

FD2 PDS Space Needs

R. Rivera, D. Warner, V. Zutshi

Estimated Storage (in cavern)

- Arapucas
 - crate size: 1 m x 1 m x 0.5 m per cathode module
 - There are 80 cathode modules (similar number for membrane mounted detectors)
- Fibers
 - crate size: 1 m x 1 m x 0.2 m per cathode module
 - 32 fiber bundle (~ 1") in 1 m diameter coil
- Laser Modules
 - crate size: 0.75 m x 0.75 m x 0.75 m per cathode module pair
 - 19" inch relay racks (40)
- Fiber Conduit
 - crate size: 3.5 m x 0.25 m x 0.25 m (14)
 - 120, three meter long pieces
- Flanges
 - crate size: 0.5 m x 0.5 m x 0.5 m (40)
- Miscellaneous: Power supplies, FEBs etc.
- Room for component extraction and wipe down

Assembly (in cavern)

- Final assembly of the ARAPUCAs is expected to happen in the cavern (filters etc.)
- Ideally to be done in the “Grey room”
- Antechamber to the “Grey room” needed for gowning

Installation In Cathode

- Can be factorized into 2 steps
- Fiber installation (where and when?):
 - In Europe before the cathode modules are shipped
 - ✓ Impacts shipping container as coils of fibers need to be included
 - ✓ Length of the fibers would depend on where the electronics/transmitters are located
 - ✓ Ideally, the mini-racks are close to the flanges (~ 15 m long fibers)
 - In the cavern (“Grey room”)
 - ✓ Implies the insertion of pull cords before cathode shipment (4 pull cords per module; 8 fibers per pull cord)
- ARAPUCA installation
 - Space for 5 people working together per shift
- “Dressing” of the fiber installation

Testing

- Before installation in cathode
 - Stand-alone ARAPUCA tests
 - Dark box (1.3 m x 1.3 m x 0.4 m) needed
- After installation in cathode
- Ideally would like a cold (liquid) test after installation in cathode to test the PoF and analog signal paths
- In the process of developing our understanding of testing the chain warm if cold testing will not be available