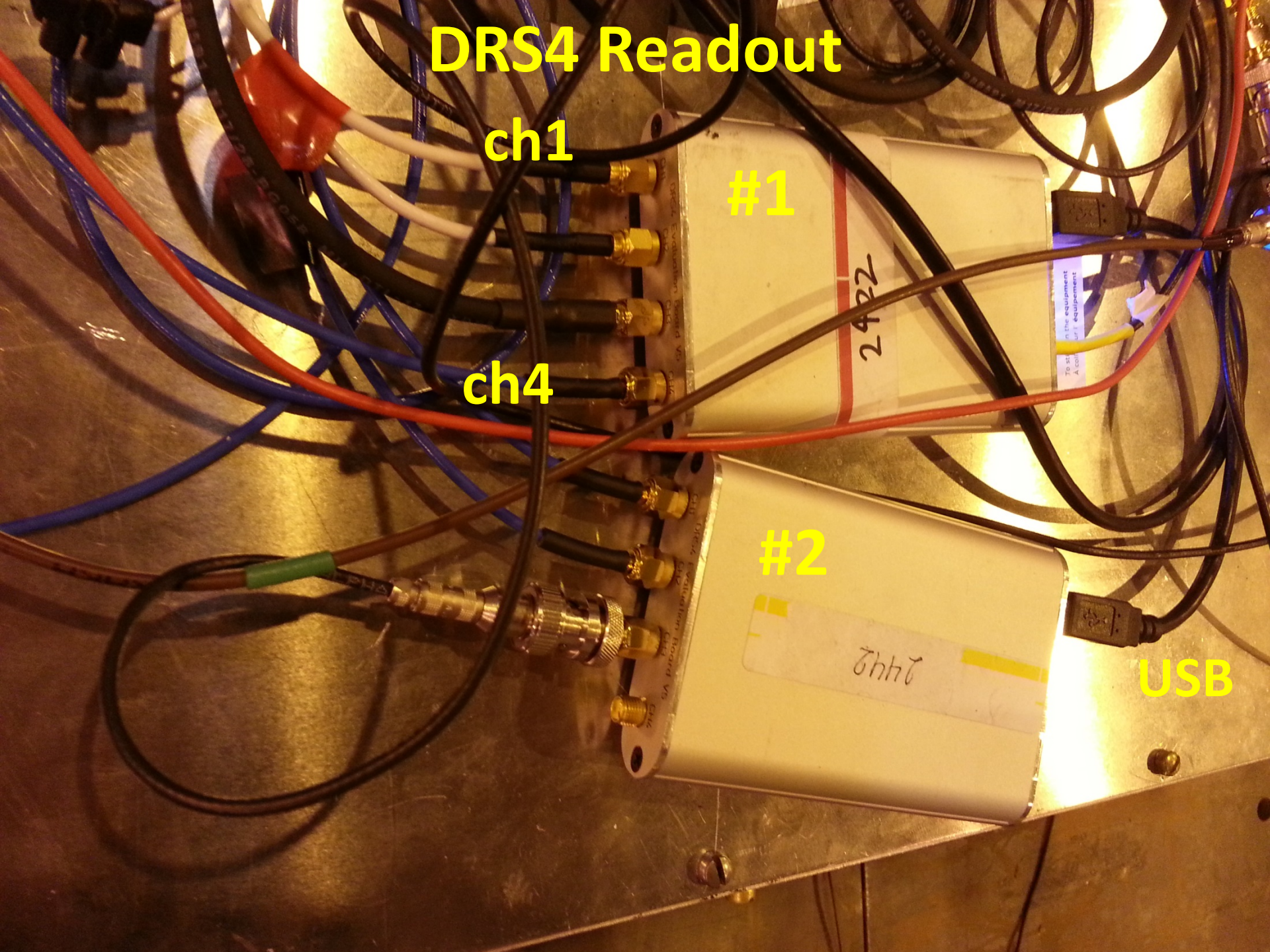
2422

ch4

#2

7442

USB



DRS4 Channel Mapping

- The channel mapping may change. To be noted in the run list for each run, any changes noted in the logbook.

CAEN HV



NIM/TTL
(gone)

Left :

Right :

ch1 : Hamamatsu MCP

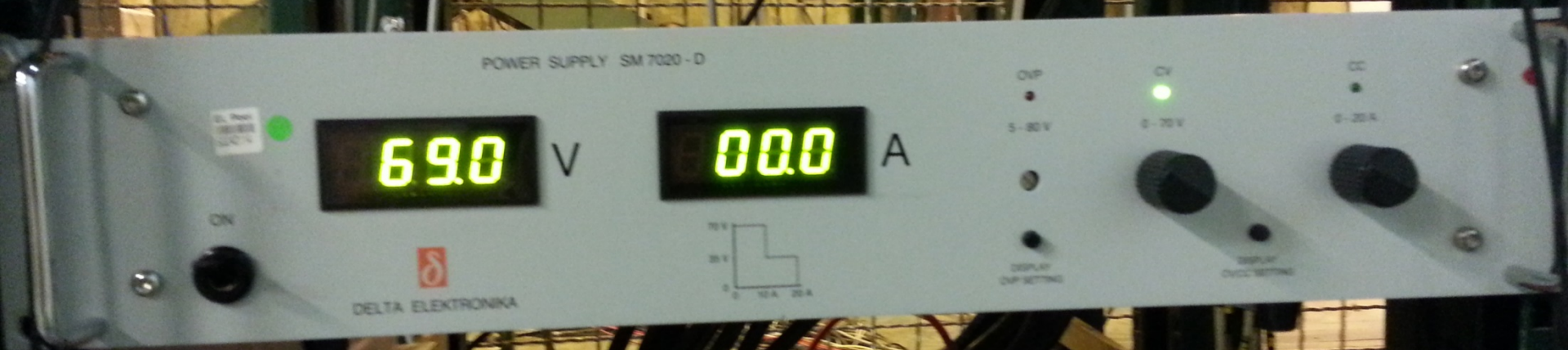
ch2 : Photek

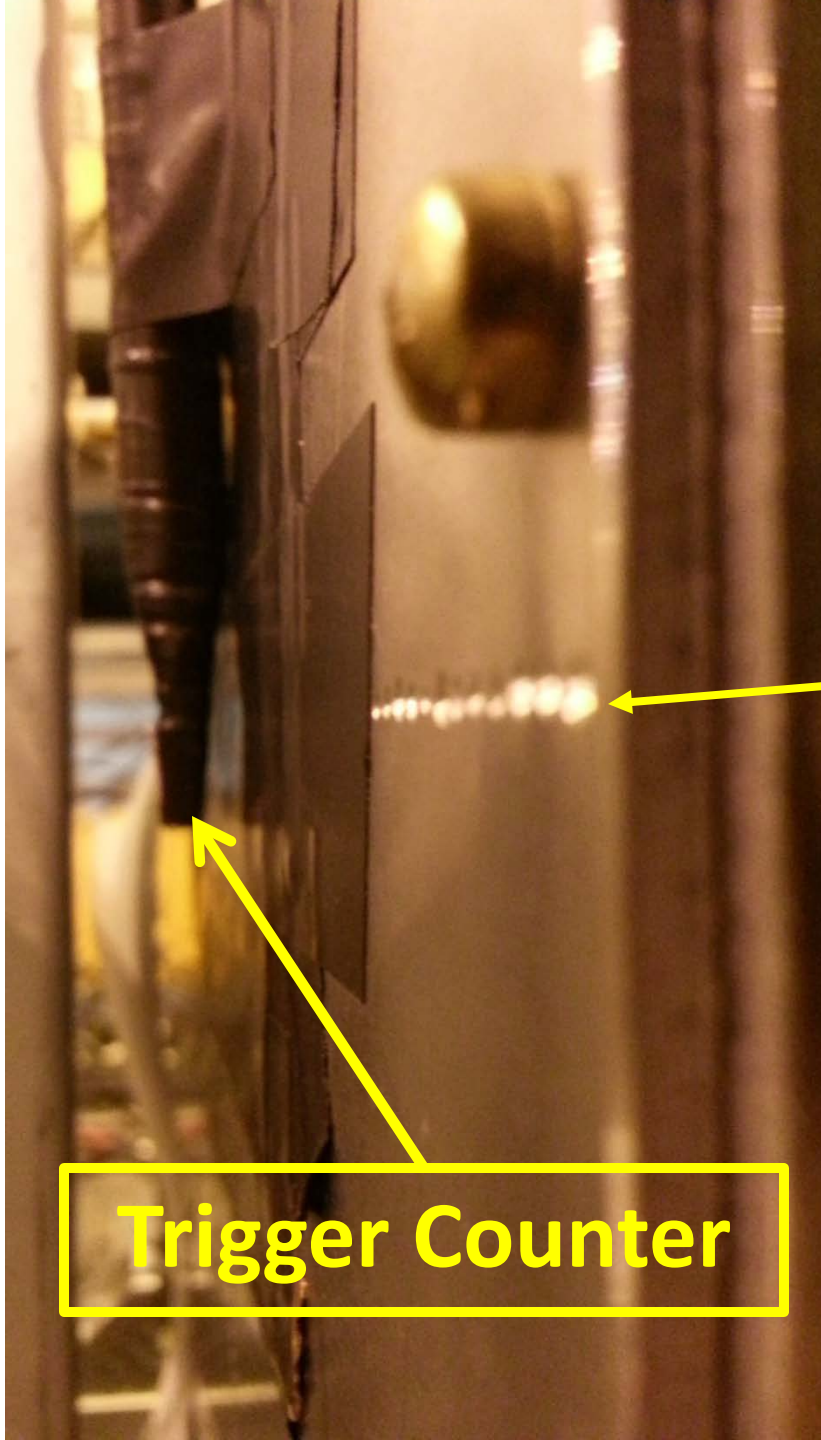
ch2 : Hamamatsu MCP

ch3 : trigger counter

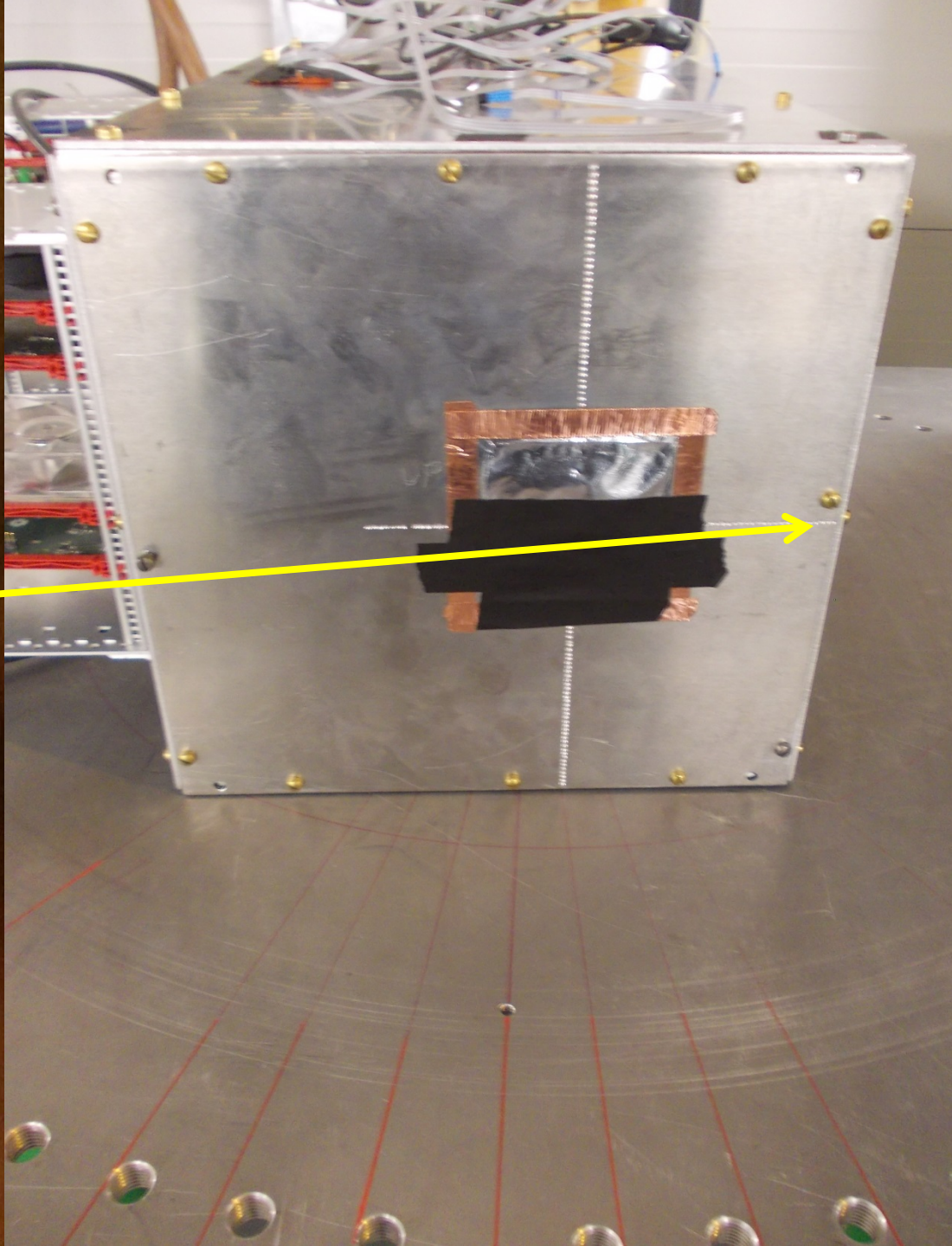
CPT
162843

LV for SiPM





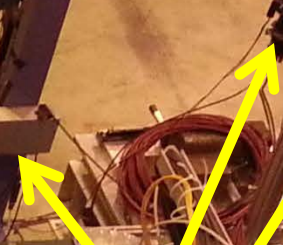
Trigger Counter



Shashlik Box



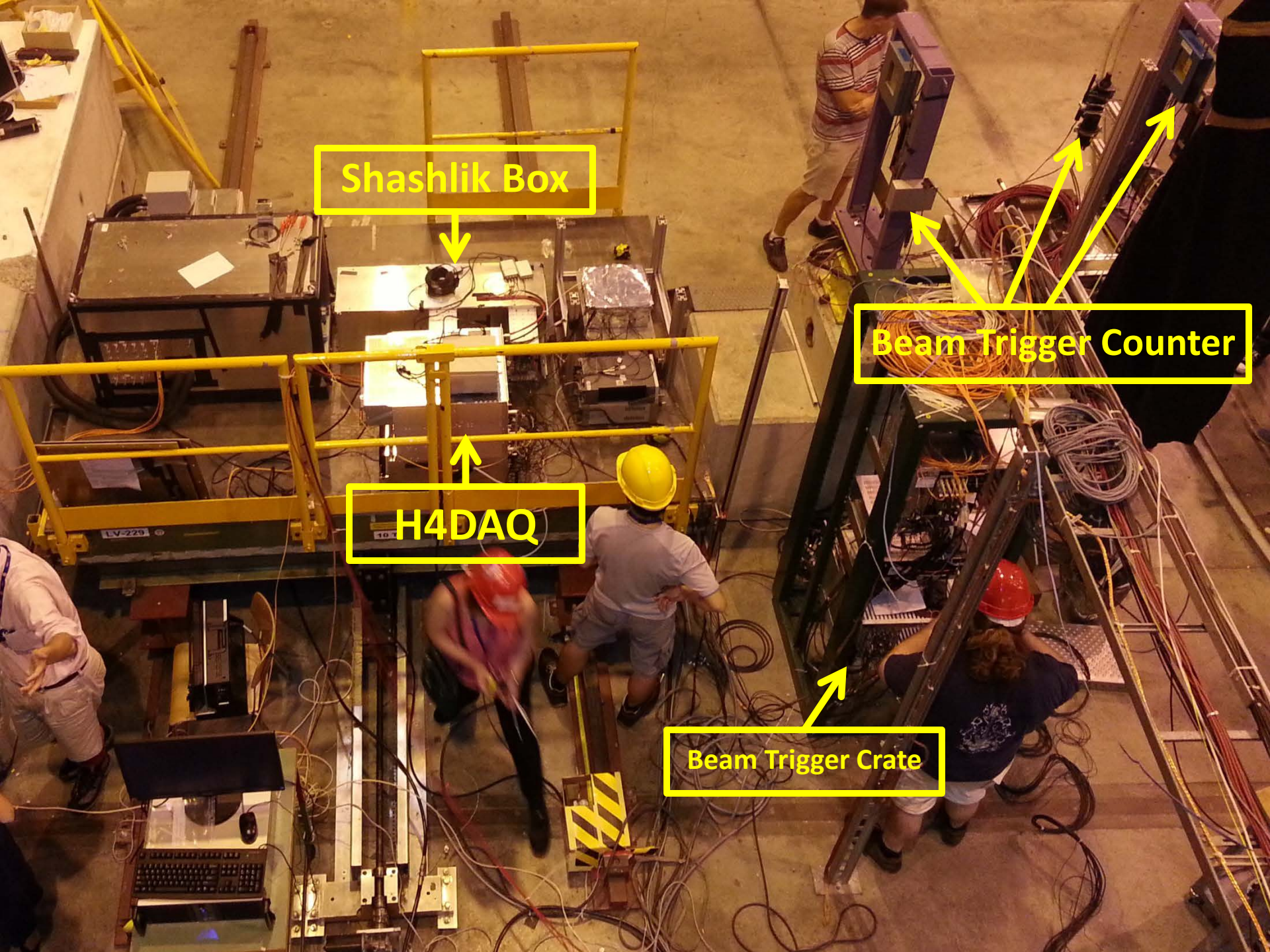
Beam Trigger Counter



H4DAQ



Beam Trigger Crate





Moving Table



Instructions

Beware of the Dragons



Matrix Layout

View from the front

	6	3	
	7	8	

Test 1 :

3 : MCP1, four fibers, low gain, 0.4 V @ 2900 V with laser at H4, run 36

6 : MCP2, three fibers, high gain, 0.25 V @ 2600 V with laser at H4, run 37

8 : small SiPM, one fiber, with cookie, 60 mV, run 38

7 : large SiPM, one fiber, run 40

Photek test : Photek and Hamamatsu with direct laser, run 41

Test 2 :

3: cell6, MCP1, four fibers, run 42, 2nd laser connector, 300 mv @ 2900 V, HV CH0

6 : cell 3, MCP2, four fibers, run 41, top laser connector, @ 2600 V, HV CH1

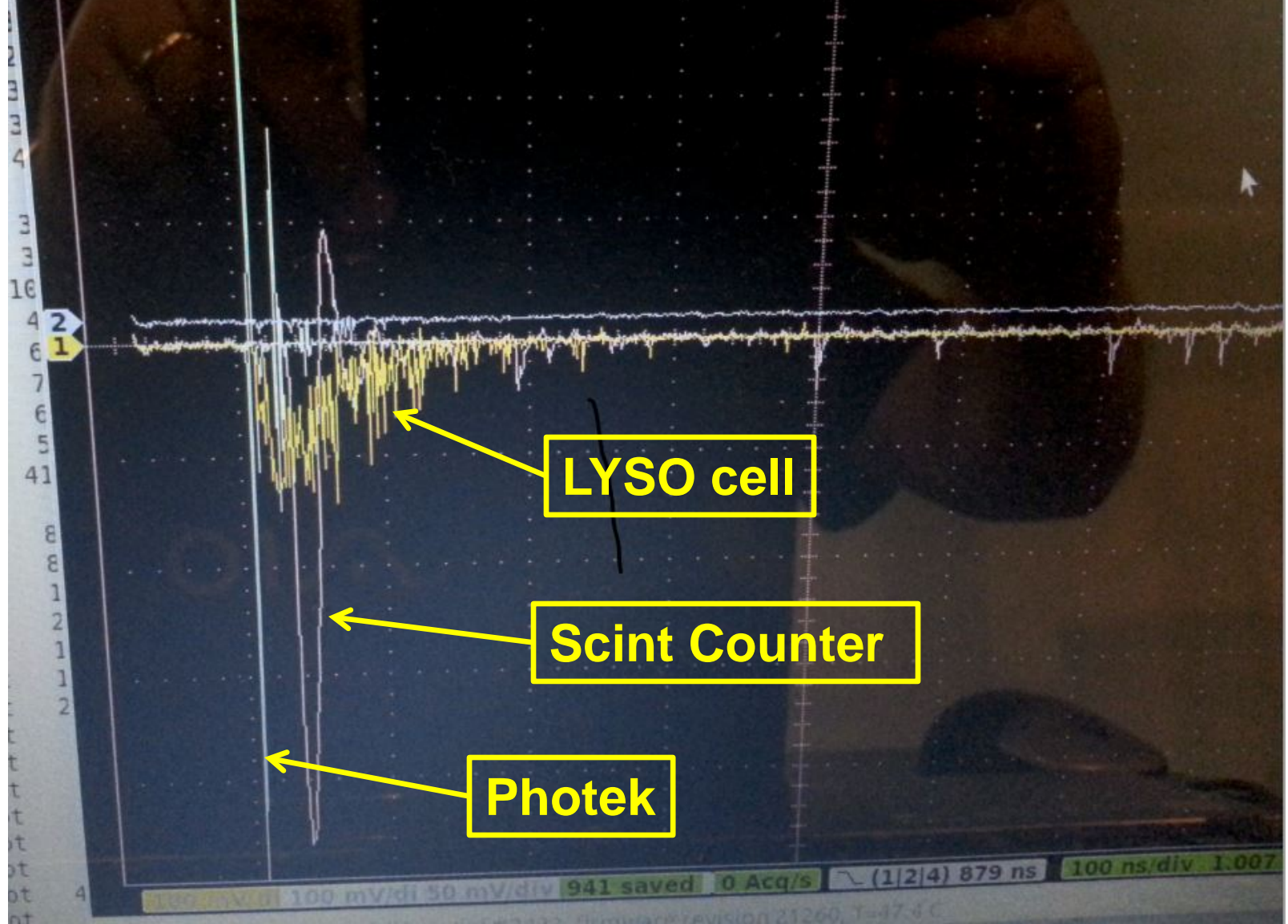
7: cell 7, large SiPM, CH4, run43, 3rd laser connector, 69.1 V, 75 mv

8 : cell8, small SiPM, CH3, run44, used 1st laser connector, 200 mv, 4 fibers

Test data taking

- Run 46 : DRS #1, test run in H2 with muon beam, misaligned,
- Run 47 : DRS #1, test run in H2 with muon beam, misaligned
- Run 48 : DRS #1, muon run after alignment, muon signals in Photek (ch4) and Hamamasu (ch2)
- Run 49 : DRS #, Pho ch4, small scint ch3, hama ch1 and ch2, hama 3 kV, scint 1 kV, Pho 4.7, raised to 4.8 kV, then 4.9 at event 930.
- Run 50 : DRS #2, ch1 and ch2 are SiPMs, ch3 trigger from H4DAQ

Pulse Shape Examples



Shift List

Sunday

Monday

Tuesday

→07:00h

Ben

Pigazzini, Simone(m)
Ciriolo, Vincenzo(m2)

→07:00h

Ben

Barniakov, Alexander(m)
Pigazzini, Simone(m2)

07:00h→15:00h

Sarah

Nourbakhsh, Shervin(m2)

07:00h→15:00h

Sarah

Dev, Nabarun(m2)

15:00h→23:00h

Kai

Brianza, Luca(m)
Mcguinness, Sean(m2)

15:00h→23:00h

Kai

Barniakov, Mikhail(m)
Brianza, Luca(m2)

23:00h→

Ben

Pigazzini, Simone(m)
Ciriolo, Vincenzo(m2)

3:00h→

Ben

Barniakov, Alexander(m)
Pigazzini, Simone(m2)

Javier : Sunday 2 pm – 8 pm, Dustin Monday 0:00 am – 8:00 am

Adi : rest of the time

Run List & Logbook

Run List :

- <https://docs.google.com/spreadsheets/d/151WoGVSxxn0ATbBV9B4tH2GdUHyPS-hfGgl9C0Kl3pl/edit#gid=0>

Logbook :

- <https://docs.google.com/document/d/1RnVZEjiQ7R0DOirhd2V1Zxg4f4NxSWpsCBoZNvb1w/edit>

Tentative Run Plan

Items to be chosen and adjusted according to progress :

- Adjust alignment, trigger, MCP gain and attenuation settings with electrons
- Calibration of 4 LYSO cells with electrons
- Scan of 2x2 cells in ~ 0.7 cm steps
- Repeat scan without reference counter
- Repeat scan with LYSO tile reference
- Repeat scan at different beam energies
- Muon calibration of four cells
- Readout test with CAEN board ?

Contacts and Experts

- The generic shifters have mostly taken shifts in H2 in this campaign already, they can help with issues NOT related to our specific setup.
- General : Adi 162343 (+41754112343)
- Javier : [+41 78 826 6014](tel:+41788266014)
- Dustin : +41754111696
- DRS4 readout additional experts : Artur, Si (via skype and email).
- Timing Test Beam Coordinator : Tommaso Tabarelli de Fatis (should be present at H2 during the day)
- Trigger Crates : Paolo Meridiani (should be present at H2 during the day, phone number in the H2 barracks).