



ECAL Data links

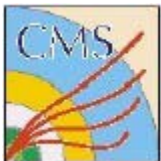


Optical Patch Panel

ECAL MPR

2 December 2004

David Bailleux, U.Minnesota

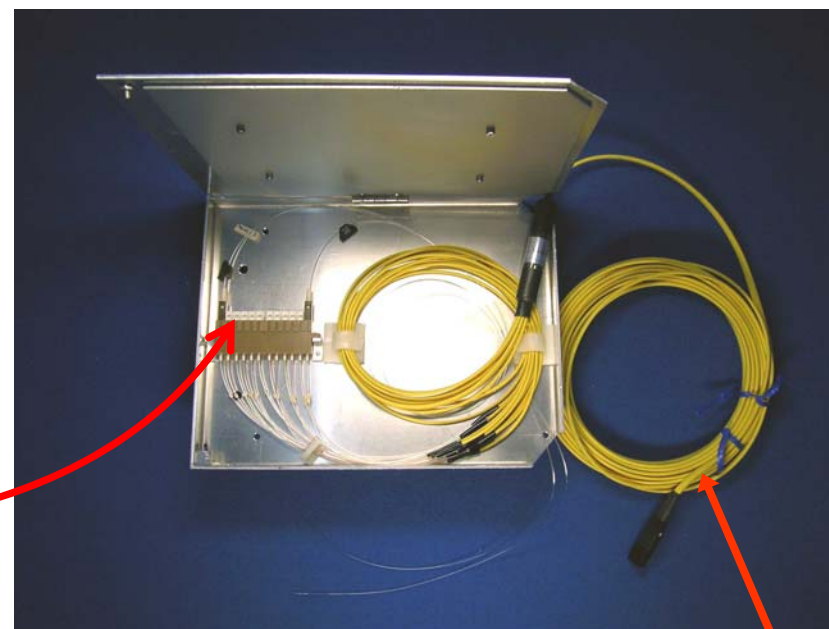
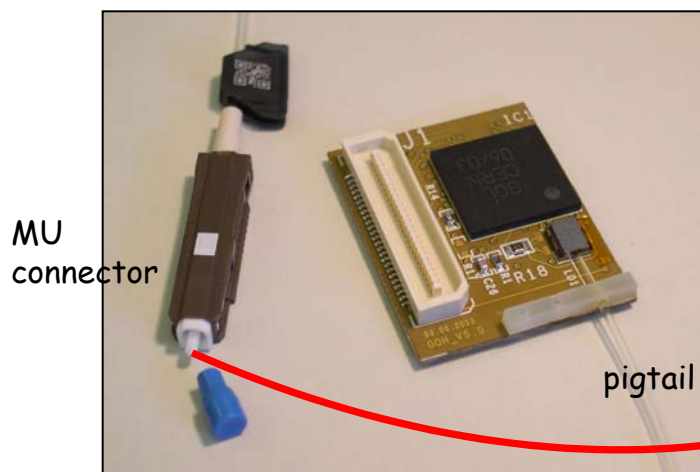


Distributed fiber patch panel



Distributed fiber patch panel: 12 /SM 444 /EB

12 distributed boxes = 12 fanouts = 6 Data, 6 Trigger

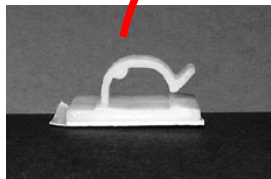
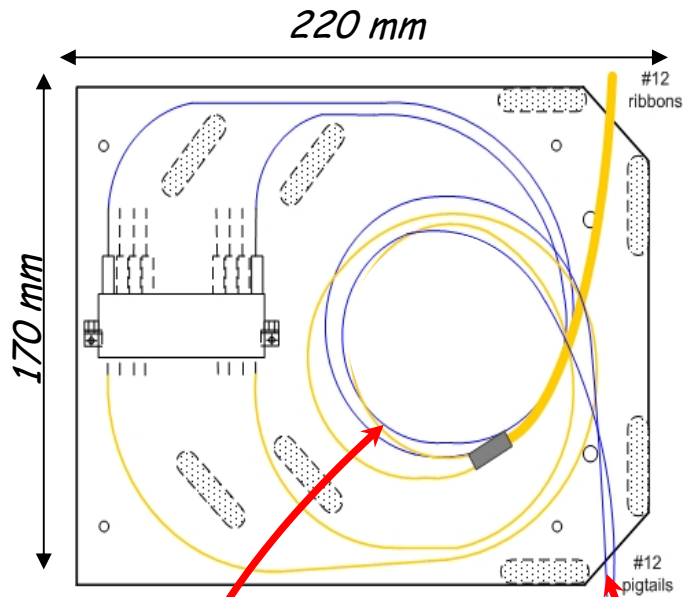




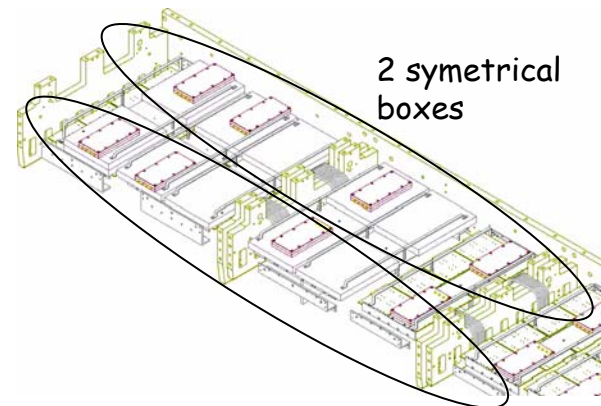
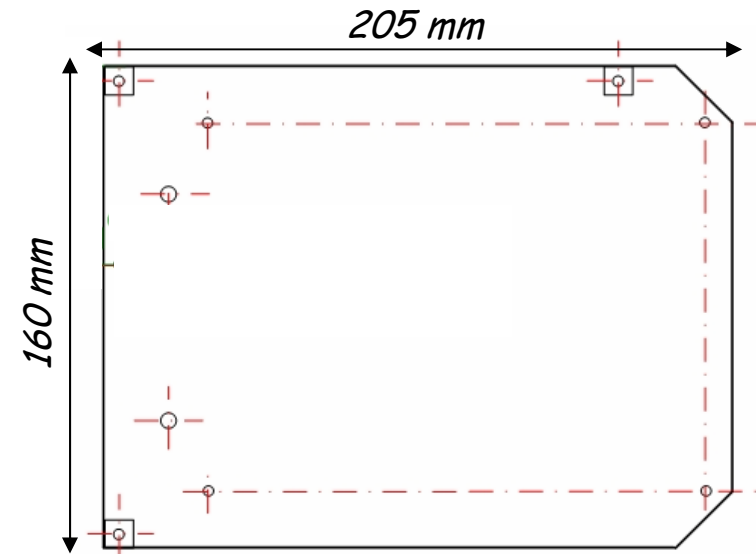
Distributed fiber patch panel



First design for SM10



New design: 20 boxes already ordered

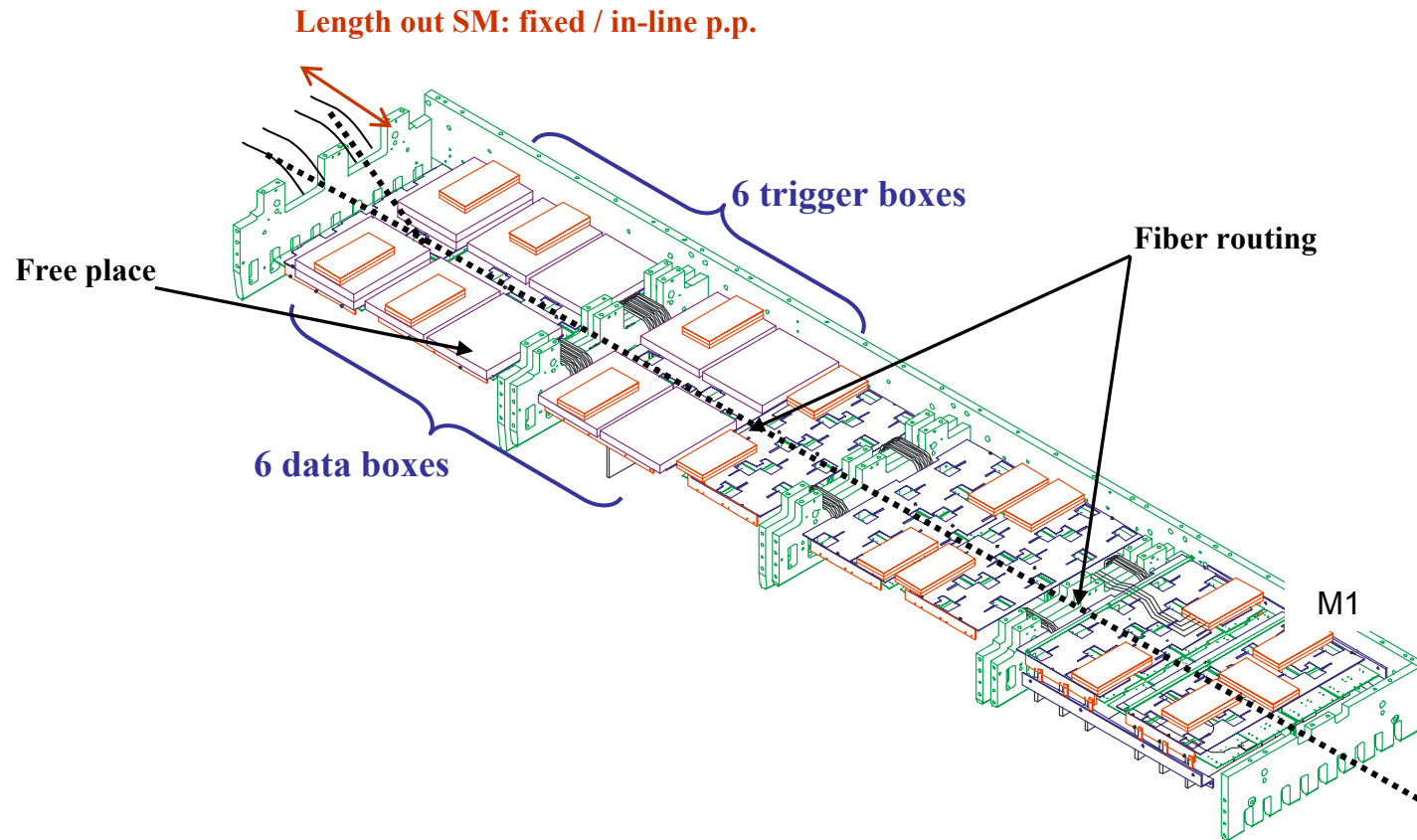




Distributed fiber patch panel

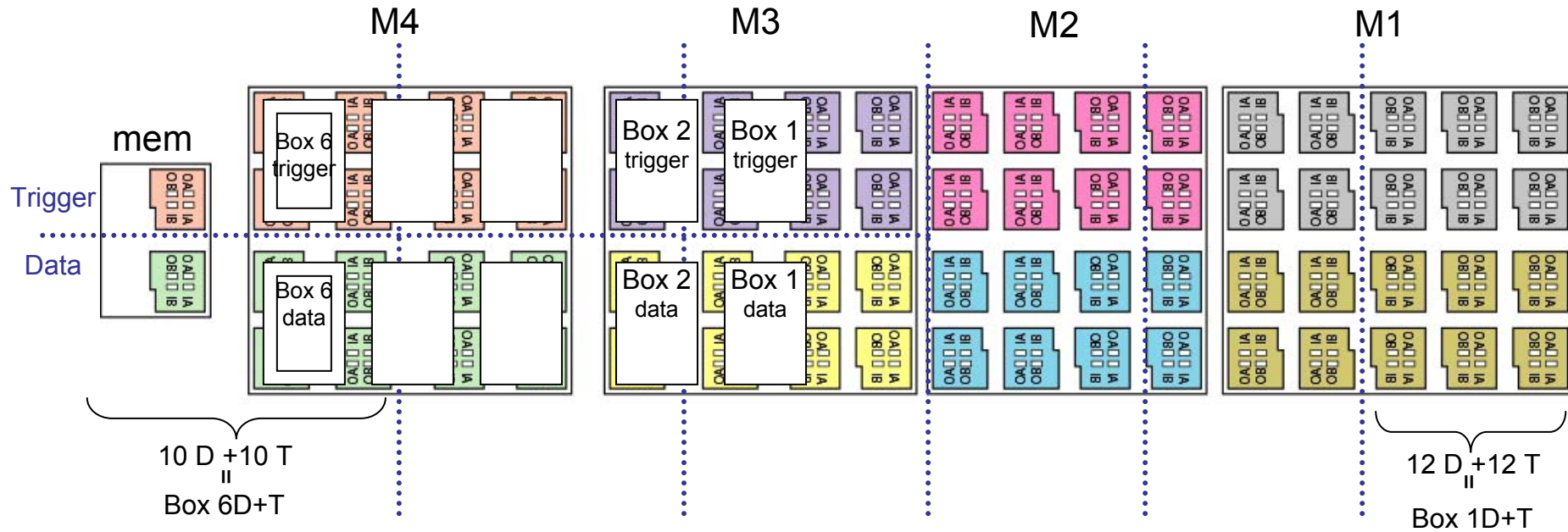


Installation in SM10:



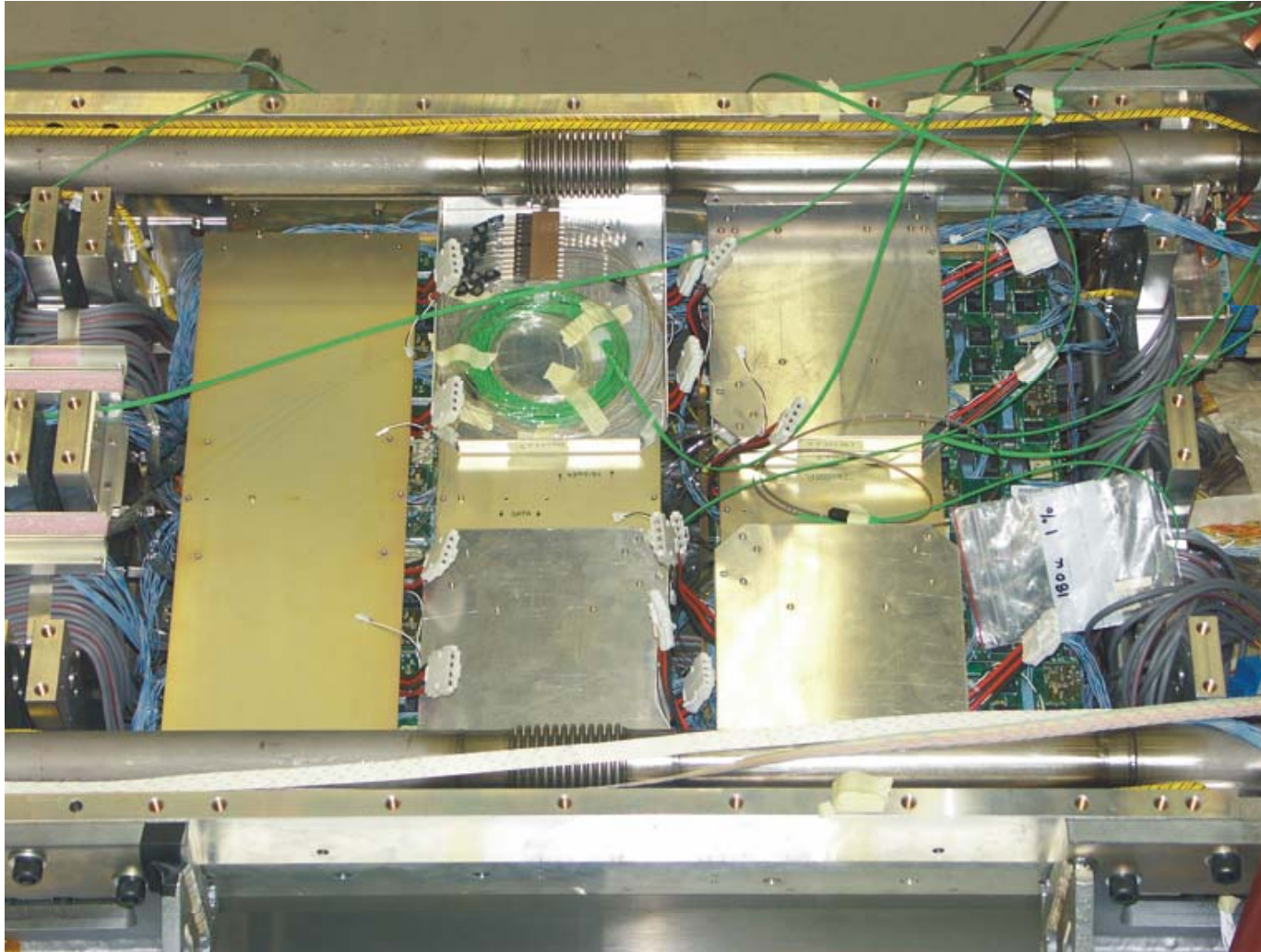


Distributed fiber patch panel





Distributed fiber patch panel





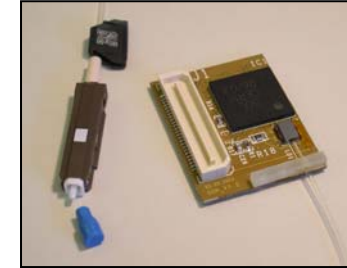
Distributed fiber patch panel



Steps to perform for GOH installation:

- 1- Unpack GOHs from boxes,
- 2- Label GOHs and connectors
- 3- Put GOHs on FE boards with pigtails tight
- 4- Scan each GOH barcode

Estimate time: 3-4 hours





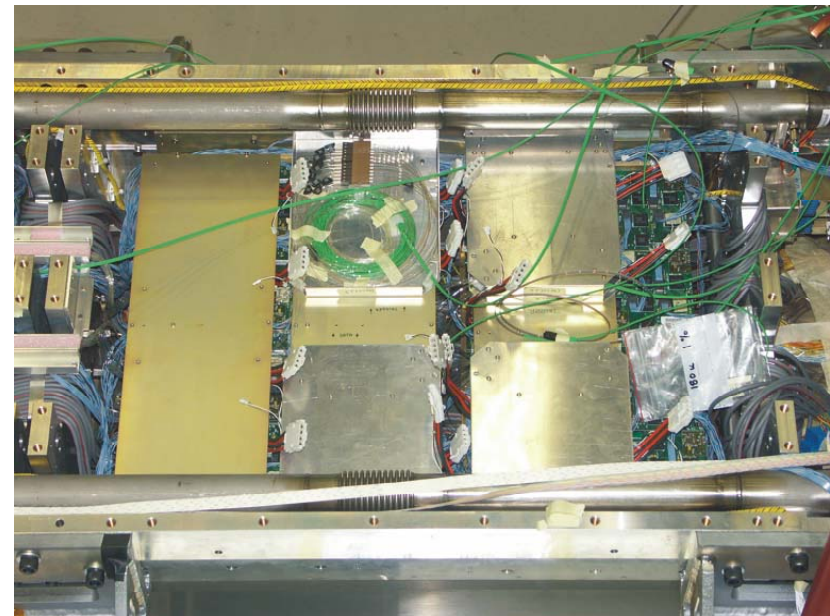
Distributed fiber patch panel



Steps to perform for p.p installation:

- 1- Screw the MU-MU connector provide with the 12-fibers fanout on the box
- 2- Enroll temporarily the fanout inside the box
All boxes could be prepared before SM installation.
- 3- Screw the box to the SM based plate
- 4- Enroll properly the fanout with good length by using clamps
→ *same length out of SM for all fanout.*
- 5- Label the fanout end connector with marker
- 6- Find the proper GOH pigtail to be connect on MU connector, and enroll the surplus of fiber inside box.
- 7- Clean the pigtail connector and connected it in order inside MU connector.
Be sure that bended radius is more than 3cm everywhere
- 8- Close the cover
- 9- Scan each fanout barcode: ***NOT yet implemented in db.***

*Estimate time for 1 full box: 15-20 min
(+ preparation: ~10 min/box)*





In-line fiber patch panel



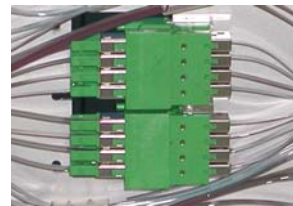
In-line fiber patch panel: 1 /SM 37 /EB

**6 Data +
6 Trigger +
8 Token Ring fanouts**

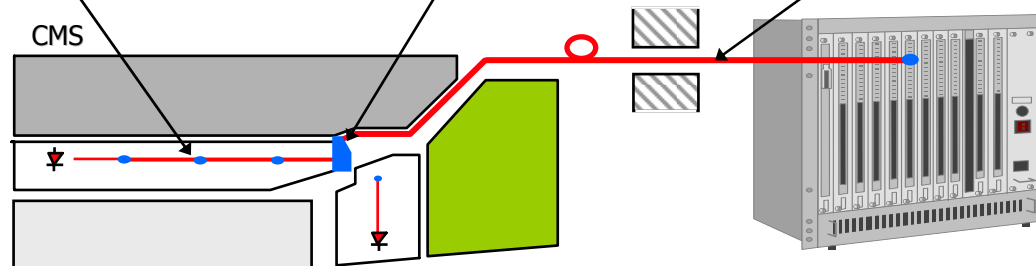


In-Line Patch Panel

3 MFS adapters (x 8 ribbons)



**3 multi-ribbon cables
(X 8 ribbons)**

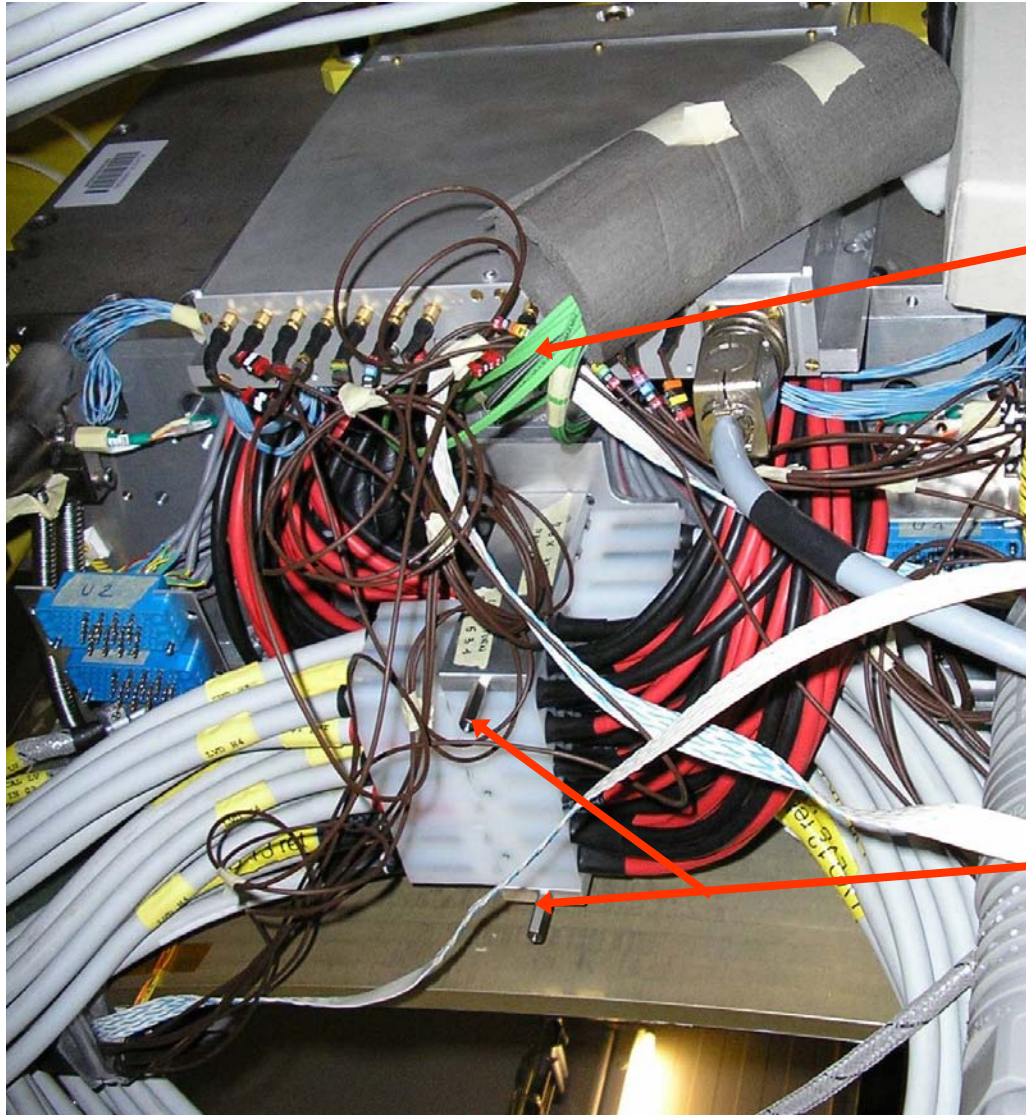




In-line fiber patch panel



SM10 view in H4 without p.p



Fibers from SM

Temporarily
Fixation

Final place
to be defined !



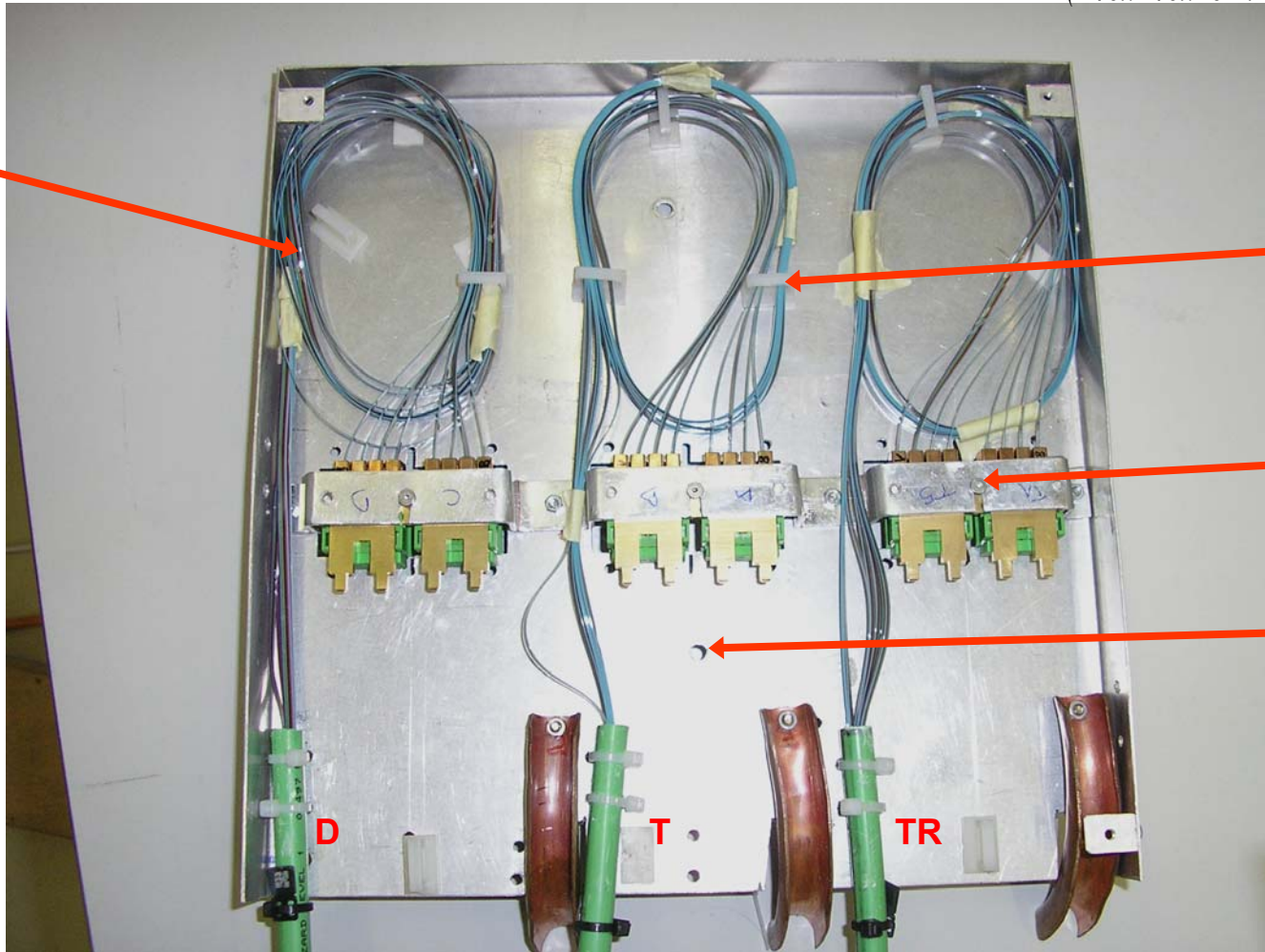
In-line fiber patch panel



Box prototype, with only multi-ribbon cables

(240x240x20 mm)

Nacked ribbon:
~60cm



Adhesive clips

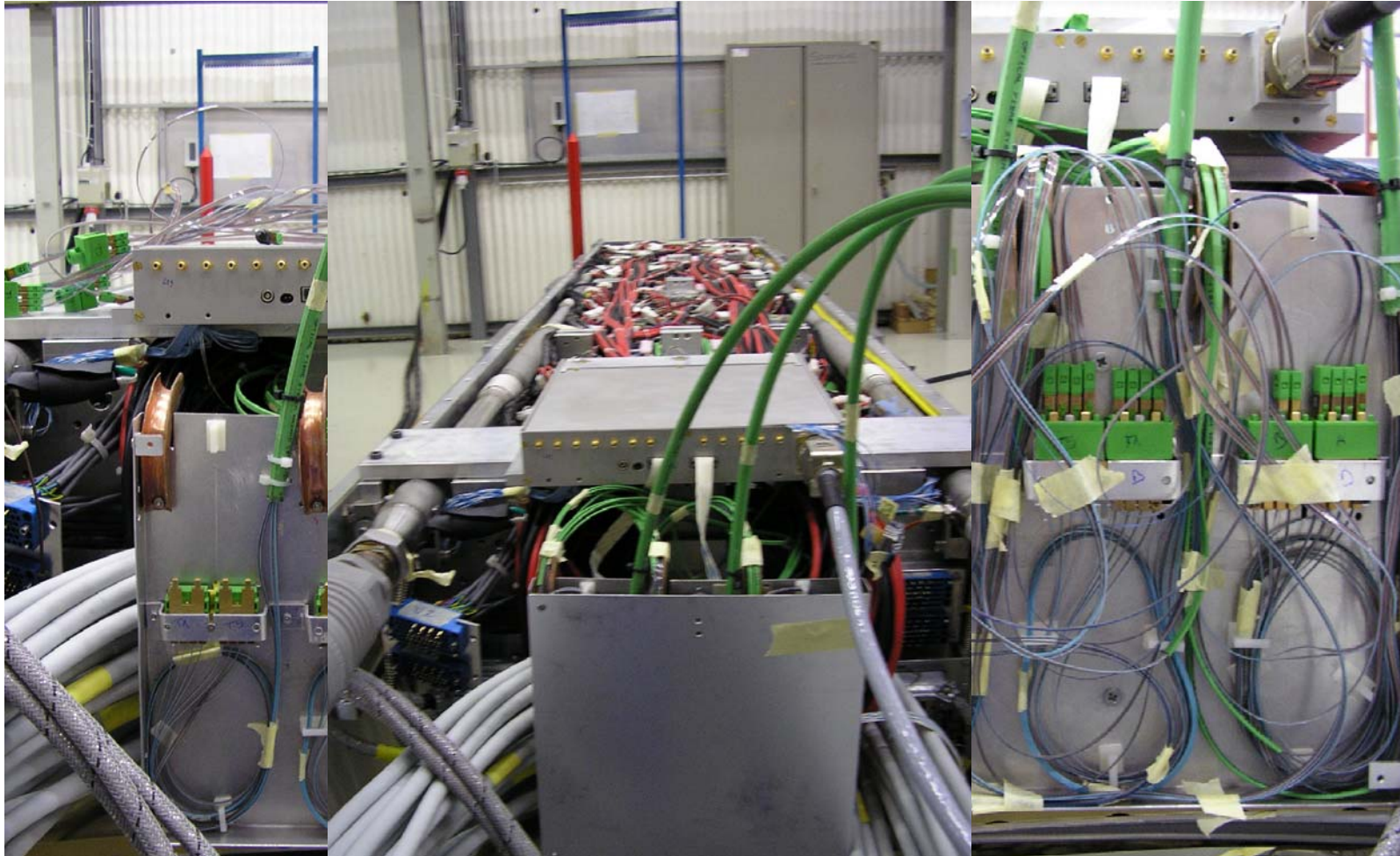
Screw

For fixation

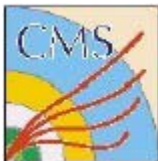
Multi-ribbon are provided with MFS connector



In-line fiber patch panel



Each Naked ribbon: ~80cm now
But should be 30cm in future



In-line fiber patch panel



Steps to perform for p.p. installation:

Cabling in 867:

3 SM will be installed in parallel → 3 boxes → 9 Multi-ribbon cables (*trigger, TR., Data*)

1- Install the 3 Multi-ribbon cables/box

- screw MFS adaptors on the box, attached the fibers
- label cables : D, T, TR

} *Done forever*

2- Fix p.p. box on SM

3- Clean fiber before connection

4- Connect fanouts from SM to corresponding MFS adaptors

- Ribbon n⁰¹ of MFS adaptor link to Data ↔ fanout n⁰¹ Data from SM.
(*ribbon on green cable are labeled on naked ribbon*)

} *~1h20 with prototype*

5 – Screw the cover on the box.



Cabling in H4:

1 box prepare with 3 Multi-ribbon cables

Cabling in CMS:

- 1) Prepare all patch panels with Multi-ribbon cables and then fix it to each SM
- or 2) Install boxes on SM with fanouts then cable Multi-ribbon.



Conclusion



All optical fibers for SM10 successfully installed
but need optimization for cabling/testing .

Actions to be done:

- barcodes: to be implemented in dB. for fanouts.
- Distributed p.p: Final design for production : Minnesota / integration group
Production : CERN
- In-line p.p: design to finalize:
 - exact location
 - what support/structure it will be mounted
 - not compete with TK supports - model of TK cables ?...Production: CERN
- Quality control: No broken fibers + well connected (MU side)
↓
 - Check after completed installation
 - Optical properties checking ?