

The ProtoDUNE-VD race

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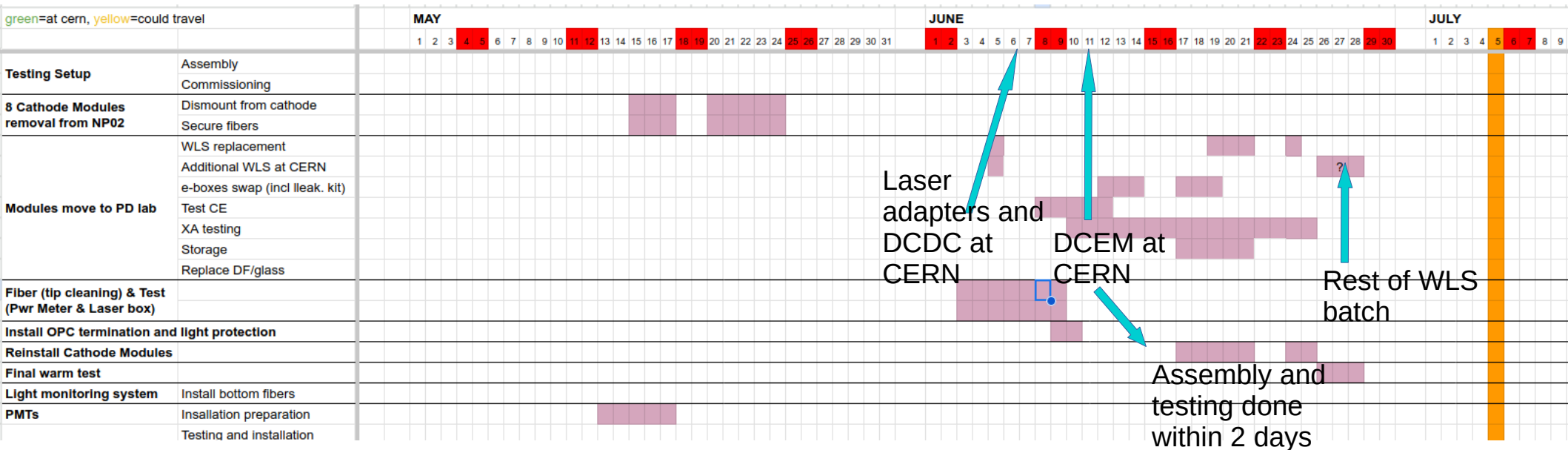
APC – 14/06/2024

Module 1/coldbox

- Cathode modules were removed, they were covered in pTp (like everything in the cb):
 - Laura cleaned all of them :). Placed on top of the module rack. All CB components are there.
- Cathode had to be “re-assembled”
 - Resistive mesh placed in the four modules positions. Copper tape used to link them to the rest of the meshes. No ribs were added (could not find them in time)
 - The removed metallic meshes were placed with other IJCLab material (green box)
 - HV cable was broken, fixed by Filippo
- Ongoing: data taking with DAQ. Stopped on Friday
 - Both HD and VD electronics were modified for this run
- Opening needs to happen by Tuesday
- Another CB run expected in ~end of September/October, things to keep in mind
 - We’ll need to recover the metallic meshes
 - Need filters/substrates for ~3 modules → could re-use damaged filters for bottom part, after removing ptp

ProtoDUNE-VD

- Module testing has started
 - C3 (FBK) tested with M1 electronics from FBK module → SPE size is ~1.5 ADC very hard to see → **Decision about FBK on cathode??**
 - New electronics produced in May 24 arrived → assembled and checked at CERN
 - First time no surprises when testing electronics :)
 - Some weird things done by Cyrexx though
- Electronic boxes: 4 arrived last week 4 this week (hunted down by Flavio and Dante... unclear) → They're very nice!!
 - Note1: I still think we might need to clamp the fiber tube for easier installation
 - Note2: big holes on the side, are they necessary? Could they be closed a bit?



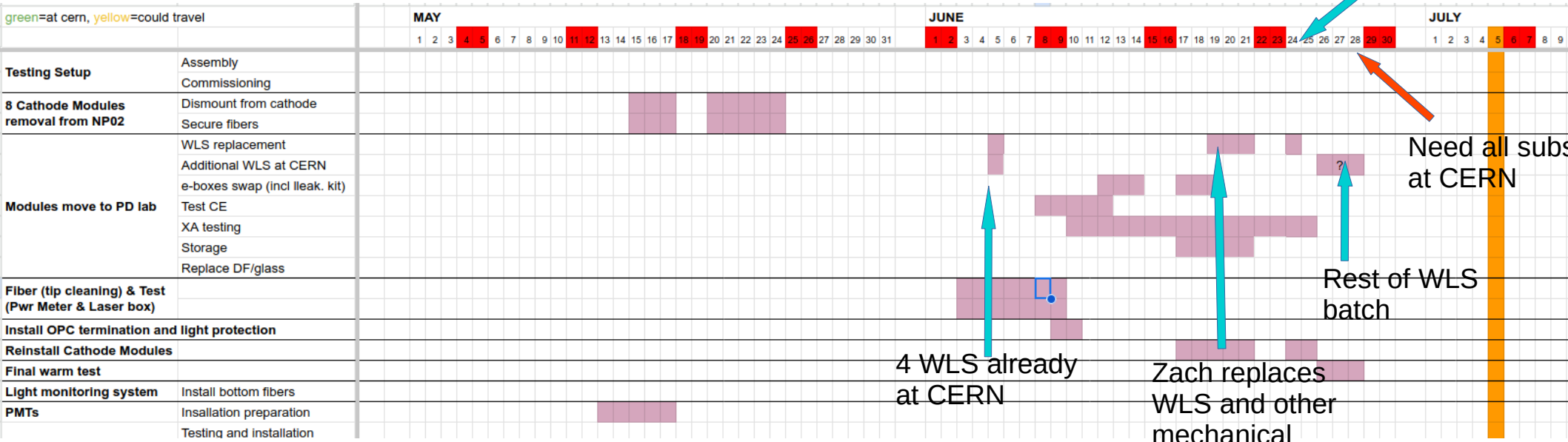
- WLS:
 - 5 cathode modules have dimples → expecting to replace at least those
 - Modules will be tested before WLS replacement
 - Still, not clear if we'll manage to replace all of them

Filters/Substrates:

- Need to replace 128 PE filters
 - 64 cathode needed by 24/06 because we need to install modules
 - 64 membrane (M5, M6, M7 and M8) if they arrive later BUT before TCO closing is ok, we just need to place modules inside.
- 105 ZAOT substrates were ordered and sent to Campinas for pTp coating. Some have broken
 - Have boxes arrived to Campinas? YES, state to be checked
- 35 substrates at CIEMAT, should get o CERN after test (when?)

Need to remove M5 and M6

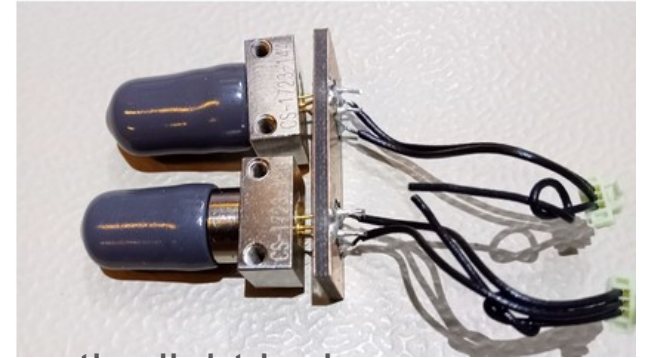
Jay at CERN



ProtoDUNE-VD fibers/PoF

- Verification of fibers using PoF laser w/OPC+load (voltage output)
- Cleaning of fibers
- Installation of 2 GaAs OPCs per module, soldered to a little PCB

- Done for all modules
- SoF fibers should be checked still.
- Because the fibers need to be pulled back to install the modules, the light leakage protection part could not be installed in advance



ProtoDUNE-VD PoF

- A VERY precise and careful procedure will be needed to install the PoF protection.
 - Risk of breaking OPCs
 - The fiber's tube needs to be peeled off
 - risk of breaking fibers
 - Potting is needed (first test stand results showed light leakage from PoF)



ProtoDUNE-VD – lot's still to do

- A large activity for module refurbishing that should address
 - WLS replacement (at least 4)
 - Replacement of parts for thicker WLS
 - Addition of spacer to avoid WLS bending
 - Potential replacement of FBK SiPMs
- Also a lot to do inside NP02:
 - Meshes need to be replaced
 - One cathode still to be fully done (fiber check? OPC mounting)
 - Fiber routing into the modules will be tough
 - PoF protection to be inserted in all modules + potting with silicon. Yes, upside down.

ProtoDUNE-VD – UV grade fused silica windows

- 5 weeks lead time
- Depth 1 mm
- On the membrane → how to bring them in after TCO closing?
- 150x150
- No time to evaporate → will need to be placed together with the evaporated glasses
- One module (M7 or M8) → 16
- Could be ordered by IFIC
- Likely to be placed on modules, inside the cryostat
- → to be looked over by Jay, Zach, w/Filippo at CERN