

Module 0 status/testing plan

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M0/M1 meeting - 17/05/2024

Quick status of components

- Dismounting on-going
- Electronics: 4x CMOS and 4xbipolar
 - 8 “backup boards” prepared, tested, results presented by Jacob last wednesday
 - New boards still in production → avoid shipments, elements to be hand-carried by Jaime to APC after collab meeting, 1 week assembly, then 1 week testing at CERN (Sabrina)
- WLS: 3 in hand (Carla). Plan is to order more → if production time is one month, it’s probably too late.
- Substrates: to be received next week and shipped immediately to Campinas
 - Transport boxes: 3 at CERN. To be shipped to Campinas
- Electronic boxes: ready by ~22/05. Will be shipped
- PoF parts (OPCs and like leakage): already 3D printed, carried by Drew and Bill

Testing Procedures: Electronics

- Electronics: DCEM 1.31 and Laser Adapter 2ndStage 1.1
 - 1) Configuration (choice of components) validated in M1, re-checked at Fermilab
 - 2) Board assembly (at APC) → trace of all components
 - 3) Production verification:
 - a) DCDC output in warm and in LAr with SiPM load on DCEM
 - b) DCEM: LDO output and input/output signals with function generator @RT and in LAr, with copper power and with PoF.
 - c) SoF adapter (mounted on DCEM): voltage offset, laser output baseline, signal transmission – @RT and in LAr, with copper power and PoF.
 - d) Information to be filled into [tables for book-keeping](#) (in preparation)

Testing Procedure: Module

- First general check of electronic mounting and signal connection (aka the shitty connectors)
- As done in M0 starting from empty box:
 1. Insert module into box (with ~10cm LAr)→ cool down WLS before filling
 2. Fill box with LAr → test.
 3. Quickly remove module from box and close bag. Flush.
 4. Pump LAr out into the dewar for next test.
- As done in M1 (less LAr needed) with filled dewar
 1. Mount module on support
 2. Check @RT (using dark box)
 3. Close up module+dewar within plastic bag and flush with dry N2
 4. Insert module into LAr
 5. Quickly remove and close in bag. Flush.
- Schedule: we are capable of testing 2 modules in one day.
 - 13/05 x2, 17/05 x2, 19 x2
- **Need to let Filippo how much LAr we need and when. Different testing procedure require different amounts of LAr.**

Test Objectives

- Powering is done with PoF → new PoF assembly for test stand prepared
- Check for light leakage
 - Should be able to obtain SPE performance
- Record SNR, light baseline, noise levels, SPE amplitude...
 - Take data with CAEN digitizer
 - Take data with DAPHNE
 - Need Milano DAPHNE (or new modified?) from June 10th to 30th
- Need to be careful with test stand fibers (check that they're in good shape and careful to correctly identify channels)
 - Fibers for test stand (x4 + back up) and PDS room (x2)
 - New fibers in PDS test stand from December → back in Fermilab!
 - Fibers will be brought from Fermilab again.