

FD2 PDS Short-term Plan

DUNE FD2 PDS
Photon Consortium Meeting

Last update: October 18, 2022
Ryan Rivera & Flavio Cavanna

FD2 PDS Weekly Schedule

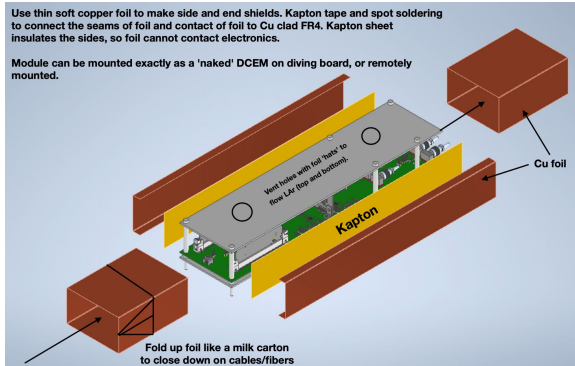
| Reviews and Deliveries | Module-0 | Cold Box | Date | Week # | Month | |
|---------------------------------------|---|------------------------------------|----------------------------|--------|---------|--|
| Spain Hamamatsu 702 SIPM Delivery | Module-0 Orders | Cold Box CRP3 Run | 03-Oct | 40 | Oct '22 | |
| | | Cold Box CRP2b Install (v4 / v5) | 10-Oct | 41 | | |
| | | Cold Box CRP2b Run | 17-Oct | 42 | | |
| | | | Cold Box CRP5 Install (v6) | 24-Oct | 43 | |
| | | | | 31-Oct | 44 | |
| Dichroic Filters arrive at Campinas | Module-0 Production | | 07-Nov | 45 | Nov '22 | |
| Final Design Review | | | 14-Nov | 46 | | |
| | Module-0 Flange & Feedthrough Install | | 21-Nov | 47 | | |
| | | | 28-Nov | 48 | | |
| | 4x Module-0 non-TCO Membrane Install (v6) | Cold Box CRP5 Run | 05-Dec | 49 | Dec '22 | |
| | | | 12-Dec | 50 | | |
| | | | 19-Dec | 51 | | |
| | | | 26-Dec | 52 | | |
| INFN Hamamatsu 500 SIPM Delivery | 8x Module-0 Cathode Install | Cold Box CRP4 Install (v6) | 02-Jan | 53 | Jan '23 | |
| FBK 750 SIPM Delivery | | | 09-Jan | 1 | | |
| CERN Collaboration Meeting | | Cold Box CRP4 Run | 16-Jan | 2 | | |
| FNAL/CERN Hamamatsu 700 SIPM Delivery | | | 23-Jan | 3 | | |
| | | | 30-Jan | 4 | | |
| | 4x Module-0 TCO-side Membrane Install | INFN-Na Cold Box Install (v6) | 06-Feb | 5 | Feb '23 | |
| | | | 13-Feb | 6 | | |
| | | INFN-Na Cold Box Run | 20-Feb | 7 | | |
| | | | 27-Feb | 8 | | |
| CD2/3 Director's Review | Module-0 Install milestone | | 06-Mar | 9 | Mar '23 | |
| | | | 13-Mar | 10 | | |
| | | | 20-Mar | 11 | | |
| Internal PD Design Workshop | | | 27-Mar | 12 | | |
| | | | 03-Apr | 13 | Apr '23 | |
| | | | 10-Apr | 14 | | |
| | | | 17-Apr | 15 | | |
| | | | 24-Apr | 16 | | |
| CD2/3 DOE Review | | | 01-May | 17 | May '23 | |
| | | | 08-May | 18 | | |
| | | | 15-May | 19 | | |
| | | | 22-May | 20 | | |
| | | | 29-May | 21 | | |
| | | Cold Box D Install (v7) "Module-1" | 05-Jun | 22 | Jun '23 | |
| | | | 12-Jun | 23 | | |
| | | | 19-Jun | 24 | | |
| | | | 26-Jun | 25 | | |
| | | Cold Box D Run "Module-1" | 03-Jul | 26 | Jul '23 | |
| | | | 10-Jul | 27 | | |
| | | | 17-Jul | 28 | | |



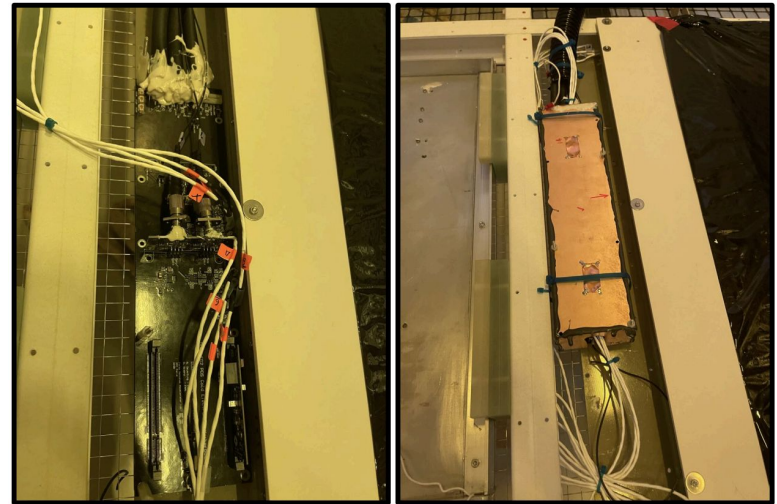
We are here

Current FD2 PDS CRP3 Cold Box

- Same as August run but with...
 - Light tight box attempt
 - INFN DC-DC bias generator on wall

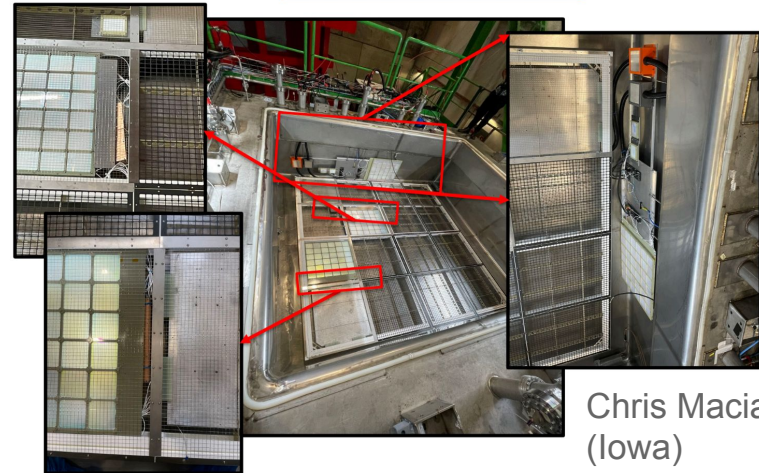


Paul Debbins (Iowa)



VD-PDS +Cathode Installed

- Finished PDS Installation
 - 14:00 on Oct. 7th, 2022
- Shield box installed for
 - DCEM modulev2
 - DCEM modulev3
- Re-routed PoF & SoF cabling
 - Resized black tubing
- Replaced Box Cap
 - w/ Aluminium plate
- Connected the HV to the Cathode



Chris Macias (Iowa)

Cold Box Strategy and Dates

- Constraint: We only have PoF for 2 cathode modules. This implies v4 and v5 replace the v2 and v3 on cathode.
- Proposed strategy:
 - V2 and V3 removed from cathode
 - V2 deconstructed to supply V5 (i.e. (8) 2-conductor cable, (8) flex, (36) filters)
 - V5 to V3 position on cathode
 - V4 supplied by NIU stock
 - V4 to V2 position on cathode
 - (If time allows) V1 removed from membrane for INFN-Na test stand, V3 goes to membrane
- **Thursday October 20th:** ⇒ End Cold Box CRP3 run and warm up.
- **Monday October 24th:** ⇒ Open Cold Box.
- **Tuesday thru Thursday October 25-27th:** ⇒ PD team install with cathode access.
 - Might shift to October 26th thru October 30th, but will not know until October 24th
- **Friday October 28th morning:** ⇒ Cathode back in Cold Box.
- **Monday October 31st:** ⇒ Start Cold Box CRP5 fill.

1st week of November - CRP5 Cold Box Goals

- Characterize light leakage protection
- Characterize stability of signal lasers in deep LAr
- Compare v4 and v5 XA assembly, installation, and features

Plan to Production

- **Module-0:**
 - Plan and scenarios established
 - Details of implementing the plan must be managed in our Working Groups and breakout meetings.
 - **February 2023: ProtoDUNE2-VD FD2 PDS Installation Complete**
 - **January 2024: ProtoDUNE2-VD Operations Start**
- **Module-1:**
 - April 3rd week 2023: 2-day 'FD2 PDS Design Workshop' at Fermilab
 - June 2023: Installation at CERN Cold Box
 - **July 2023: Operation of CERN Cold Box**
- **Production Readiness Reviews:**
 - November 2023: SiPMs
 - January 2024: X-ARAPUCA + Cold Electronics
 - March 2024: Warm Electronics
 - May 2024: Cables + Fibers + Feedthroughs

FD2 PDS Meetings

| CDT | CEST | Monday | Tuesday | Wednesday | Thursday | Friday |
|-------|-------|--------------------------|---|---|---|---|
| 9:00 | 16:00 | | Photo-Collector - Carla C | | Analog Readout - Dave C / Bias Generation - Mike M | ProtoDUNE-VD PDS Planning - Anselmo/Franciole /Sabrina/Dante |
| 10:00 | 17:00 | Mechanical - Vishnu Z | Photo-Sensor - Francesco, Ines and Vishnu | VD Cold Box and ProtoDUNE2 Integration - Filippo | | |
| 11:00 | 18:00 | | | Cold Electronics - Flavio C | | |
| 12:00 | 19:00 | | | | | Power-over-Fiber - David M |

Organizing FD2 PDS Travel

- For Cold Box, PD team should enter unconfirmed/confirmed travel to help everyone plan, should we extend use for Module-0?
 - https://docs.google.com/spreadsheets/d/1qT_wY5rvEtjS2t741bd8TGejxSAtKZIWu3m8GozzA/edit?usp=sharing
- Daily 'FD2 PDS Calendar' schedule maintained here:
 - <https://calendar.google.com/calendar/u/0?cid=bjVmaGNqZ2NhMzM1MmFrbmJtYjNIODRkMmtAZ3JvdXAuY2FsZW5kYXluZ29vZ2xILmNvbQ>