TB plan 2026 - CERN
Longitudinally segmented Forward HCal (LFHCal)

October 27, 2025

Friederike Bock & Oskar Hartbrich (ORNL)

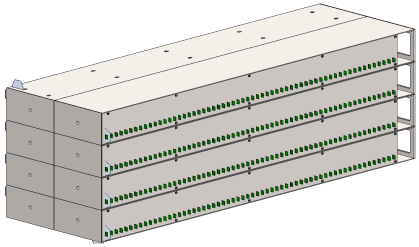
Test Beam Plans 2026

Requested time: 1 week each
Main purpose: Resultion studies
Location: PS & SPS
Setup:

- Very similar to 2024/25 setup, with more modules
- 8 full 8M modules (ideally 40x40x132 cm)
- Readout with H2GCROCs
- Same setup in both areas ideally with one week in between

Main expected measurements:

- Energy resolution for hadrons and electrons
- Assessment of longitudinal/transversal leakage
- Longitudinal shower development
- Long PCB validation & First summing board tests
- Parasitic thin tracking or PID detectors possible



Necessary components for full setup

For the Setup at CERN

- 8 8M absorber structures + moving structures
- 480 working SiPM layers:
  - 3840 wrapped tiles
  - 480 "chocolate bars" (4x2 wrapped tiles assembled)
  - 480 flex PCBs equipped with SiPMs
- 8 long transfer boards
- 8 summing boards
- 4 (+1) HGCROC boards & 4(+1) KCUs
- Cables + mechanical structure to hold read-out boards
- Trigger paddles + supplies
- Power supplies, DAQ computer
- Readout-Software + Analysis-Software

Additional things for testing

- Switchable mini-summing board
- Shorter transfer boards
- Break-out board for long board

Each of the components necessary at CERN ideally comes with spares (i.e. 2 long boards, 2 summing boards, 20 SiPM layers ...).
Each of the more complex components should have a test productions (i.e. small sample) to verify design.