

Consortium Meeting Technical Report

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August 2, 2022

Outline

- ProtoDUNE 2 schedule (high-level)
- Daresbury PD cable visit
- Schedule of upcoming events

ProtoDUNE 2 schedule

- Problems remain with fitting lower-configuration APAs into Cold Box.
 - This has (and continues to) prevent cold box testing
 - Expect to be fixed this week.
- It is likely that we are going to swap APA1 and APA2, to put APA1 in front of the beam
- Probably need to move a couple of PD modules from APA1 to APA2 to ensure “Golden channel” PD modules are in front of the beam.
- Delays are accumulating in ProtoDUNE 2 schedule. We will re-issue the schedule ASAP

General planning assuming APA4 and APA3 go on the beam side

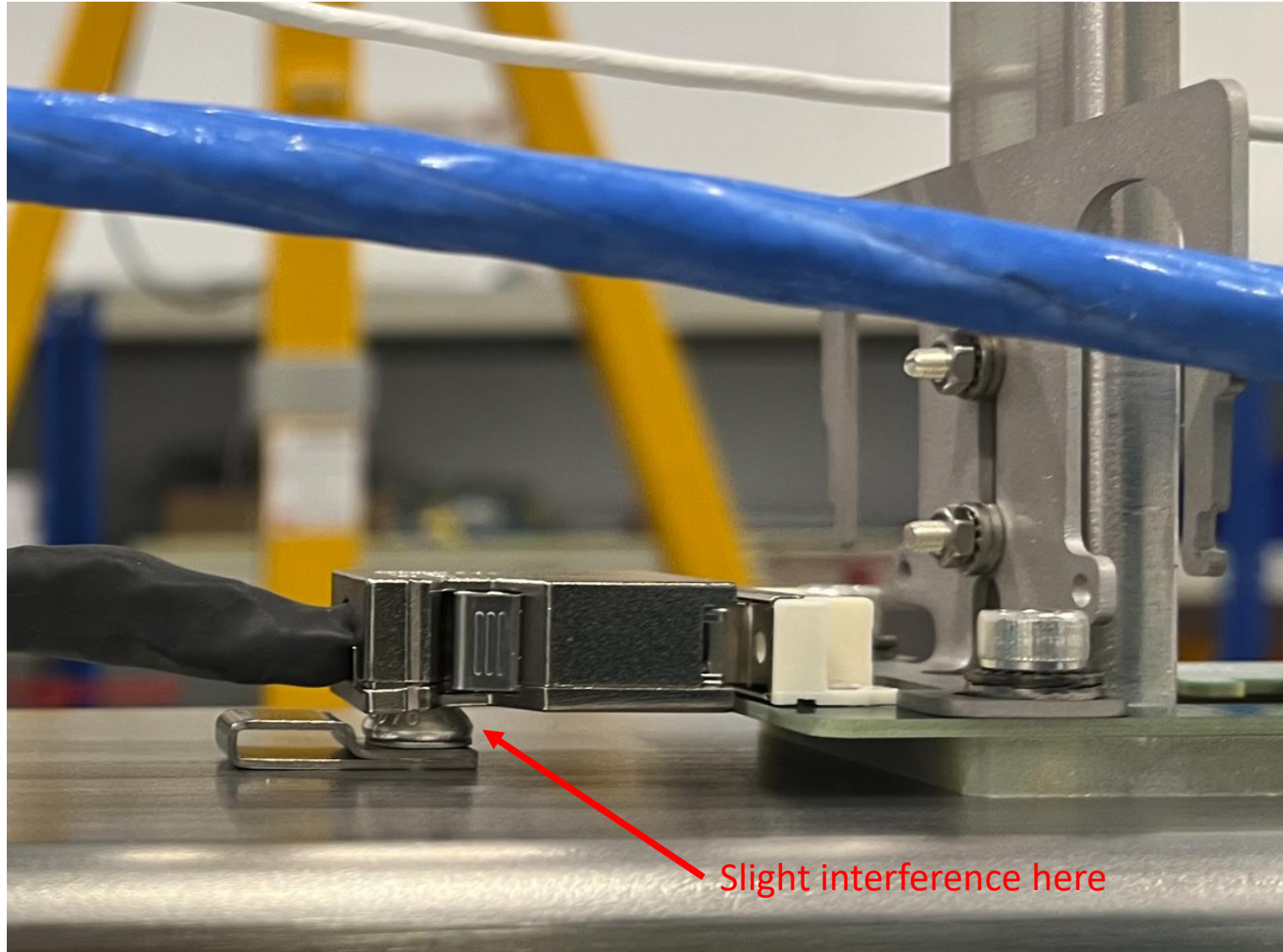
Week #	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3
	8	15	22	29	5	12	19	26	3	10	17	24	31	7	14	21	28	5	12	19	26	2	9	16
	Aug	Aug	Aug	Aug	Sep	Sep	Sep	Sep	Oct	Oct	Oct	Oct	Oct	Nov	Nov	Nov	Nov	Dec	Dec	Dec	Dec	Jan	Jan	Jan
Cold Box test APA #4																								
Test and Outfit & Cold box APA #3																								
Install/Cable APAs 3&4																								
Prepare Saleve side																								
Close Saleve-side Drift Volume																								
Beam plug/ HV donut																								
Install/Cable APAs 1&2																								
Prepare Jura side																								
Close Jura-side Drift Volume																								
Install laser Periscopes																								
Install Purity Monitors																								
Reposition Valencia monitor																								
Close TCO																								
Clean and last connections																								
Seal & Purge																								
Fill																								
Reposition CRT																								
Install beam line																								

If we need to retest APA1 and APA2 we need to add 3 weeks to the schedule

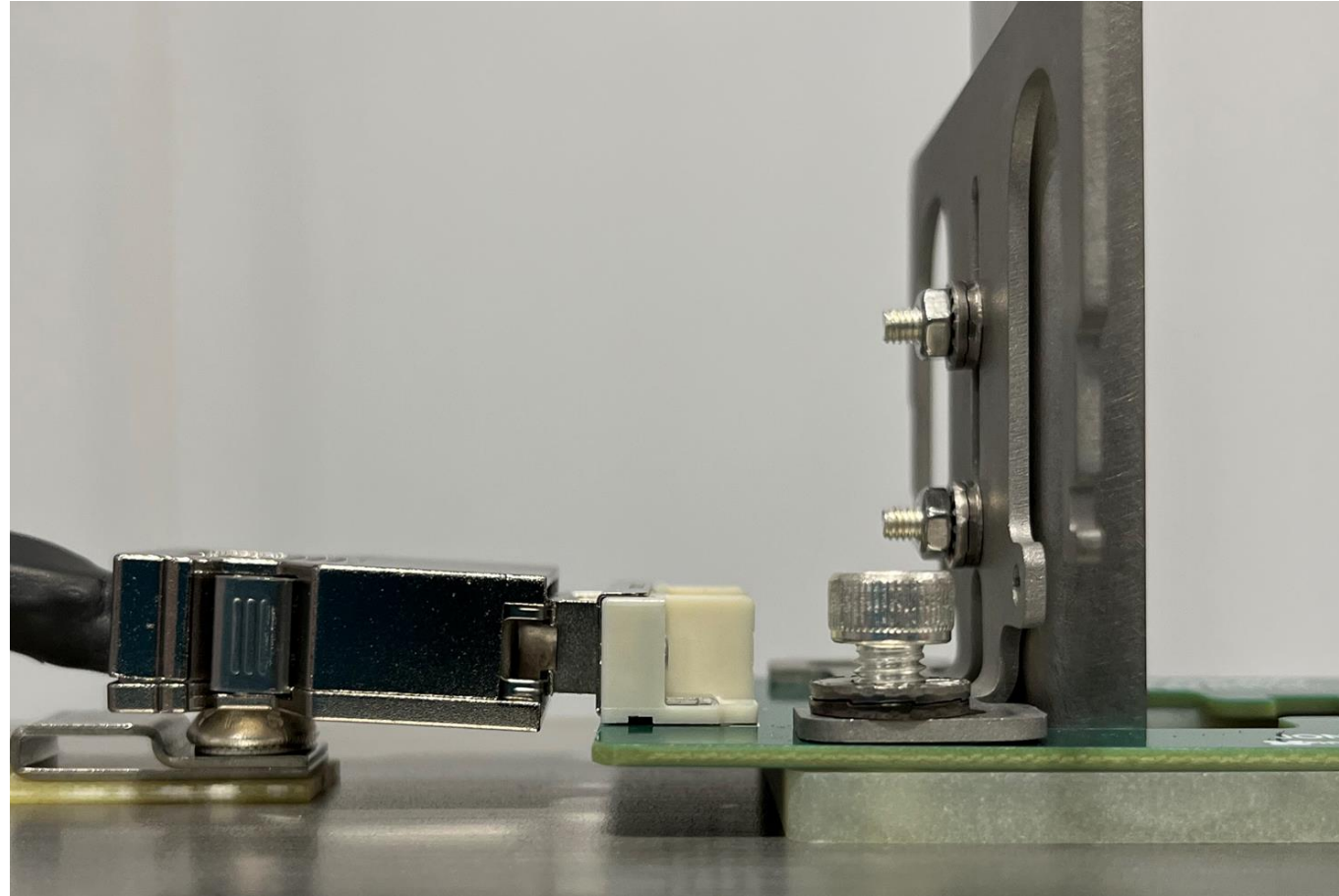
PD cable issues

- Two channels (one channel per supercell) in APA 2 were observed to have no connection when installed into APA
 - We have tested 3 APAs at this point (120 channels) and have only seen these 2 channels
 - One channel recovered when in the cold box, one did not.
- I visited Daresbury last week to trace potential issues
- Two lessons learned:
 - Interference between cable clips and PD cable connector require re-design of tie-down points.
 - Procedure changed to have continuity check of cables AFTER cinching down cable ties

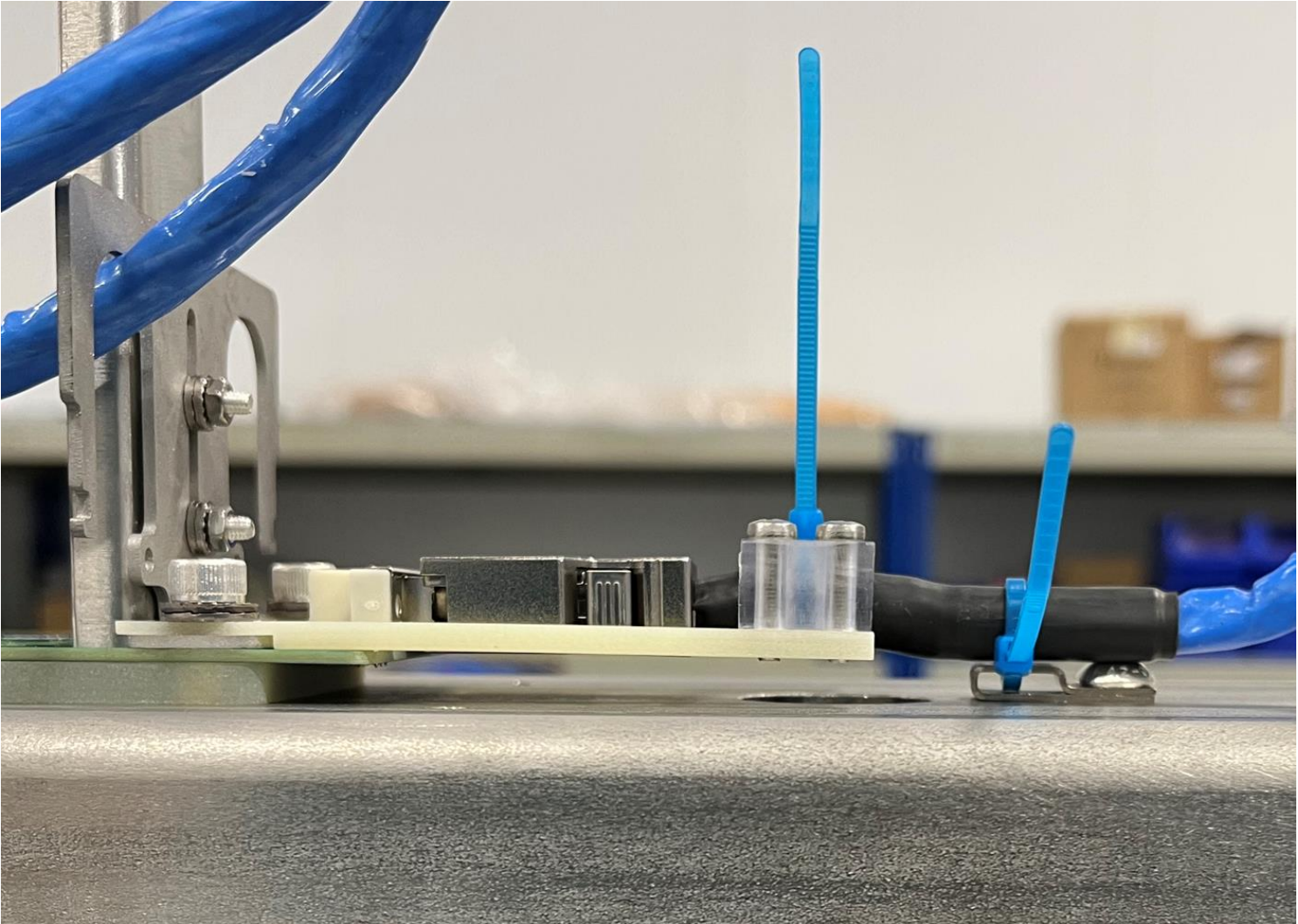
PD connector interference with Panduit cable tie clip (~0.5mm)



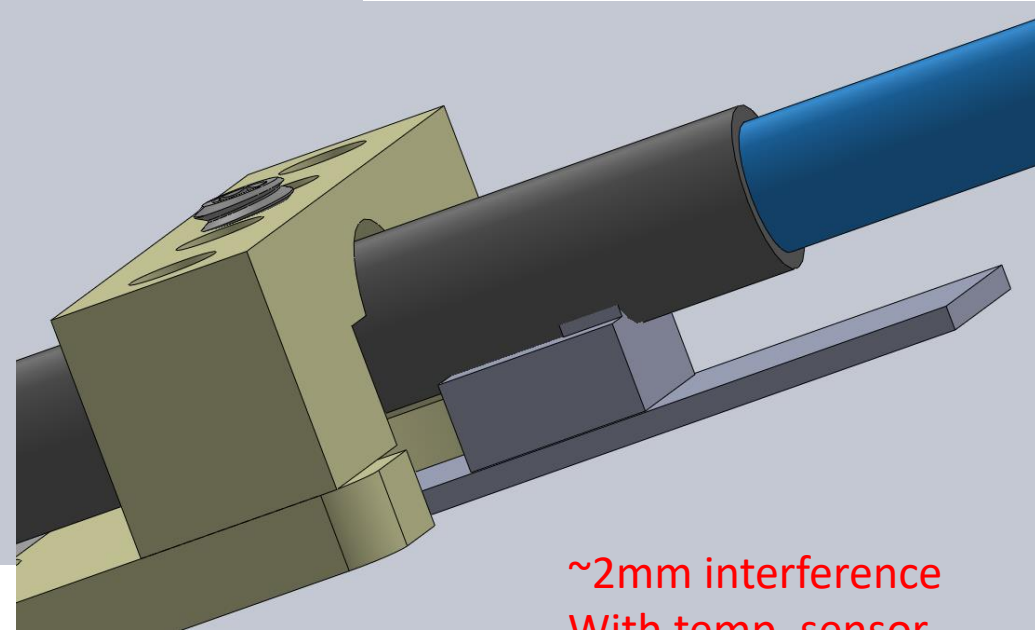
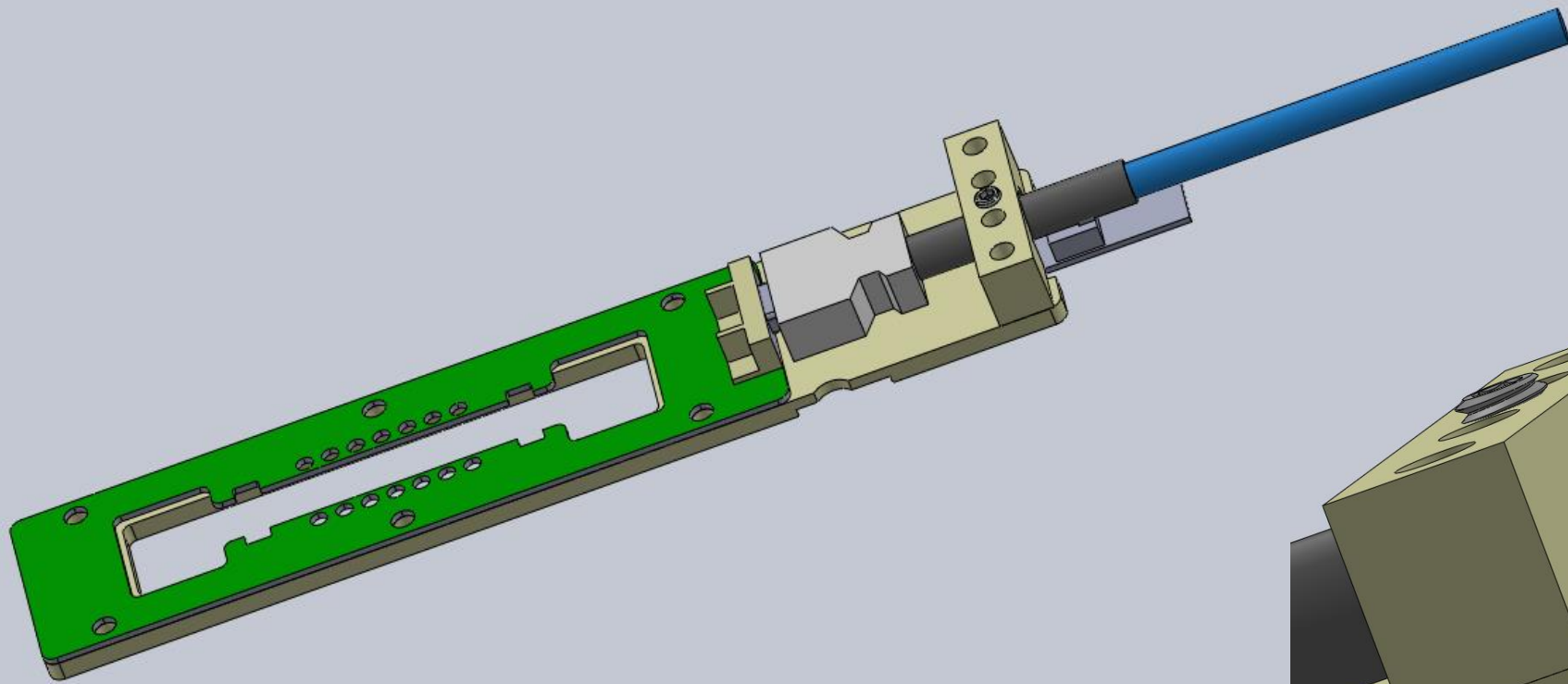
Significant ($\sim 2\text{mm}$) PD cable interference with temperature sensor and cable tie clip (Upper APA only)



July 2022 PD cable strain relief (temporary solution for existing bottom APAs)



New PD cable strain relief (prototype August 2022)



~2mm interference
With temp. sensor
(2 places)

Summary/Plan:

- Interferences noted with PD cables and APA cable tie clips
 - Particularly for ones shared with CALCI sensors
 - Improved with modified cable tie procedure (test after cable ties applied)
- Prototype cable clamps of new design will ship to Daresbury for testing week of August 8.
- Results will be presented to collaboration management week of August 15.
- Proactively fabricate extra cable support structure for the next 4 APA fabrication kits.
- 3 production APAs with old cable configuration (but with improved procedure)

Upcoming Events Calendar (FD1)

- September 12-16 2022 Collaboration meeting Manchester
 - Includes refresh FDR/PRR for rails/cables
- October 2022 ProtoDUNE 2 installation completed
- November/December 2022 Begin ProtoDUNE 2 cool-down/commissioning(?)
- Week of November 7 2022 FD1 PD FDR (To be confirmed)
- ProtoDUNE 2 run begins
- **FD1 PD PRR (Production fabrication begin) Q2 2023**