

Status of barrel acceptance tests

- Status of facilities in building 154
- Plans for near future
- First report from module 1.01 after irradiation in Dubna

Preparations in building 154

- Space has been emptied and cleaned
- Gas system being certified
- Four computers installed for various test stations (5th computer for gain test)
- 16-channel tension tester from Duke is installed and working



Leak test station and receiving

- John is installing database
- Tooling for dimensional tests due by mid-October



Leak test station from IU due to arrive by mid-October

Tool cabinet full of old metal files



Plans for near future

- Finish installing/debugging leak, stringing and dimensional test stations
- Storage rack to be built in November to store all modules before they go to SR building for HV conditioning.
- First modules expected from Hampton after gain mapping before Christmas.
- X-ray gain mapping station (copy of Hampton station) is due to arrive in January.

Staff for barrel acceptance tests

2002

- On my own at CERN until Spring 03
 - install and debug all stations; define test procedures
- Technical help available soon: build storage rack, attach computers, power cords etc. to ceiling

2003

- Duke, Hampton and Indiana will send people
- New post-doc from IU to join in June

Report on module 1.01

- Module received about 10 times the integrated LHC neutron flux in a nuclear reactor in Dubna in May 2001
- Still radioactive: about 4 $\mu\text{Sv/hr}$ at 10 cm (about 25 times the natural background)
- Being tested now for gas leaks, HV problems and wire tension losses

1) Leak test on straw volume

- CO₂ is pressurized to about 30 cm of H₂O
- Pressure drop was monitored over 20-30 min
- In Dubna: leak rate $\Delta P/P = 1.2 \times 10^{-4}$ cm/cm*min
- At CERN: leak rate $\Delta P/P = 1.5 \times 10^{-4}$ cm/cm*min

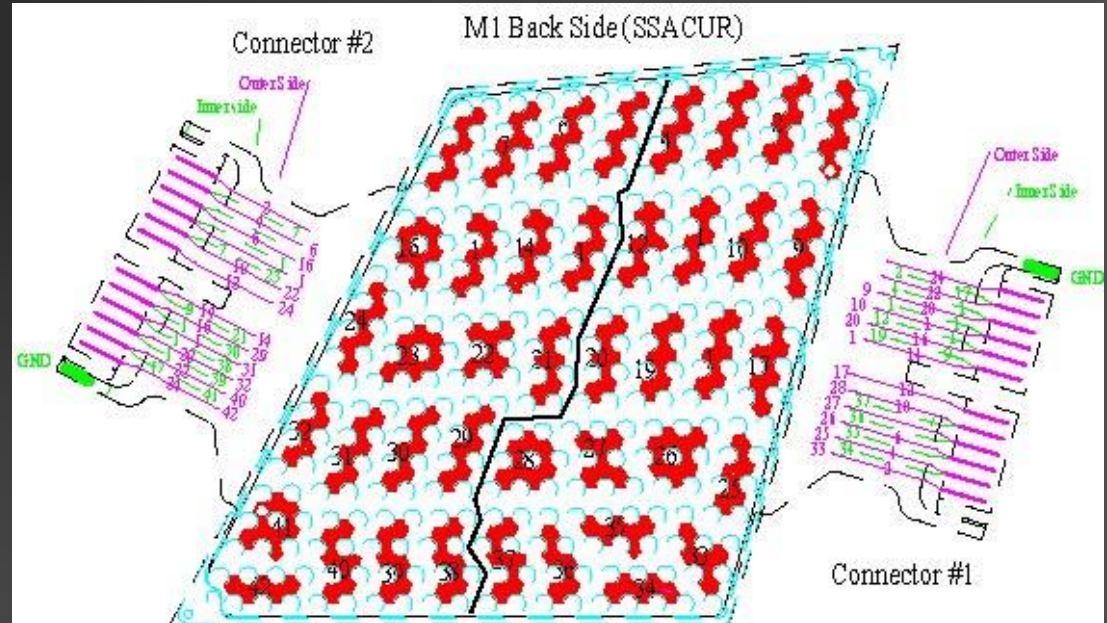
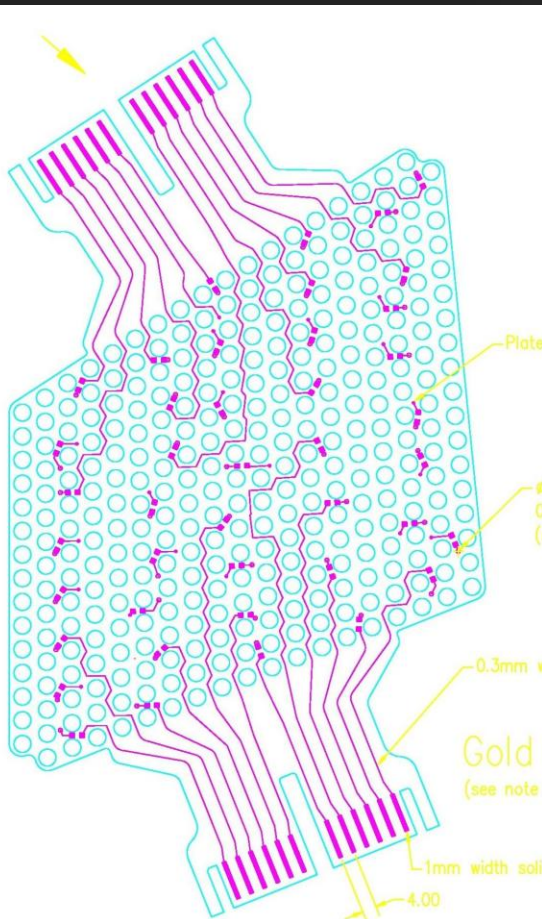
No damage to gas tightness

2) HV system: 2 problems found

1. 1 HV channel supplying 3 HV pads could not hold voltage: could be a short inside fuse box – problem appeared after transportation from JINR to nuclear reactor. 24 straws without HV during irradiation
2. One broken wire in straw #142: wire broke when module was moved outside bldg 154 for floor cleaning

These problems seem unrelated to irradiation

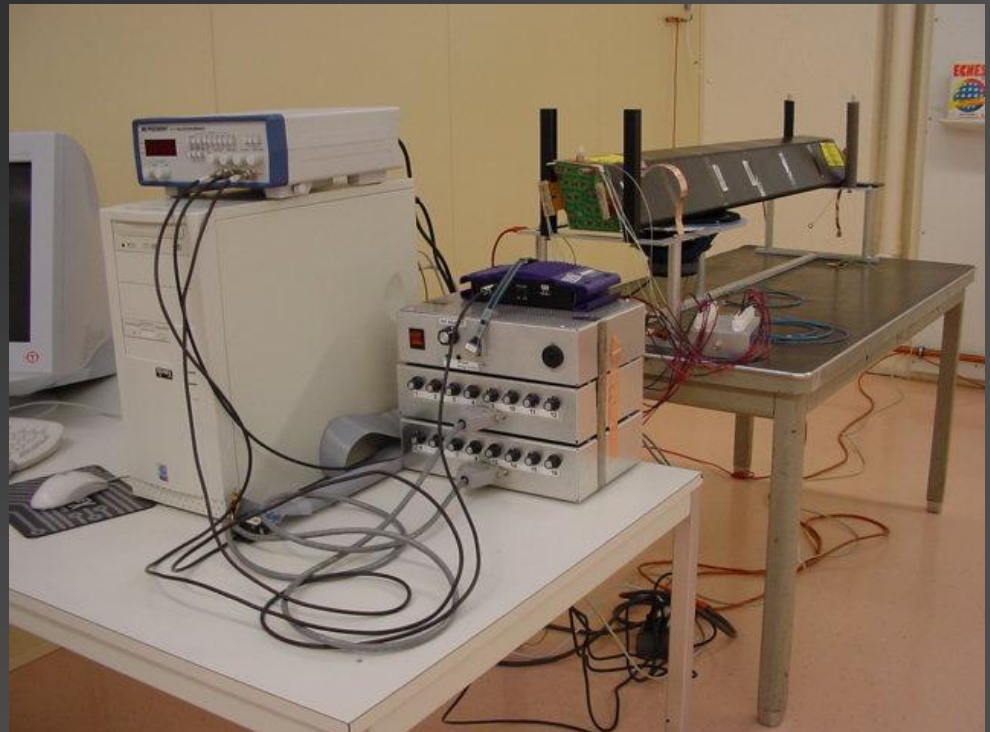
HV distribution on kapton sheet

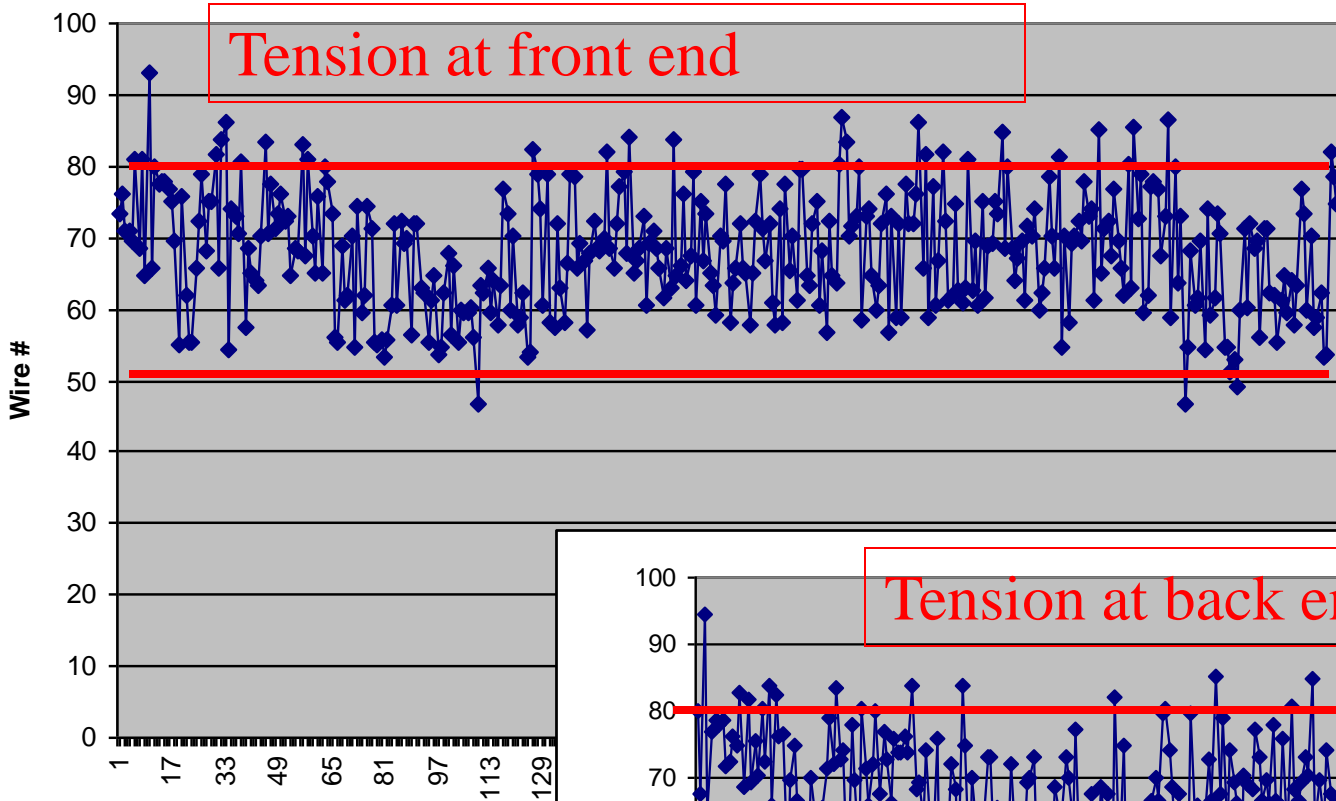


- All HV connections on both ends ok
- Continuity test ok for all capacitors/straws

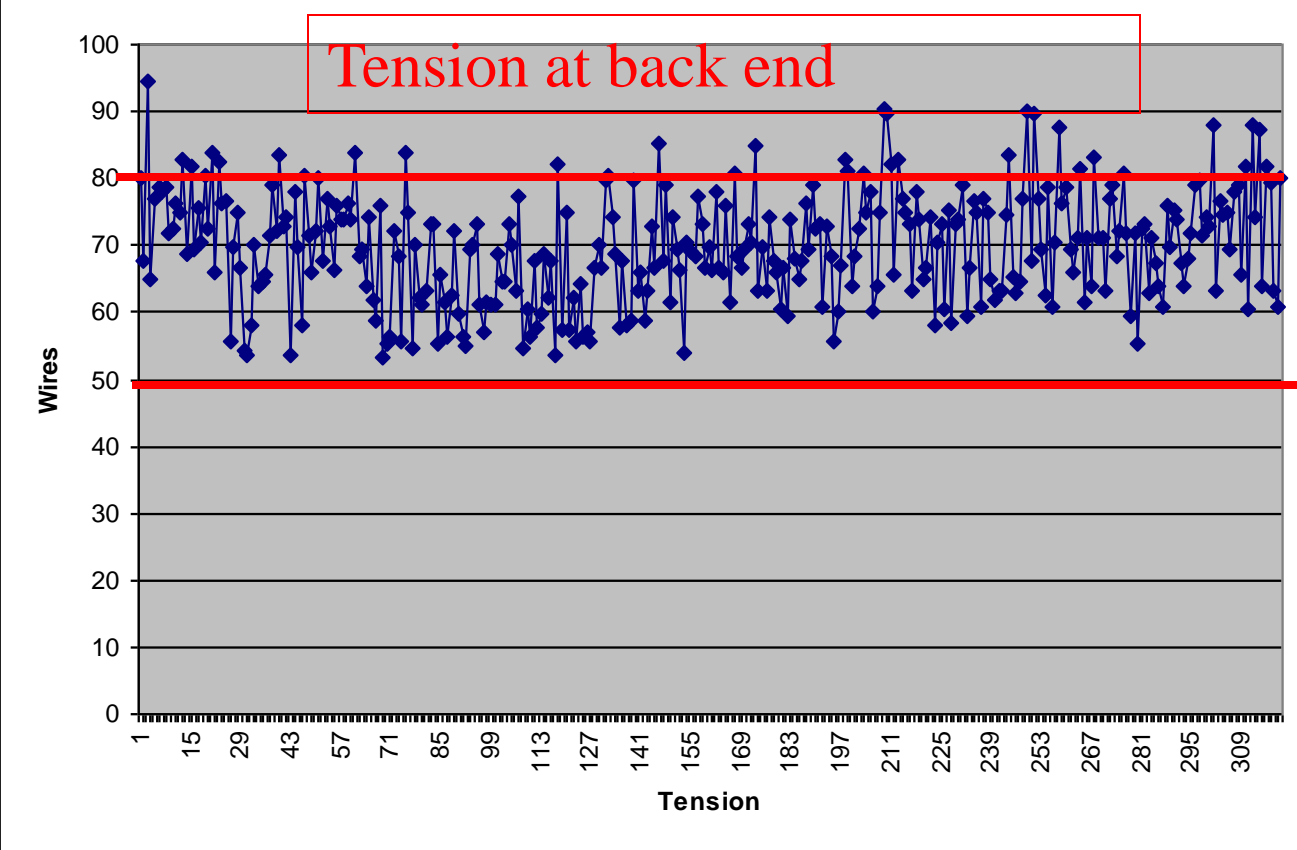
3) Wire tension test

- Both front and back ends tested
- No broken wires found
- Two wires may have slipped





Preliminary

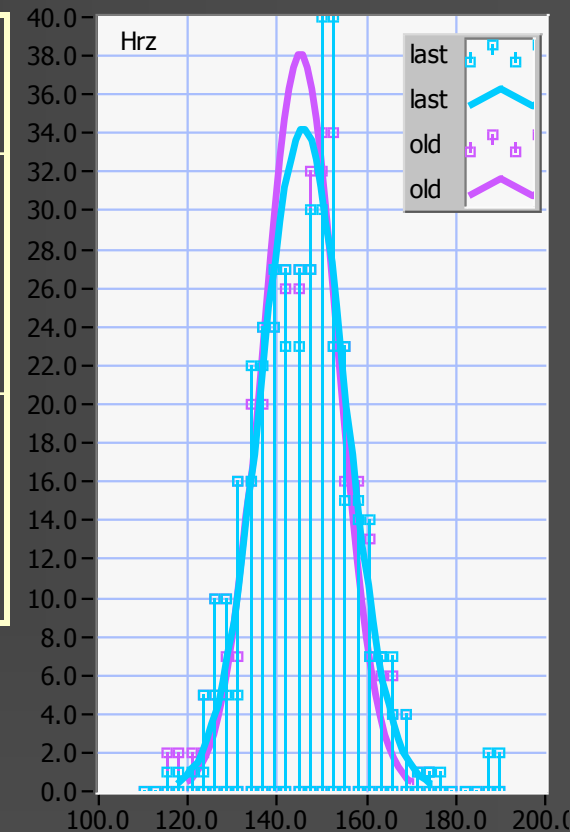


Tension now versus Oct 00

Front Oct 00-Feb 01

F (Hz)	Oct 00	Feb 01	Oct 02
Front	μ : 146.0 σ : 9.5	μ : 145.3 σ : 8.4	μ : 149.3 σ : 9.0
Back		μ : 154.5 σ : 6.9	μ : 151.3 σ : 8.9

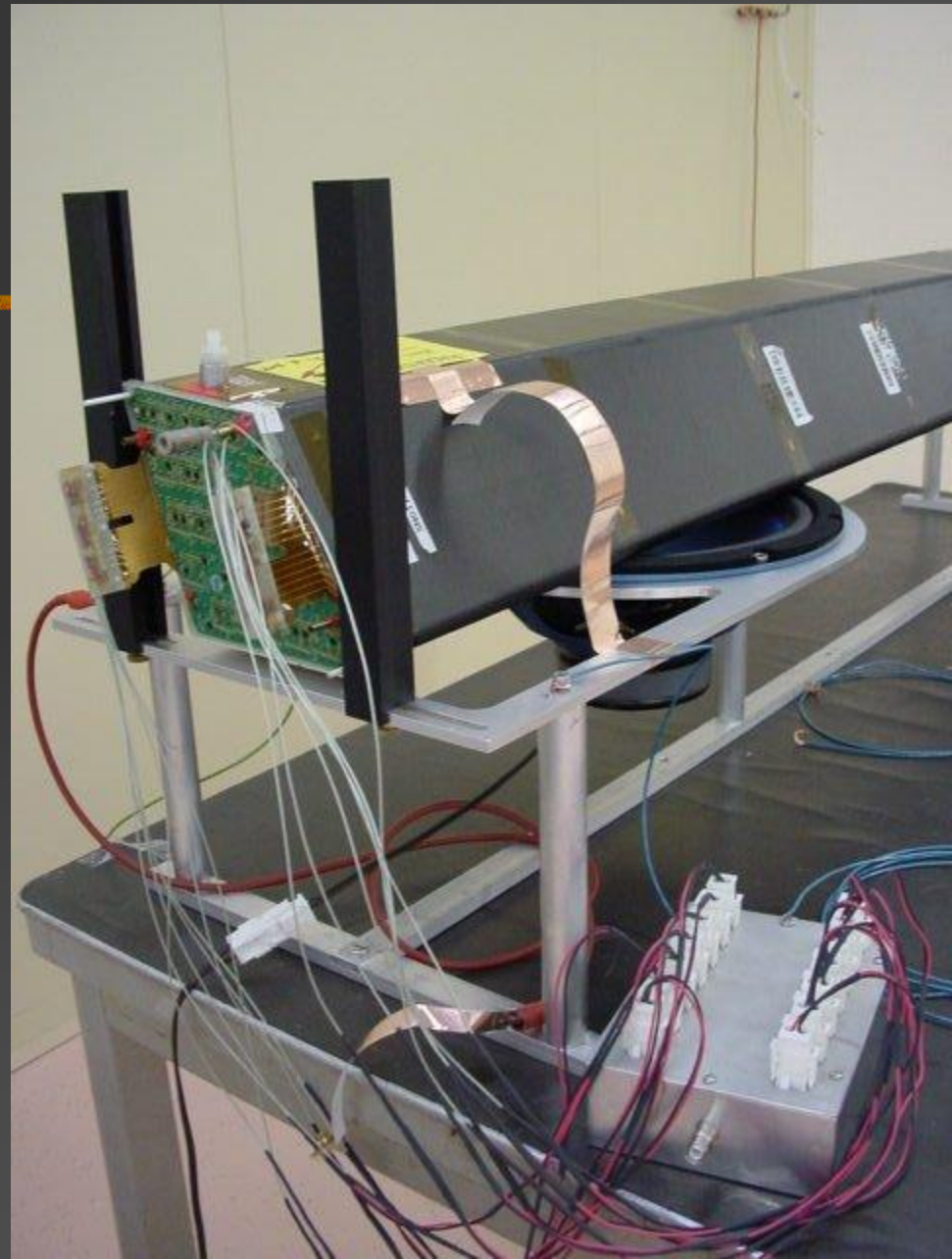
No systematic shift



Summary

- Things are progressing well and on schedule for the barrel acceptance tests
- Module 1.01 seems to have survived 10 times the LHC neutron flux without major problems. Full assessment to be completed.
- No HV problems found so far but fuse box connectors are very tricky to use

Fuse box connectors



TRT meeting – Oct 2002

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