

Status of the SP-PD at the CE Test Stand (ICEBERG)

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SP-PD Goals for ICEBERG Tests

- Primary goals of testing:
 - Tests of single-sided ARAPUCA and single-sided X-ARAPUCA (with filter-plate rear reflectors) with TPC track information-- Similar to ProtoDUNE
 - Comparison of SSP and mu2e electronics
 - Mu2e DAQ interface available for second run (Winter 2019)
 - Interference testing between CE and PD electronics
 - Comparison of active ganging circuit prototypes
 - Available in second test run
 - DAQ/TPC interface
 - DUNE FD PD cabling scheme

Schedule (as of October 16)

No	Major Milestones	Date
1	DAQ system Ready at PAB	8/31/18
2	APA Delivered to Fermilab	9/17/18
3	128 Channel of FEMB/WIB readout with DAQ with FEMB cold in CTS	9/17/18
4	1280 Channels of Full Electronics received from BNL	9/17/18
5	TPC Build at Fermilab	10/1/18
6	1280 Channels of CE and WIB Electronics tested at Fermilab without TPC but its cables in Cryogenic Test Stand with DAQ	10/1/18
7	1280 Channels of CE Electronics Installed on TPC	10/12/18
8	1280 Channels CE and WIB tested on TPC (Warm) with DAQ	10/26/18
9	Cryostat Ready for TPC	11/9/18
10	TPC Moved in cryostat	11/12/18
11	Test of TPC in cryostat with CE warm	11/16/18
12	Start of cooldown of Cryostat with TPC	11/19/18
13	Test of ProtoDUNE CE with TPC in Lar	12/14/18
14	Test of New CE with TPC in Lar	3/15/19

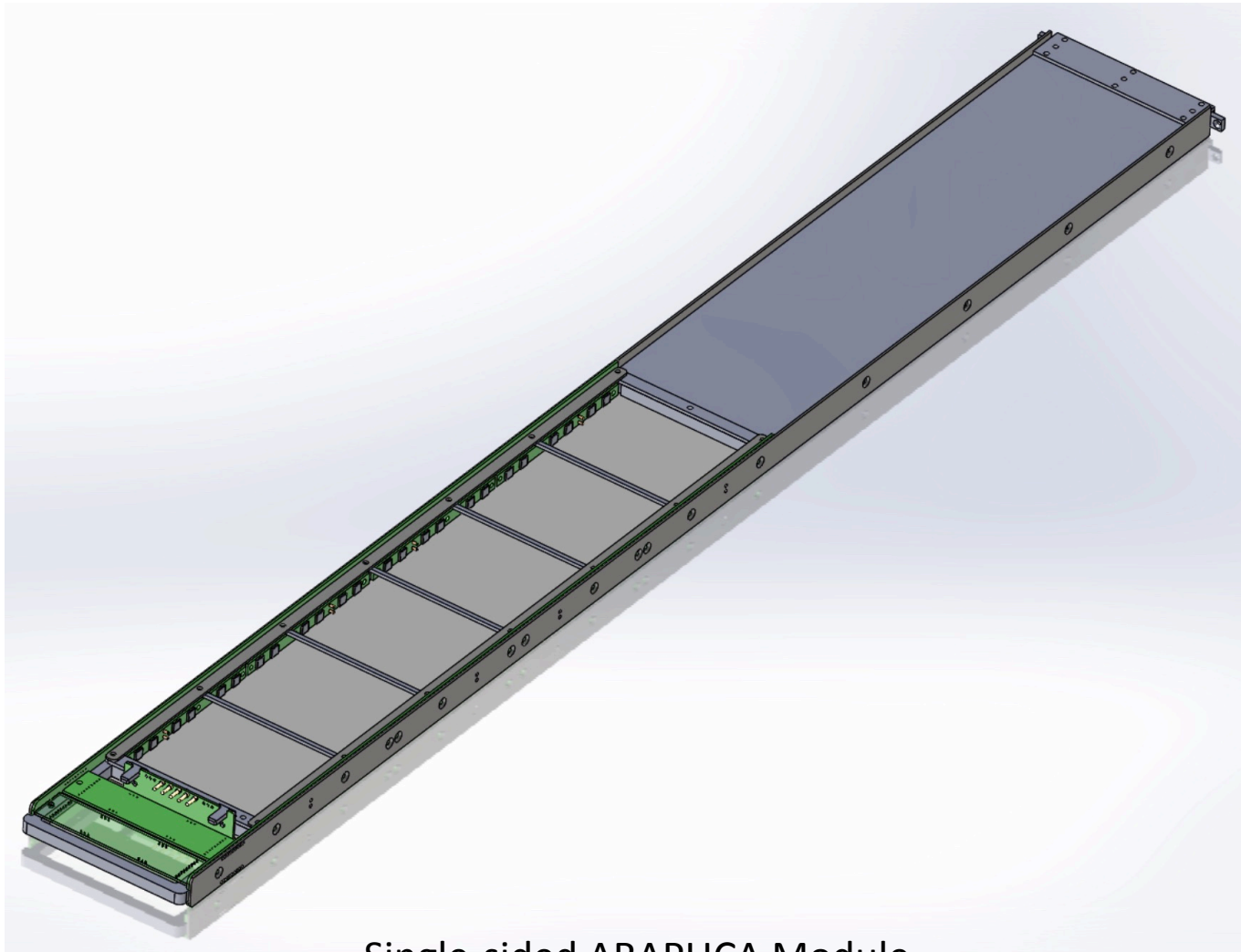
← PDs needed for installation ~ 11/7/18

← Initial Cool-down begins.

← First Test Run ~ 12/14 – 12/24(?)

← Second Test Run ~ March 2019

PD Mechanical Design Status-Done!



Single-sided ARAPUCA Module

PD Status: Test 1 Modules

- Required: 96 MPPCs OK (In hand)
- Required: 16 MPPC mount boards OK (In hand)
- Active Ganging Boards (2 req'd) OK (In fab.)
- Required: **12** coated filter plates, 6 Vikuiti sheets
 - Filter plates OK
 - Vikuiti On order
 - Coating Real-time update
- WLS Plates (X-ARAPUCA) OK (In hand)
- APA Connectors/cables OK (Installed)
- Connectors (Module mount) 2 on hand OK (In hand)
- Mechanical Design& Fabrication OK (In fab)

Readout Electronics

- Primary readout in test 1 will require an SSP modified for MPPCs (50V) and ideally for RJ-45 connectors)
 - Still working to identify exact SSP to be used
- Secondary readout will be provided by the mu2e electronics system.
 - System is making good progress-- still on track for December use.
- Working to understand data analysis/DAQ integration plan.

SP-SP ICEBERG group

- Operations group (FNAL)
 - Design Lead: Warner
 - Operational lead(s): Escobar, ???
- Electronics group
 - FE electronics: Fitzpatrick, Mousseau, Spitz, Djurcic
 - Active ganging: Cancelo, Molina
 - Cabling: Warner, ???
 - DAQ/Data readout: ???
- Run coordination/analysis/planning: ???