

PD Consortium Meeting - Feb. 7, 2023

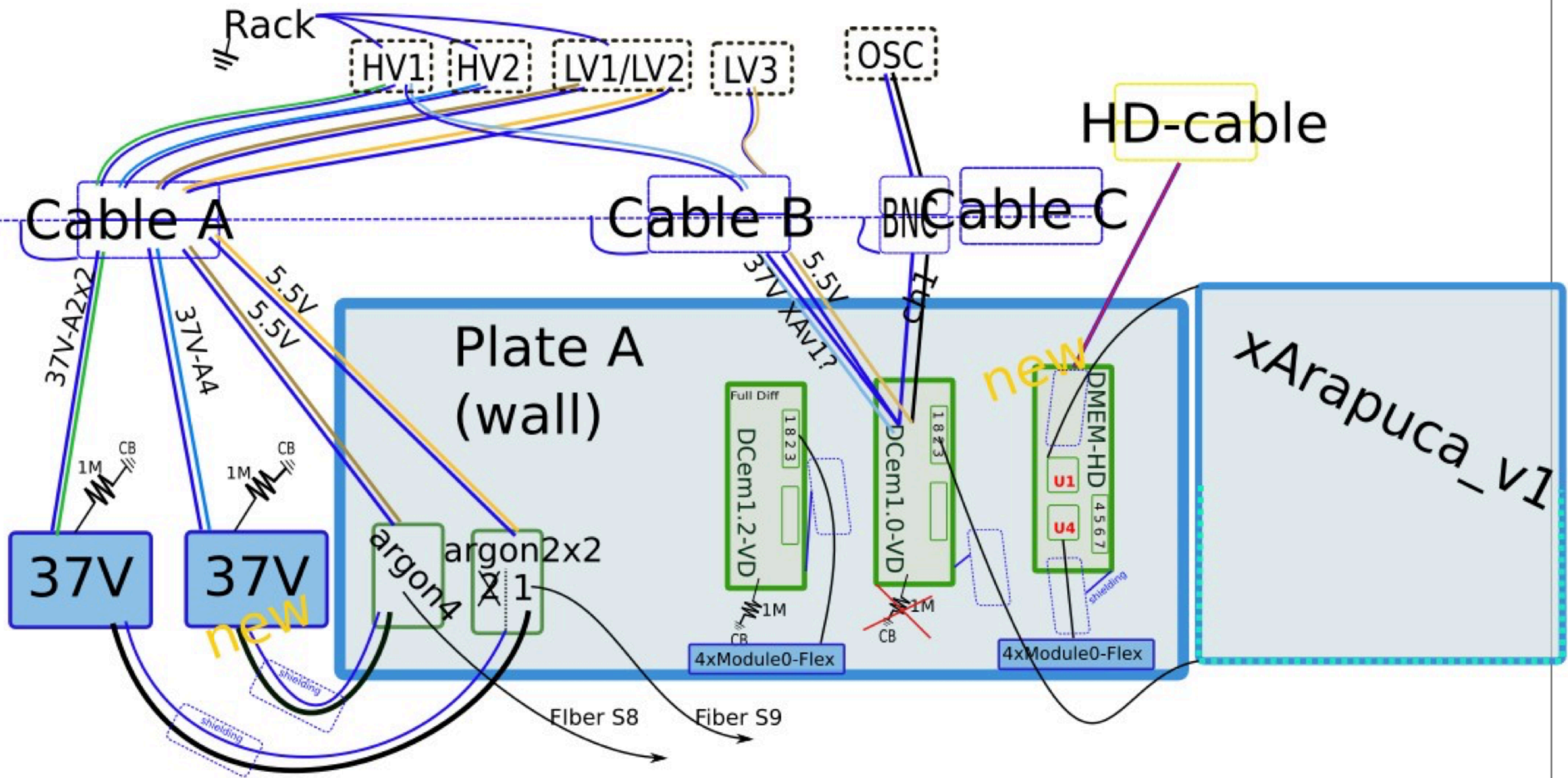
Update on VD PDS

Installation in VD Module-0

the VD PD Team

Cold Box Test - Jan/Feb. 2023

What's installed - Wall



What's installed - cathode

[Link to coldbox doc](#)

Fiber cath4-S7
Fiber cath2-S6

xArapuca_v4

PoF fibers: cath1-P5
cath3-P8
cath5-P4

DCemArgon4
3 4 15 16 12 13 14
xAS-ch1 DCDC INFN
xAS-ch2

47V

defocused lasers
500uW
Expected offset:
ch1~250, ch2 ~100mV

Fiber cath8-S4

Fiber cath9-S5

PoF fibers cath6-P1
cath7-P2

xArapuca_v5

DCem1.2

#885-47V

Plate C

defocused lasers
500uW
Expected offset ~230mV

9 17 8 1 6 7 4 23
19 21 22 23 20 25 24 18

xA4-ch2
xA4-ch1

DCDC LBL

Plate B

PDS modules

Cathode:

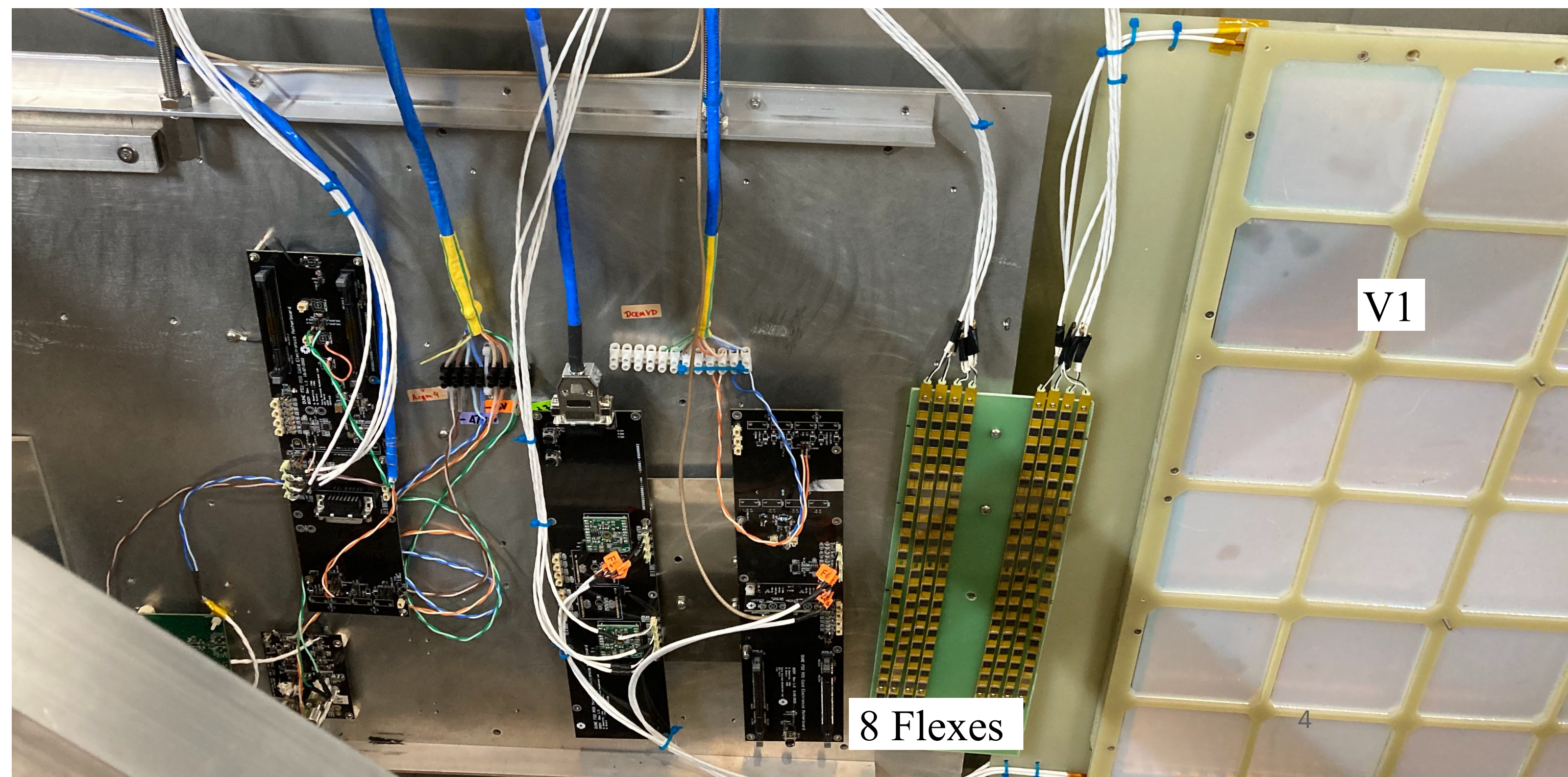
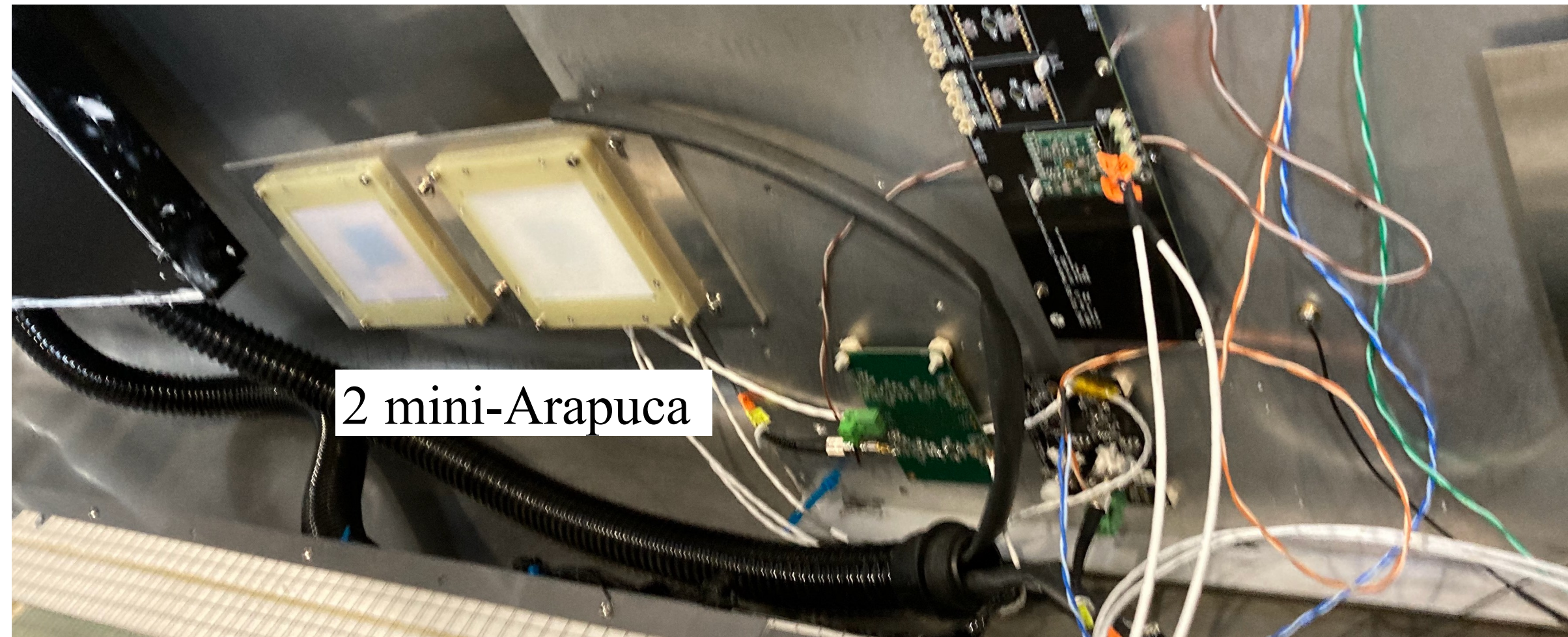
- 2 X-Arapuca (v4, v5)
- 2 empty aluminum plates

Membrane:

- 1 X-Arapuca (v1)
- 2 mini-Arapuca
- 8 flexes



Membrane



PDS modules:

- 1 X-Arapuca (v1)
- 8 flexes.
- 2 mini-Arapuca

Readout electronics:

- 1 HD-style 2 channels (same as in “Module 0”):
 - 1 ch from “V1”
 - 1 ch from 4 flexes
- 1 VD-style single ended signal
 - 1 ch from “V1”
- 1 VD-style fully differential signal
 - 1 ch from 4 flexes
- 1 Argon2x2 (standard candel)
 - 1 ch from a mini-Arapuca
- 1 Argon4 (“V4” style readout)
 - 1 ch from a mini-Arapuca

Plans:

A PDS team dedicated to take data in the cold box will be at CERN from **Monday 6th to Friday 10th**.

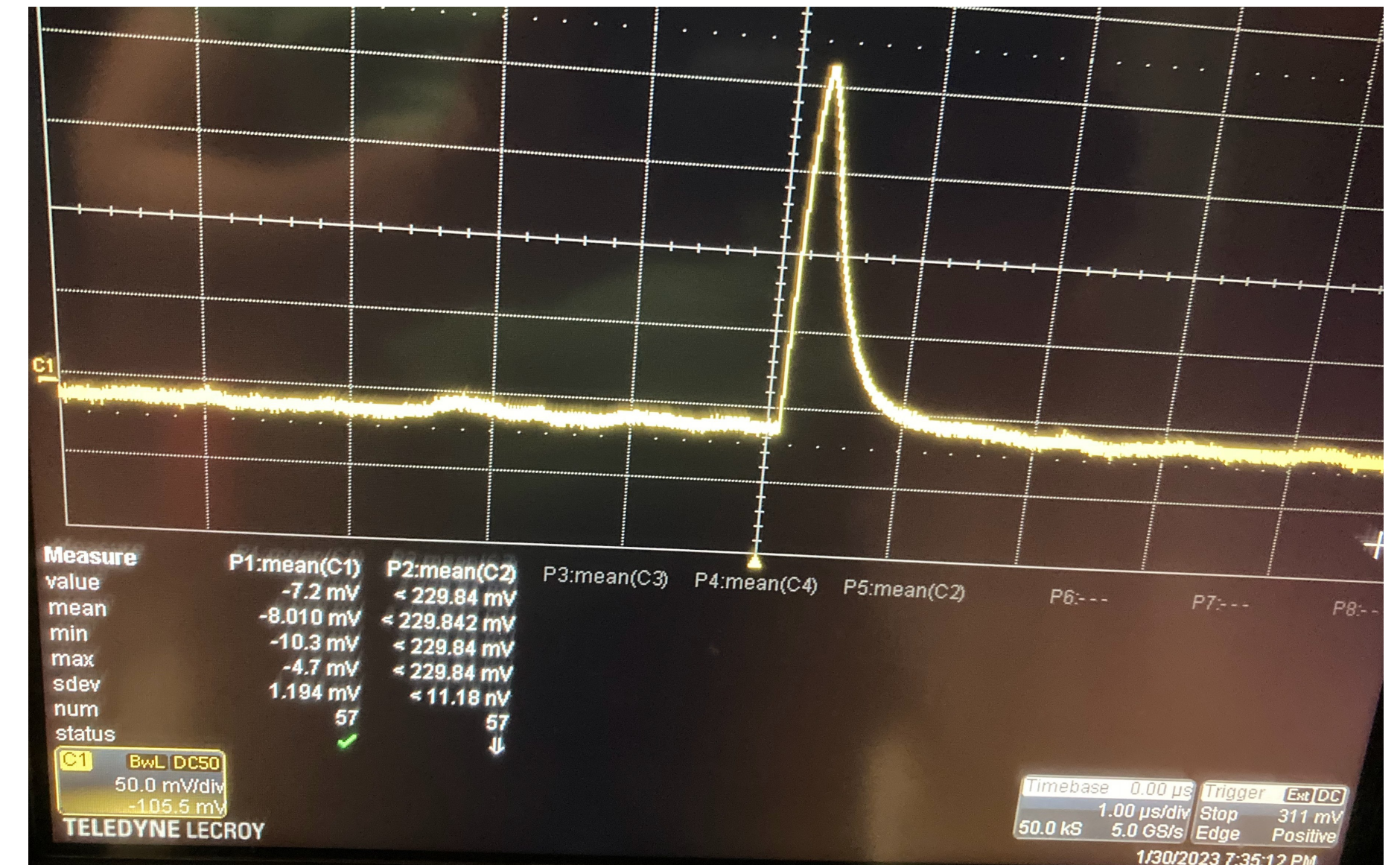
We would like to have at the least 2 days dedicated to take data with the PDS system.

Tentatively plan (to be adjusted based on CRP plan):

- Calibration data fleshing with the LED
E field on/off
- Cosmic data using CRT/self trigger
E field on/off
- CRP-PDS joint data.
E field on

Plan will be discussed in the PDS meeting (*VD PD CE meeting*) later today (*6pm CET*).

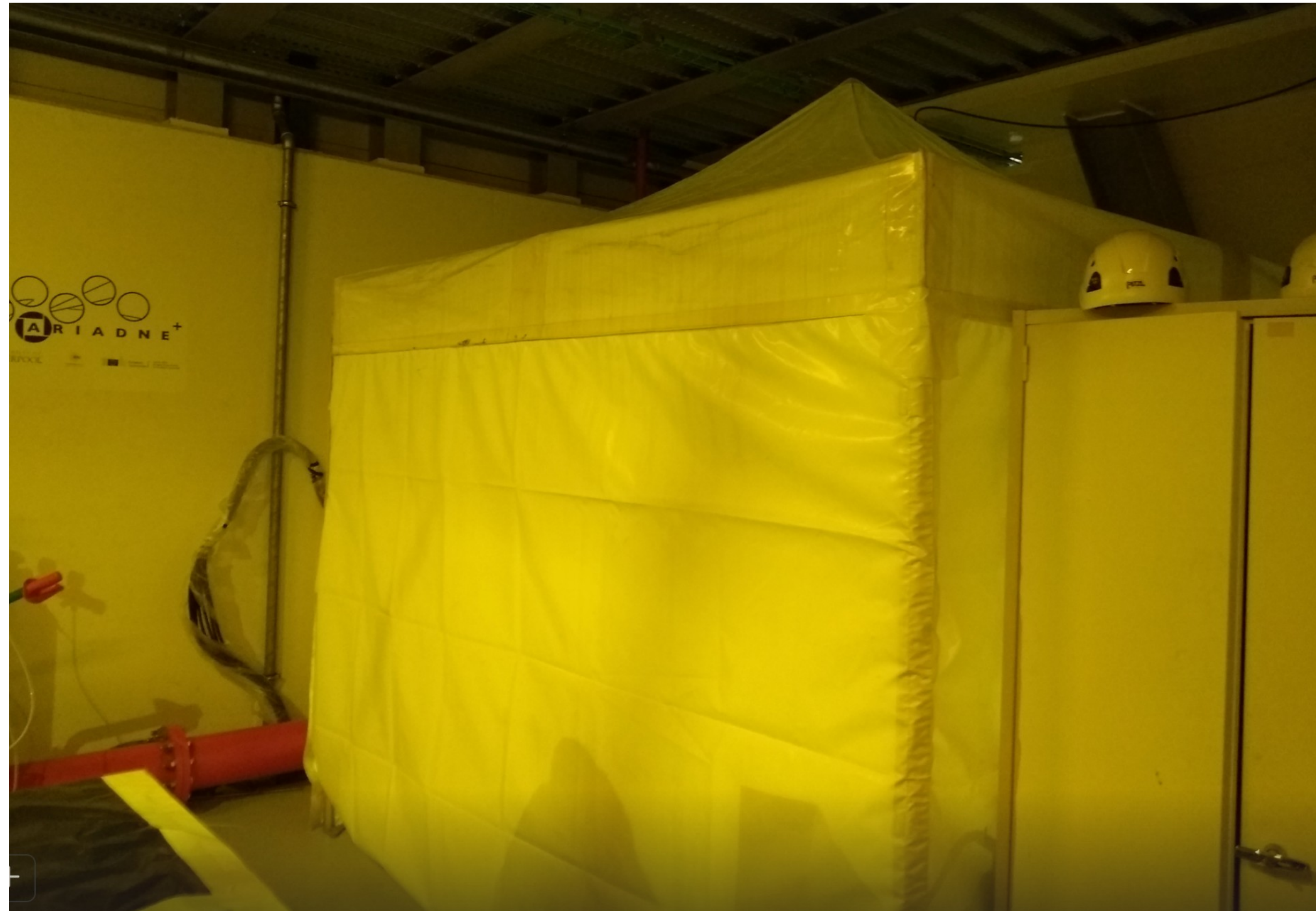
“VD-style fully differential signal” warm test

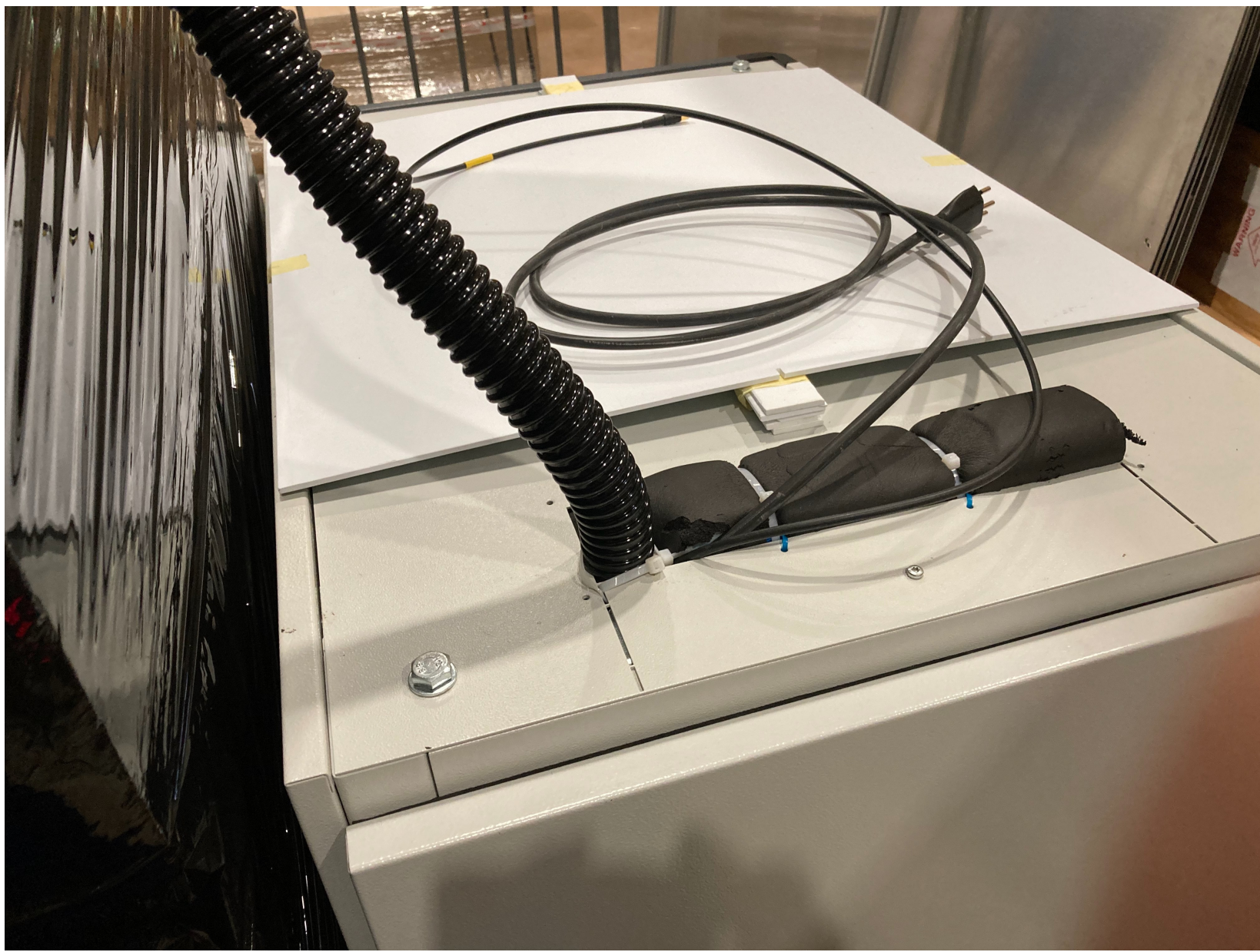


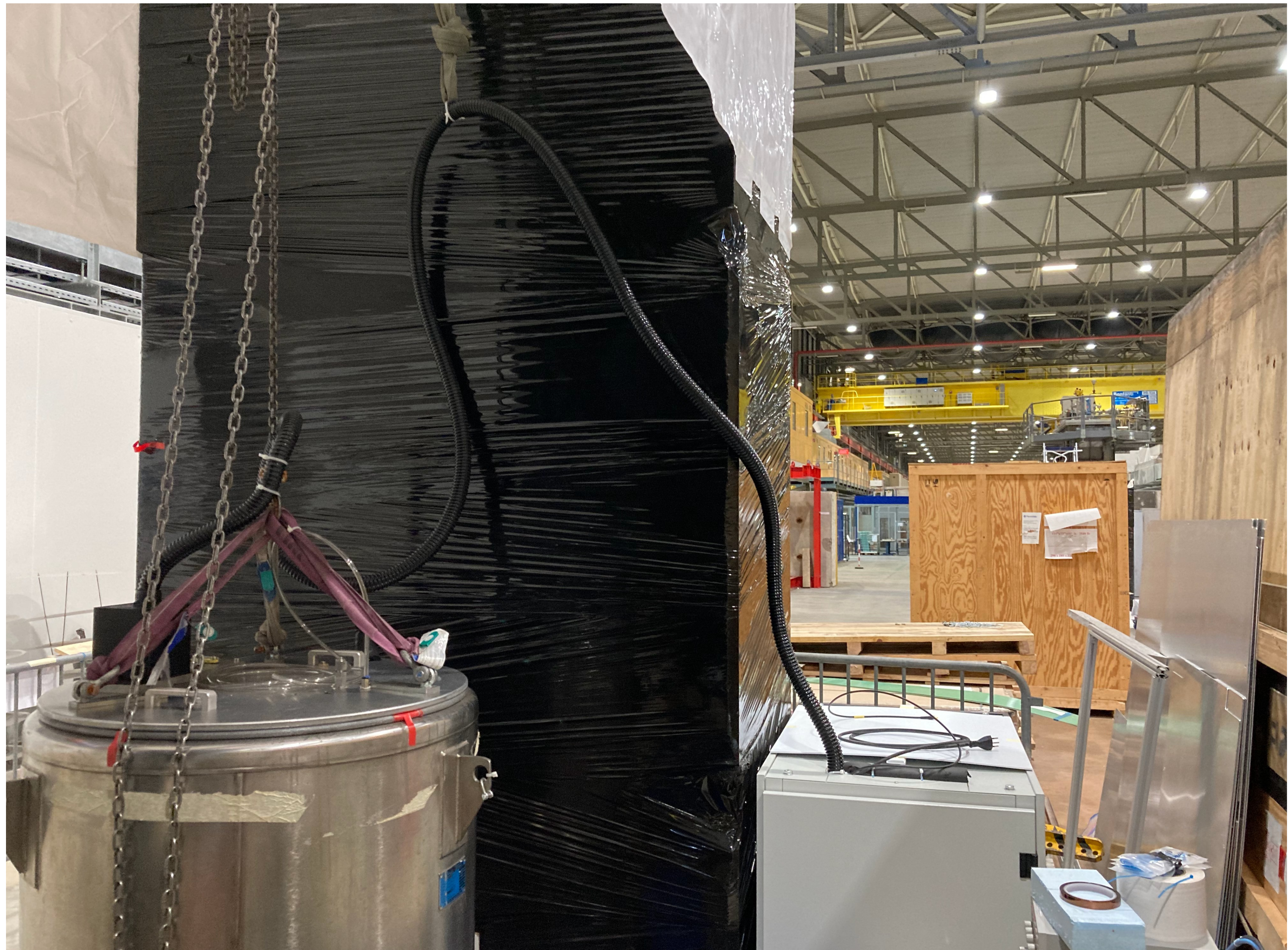
PD Installation in VD ProtoDUNE Module-0 — Jan/Feb. 2023

News in the PDS room

- A clean area (thanks to Filippo, Johan and Benoit)
- A new cabinet for storage
- first two xARAPUCA Cathode modules assembled - two more module under assembly
- Electronics boards under warm and cold tests.



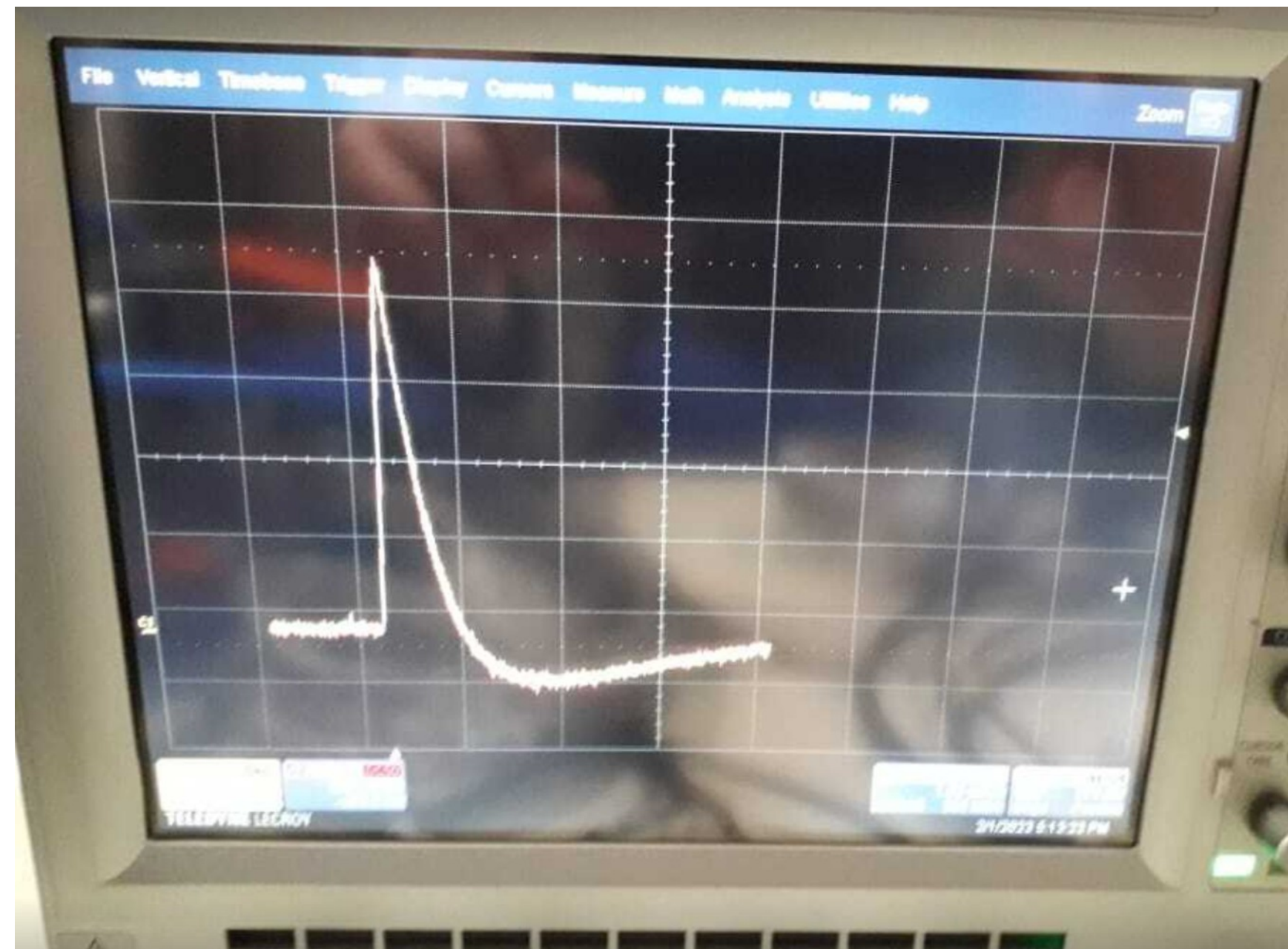




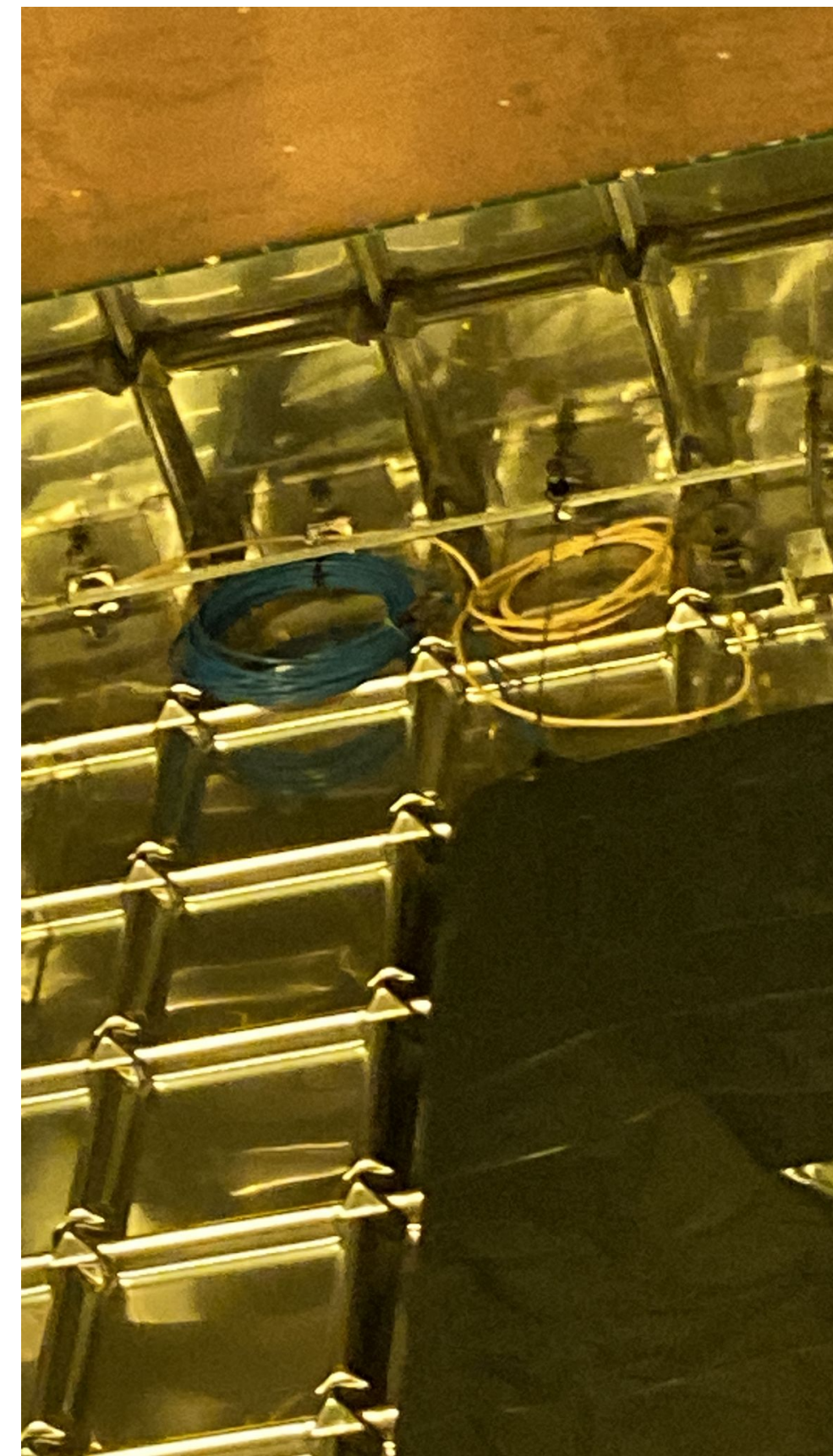
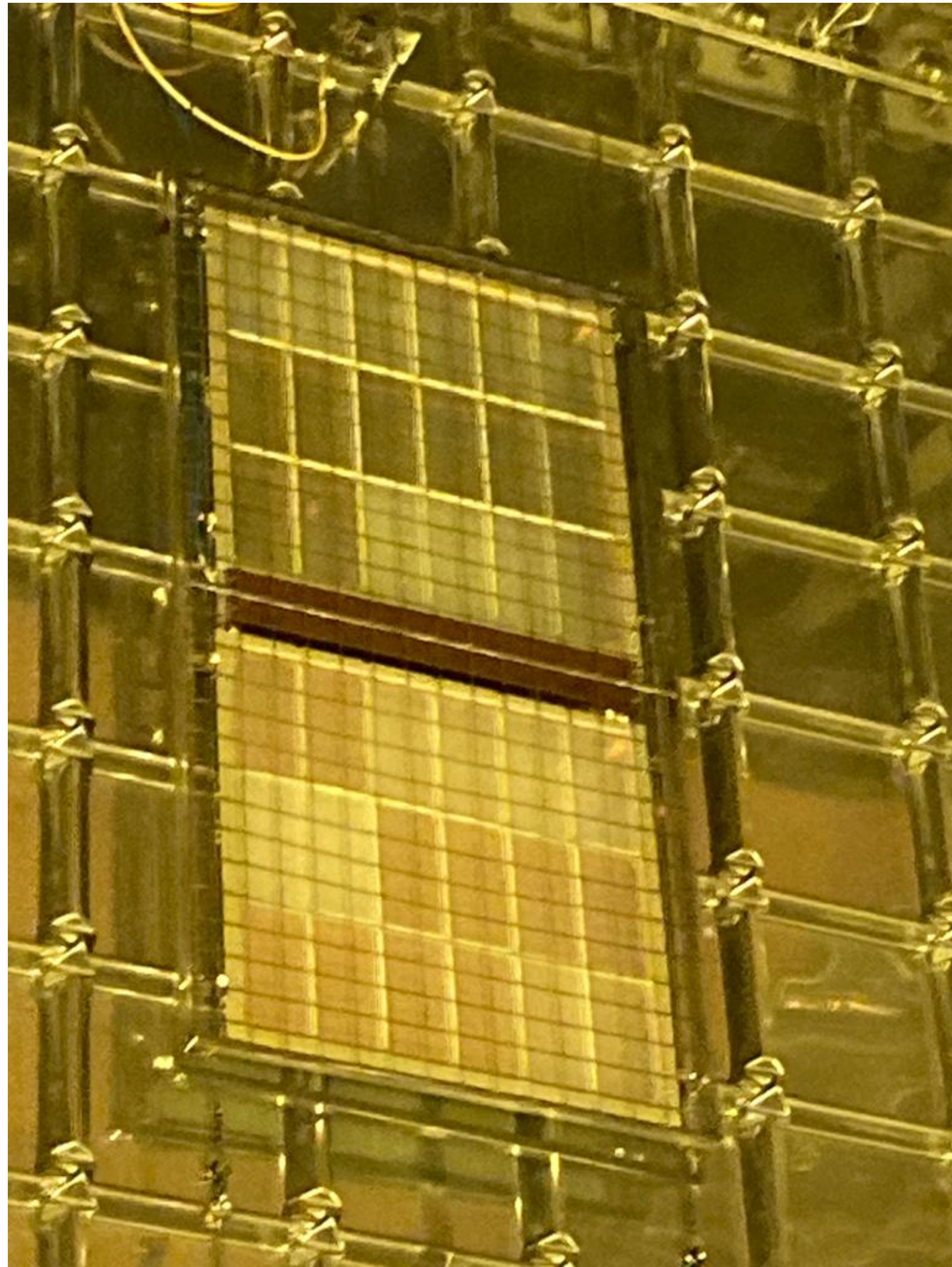
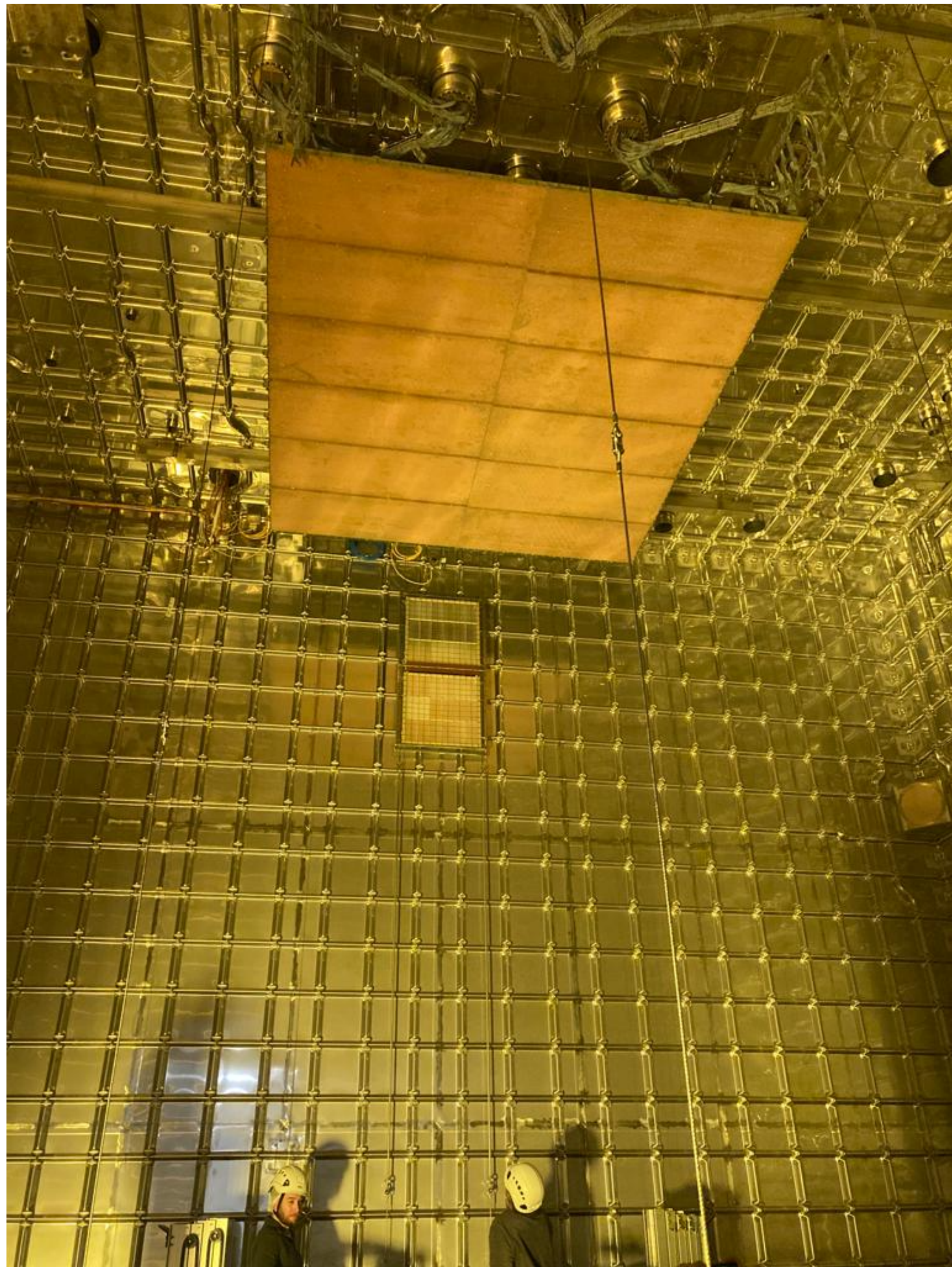
Membrane modules tested

- membranemodules tests

cold test

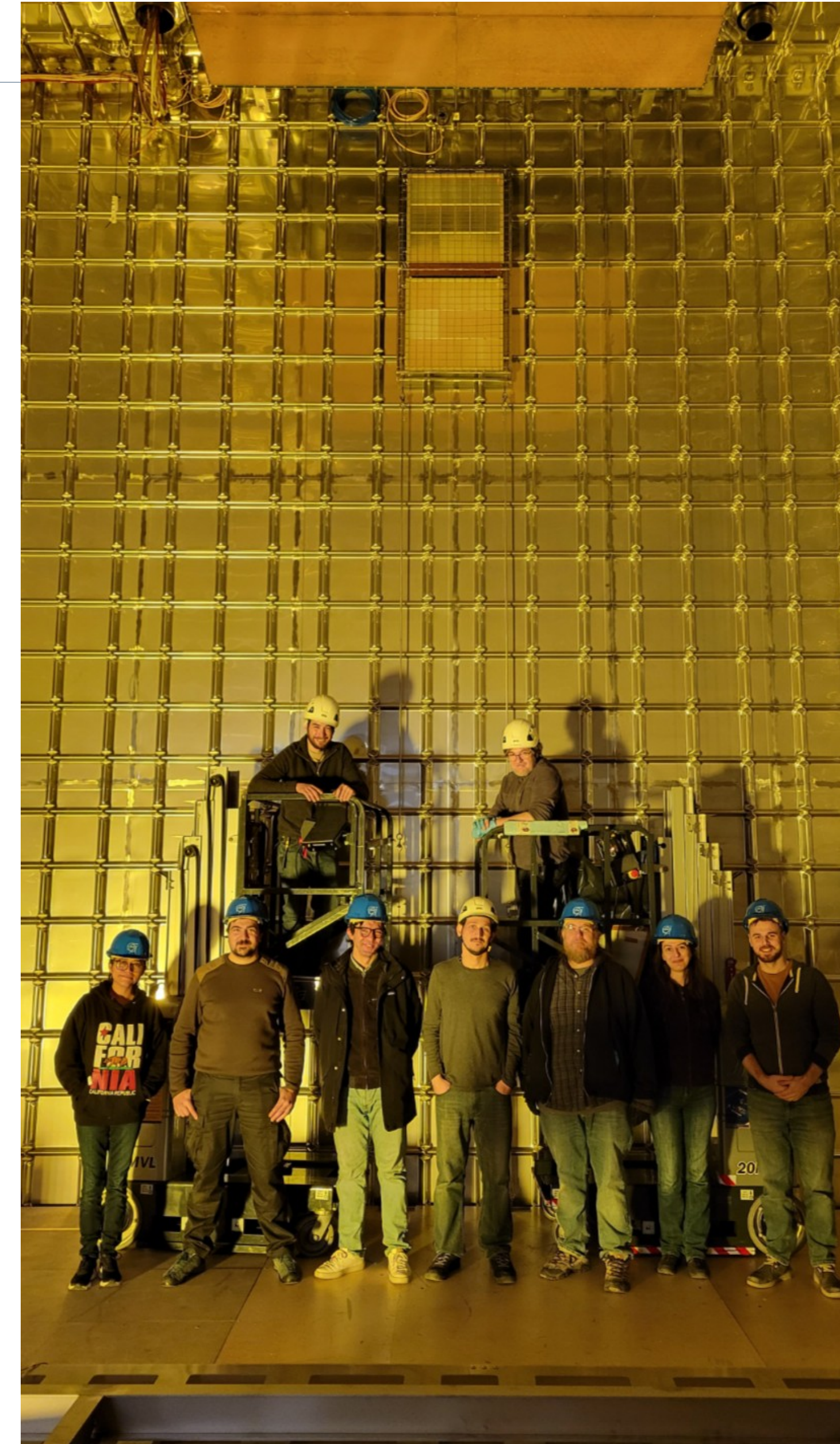


XA warmup process in plastic tent with GN2 flashing



First 2 modules installed

- Thanks to all people that have contributed
- The crew at CERN yesterday: Diana, Dante, Manuel, Franciole, Jay, Laura, Pablo, Jose, Peter, Bob
- And many others that contributed in previous days: Carla, Claudia, Luca, Esteban, Claudio, Julio, Jesús, Niccolò, Federico, Flavio, Sabrina, John, Enrique, Antoni, Iván, Aritz, Ajib ...
- And of course very important people remotely (no names here)



Cathode modules

- Test fit in cathode frame
- Installation in Cathode (4 modules by mid next week).

