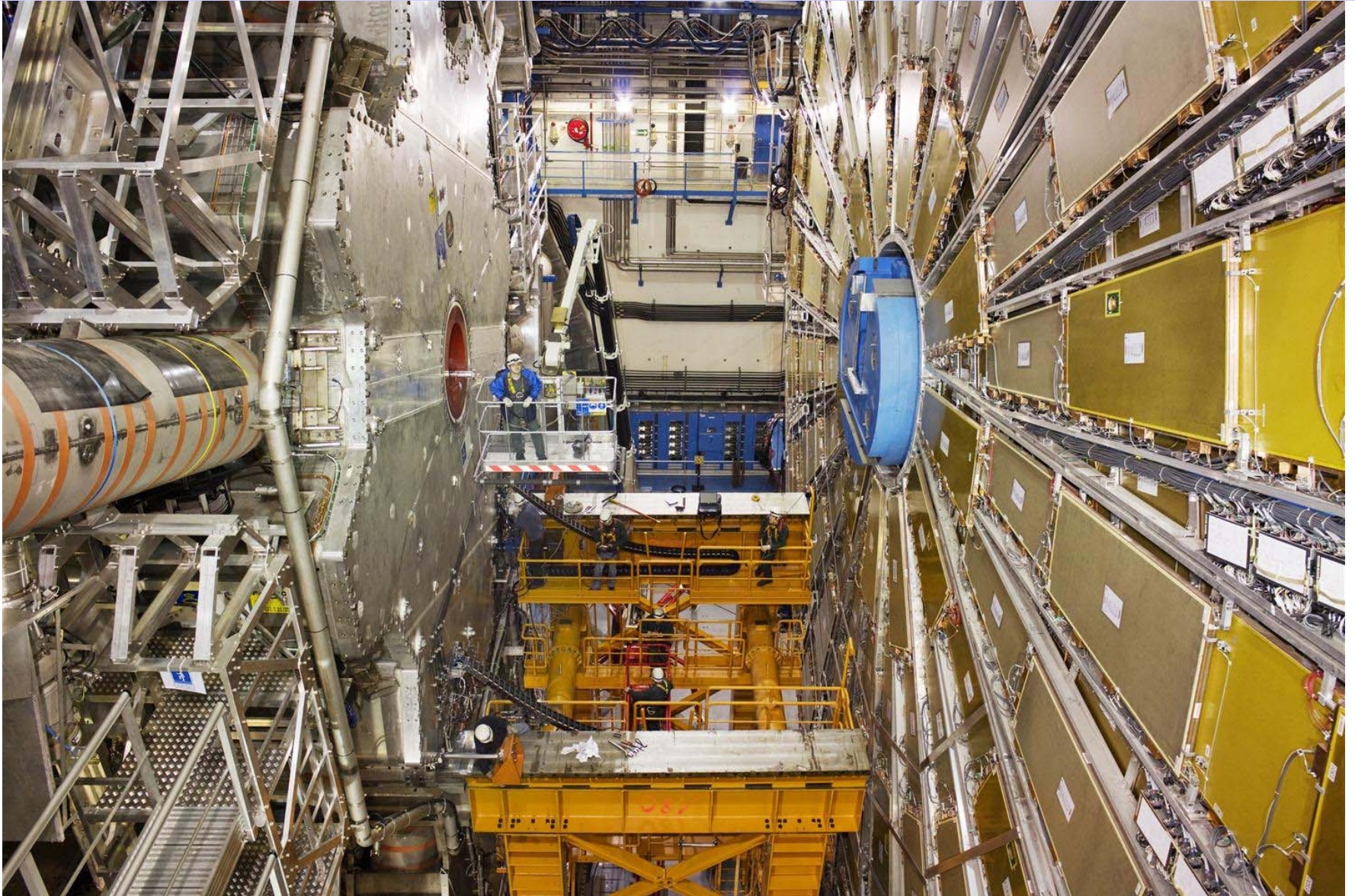# Status ATLAS MDT and Muon System

Hubert Kroha, Status ATLAS MDT
26.5.2008
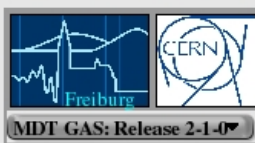
Muon Detector Commissioning

Jörg Dubbert:

MDT Coordinator

MDT gas system coordinator

Running

Not running

MDT GAS SYSTEM
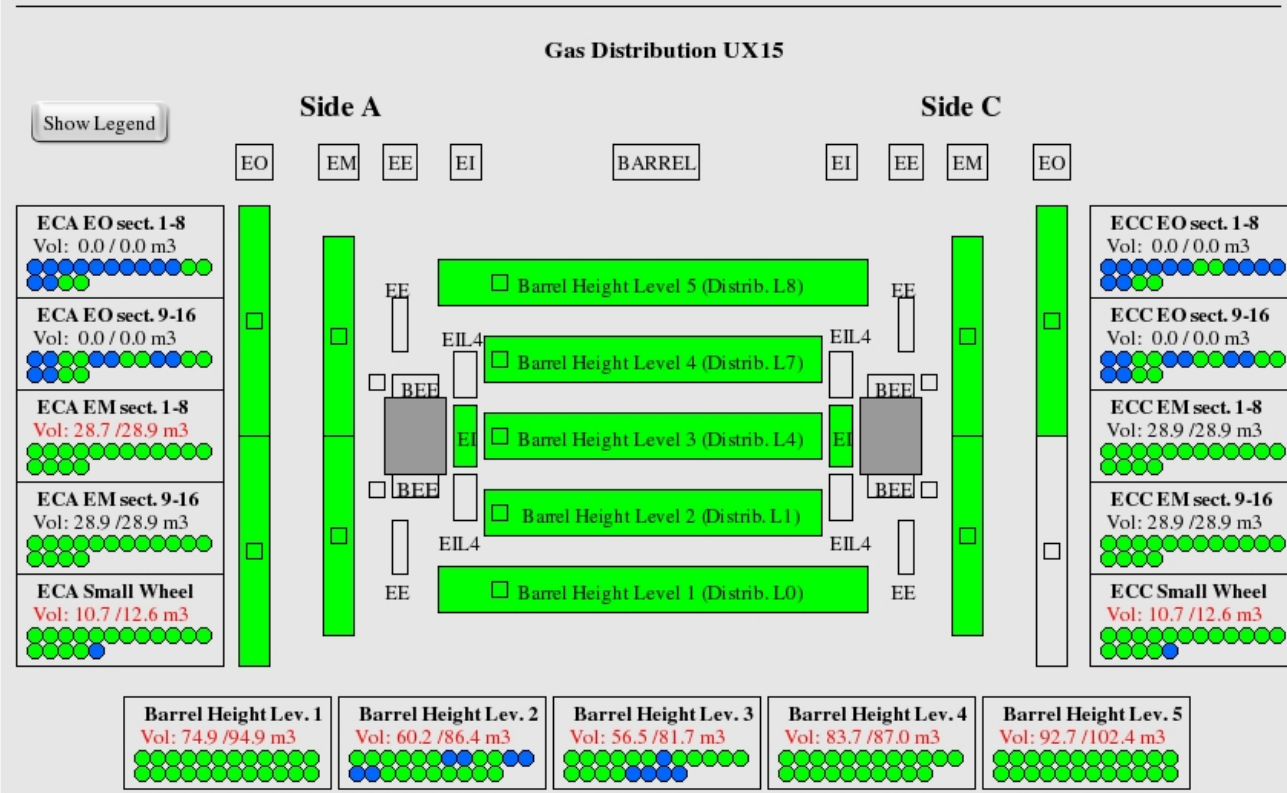
MDT GAS: Release 2-1-0

Surface Gas Building SG

Project Details

Alert Settings

Mixer Module

RUNNING   OK

Fresh Flow: 10186.6 Nl/h
Ar: 93.00 %
CO_2:   7.00 %
H_2O: 0 ppm

Pump Module

RUNNING   OK

Exhaust Module

RUNNING   OK

Exhaust Flow: 6981.8 Nl/h
Circ. Flow: 0.0 Nl/h

Analysis Module

Not yet available

Gas Mon Chamber

Not yet available

Gas Distribution UX15

Show Legend

Side A   **Side C**

EO   EM   EE   EI   BARREL   EI   EE   EM   EO

ECA EO sect. 1-8
Vol: 0.0 / 0.0 m3

ECA EO sect. 9-16
Vol: 0.0 / 0.0 m3

ECA EM sect. 1-8
Vol: 28.7 / 28.9 m3

ECA EM sect. 9-16
Vol: 28.9 / 28.9 m3

ECA Small Wheel
Vol: 10.7 / 12.6 m3

ECC EO sect. 1-8
Vol: 0.0 / 0.0 m3

ECC EO sect. 9-16
Vol: 0.0 / 0.0 m3

ECC EM sect. 1-8
Vol: 28.9 / 28.9 m3

ECC EM sect. 9-16
Vol: 28.9 / 28.9 m3

ECC Small Wheel
Vol: 10.7 / 12.6 m3

EE   EIL4   BEE   EI   BEE   EIL4   EE

Barrel Height Level 5 (Distrib. L8)
Barrel Height Level 4 (Distrib. L7)
Barrel Height Level 3 (Distrib. L4)
Barrel Height Level 2 (Distrib. L1)
Barrel Height Level 1 (Distrib. L0)

EE   EIL4   BEE   EI   BEE   EIL4   EE

Barrel Height Lev. 1
Vol: 74.9 / 94.9 m3

Barrel Height Lev. 2
Vol: 60.2 / 86.4 m3

Barrel Height Lev. 3
Vol: 56.5 / 81.7 m3

Barrel Height Lev. 4
Vol: 83.7 / 87.0 m3

Barrel Height Lev. 5
Vol: 92.7 / 102.4 m3

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MDT HV connections
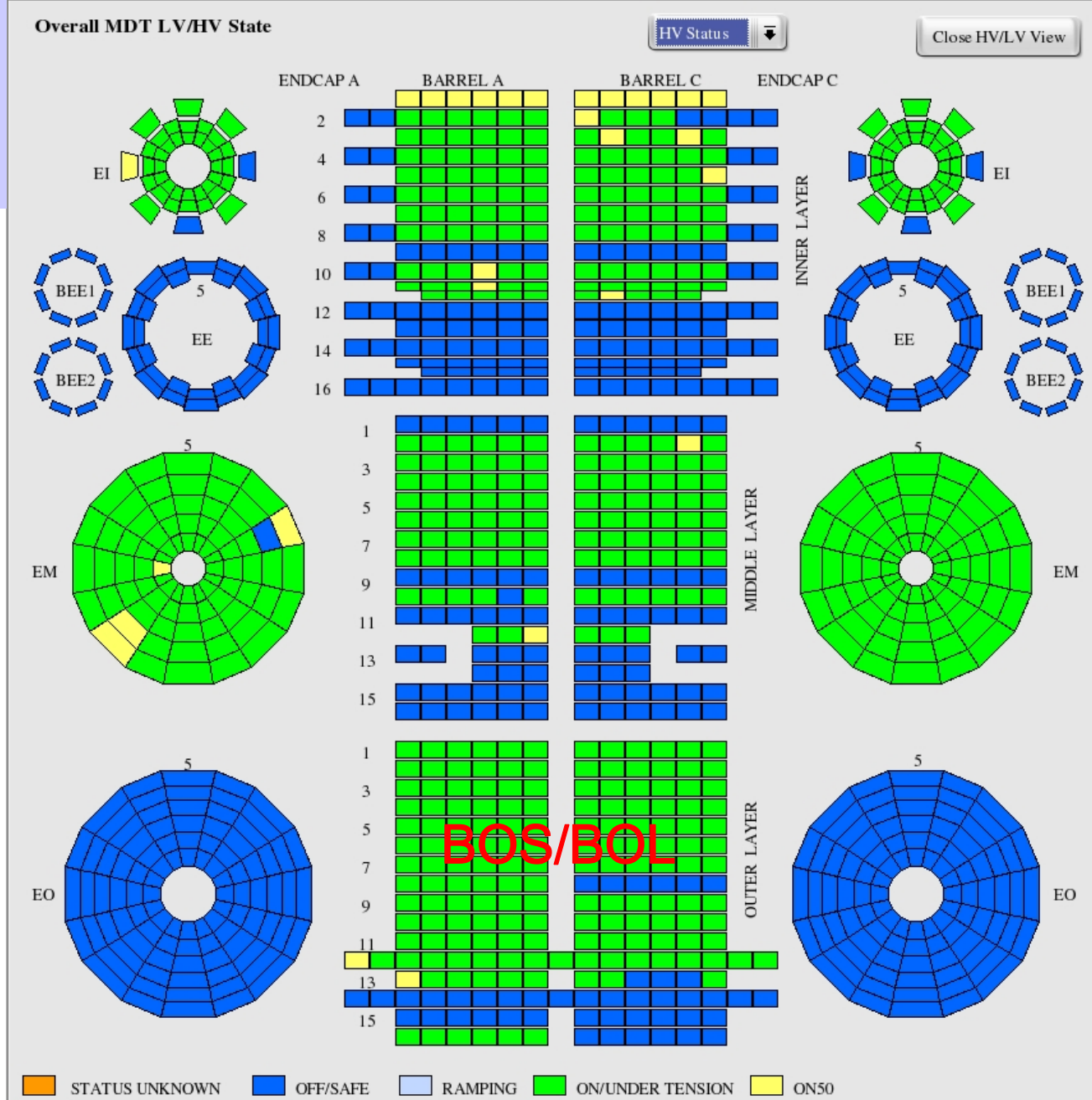
Hubert Kroha, Status ATLAS MDT
26.5.2008

MDT LV connections

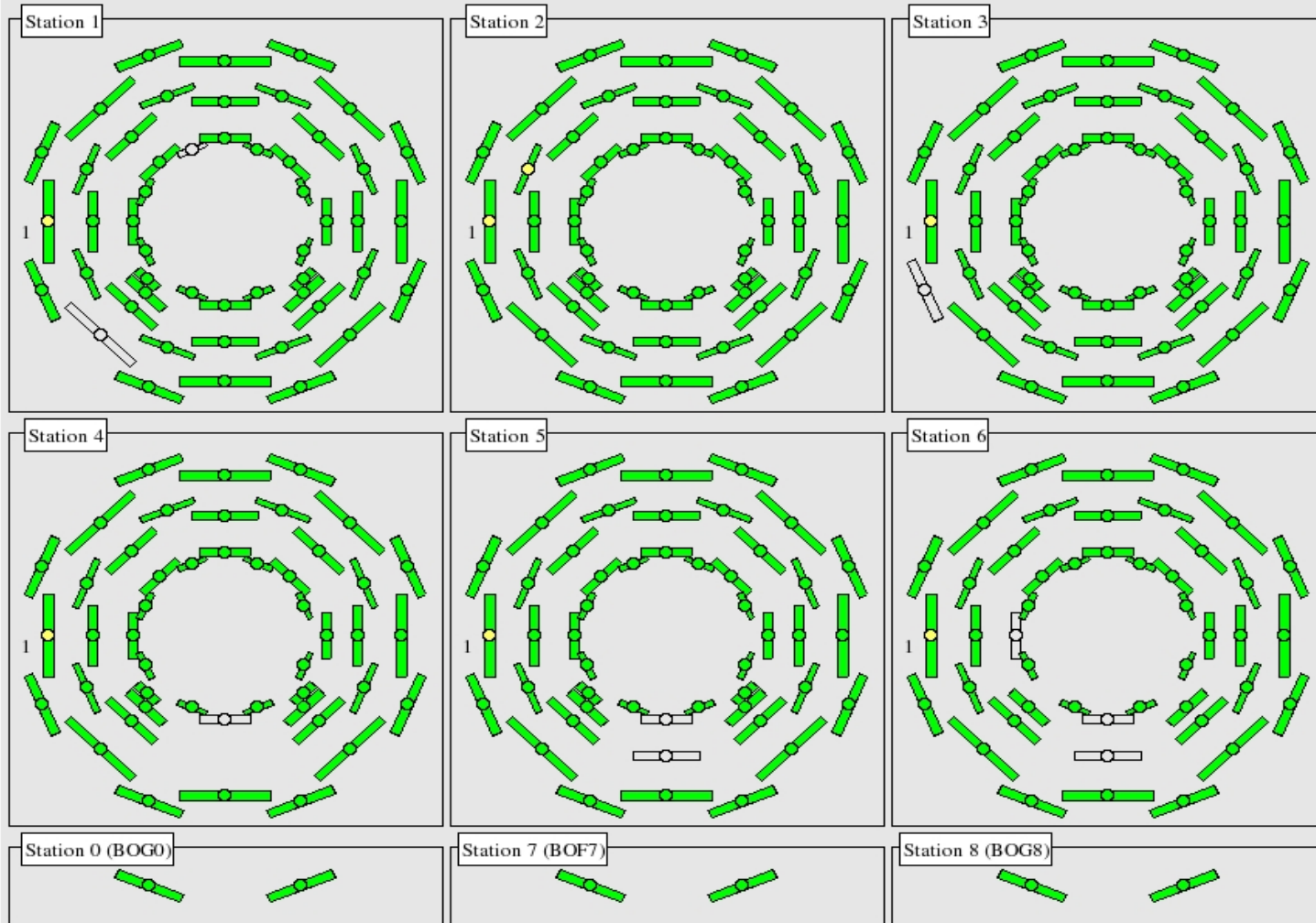**Overall MDT LV/HV State**

LV Status

Close HV/LV View

ENDCAP A BARREL A BARREL C ENDCAP C

INNER LAYER

EI

BEE1

BEE2

EE

2 4 6 8 10 12 14 16

MIDDLE LAYER

EM

1 3 5 7 9 11 13 15

OUTER LAYER

EO

BOS/BOL

1 3 5 7 9 11 13 15

STATUS UNKNOWN   OFF/SAFE   RAMPING   ON/UNDER TENSION
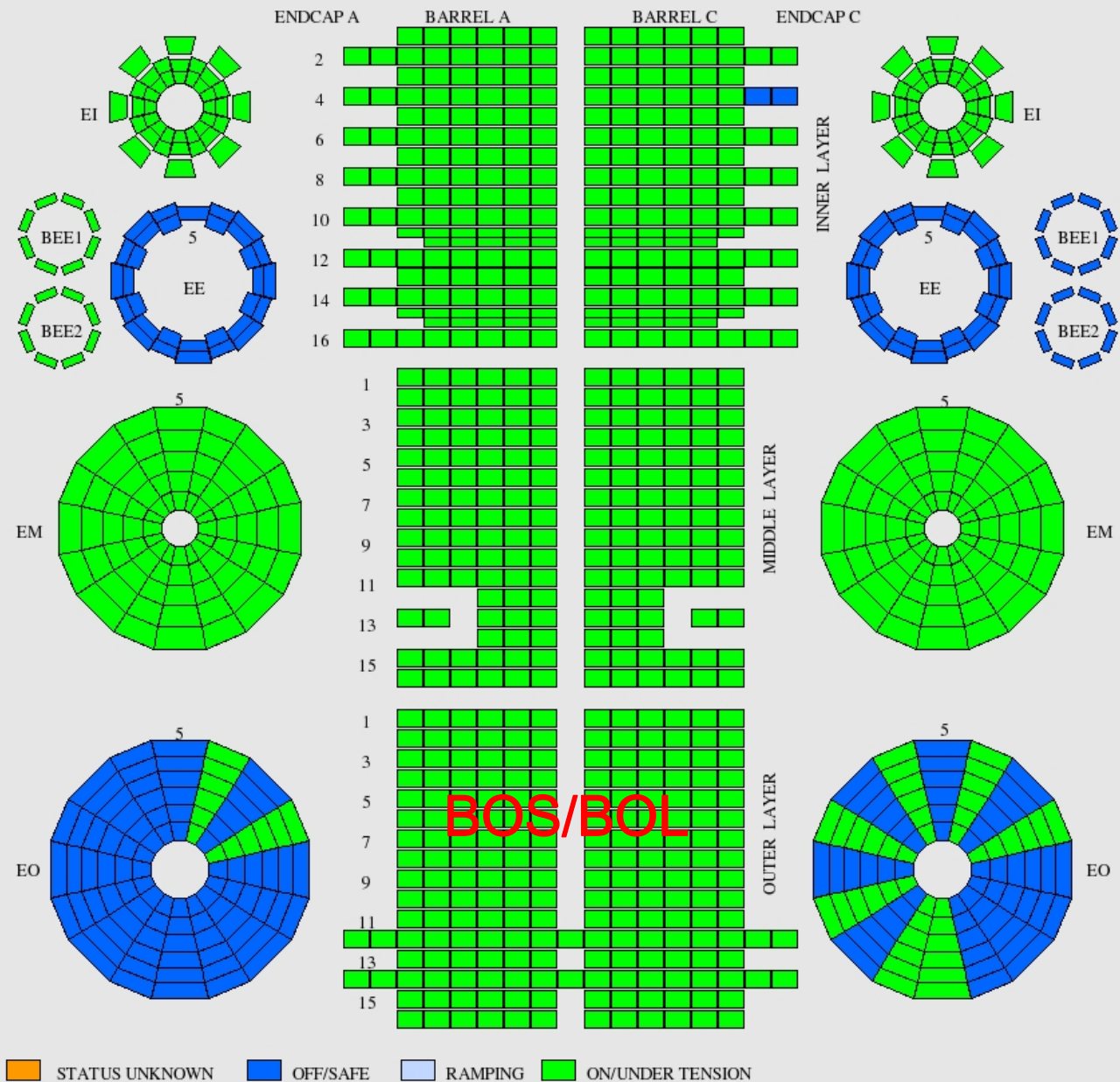
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MDT Readout Barrel A

MDT Readout Barrel C

Partition MDT BC -- JTAG Initialization Status
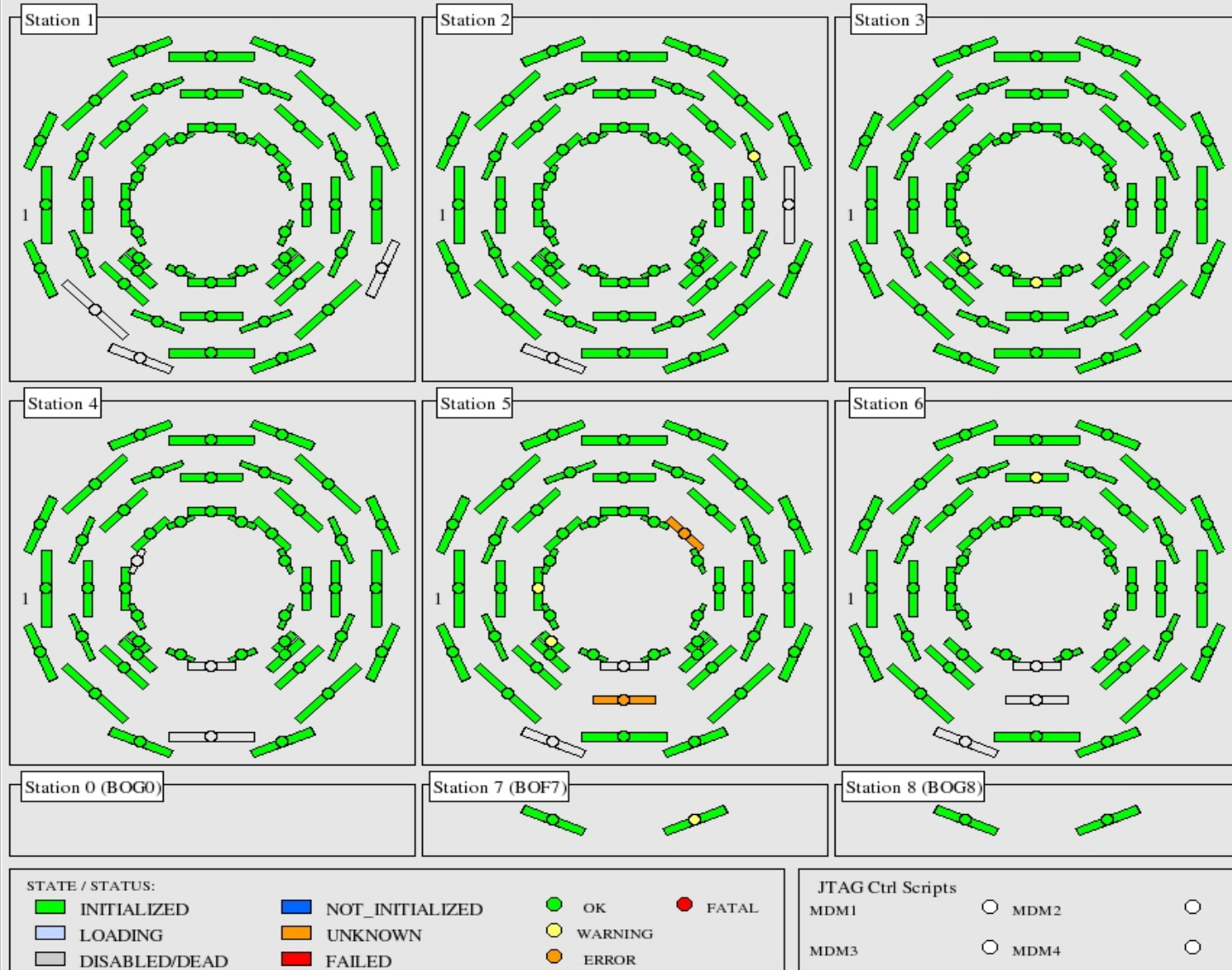
Hubert Kroha, Status ATLAS MDT
26.5.2008

MDT Temperature Sensors: T Map
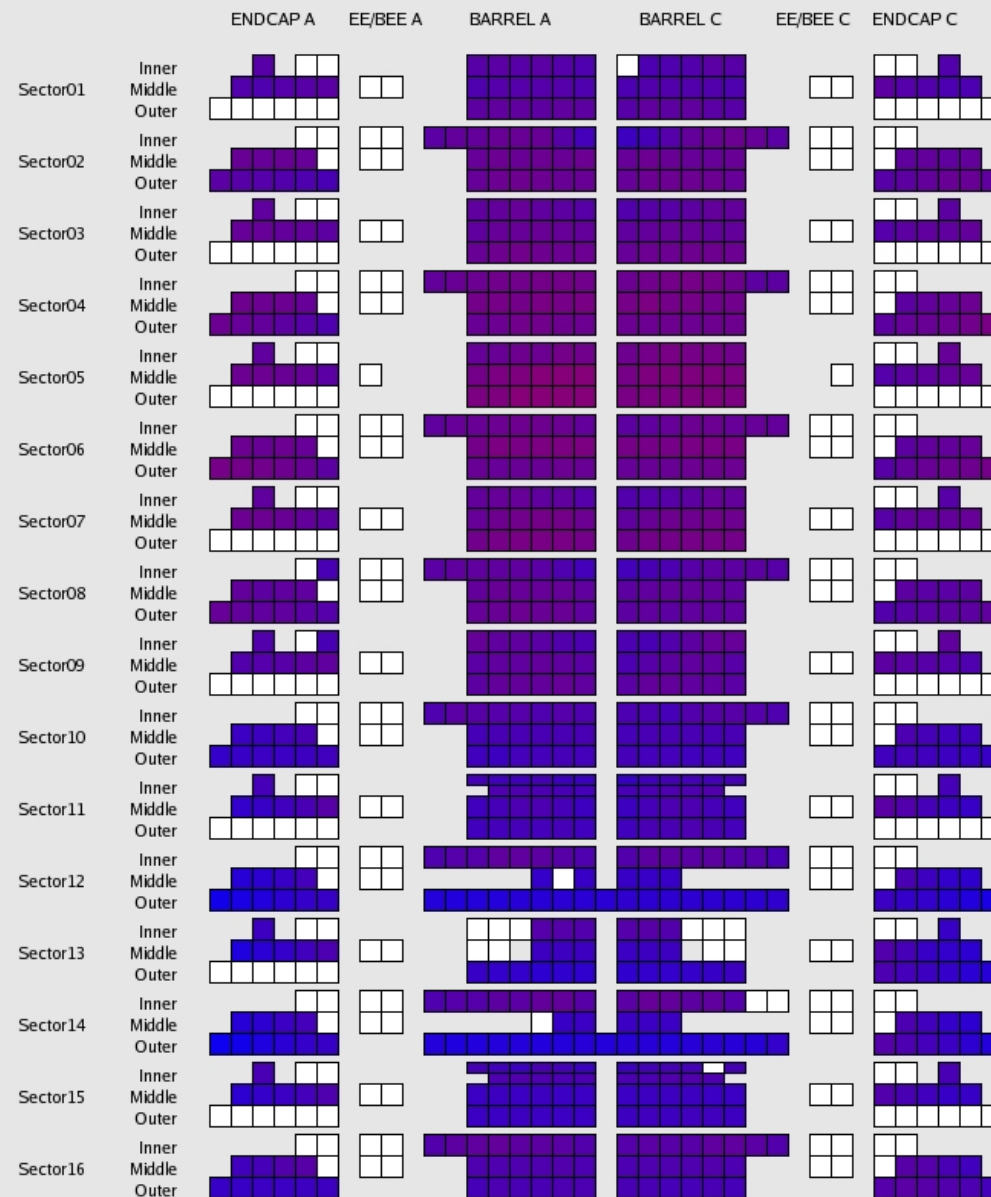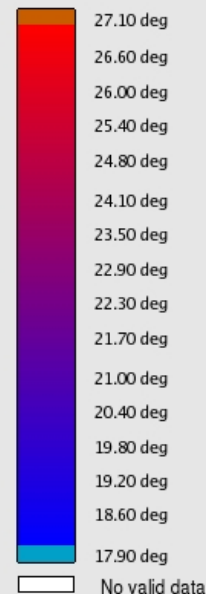

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26.5.2008

MDT Calibration and Alignment

❑ Calibration&Alignment Center Garching:

Need 220 [50] + 220 [50] CPUs + 40 [20] TB storage for full muon rate of 2 kHz [for initial rate of about ¼ in the first year].

Need GRID Storage Element at RZG.

❑ FDR 2 next week with Tier-2 installation at LRZ (LMU).

❑ Alignment with muon tracks:

Small barrel towers (overlap regions with large towers),

New algorithm for full alignment with curved tracks.

Calibration of optical alignment system with straight tracks from initila field-off run. Tested with cosmics data.

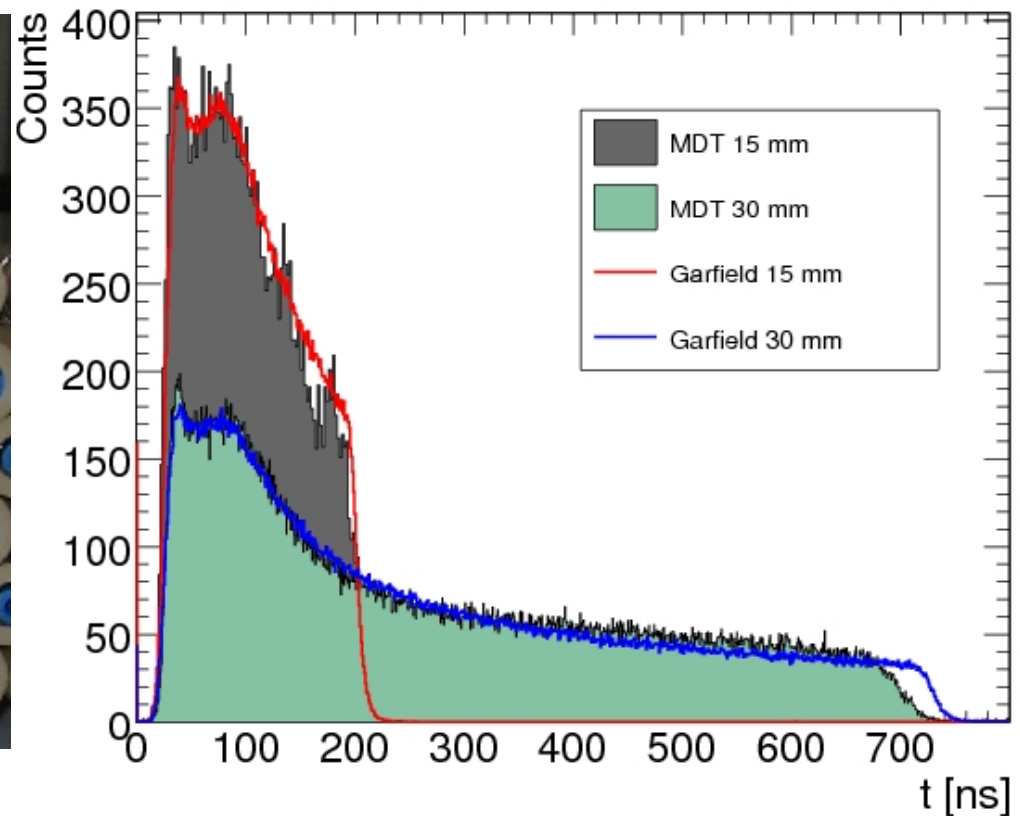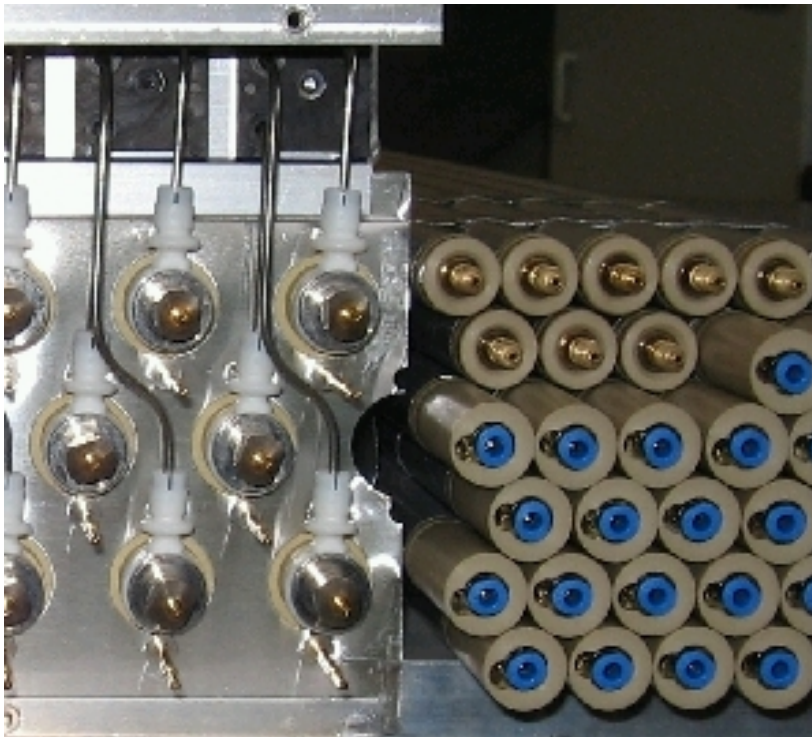Agreement with mechanical and optical measurements.

Alignment with straight tracks:
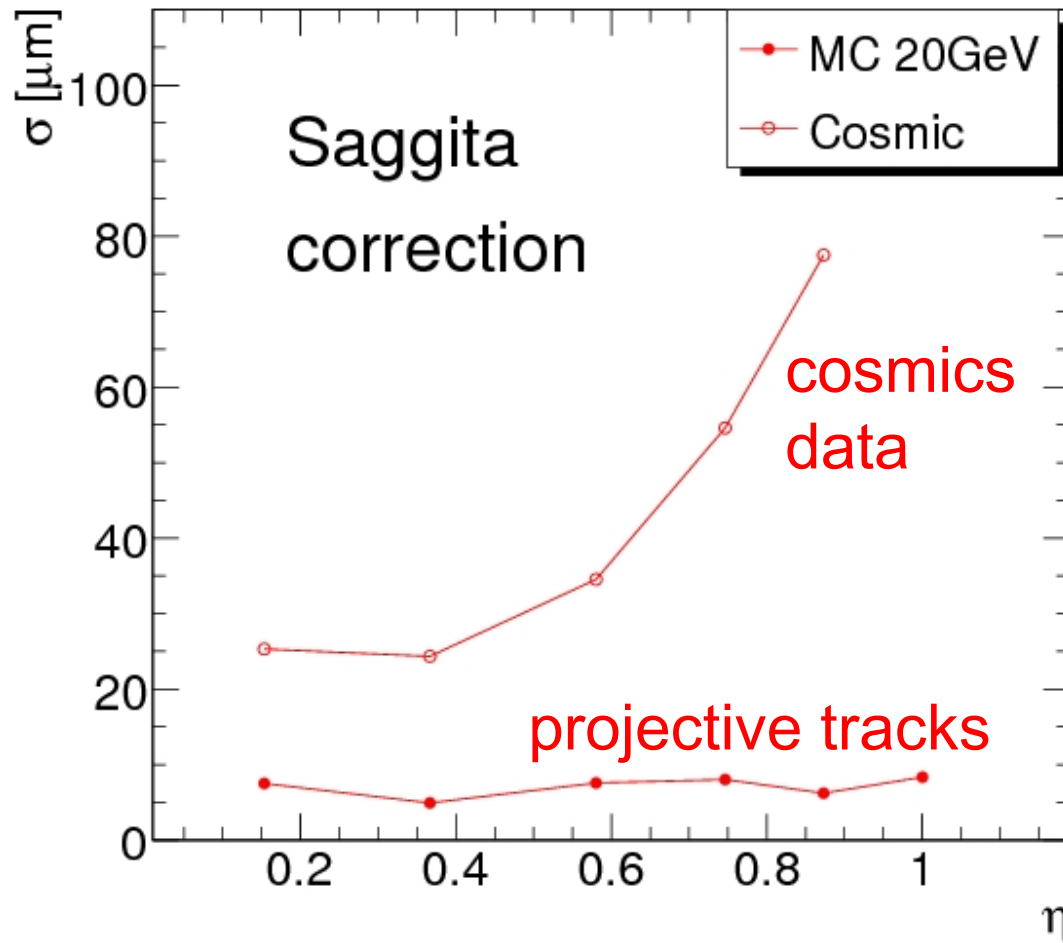
S-LHC Upgrade R&D

30 mm → 15 mm diameter drift tubes

⇒ 2 x 3.5 =7 x higher rate capability up to 5 kHz/cm² in fwd region

⇒ 4 x denser tube packages
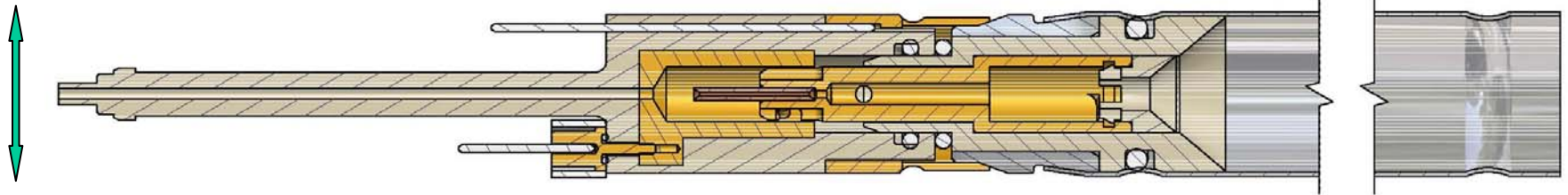

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26.5.2008

S-LHC Upgrade R&D

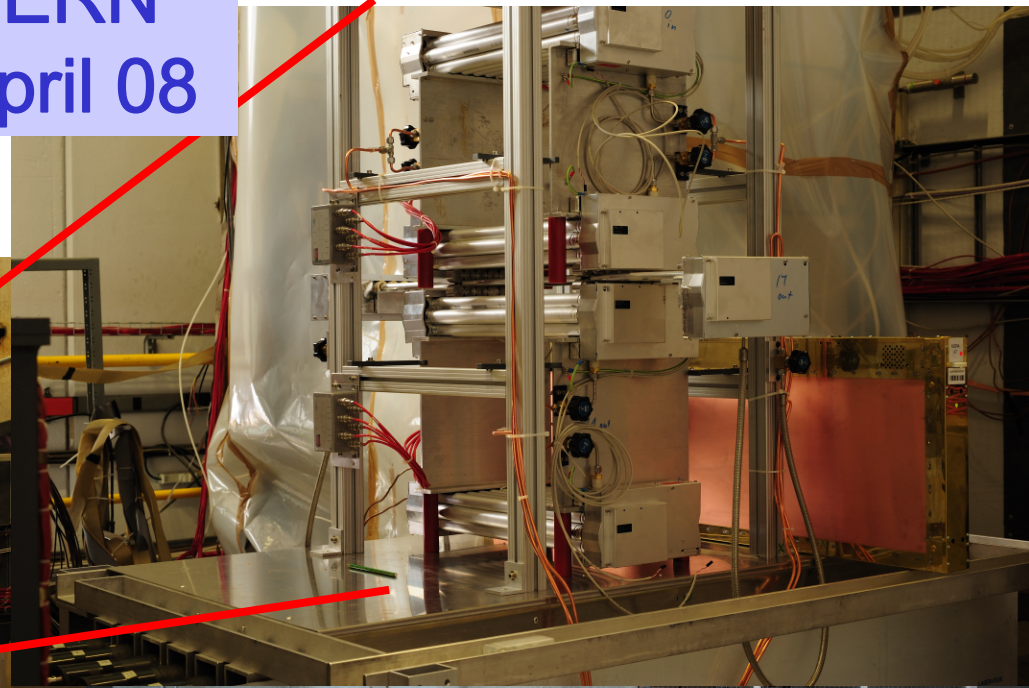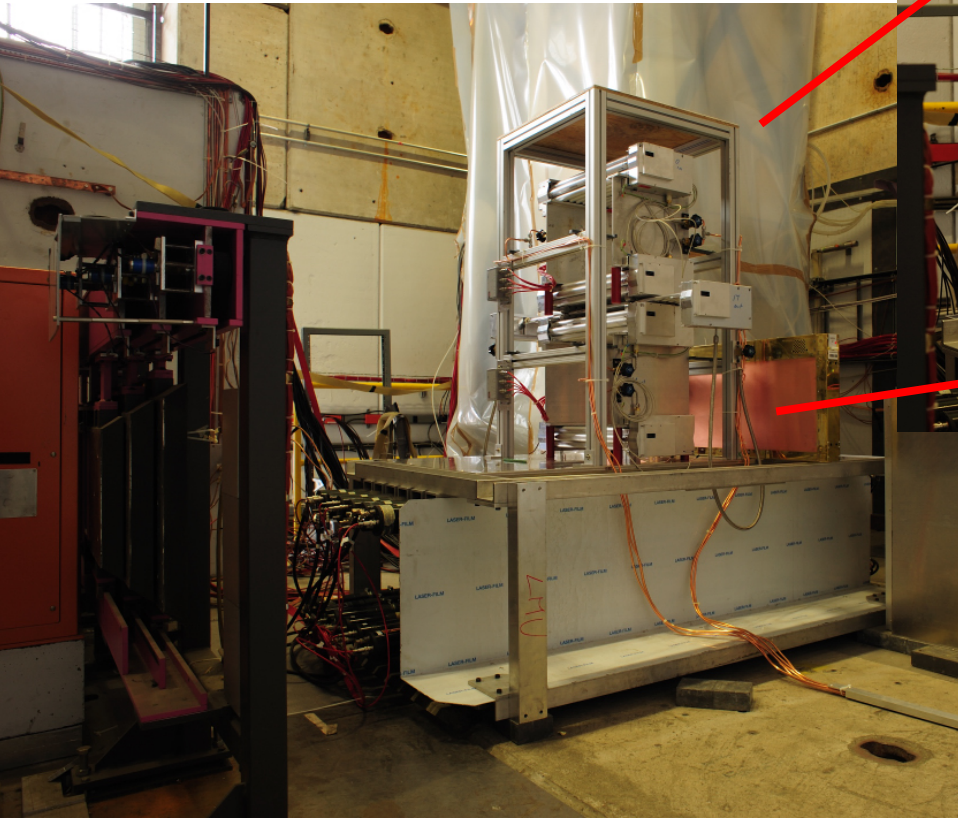New endplug design advanced:

15 mm

New chamber and construction tooling design for innermost EI region tbd (upgrade of CSC chambers).

New readout chip design starting.

Test with cosmics at the CERN Gamma Irrad. Facility in April 08

Hubert Kroha, Status ATLAS MDT
26.5.2008

Physics Preparation

Higgs searches: contributions to 6 CSC notes.

Inclusive SUSY searches: contributions to 3 CSC notes.

"Exotics": Lepton number violating τ decays.

Preparations for analysis of first data and background estimation from data (in particular tt events).