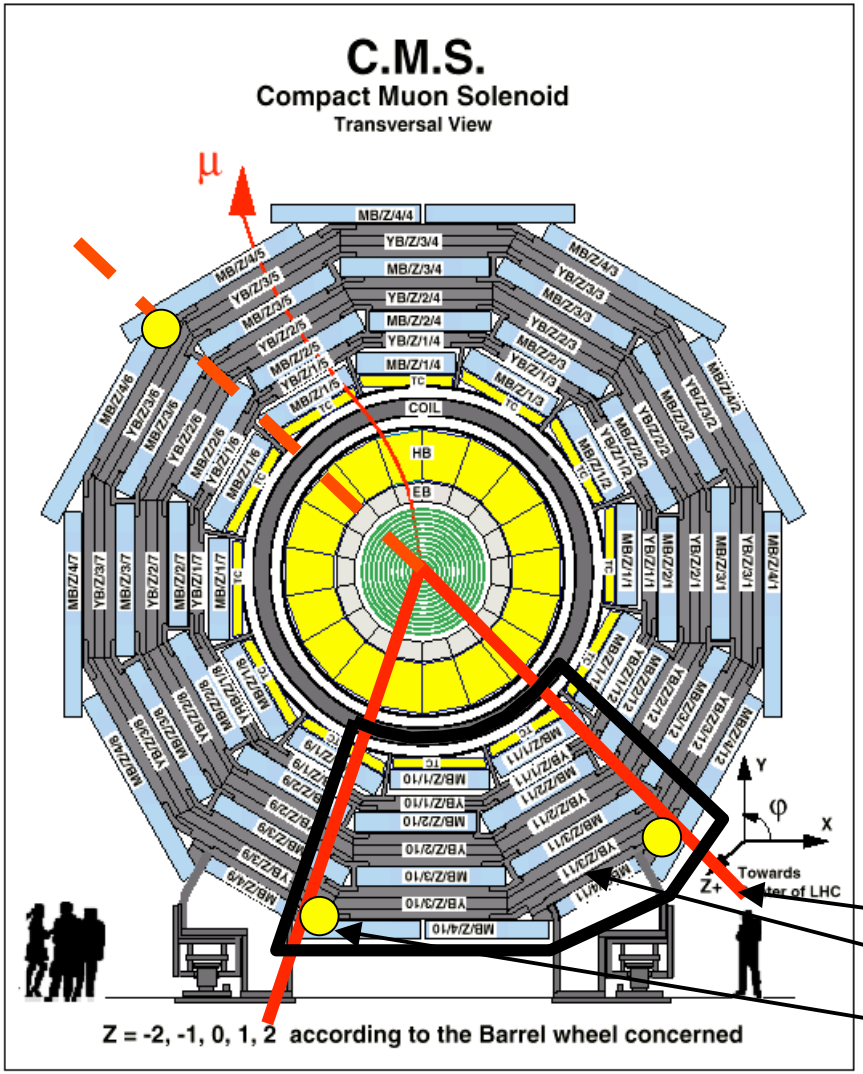
Preparation for the Magnet Test

Magnet Test Configuration



~1/3 of the system

Bottom lines (MB 10/11 sectors) fully instrumented

(see next transp.)

Extra line(s) in the upper part to close Endcap (1 or 2) +/-Z axial-SLM loops and cross-check and compatibility of link internal meas.

Link line

Barrel zone

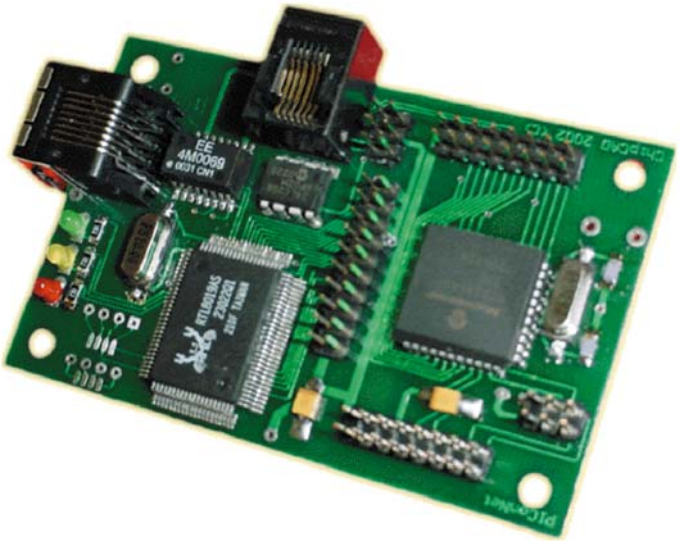
Endcap transfer line

Connection to DTs - 1

Substitute for the MiniCrate:

PIConNET = Processor with ethernet connection and I2C bus (~credit card size)

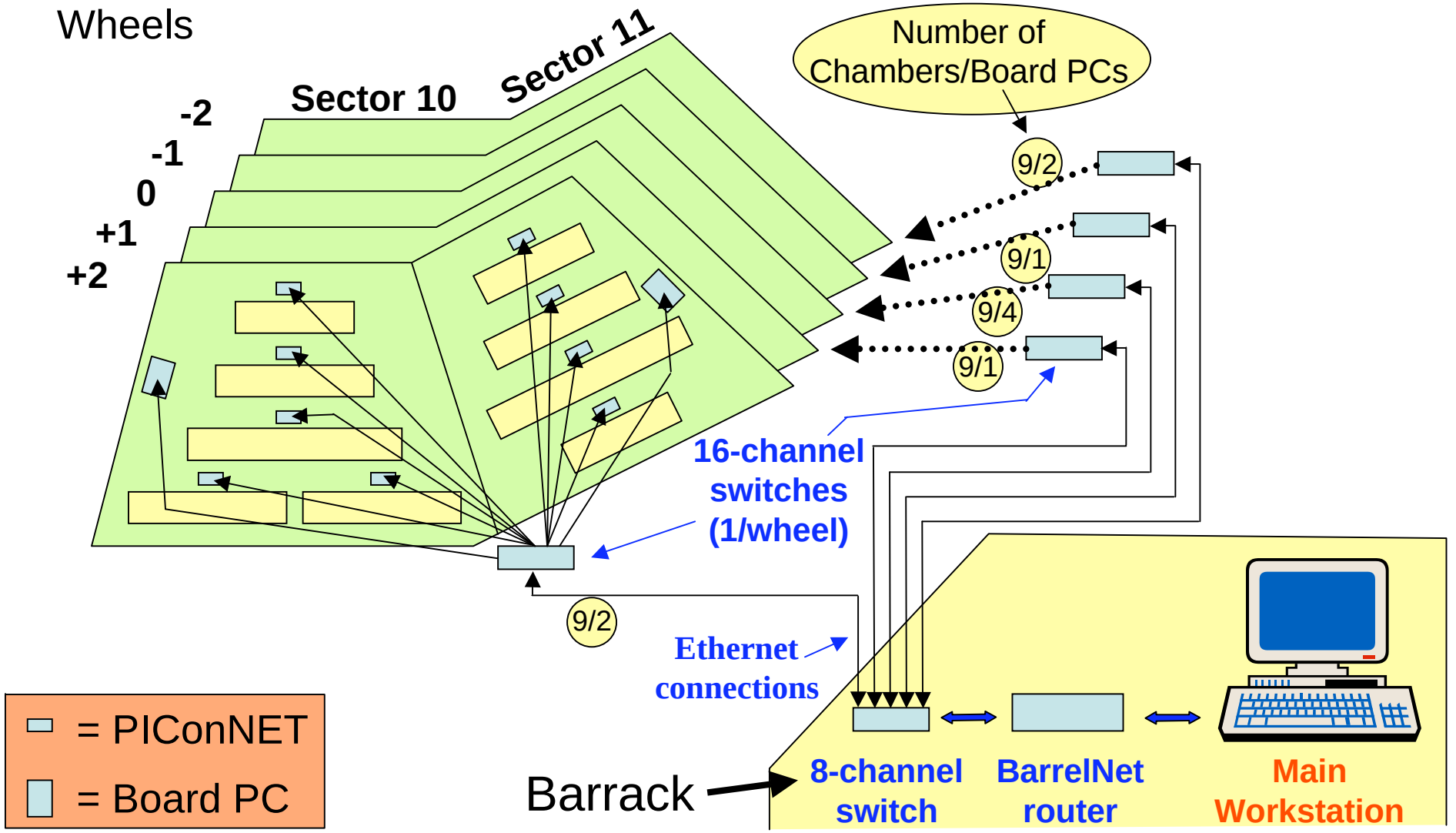
(Developed by Debrecen University + ChipCad, HU)



Will be installed (provisionally) on the all DTs for the MT at the PADC side → we are reading out the PADCs for those chambers that are running

Connection to DTs - 2

Muon Alignment



Chambers present

Agreed with Alberto:

Sectors 10 and 11 on wheels +/-1 and +/-2 complete
On YB0: no MB4 chamber at sector 11

Instrumented chambers: Wheel +2 sector 10 and 11
Wheel +1 sector 10 and 11

(Instrumented = fully cabled+operational.)

What Alignment group needs for the cosmic run:

Wheel +2 sectors 10 and 11, Wheel +1 sector 10.

Trigger needs:

Coincidence between
- W+2 S 10 and W+1 S 10
- W+2 S 10 and W+2 S 11
- Rate: next transpsrency

Cosmic Data: expected muon rates, run time

- We have estimated the muon rate* for measurements of the relative positions of:

  two stations in the same sector (10 or 11): ~300 muons/sec *

  adjacent sectors (10 and 11), same wheel: ~30 muons/sec

  same sector in adjacent wheels: ~60 muons/sec

- With the estimated losses, the average momentum of the mouns at the bottom sectors 10 /11 will be ~ 7 GeV.

- Multiple Scattering between two stations (e.g. MB1-MB2) ~ 10 mm per cosmic track.

- The run time required to align, at the level of 100´s mm, the above scenarios is ~ few minutes to 1-2 hours could be sufficient.

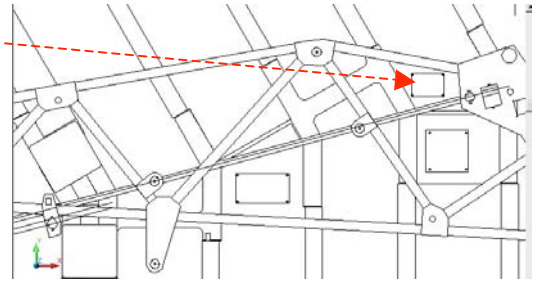
* Thanks to Volker Drollinger

* (MB1+MB2, Pt(m) >10 GeV, ~50% trigger efficiency

Cabling test, End of April '05

The Alignment group would like to participate…..

1) We install the link patch-panels on the iron YB+2 sectors 10 and 11 (inside the MAB volume)



2) Racks: to be verified if they will be there

3) We bring the cables

Cutting length: on the iron up to perifery: Enrique defines

From the perifery to the racks: Fabio/Mimmo gives

If we have it (in advance) we bring the cut and fully connected cables. If not, we bring long enough cables with connectors on the detector side. Routing: see separate slides

4) Endcap cables on the barrel: discussed this week.

5) Feet patch-panel between the racks (from the MABs for laser optical fibers) verify if this part is also tested. Details: separate slide.

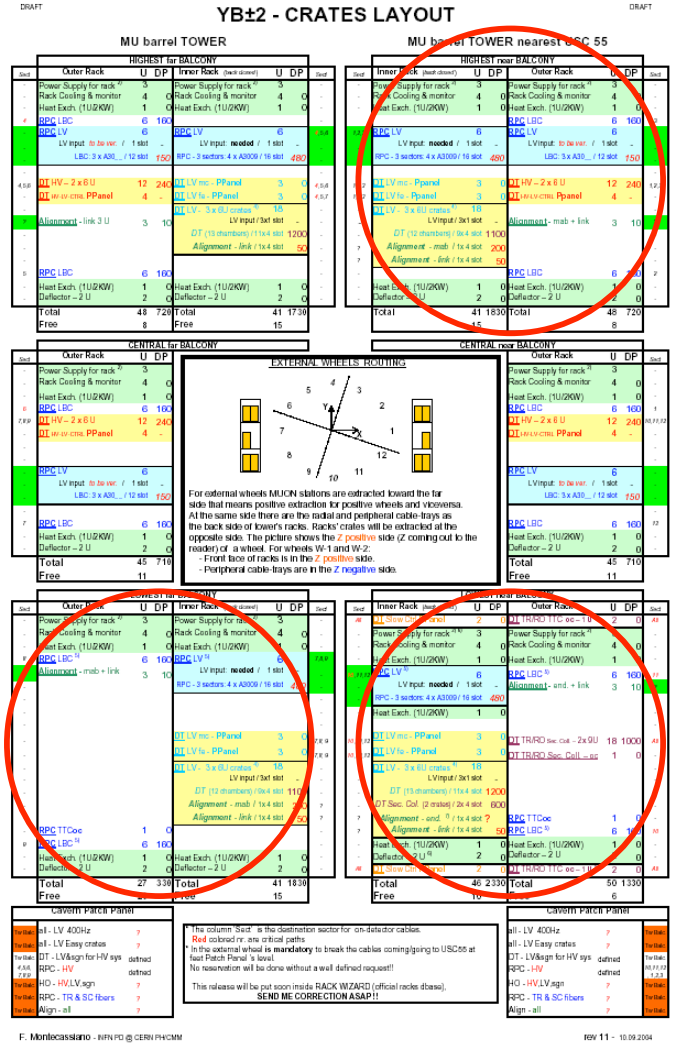
Racks for the cabling test

Racks needed in YB+2 for April sectors 10,11 test:

Highest near Balcony:
- outer rack 1x3U crate for Barrel
- inner rack 1x4slots for LV Barrel

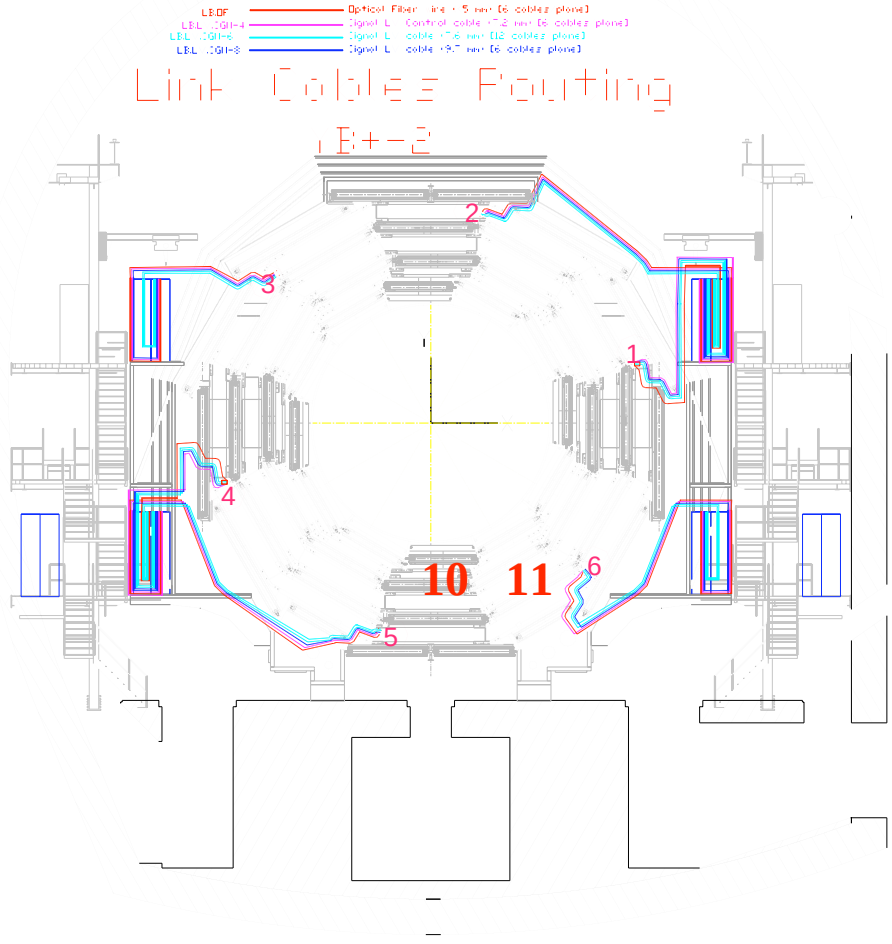
Lowest far Balcony:
- outer rack 1x3U crate for Barrel+Link
- inner rack 2x4slots for LV Barrel & Link

Lowest near Balcony:
- outer rack 1x3U crate for Link+Endcap
- inner rack 2x4slots for LV Link & Endcap



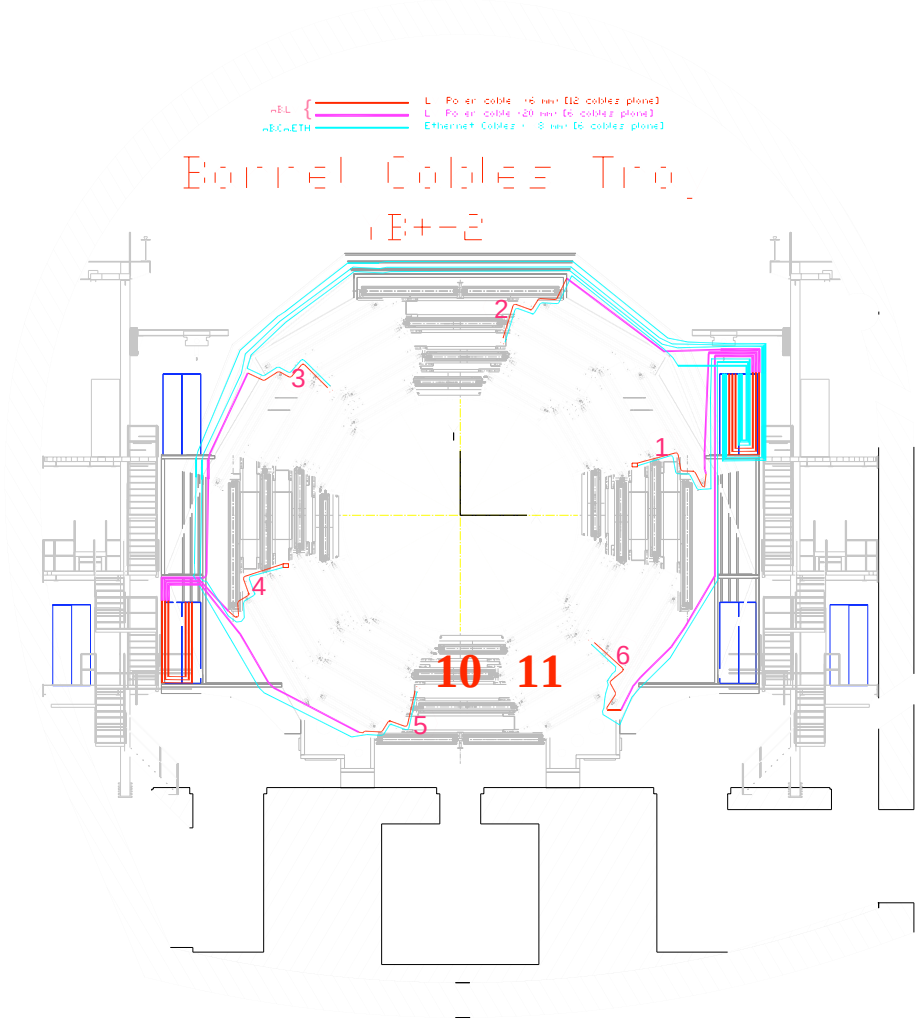
Link cables for cabling test

Muon Alignment



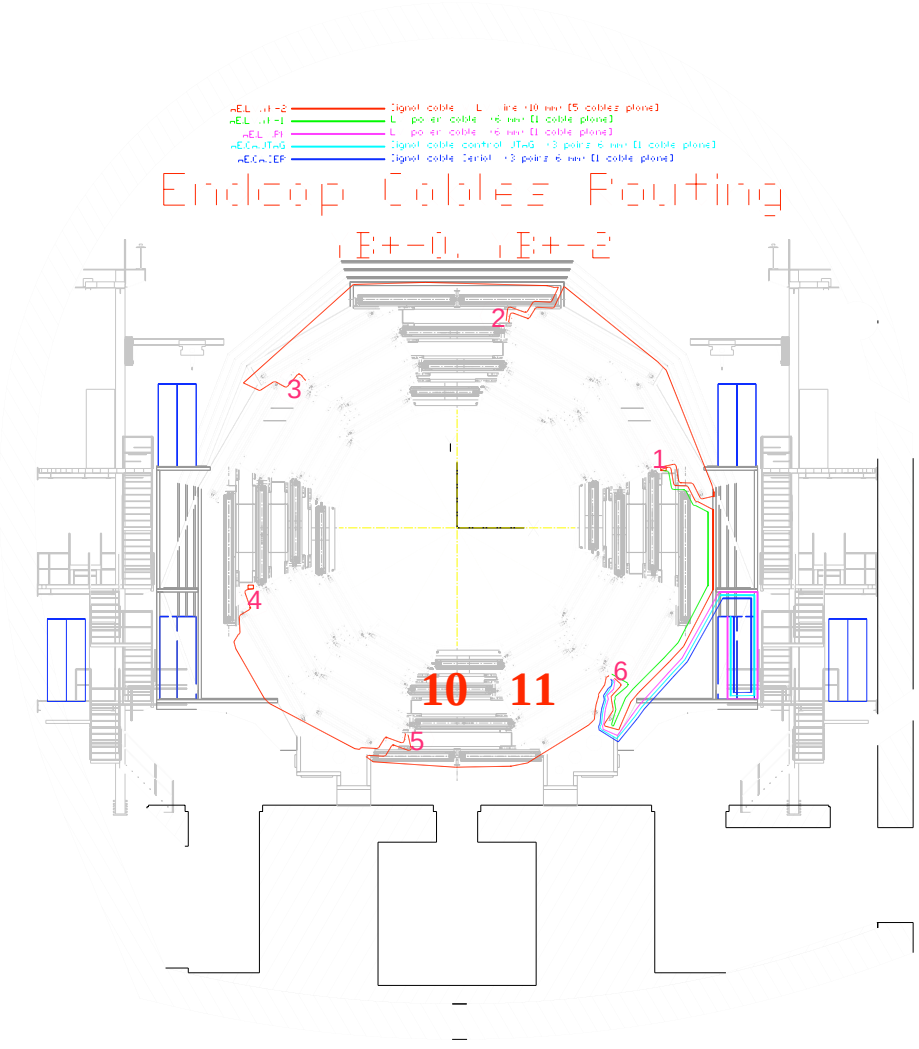
Barrel cables for cabling test

Muon Alignment



Endcap cables for cabling test

Muon Alignment



Feet Patch-panel needs

- Feet Patch panel required space:
(Assumed dimension: one box of 50x50 mm2 for each connection)

Connections for the patch panel on YB0:
1 Can Bus (for the Alignment Link System)
12 optical fibers (for the Alignment Link System)
8 optical cables (for the Alignment Endcap System)
1 optical Ethernet cable (for the Alignment Barrel System)
⇒ these can require about one rectangle of 400x100 mm2 +Endcap.

Connections for the patch panel on YB1s:
1 optical Ethernet cable (for the Alignment Barrel System)
⇒ these can require about one rectangle of 50x50 mm2.

Connections for the patch panel on YB2s:
1 Can Bus (for the Alignment Link System)
6 optical fibers (for the Alignment Link System)
4 optical cables (for the Alignment Endcap System)
1 optical Ethernet cable (for the Alignment Barrel System)
⇒ these can require about one rectangle of 50x450 mm2+ Endcap.

Cabling schedule

What we know:

Wheel +2: July ’05.
Wheel +1: September ’05.
Rest: ?
Assumed: all racks in place.

Our tasks:

- We install link patch-panels wheel by wheel when it is scheduled.
- We install Endcap boxes wheel by wheel when it is scheduled (crosscheck with Endcap people).
- We bring the cables

Cutting length:

On the iron up to perifery: We (Enrique) define
From the perifery to the racks: Fabio/Mimmo give for all the wheels/sectors.

- Cables between racks: to be discussed
- Feet patch-panels: to be discussed

MAB installation schedule

YB+2: in August, after the complete(d) chamber and cabling installation. As there is no space for photogrammetry at this period we do it later when possible (e.g. closure of the barrel).

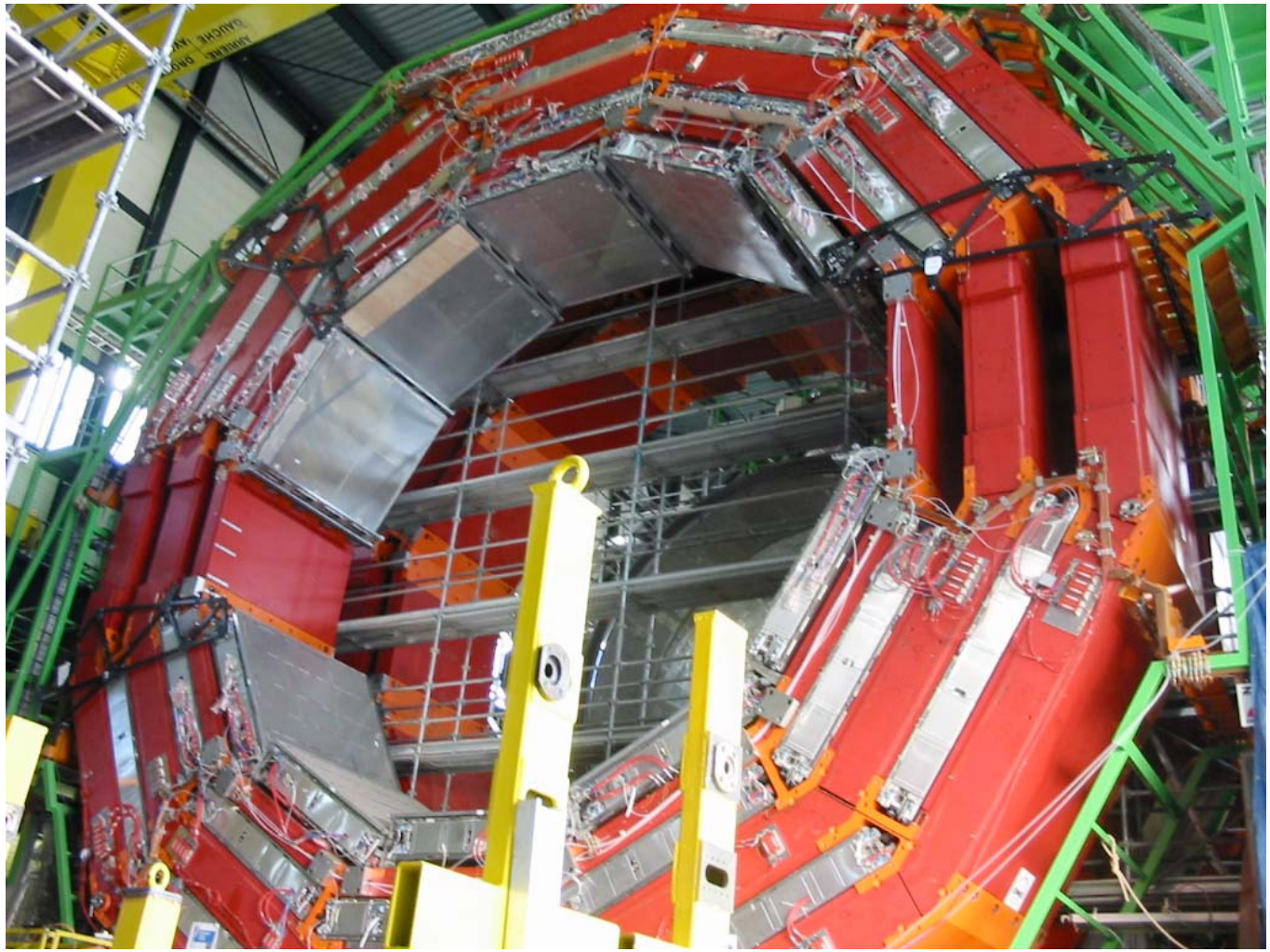
YB+1: in May we put the MAB (not yet instrumented) and do photogrammetry. (Perhaps MB4 will be missing.) Late September after the complete(d) chamber and cabling installation of the instrumented MAB.

YB0 +Z side: can be done after YB+1 (installation of two un-instrumented MABs for photogrammetry)
The instrumented MAB is installed when ready.

YB0 -Z side, YB-1, YB-2: access from end of September. This is the time for installation, photogrammetry.

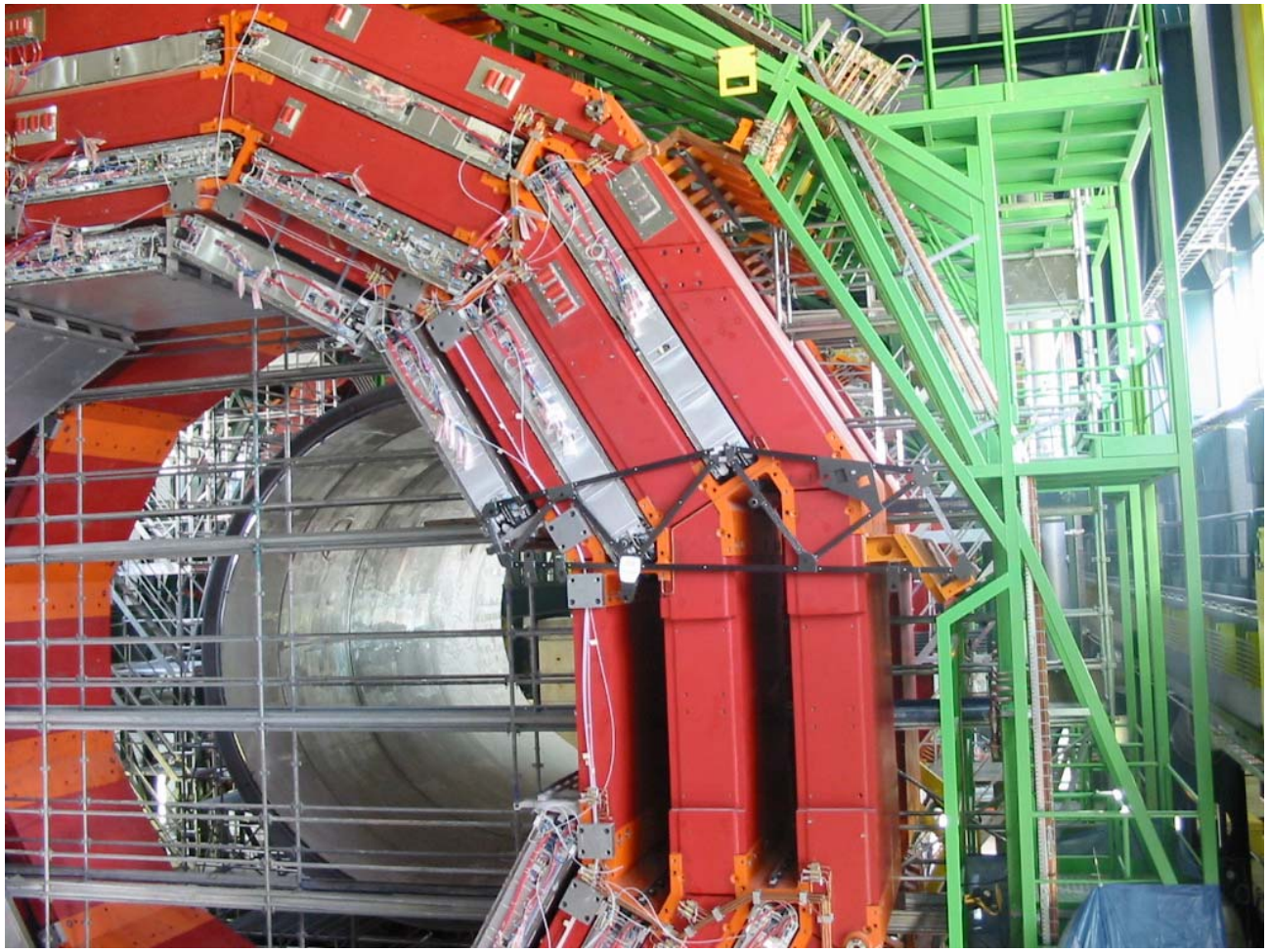
MAB installation test 10-14 March

Muon Alignment



MAB installation test 10-14 March

Muon Alignment

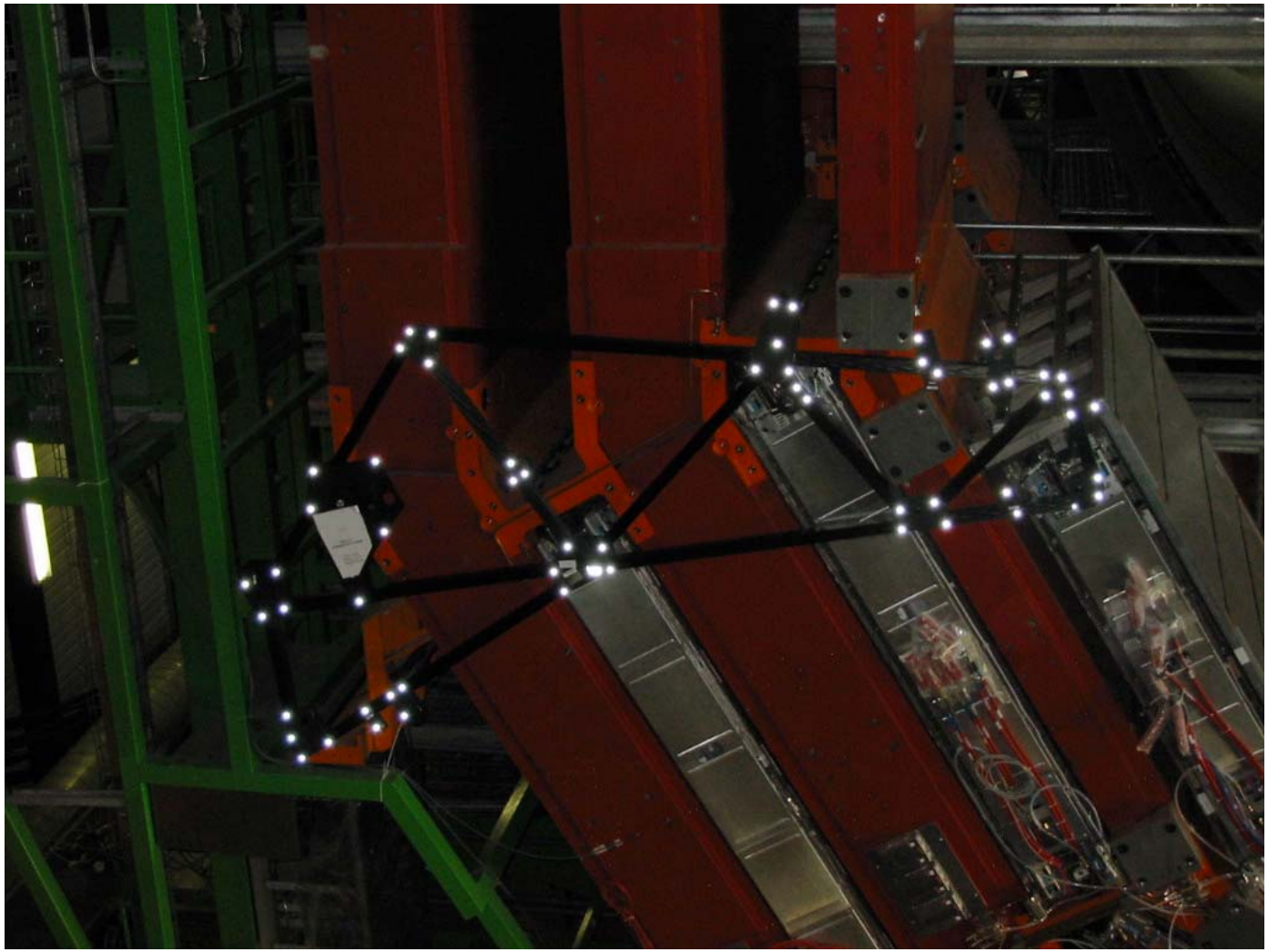


Straight MAB

MAB installation test 10-14 March

"Croissant" MAB

Photogrammetry targets



Low voltage

For the alignment hardware it is technically possible to bring a stand-alone system, NOT Magnet resistant!!!!!

If no common solution is seen by end of May we have to start to develop this version:
- Define the location of the power supplies (no field zone)
- Define the length and diameter of the provisional cables they cannot be the final ones)
- Estimate the extra cost and the source of the money.

We understand that for the DT-s needed for the cosmic test there is no possibility to implement a stand-alone system.

If a common solution is provided for the DT-s then we would be part of this solution.

MT data-taking period

1) Hardware and cosmic measurements B=0 measurements at the beginning (~2 days).

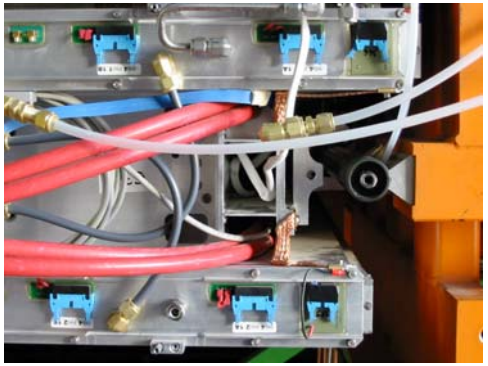
2) Hardware measurements at different fields (parasitically) with online access to the B-field measurements and/or the magnet current.

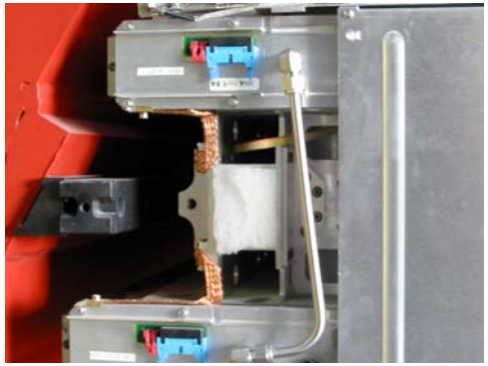
3) Hardware and cosmic measurements B=4T (>4 days).

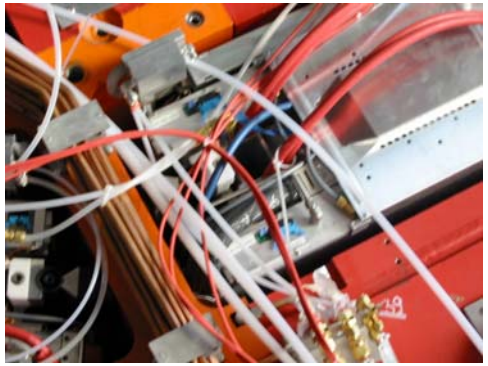
1) Hardware and cosmic measurements at B=0 field at the end (~ 2 days).

Something else: DT-passage visibility ...

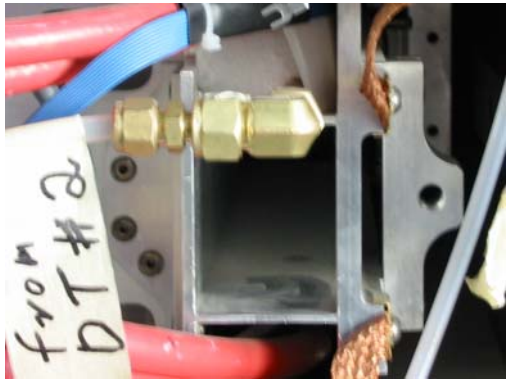
Warnings from Hans (cables, etc)







and Alberto (dust)



We have to live with dust at this level (the alignment should still work) but the cables, etc would kill the system.