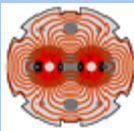


PS East Area Update

- **Outline**

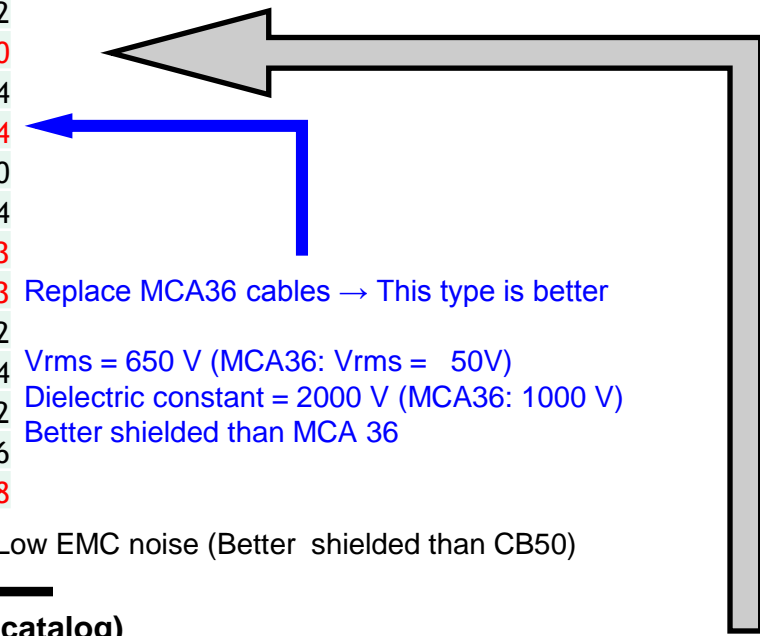
- Actual cables list
- Test procedure
- Installation in the control room → Feedbacks
- Connections inside irradiation facility → Feedbacks
- Other requirements



Actual cables list

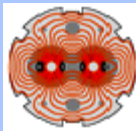
- Only 1 station will be used

Cable Type	Number
NE48	4
Profibus	4
Single mode optical Fibres	12
Ethernet connections	12
CB50 (remote reset + user connections)	50
WorldFIP	4
Multiconductor twisted/pair and shielded/pair	4
230V	10
3-Phase	4
Samtec EQCD single ended (ucox)	3
Samtec differential pair EQDP (ucox)	3
CBH50 (High Voltage)	12
Unipolar cable	4
Cable for cooling (water)	2
ND26 (with DB25 connectors)	6
CKB50 (triax cables)	8



Replace MCA36 cables → This type is better
 Vrms = 650 V (MCA36: Vrms = 50V)
 Dielectric constant = 2000 V (MCA36: 1000 V)
 Better shielded than MCA 36
 Low EMC noise (Better shielded than CB50)

- Cable standardization: CB50 – CA50 (CERN catalog) – RG58 (Not in CERN catalog)
 - Could we have only one CERN reference (CB50 for instance) ? → According to feedbacks, we keep CB50 for coax cables
 - Possibility to use adapter COAX → LEMO and LEMO → COAX



Test procedure

- 3 phases:

- 1) Preparation of the test:

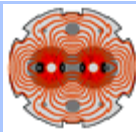
- Connection of the test setup, installation of the material

- 2) Pre-test, dry run:

- Test that will be carried out in the control room to test all connections, data acquisition system and test setup → **Without irradiation**

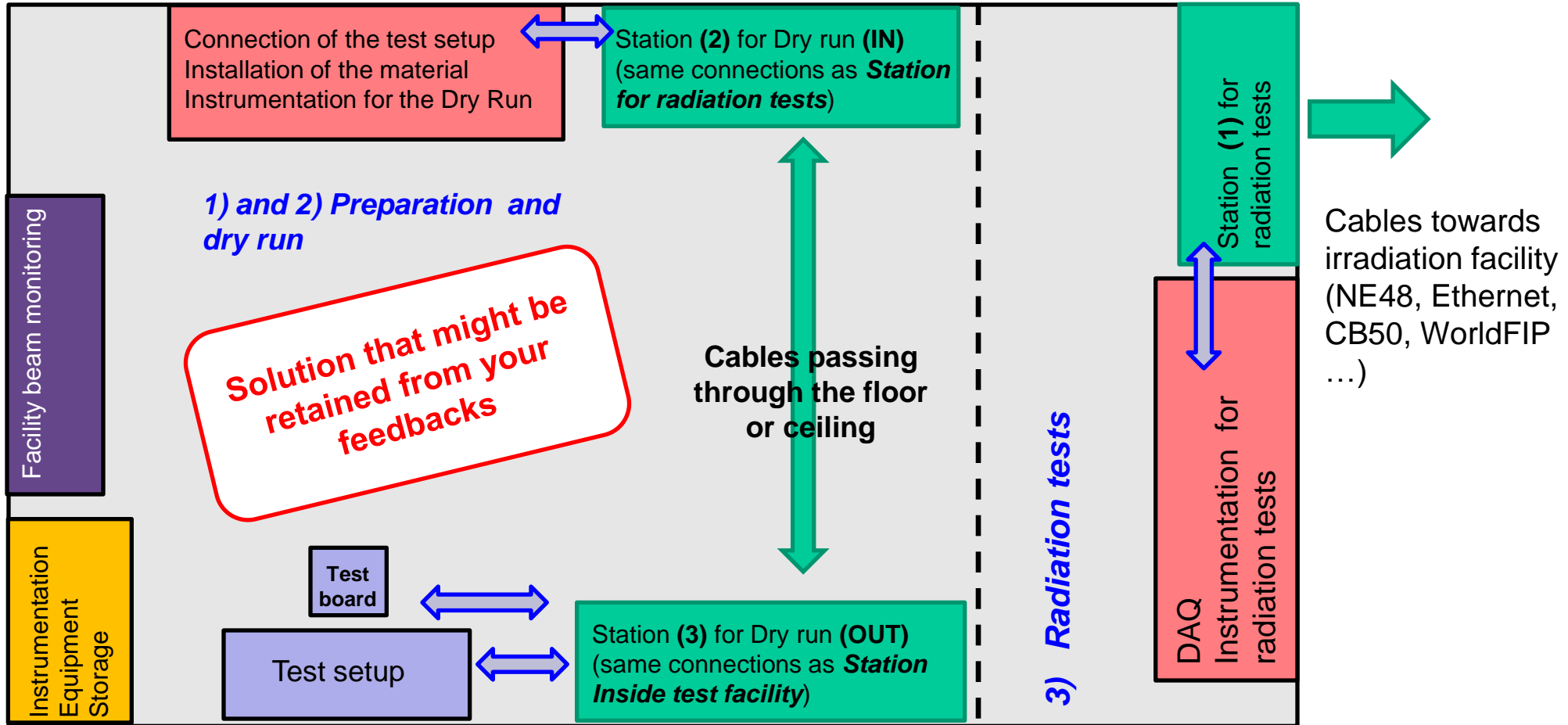
- 3) Radiation test:

- Installation of the equipment in the PSEAIRRAD facility and radiation test

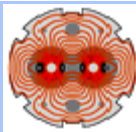


Installation in the control room - option 1 (1/2)

View from the TOP

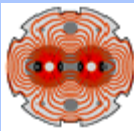
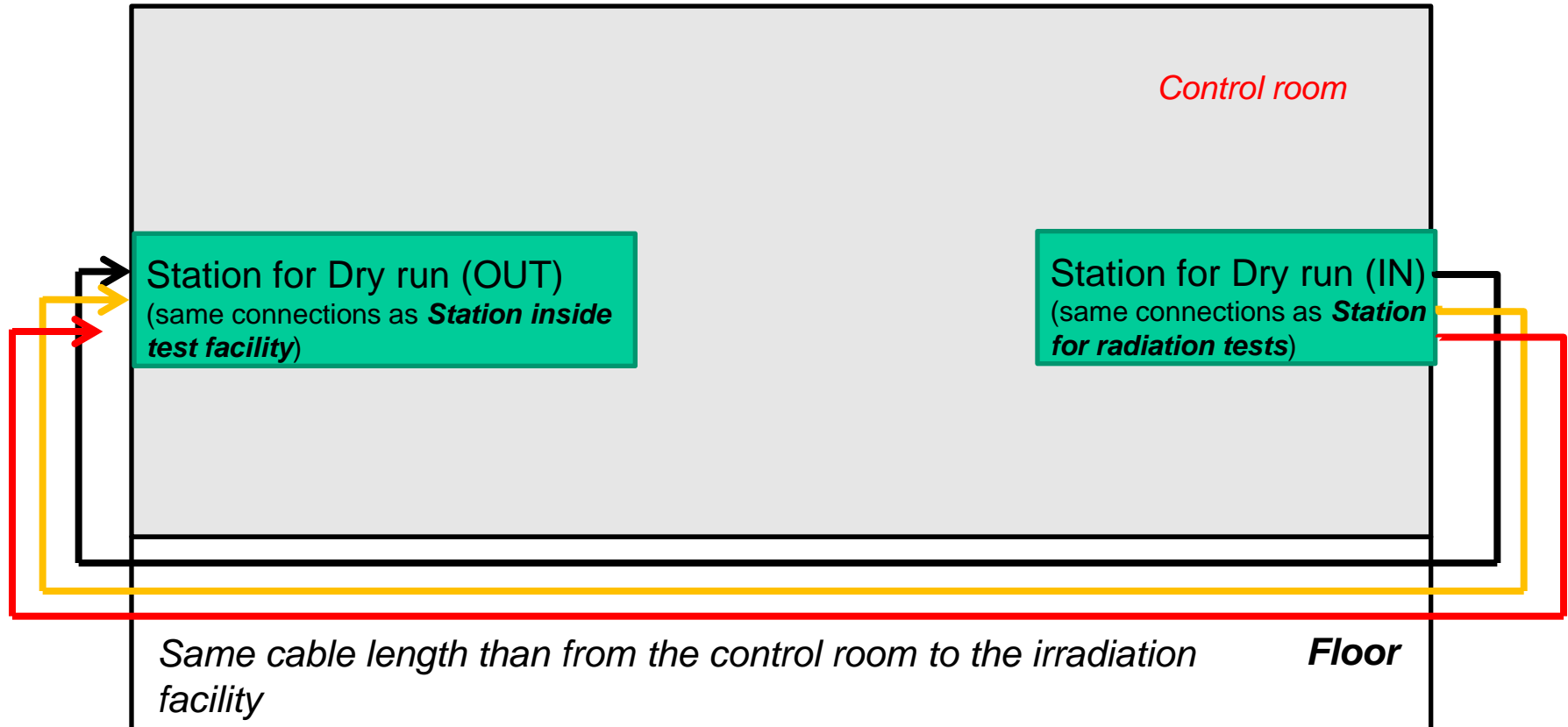


- Cables passing through the floor → Same length than from Station (1) to the irradiation facility



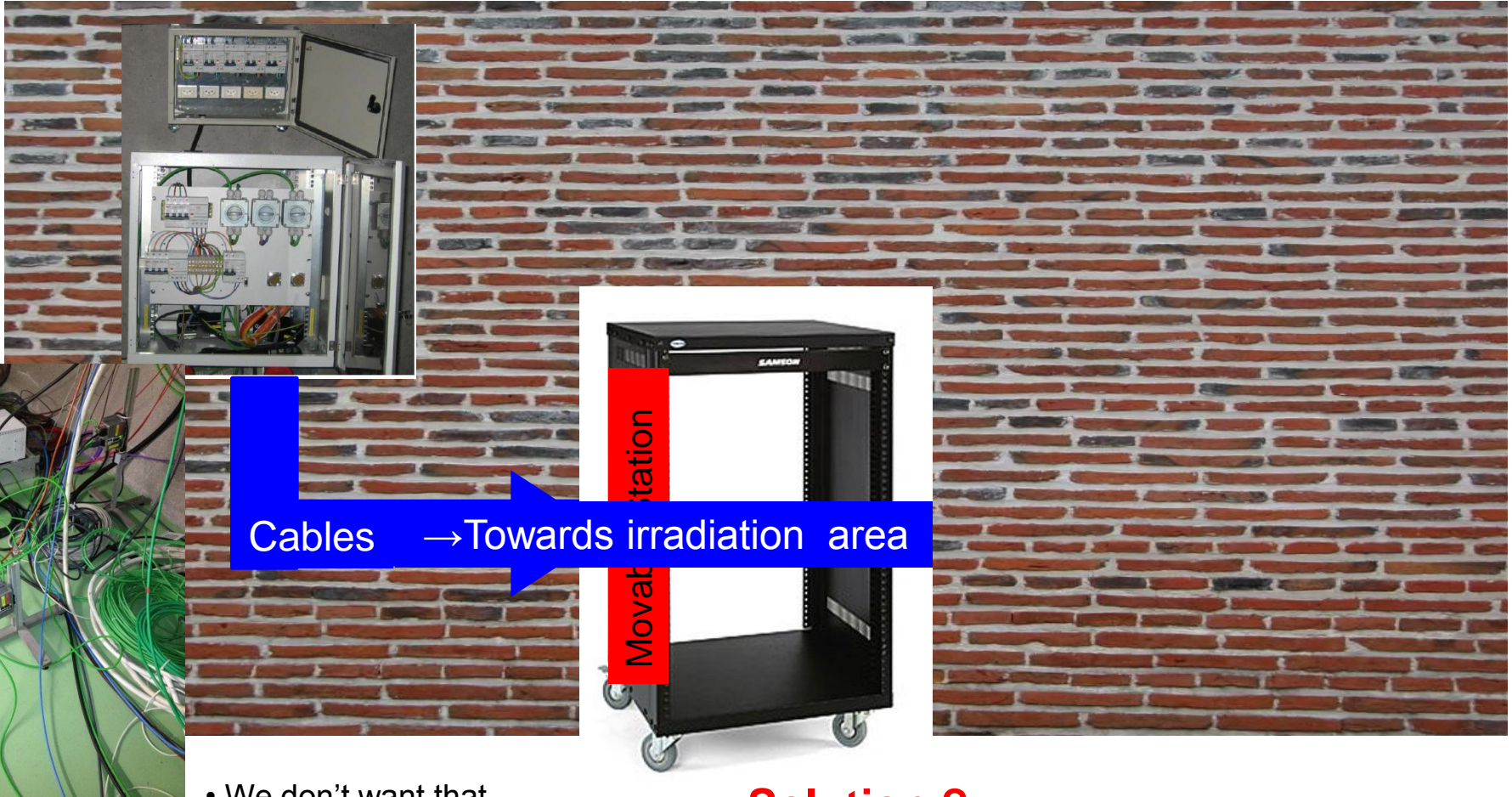
Installation in the control room - option 1 (2/2)

Side view



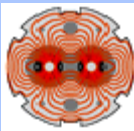
Movable station

- The idea is to attach the station to the rack that will enter in the irradiation zone



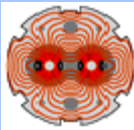
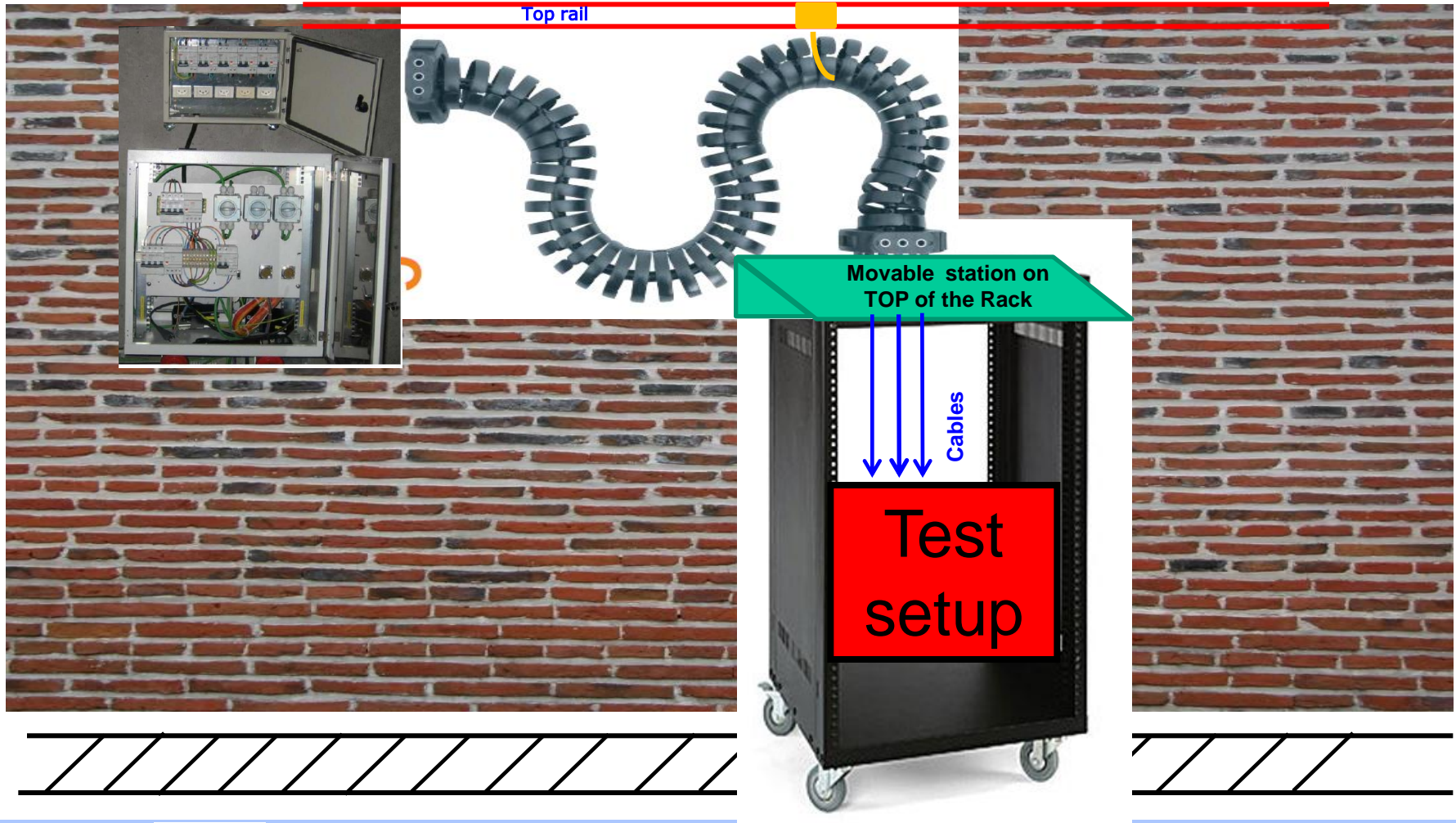
- We don't want that

• **Solution ?**

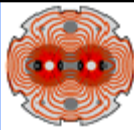
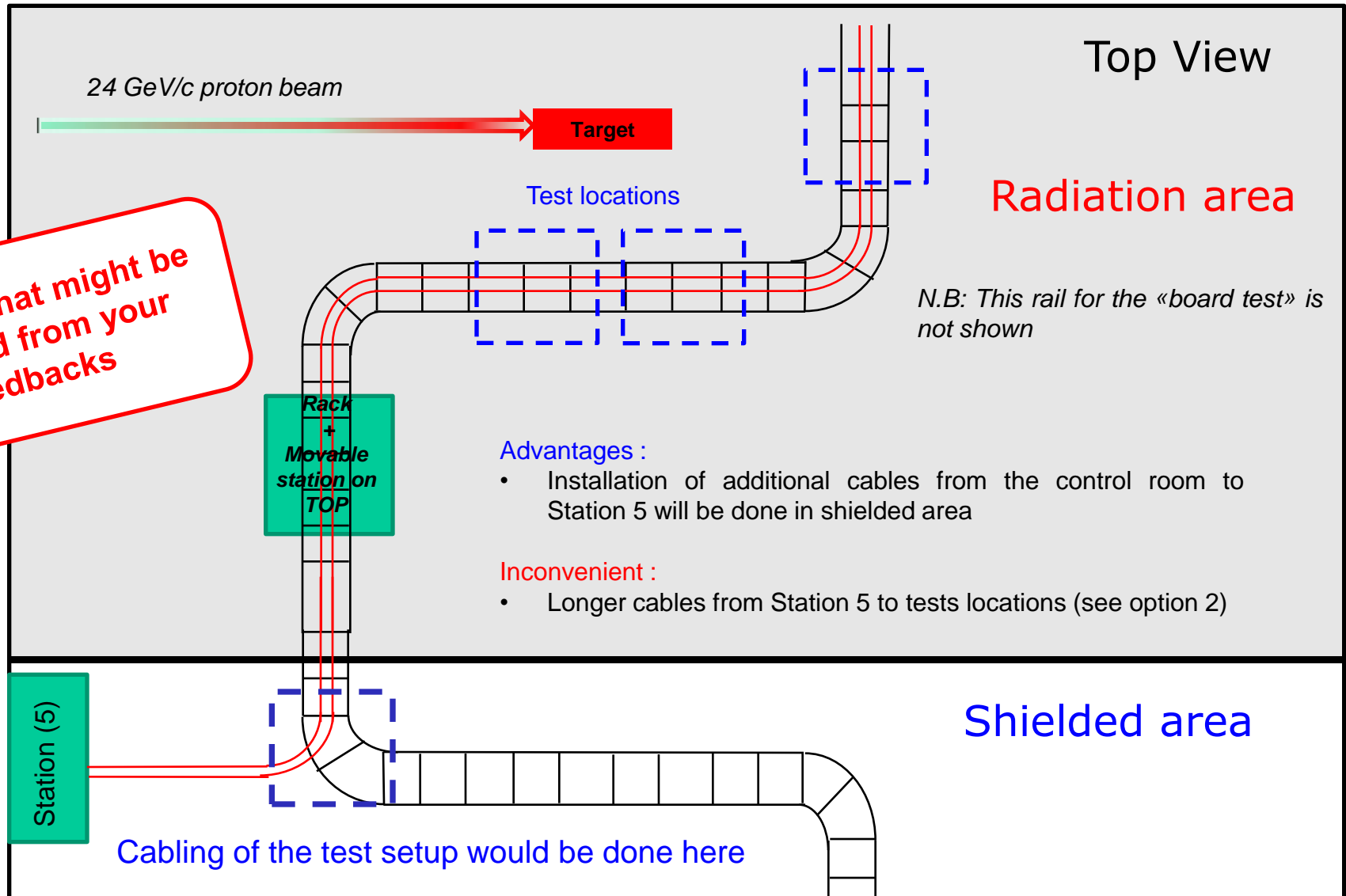


Solution

- Movable station could be fixed to the Top of the rack
- Connection to the test setup will be done from the movable station

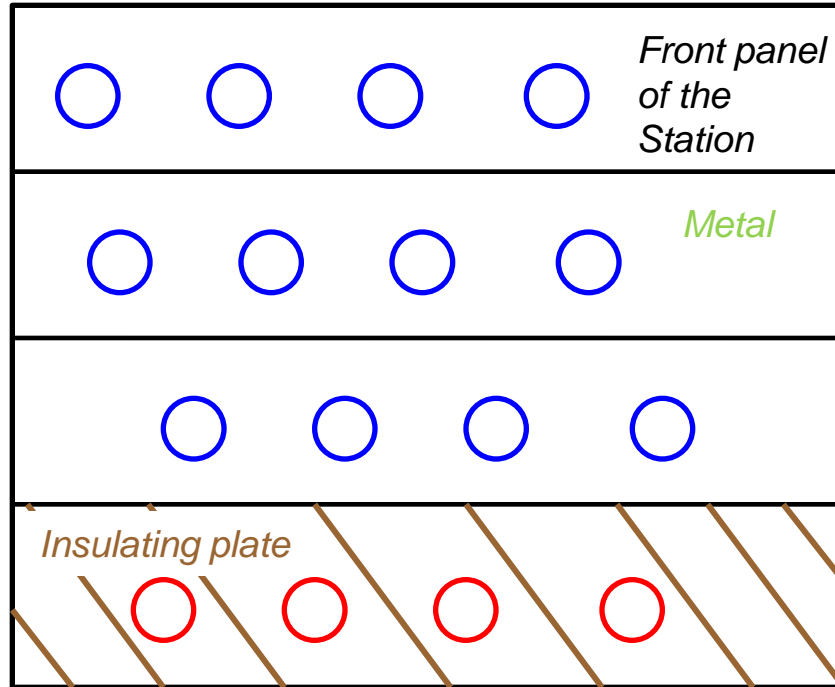


Connections inside irradiation facility – option 1



Other requirements

- Possibility to have insulated cables → Solution



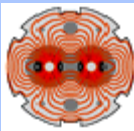
Cables are screwed on metal (station)
→ Connected to ground

→ All cable shieldings connected to ground

Cables are screwed on an insulating plate

→ No connection to ground should exist

→ No connection between the cable shieldings.



Other requirement

- Cryo stat and Cryo line

- Test at 1.8 K required from BE/BI

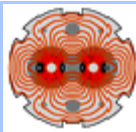
- **Cryostat**



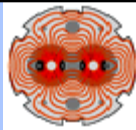
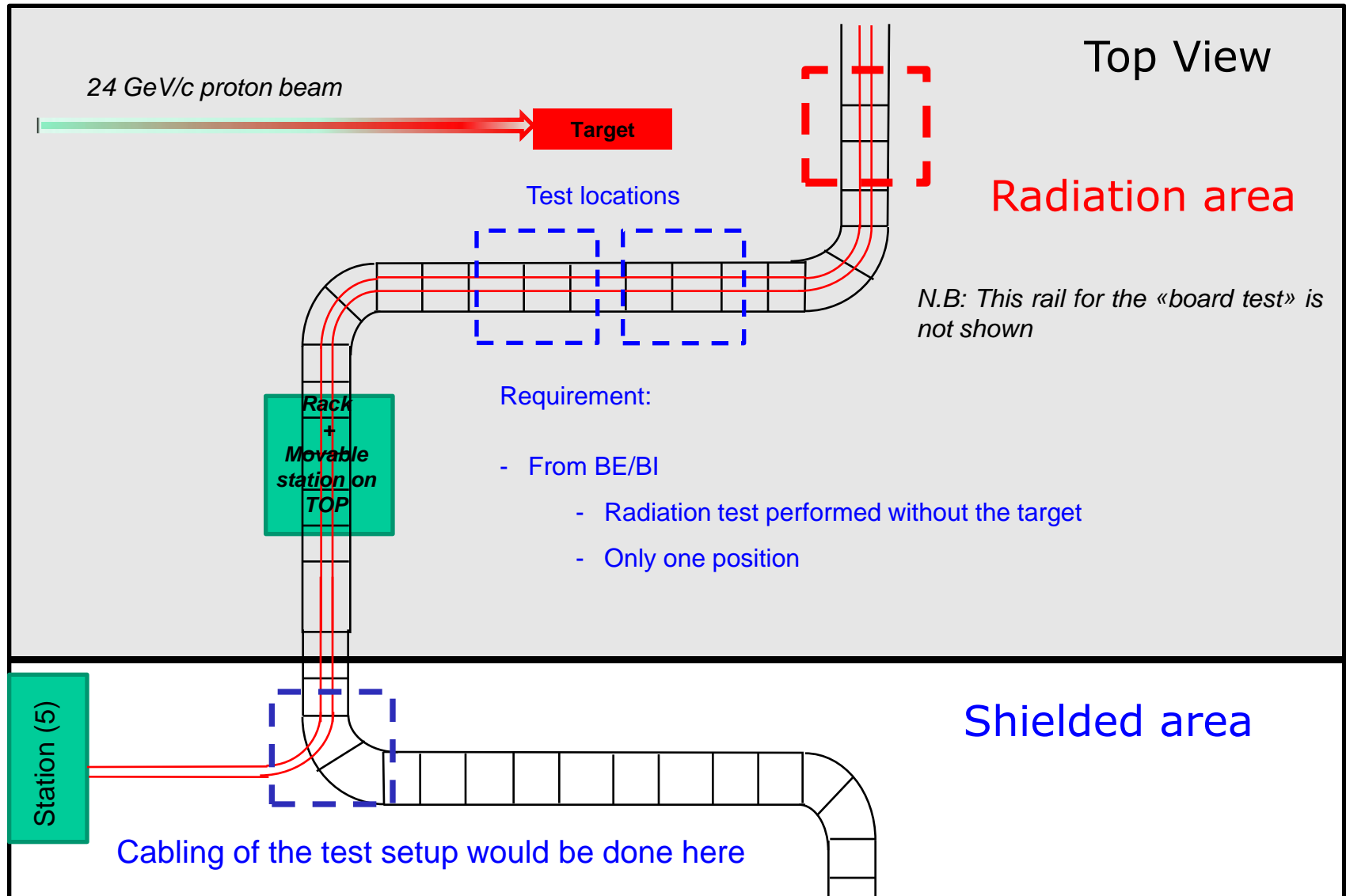
- **Cryo line**



- **Liquid Helium container**



Connections inside irradiation facility – option 1



Test procedure



- Cryo line **must transport** the liquid helium at the same height.
- **Therefore it must be fixed at the same height**
- Without going up and down from the container to the Cryostat.

Is it possible ?

