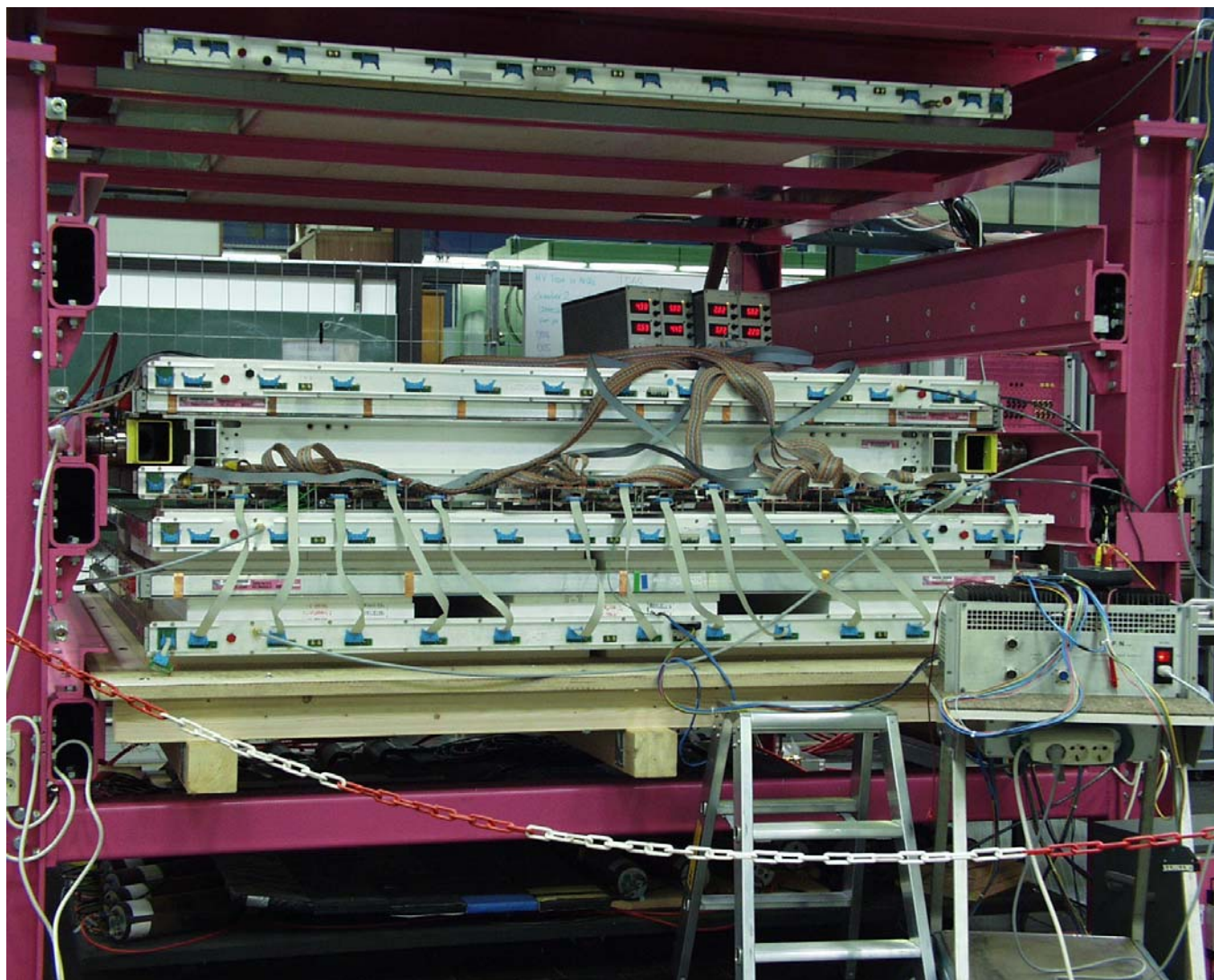


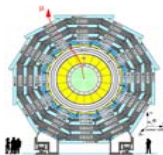


Chamber and SL Tests at Aachen



- Quality Control
- Noise
- Dead channel statistics
- Threshold study
- Planarity of assembled chambers





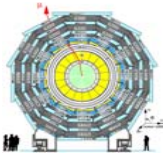
Verify the Quality of Produced SL



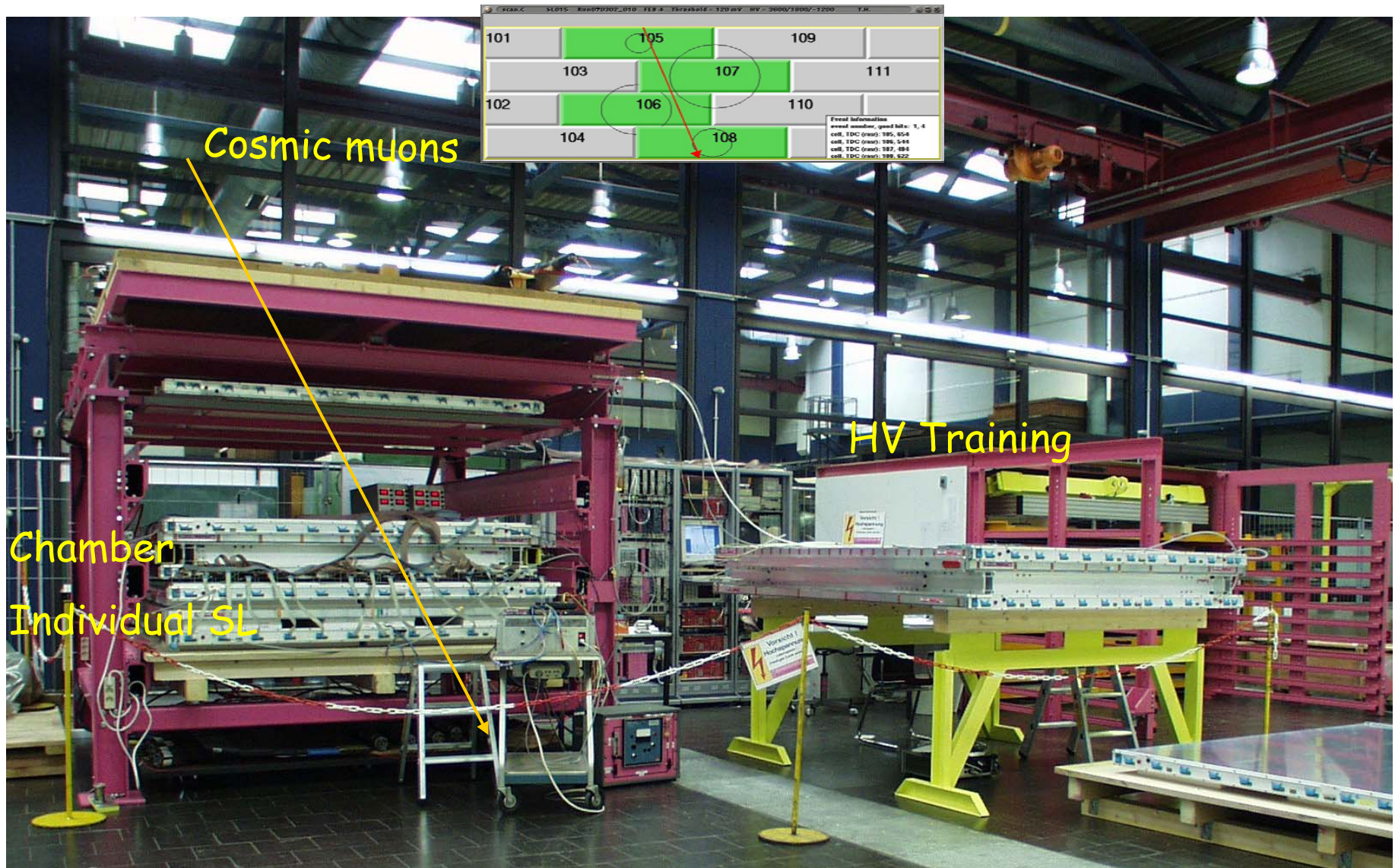
- ◆ HV stability in ArCO₂ (3700/1800/-1400 V @ Aachen)
 - Less HV problems, rest currents <100 nA. Mostly stable in time.
- ◆ Gastightness
 - Good time constants (~1000 min, QC ~140 min)
 - Oxygen <250 ppm after >10 vol.exchanges. As low as 60 ppm after days.
 - Gas distribution inside SL can take up to 2 days (2 cases).
- ◆ Electrical functionality of all cells -> Cosmics Teststand
 - To find loose connections (strips, cathodes) is time consuming but worthwhile.
 - Most spectra distortions are understood.
- ◆ Noise behaviour -> Cosmics Teststand
 - Average noise per SL ~25 Hz, Good !!
 - Slightly higher noise in corner regions.
- ◆ Efficiencies -> Cosmics Teststand
 - With 15 mV threshold, 99% efficiency per SL
 - Threshold study proves 15 mV to be a good choice.

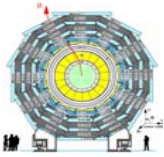
26 SL out of 31
mechanically
finished SL are
fully tested

Quality is good !



Cosmics Data Taking



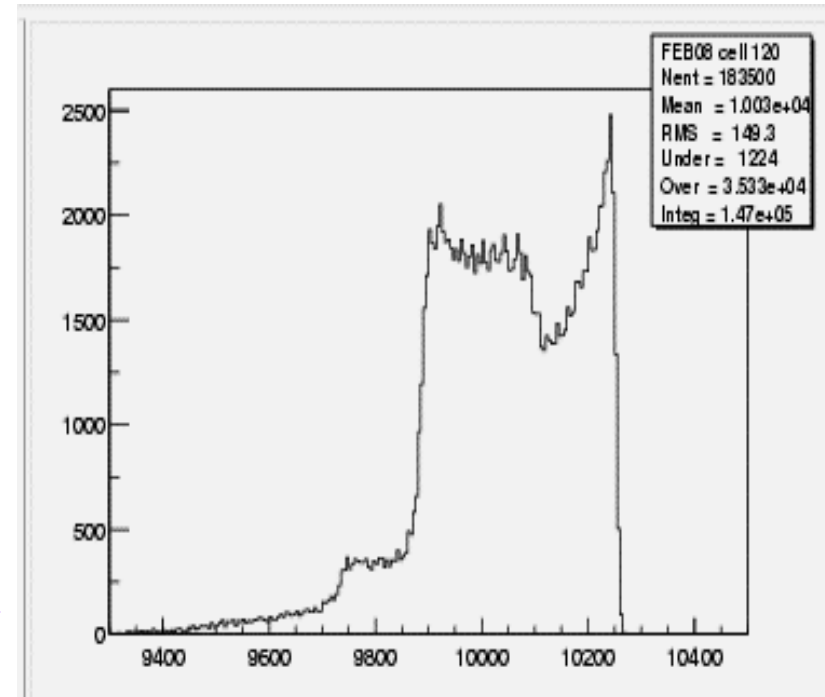
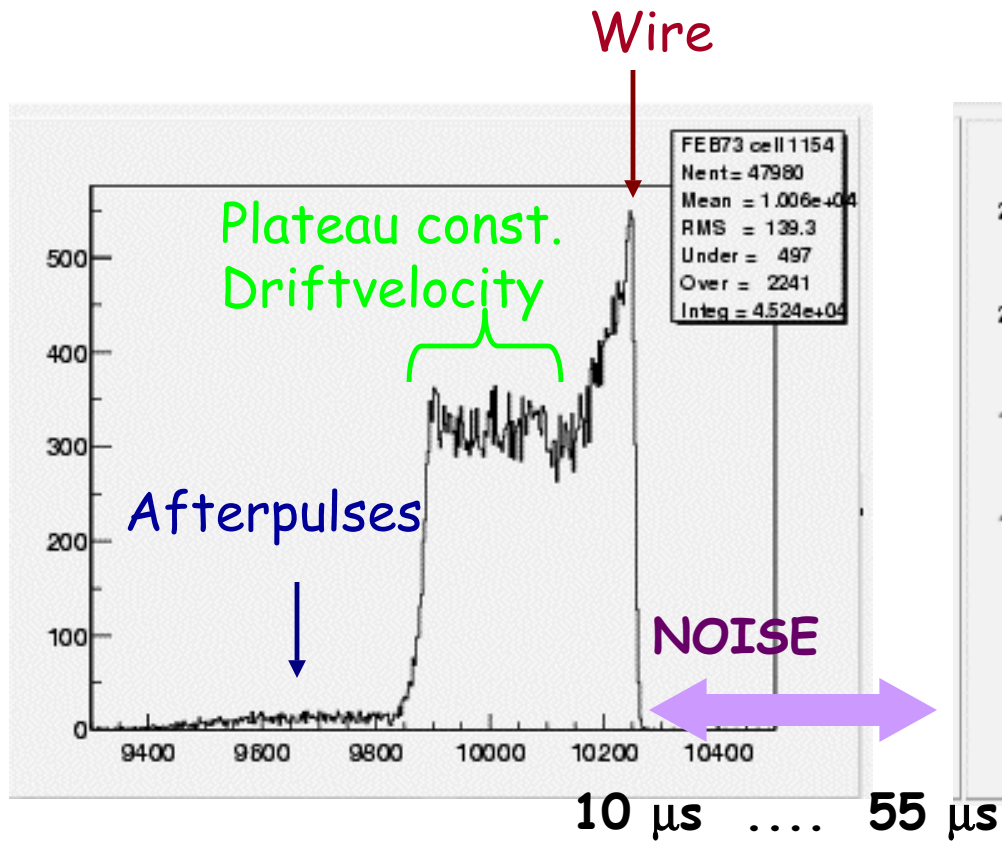


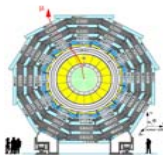
TDC spectrum



Good TDC spectrum

Distorted spectrum

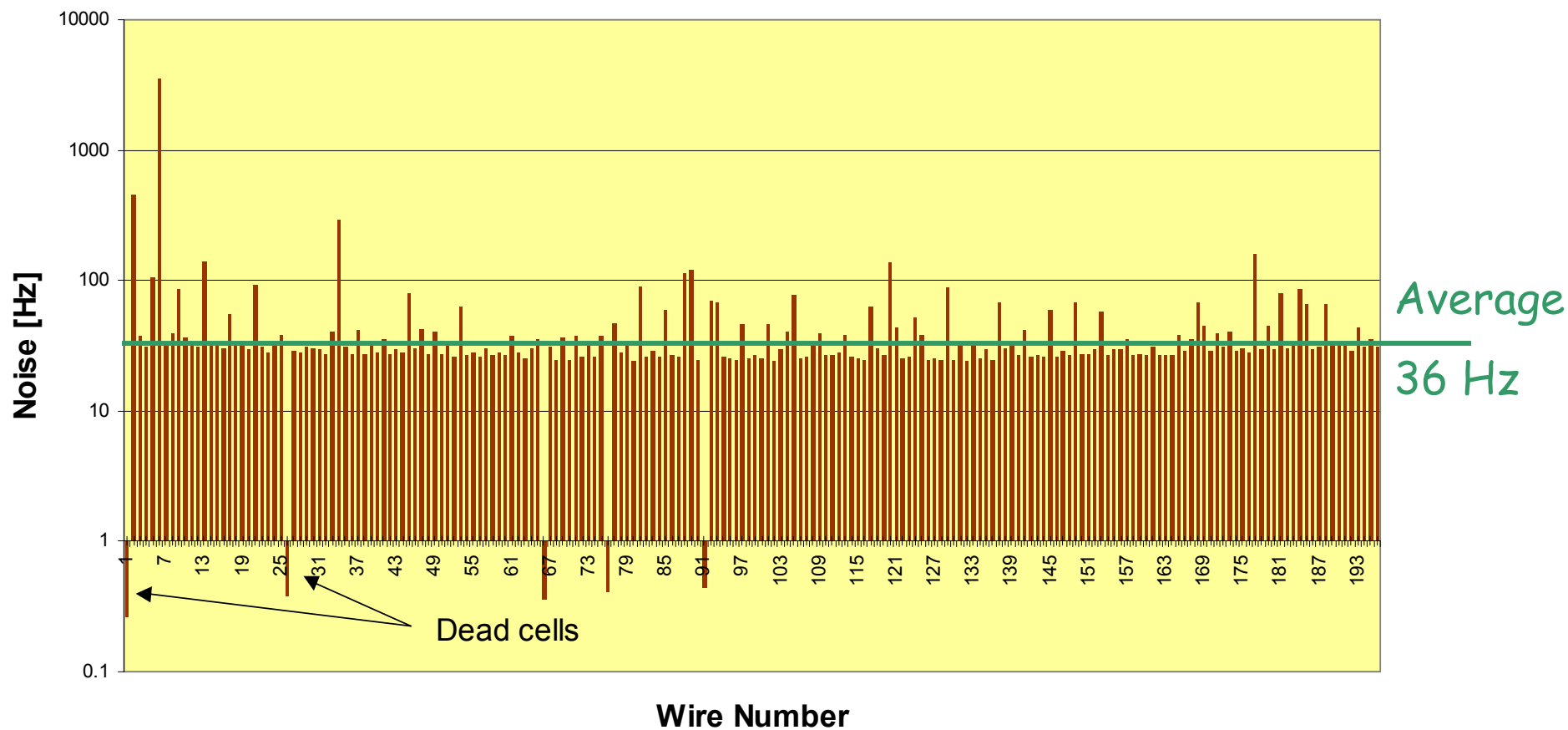




A Typical Noise Distribution

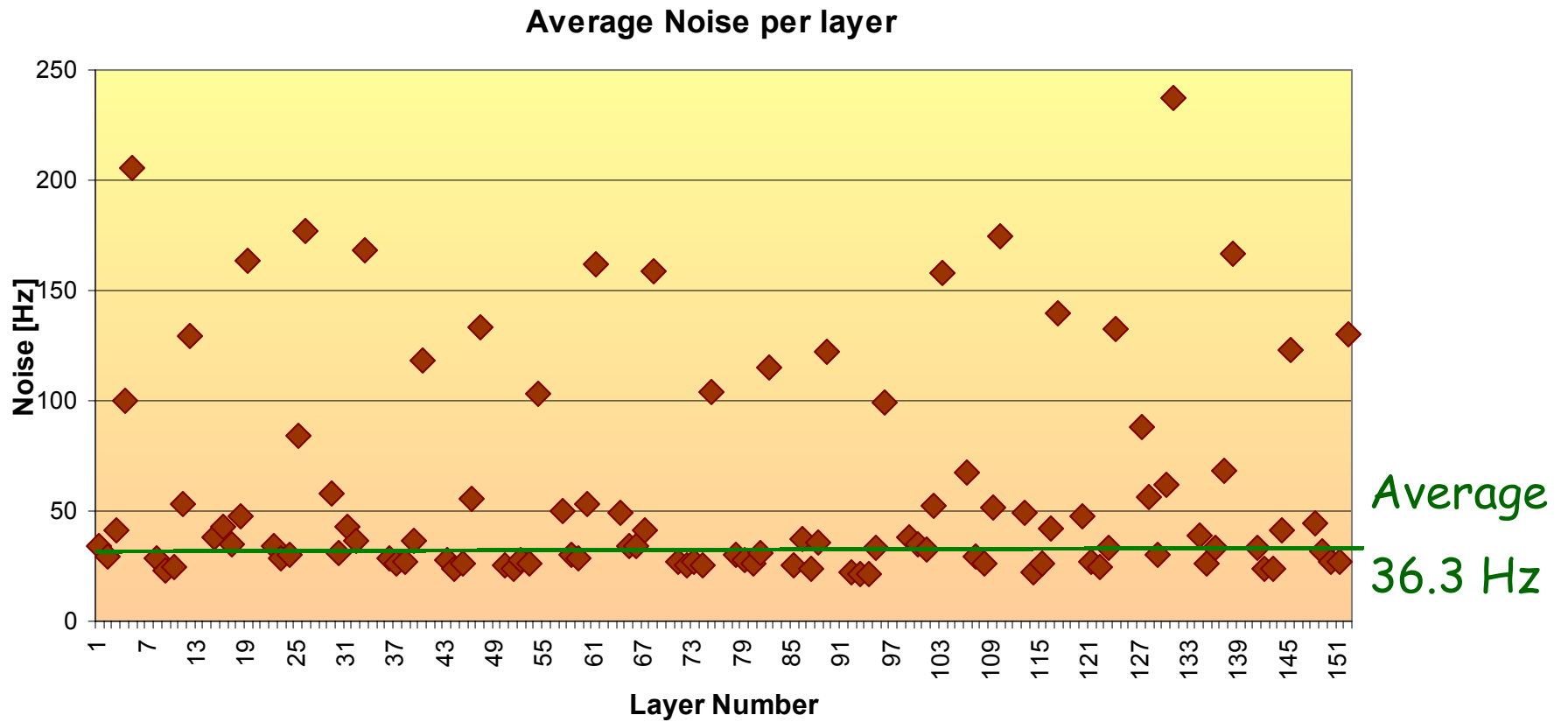


SL 013 (phi) Noise Distribution





Average Noise per Layer





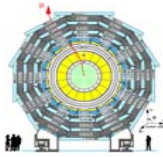
Assembled Chambers



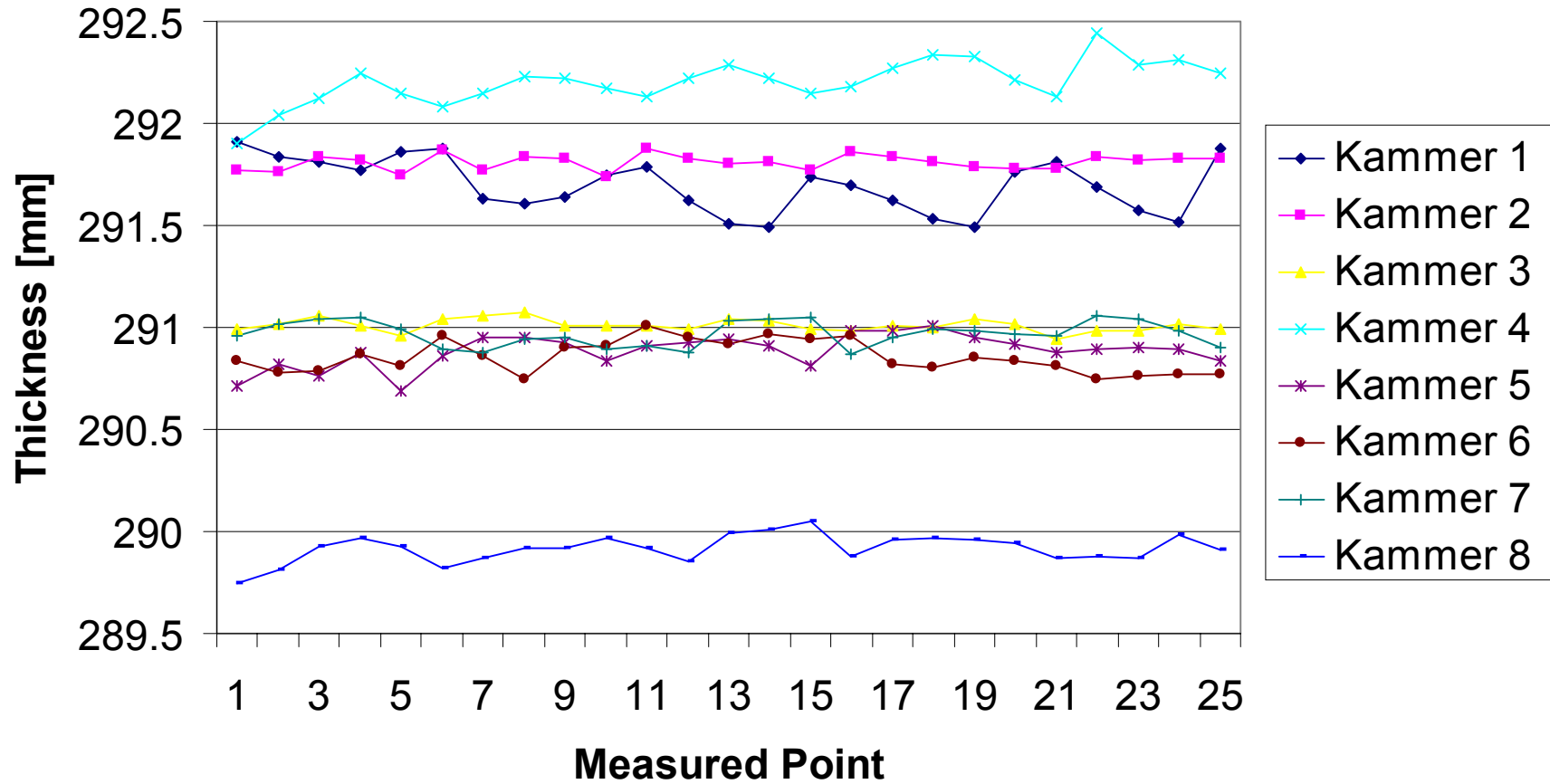
Six chambers assembled from individual, fully tested Superlayers

QC: Planarity, Thickness, Verify channel status with cosmics



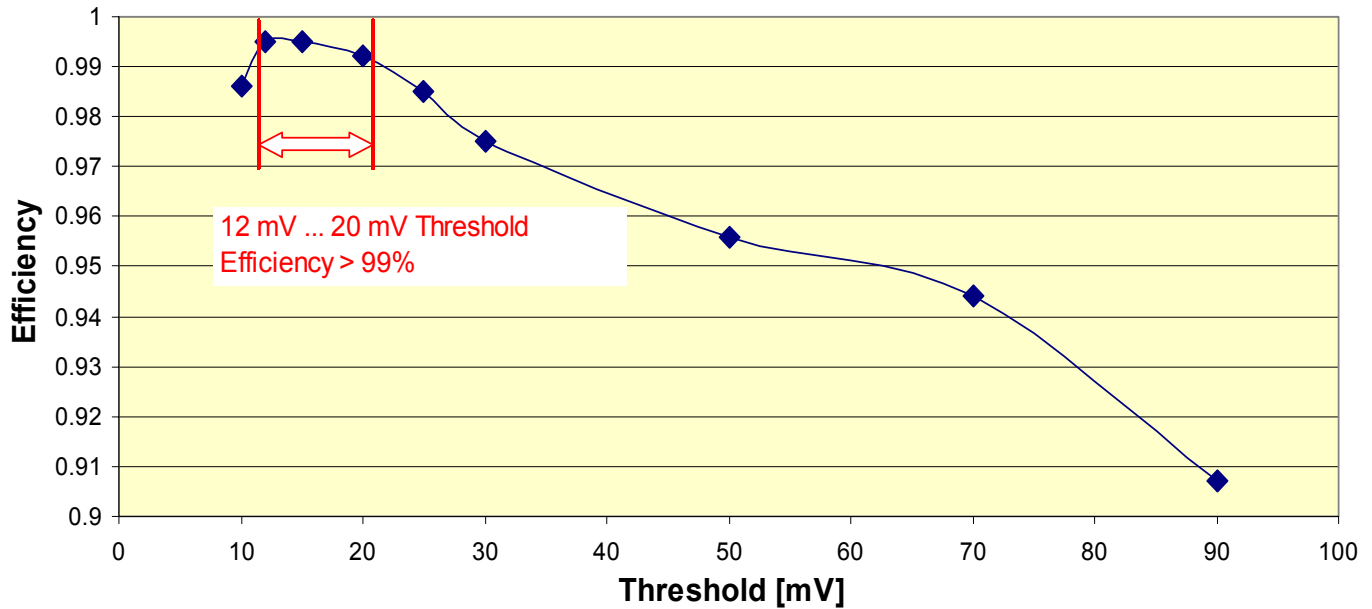


Planarity of Chambers

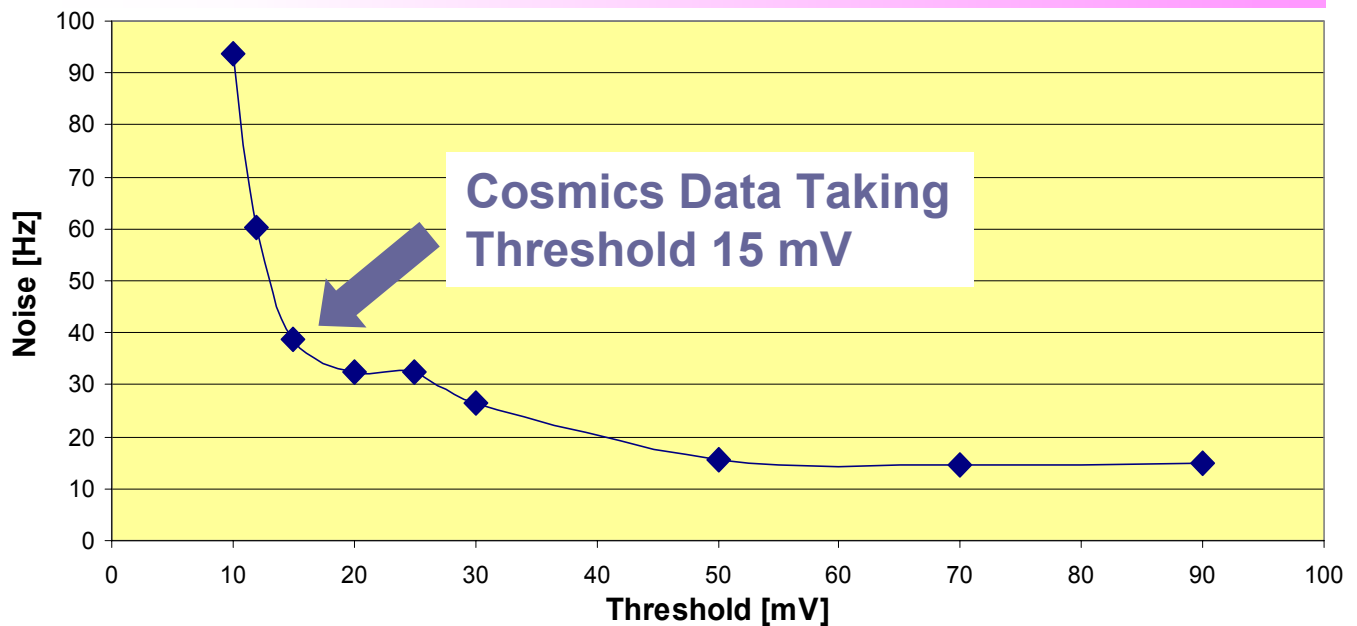




Efficiency vs. Threshold

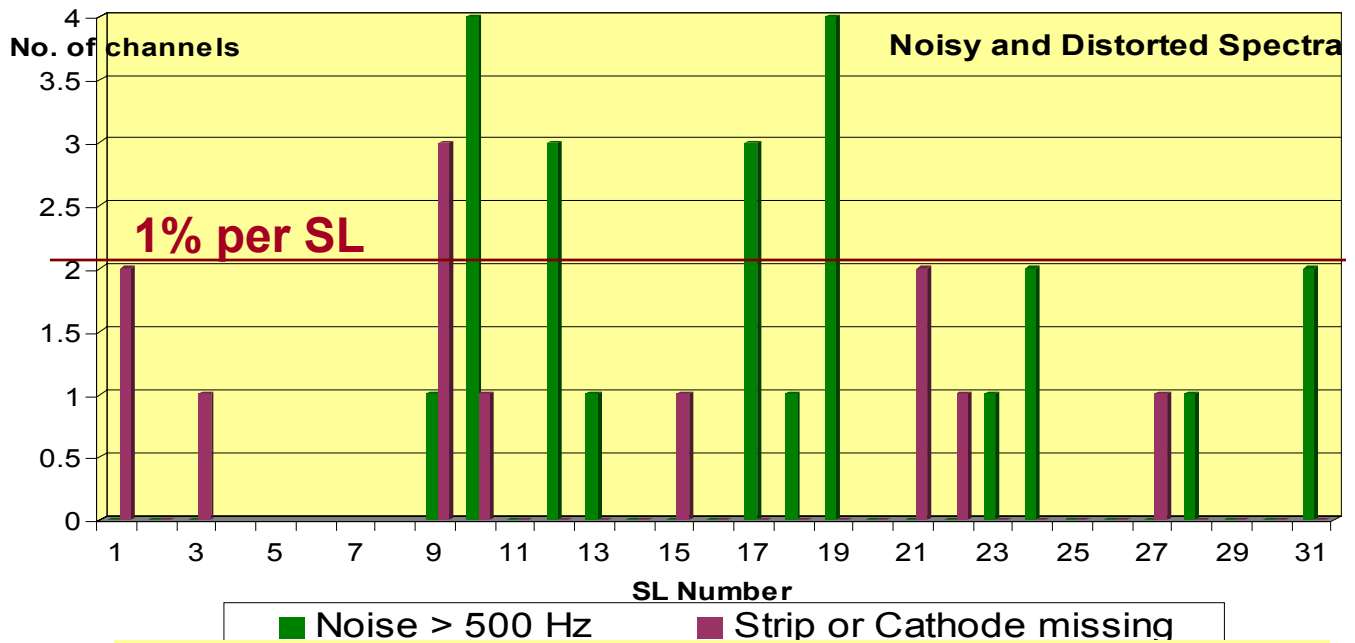
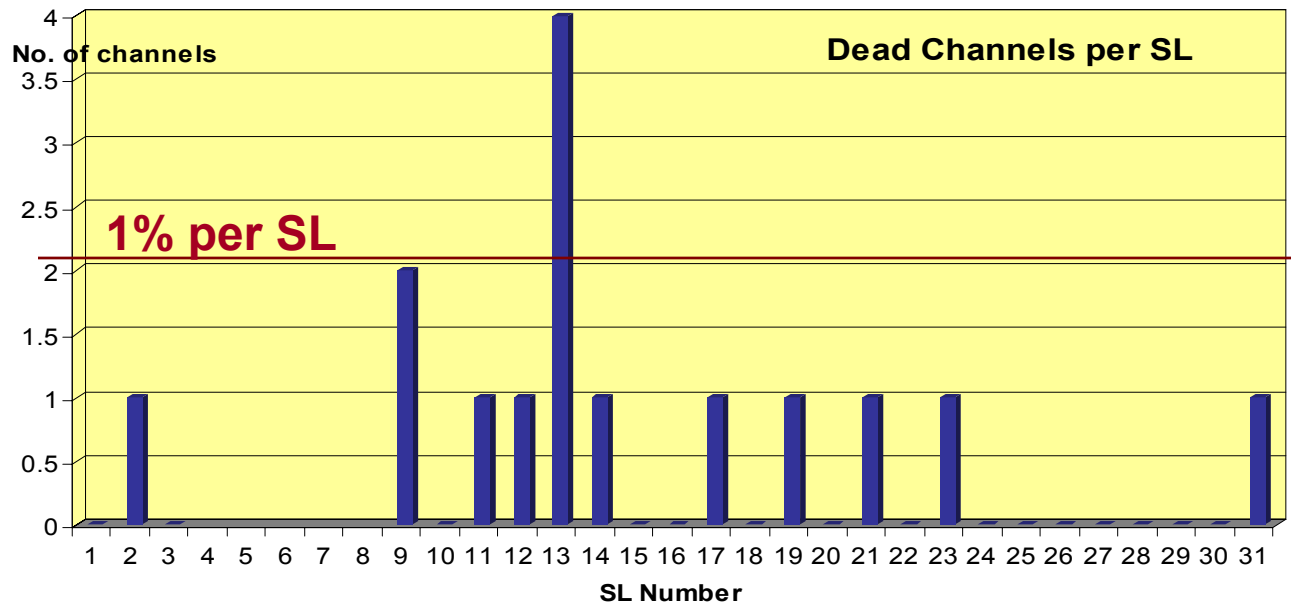


Noise vs. Threshold





Dead Channel Statistics



■ Noise > 500 Hz ■ Strip or Cathode missing

Dead channels: 15 cells / 26 SL (5200 cells) ~ 0.003%
Noise >500 Hz: 23 cells / 26 SL ~ 0.004%
Distorted spec: 12 cells / 26 SL ~ 0.002%
IN TOTAL ~0.01% per SL