

Milestones and cavity production until 2005

July, 2004

Aug-Nov, 2004: FXD-production, FXD-2-6 with HOM to replace current 8-pack, prep variations ?

Oct, 2004: Drawings for rounded cell

Nov, 2004: Drawings for compact coupler

Dec, 2004: Drawings for HOM

Jan, 2005: Drawings of new waveguide distribution
Fix number of structures on a girder !

Jan-Mar, 2005: FXE-production to test different coupler concepts

Jun, 2005: Test one new structure, rounded, compact coupler, inline HOM,
FXF's ?
High power test of new waveguide distribution system

Oct, 2005: Test a superstructure in NLCTA

CDR, End of 2005

Structure testing second half of 2004

Jul

Aug

Sep

Oct

Nov

Dec

Station1:Acc1

FXD-1

Station1:Acc2

FXC-5

CERN-W

Surface treatment with some sort of standard structure

Who, what, how many

Venting experiments

Station2:Acc1

H75vg4S18

CuZr-structure

Station2:Acc2

T53vg3MC

Sealed-structure

8-Pack

FXB-006

FXC-003

FXD-003

FXB-007

FXC-005

or

FXD-004

H60vg4S17-1

H60vg4S17-3

FXD-005

H60vg3R17

H60vg4S17-4

FXD-006

H60vg3SL17-A

H60vg3SL17-B

Projects for second half of 2004

1. Sled upgrade in Station 1 and 2:
shorten sled lines to 200 ns and replace shorts at the end with new ones (miller cup option desirable)
change Station 2 sled head (optional may be later)
2. Venting with different gases in Station 1 or 2:
install controllable gas inlet with and with out filter
3. Install T53vg3MC in Station 1 or 2:
find, pump down and RGA T53 before install, prepare for install, install and test (41 MW @65 MV/m)
4. Install H75vg4S18 in Station 1 or 2: (~70 MW @ 65 MV/m)
prepare for install, install and test
5. Install CERN tungsten structure in Station 1 or 2: (~80 MW @ 65 MV/m)
prepare structure for installation, install and test
6. Replace Acc7/8 in 8-pack with FXC3 and H60vg4S17-3
take out FXC3, prepare both, install
7. Replace all 4 structures in 8-pack with new FXD's or existing FXC's
prepare 4 structures (either new or take out of Station 1 and 2) and swap
8. Upgrade 8-pack to 6 structures
add splitter (4.8 dB), add 2 structures dressed like 8-pack structure including 3 dB hybrid in second slot of Station 2, add 2 structures dressed like 8-pack in first slot of Station 2 and connect to Station 2 waveguide, need for vacuum separation of Station 2 and 8-pack
9. Build sealed structure (H60vg4R17), prepare and install
10. Build CuZr structure (FXD), prepare and install

Some more details on experiments

1. **Venting with different gases:**
Investigate influence on performance to determine future handling processes and get new glues for treatment. Gases: Air, N₂, O₂, CO₂, He, Ar
2. **Structure surface treatment studies:** Study different treatments using a kind of standard structure
would be desirable to test a pair each time establishing a strict testing protocol
3. - hydrogen free structure
 - true vacuum brazing
 - cell firing
 - oven bake at 500°C
 - etching studies all the way to electro polishing, clean room type facility ?
 - High pressure water rinsing
 - ... (easily 10-20 structures to test)
4. **CERN tungsten structure :** test new material, understand Mo-results, try to connect to CERN data at short pulses, study pulse length dependence
5. **Sealed structure (H60vg4R17):** test influence of otherwise unavoidable oxide layer (dielectric), study pulse length dependence, dark current (isolated beam port ?)
6. **CuZr structure (FXD):** study a new material with presumably better pulsed heating properties
7. **ASSET-test:** Best possible wakefield and straightness performance

List of experiments

Surface treatment with base line structures

1. super clean structure
2. venting with air and N2 and reprocess
3. skip Hydrogen-bake at Fermilab
4. skip cell firing
5. etching studies
6. electro polishing
7. high pressure water rinsing

List of experiments

Exotic structures

1. revisit T53vg3MC, What is it: a,d,t,vg,P,H ?
2. Test CERN-tungsten structure, short pulse
3. H75vg4S18
4. process to death, damage threshold
5. Structure made off CuZr, Fermilab ?
6. High magnetic field structure
7. single cell tests (materials, geometry)
8. Frequency scaling with electroformed structure at KEK (S,C,X-band)