FD2 PDS Short-term Plan

DUNE FD2 PDS Photon Consortium Meeting

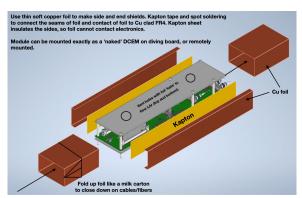
Last update: October 18, 2022 Ryan Rivera & Flavio Cavanna

FD2 PDS Weekly Schedule

Spain Hamanatau 702 SIPM California Orders Cold Box CRP28 Install 24-Oct	Reviews and Deliveries	Module-0	Cold Box	Date	Week#	Month
Module-0 Orders Cold Box CRP2b Install Wodule-0 Froduction Sx Module-0 Froduction Cold Box CRP2b Install Cold Box CRP2b Run Cold Box CRP2 Install T-Nov Wodule-0 Froduction Cold Box CRP4 Run Sx Module-0 Froduction Cold Box CRP4 Run Sx Module-0 TCO-side Wembrane Install Module-0 Install milestone Cold Box CRP4 Run Sx Module-0 TCO-side Wembrane Install Cold Box CRP4 Run Sx Module-0 TCO-side Module-0 Install milestone Cold Box CRP4 Run Sx Module-0 TCO-side Module-0 Install milestone Cold Box CRP4 Run Sx Module-0 TCO-side Module-0 Install milestone Cold Box CRP4 Run Sx Module-1 TCO-side Module-0 Install milestone Cold Box CRP4 Run Sx Module-1 TCO-side Module-0 Install milestone Cold Box CRP4 Run Sx Module-1 TCO-side Module-0 TCO-side Module-0 TCO-side Module-0 TCO-side Sx Module-0 TCO-side Module-0 TCO-side Module-0 TCO-side Sx Module-0 TCO-side Module-0 TCO-side Module-0 TCO-side Sx Module-1 TCO-side Module-0 TCO-side Module-0 TCO-side Sx Module-1 TCO-side Module-0 TCO-side Module-0 TCO-side Module-0 TCO-side Sx Module-1 TCO-side Module-1 TCO-side Module-0 TCO-side Module-1 TCO-side Module-1 TCO-side Sx Module-1 TCO-side						
Module-0 Orders Cold Box CRP2b Install (v4) (v5) Module-0 Flange & Cold Box CRP2 Install (v6) Module-0 Flange & Cold Box CRP2 Install (v6) Module-0 Flange & Cold Box CRP4 Install (v7) Module-0 Flange & Cold Box CRP4 Install (v8) Module-0 Flange & Cold Box CRP4 Install (v9) Module-0 Install mitestone Ax Module-0 Install mitestone Cold Box CRP4 Install (v7) Module-0 Install mitestone Module-0 Install mitestone Cold Box D Install (v7) Cold Box D Install (v7) 11-May Cold Box D Install (v7) 12-Jun 19-Jun Cold Box D Install (v7) 11-May Cold Box D Install (v8) 11-May Cold Box D Install (v8) Cold Box D Install	Spain Hamamatsu 702 SiPM Deliverey			03-Oct		Oct '22
17-Oct			Cold Box CRP3 Run	10-Oct	4	
Cold Box CRP2b Run 14-Nov		Module-0 Orders		17-Oct	42	
Module-0 Production	A		Cold Box CRP2b Install	24-Oct	43	
Module-0 Froduction Module-0 Froduction Module-0 Froduction Cold Box CRP5 Run F-ectitrough install Module-0 Froduction Sx Module-0 Finite & 28-Nov (vs)				31-Oct	4	
Module-0 Fraduction Module-0 Frage & Cold Box CRP5 Run Fredthrough Install (v6) Membrane Install (v6) Membrane Install (v6) Membrane Install Box Install (v7) Ax Module-0 Install milestone Module-0 Install milestone Cold Box D Install (v7) Cold Box D Run Cold Box D Run Cold Box D Run Cold Box D Run 10-Jul 11-Jul 11-Jul 11-Jul 11-Jul 11-Jul			Cold Box CRP2b Run	07-Nov	45	Nov '22
Module-0 Fings & Cold Box CRP5 Run Feadthrough Install (v6) 4x Module-0 Fings & Cold Box CRP4 Install (v6) 4x Module-0 Install milestone Ax Module-0 Install milestone Ax Module-0 Install milestone Ax Module-0 Install milestone Cold Box CRP4 Run		Module-0 Production		14-Nov		
#Module-0 Flange & Cold Box CRPS Run (12-Dec Membrane Install (v6) (v6) (19-Dec Membrane Install (v6) (v6) (v6) (v6) (v6) (v6) (v6) (v6)			Cold Box CRP5 Install (v6)	21-Nov	47	
Ax Module-0 non-TCO Membrane Install (v6) 4x Module-0 Install milestone Module-0 Install milestone Module-0 Install milestone Cold Box CRP4 Run Cold Box D Install (v6) 112-Dec	Dichroic Filters arrive at Campinas	Module-0 Flange & Feedthrough Install		28-Nov	48	
12-Dec Membrane Install (v6) Membrane Install (v7) Membrane Install (v8) Membrane Install (v	Final Design Review	0		05-Dec	49	Dec '22
19-Dec 1		4x Module-0 non-TCO	Cold Box CRP's Kun	12-Dec	20	
Cold Box CRP4 Install C2-Jan		Membrane Install (v6)		19-Dec	51	
Cold Box CRP4 flustall 02-Jan				26-Dec	52	
Sx Module-0 Cold Box CRP4 Run 16-Jan			Cold Box CRP4 Install (v6)	02-Jan	53	Jan '23
16-Jan 16-Jan 18-X Module-0 23-Jan 23-	INFN Hamamatsu 500 SiPM Deliverey			09-Jan	-	
Sx Module-0 Cathode Install WFN-Na Cold Box Run 23-Jan	FBK 750 SiPM Deliverey		7000	16-Jan	7	
Nodule-0 Install Nodule-0	CERN Collaboration Meeting	8x Module-0	Cold Box CNP4 Kull	23-Jan	က	
New Module-0 TCO-side	FNAL/CERN Hamamatsu 700 SiPM Deliverev	Cathode Install		30-Jan	4	
13-Feb 13-Feb 13-Feb 13-Feb 13-Feb 13-Mar 1			INFN-Na Cold	06-Feb		Feb '23
Module-0 Install milestone Cold Box Run 20-Feb			Box install (v6)	13-Feb	9	
Membrane Install Cold Box Run 27-Feb		4x Module-0 TCO-side	INFN-Na	20-Feb	7	
13-Mar 13-Mar 13-Mar 13-Mar 13-Mar 13-Mar 10-Apr 10-Apr 17-Apr 17-Apr 17-Apr 17-Apr 17-May 15-May 15-May 15-May 15-May 15-May 15-May 19-Jun 19-Jun 19-Jun 19-Jun 19-Jun 117-Jul		Membrane Install	Cold Box Run	27-Feb	80	
13-Mar Module-0 Install milestone 27-Mar 27-Mar 10-Apr 17-Apr 24-Apr 01-May 08-May 15-May 22-May 29-May 15-May 15-May 16-Um Cold Box D Install (v7) 12-Um 19-Um Cold Box D Run 19-Um 11-Uul 11-Uul				06-Mar	6	Mar '23
20-Mar Module-0 Install milestone 83-Apr 10-Apr 17-Apr 24-Apr 01-May 08-May 15-May 29-May 29-May 29-May 20-Jun 19-Jun 19-Jun 19-Jun 11-Jun	CD2/3 Director's Review			13-Mar	10	
Module-0 Install milestone 27-Mar 10-Apr 10-Apr 17-Apr 18-May 17-Apr 18-May 18-May 18-Apr				20-Mar	7	
03-Apr 10-Apr 17-Apr 17-Apr 24-Apr 01-May 08-May 15-May 29-May 29-May 29-May 29-May 05-Jun 19-Jun 19		Module-0 Install milestone		27-Mar	12	
10-Apr 17-Apr 24-Apr 17-Apr 24-Apr 17-Apr 17	Internal PD Design Workshop			03-Apr	13	Apr '23
17-Apr				10-Apr	14	
24-Apr 01-May 08-May 08-May 15-May 22-May 22-May 29-May 05-Jun 12-Jun 12-Jun 19-Jun 19-Jun 19-Jun 11-Jun 11-Jun 11-Jun 11-Jun 11-Jun				17-Apr	15	
01-May 08-May 15-May 15-May 15-May 22-May 29-May 29-May 15-May 12-May 1				24-Apr	16	
08-May 15-May 15-May 29-May Cold Box D Install (v7) 12-Unn 19-Unn Cold Box D Run 10-Unl 10-Unl				01-May	17	May '23
15-May 22-May 29-May 05-Jun 12-Jun 19-Jun 26-Jun 10-Jul	CD2/3 DOE Review			08-May	18	
22-May 29-May 05-Jun 12-Jun 19-Jun 26-Jun 03-Jul 10-Jul				15-May	19	
29-May 05-Jun 12-Jun 19-Jun 26-Jun 03-Jul 10-Jul				22-May	20	
05-Jun 12-Jun 19-Jun 26-Jun 03-Jul 10-Jul				29-May	21	
12-Jun 19-Jun 26-Jun 03-Jul 10-Jul 17-Jul			Cold Box D Install (v7)	05-Jun		Jun '23
19-Jun 26-Jun 03-Jul 10-Jul 17-Jul			"Module-1"	12-Jun	23	
26-Jun 03-Jul 10-Jul 17-Jul				19-Jun	24	
10-Jul 17-Jul				26-Jun	25	
10-Jul 17-Jul			Cold Box D Run	03-Jul	26	Jul '23
			"Module-1"	10-Jul		
				17-Jul	28	

Current FD2 PDS **CRP3 Cold Box**

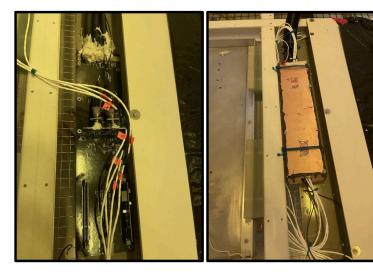
- Same as August run but with...
 - Light tight box attempt
 - INFN DC-DC bias generator on wall



Paul Debbins (lowa)

- · 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







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
 - o (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	<u>Wednesday</u>	Thursday	<u>Friday</u>
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_wY5rvEtjS2t741bd8TGejxSAtKZIWIWu3m8Goz zA/edit?usp=sharing
- Daily 'FD2 PDS Calendar' schedule maintained here:
 - https://calendar.google.com/calendar/u/0?cid=bjVmaGNqZ2NhMzM1MmFrbmJtYjNIODRkMmt AZ3JvdXAuY2FsZW5kYXluZ29vZ2xlLmNvbQ