Test Beam plans: LFHCal mini module

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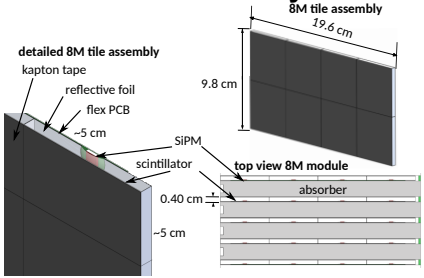
September test beam plans

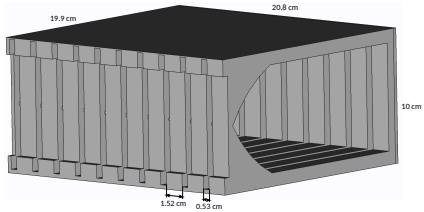
Dates: $6^{th} - 13^{th}$ Sept.
Main purpose: Scintillator characterization & HGCROC tests

- Setup consists out of maximum 10 layers of 8M tile assemblies of each
  - 4mm scintillator
  - $\approx$ 0.2mm ESR foil
  - $\approx$ 0.2mm flexible PCB
  - $\approx$ 0.2mm Kapton tape
- Fixed in plastic frame with cut outs in the center with slots for holding assemblies
- Each 8M tile assembly with 8 channel readout
- Connected via 16 channel $\approx$ 8 m micro-coax-cable assemblies to CAEN DT5202 64ch CITIROC SiPM readout unit or HGCROC

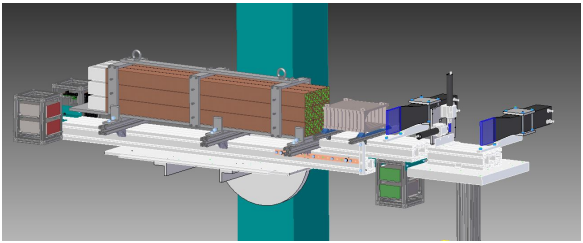
8M tile assembly



Plastic frame



September test beam plans (2)



Integration:

- Ideally in front of FoCal-H (part time could be behind it)
- Working with Ton on putting it into the setup
- Ideally should be movable by $\approx \pm$ 10 cm in x direction
- Most interesting to us: π beam
  effectively we would like to see MIPs in all layers using just the tile setup as a hodoscope
- Could be taken out during e-beam or layers significantly reduced (i.e down to 1-3)

Main expected measurements:

- Light yields per tile (possibly position dependent)
- Cross talk estimates of different tiles
- Use it as testing setup for SiPM-HGCROC while taking data with Focal-H using CAEN & VMM read-out
- If placed behind FoCal-H, measure part of leakage

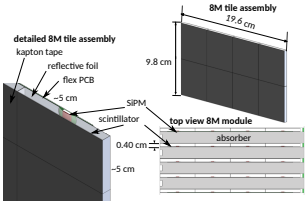
October test beam plans

Dates: $11^{th} - 18^{th}$ Oct.

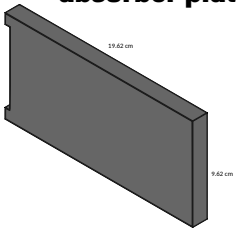
Main purpose: Scintillator characterization & HGCROC tests

- Setup consists out of maximum 14 layers of 8M tile assemblies & corresponding layers of absorber plates out of steel or tungsten
- Fixed in steel frame with slots for tile assemblies & absorber plates
- Same read-out setup as for September test beam

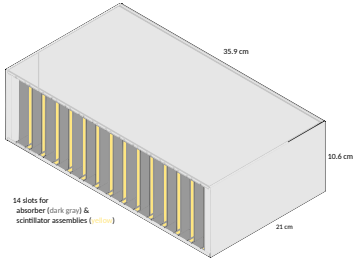
8M tile assembly



absorber plate



Steel frame



October test beam plans (2)

Integration:

- Ideally after FoCal-E if Focal-H not being run, otherwise after FoCal-H
- Will work with Ton on putting it into the setup
- Ideally should be movable by $\approx \pm$ 10 cm in x direction, same as for September test beam
- Most interesting to us: π beam & e-beam if FoCal-H not there, otherwise only π

Main expected measurements:

- Shower profile measurements with different absorbers
- Cross talk estimates of different tiles
- Use it as testing setup for SiPM-HGCROC while taking data with Focal-H using CAEN & VMM read-out
- If placed behind FoCal-H, measure part of leakage