

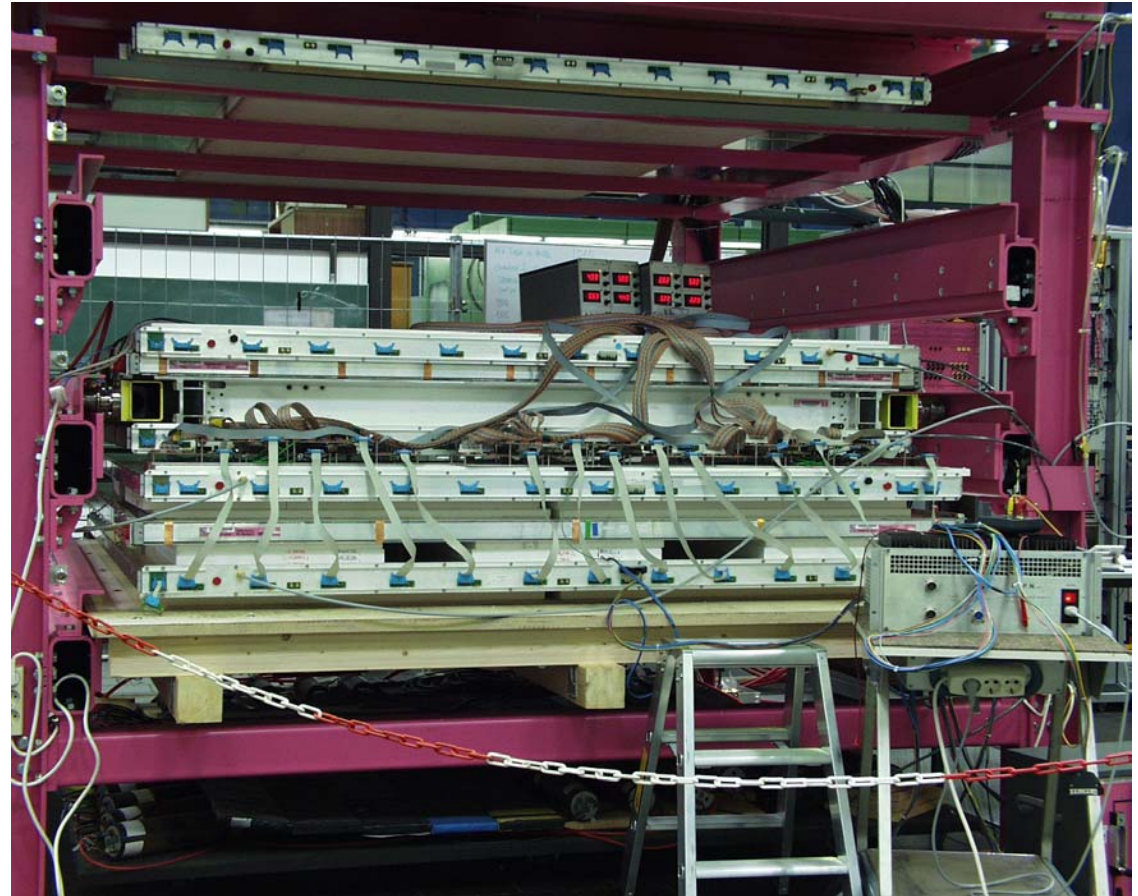
Quality Control at Aachen

Aachen QC & Status
talks at

<http://www.physik.rwth-aachen.de/~hoepfner/Talks/ac-talks.html>

QC results → sorry,
still in local DB

<http://www.physik.rwth-aachen.de/~dbac>



Production Status

As of June 3rd:

- SL mechanically finished: **83** (84-1 SL)
- SL fully tested: **71** (72-1 SL) ~ 23 chambers
- Chambers: **20** out of which 12 at Cern, 8 Aachen
- Next transport: Aachen → Cern 17.06. /18.06.



Verify the Quality of Produced SL

stop info_button sound event number: 412816

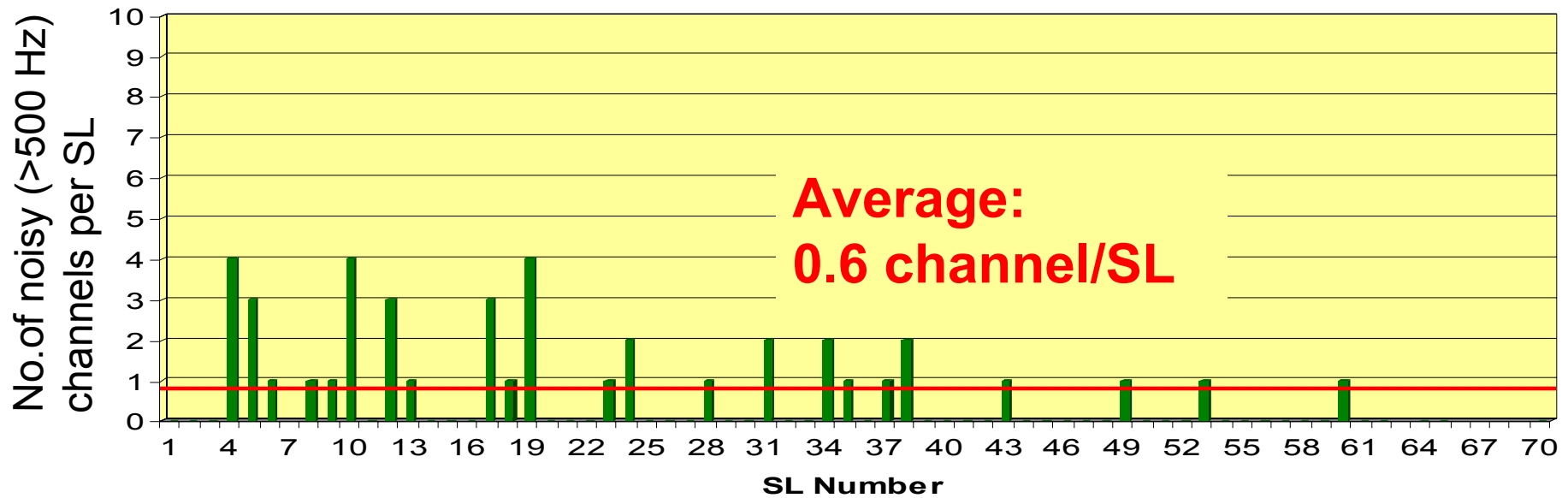
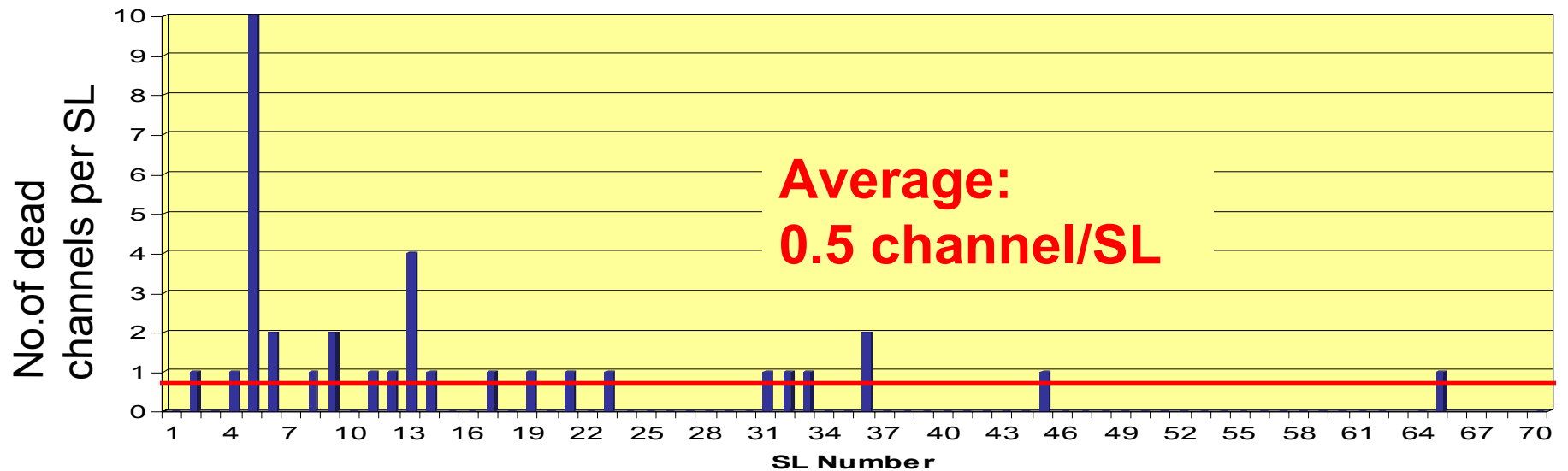
identification table: /users/daq/tables/CMS_chamber_online_tdac.table

0																				
20																				
40																				
60																				

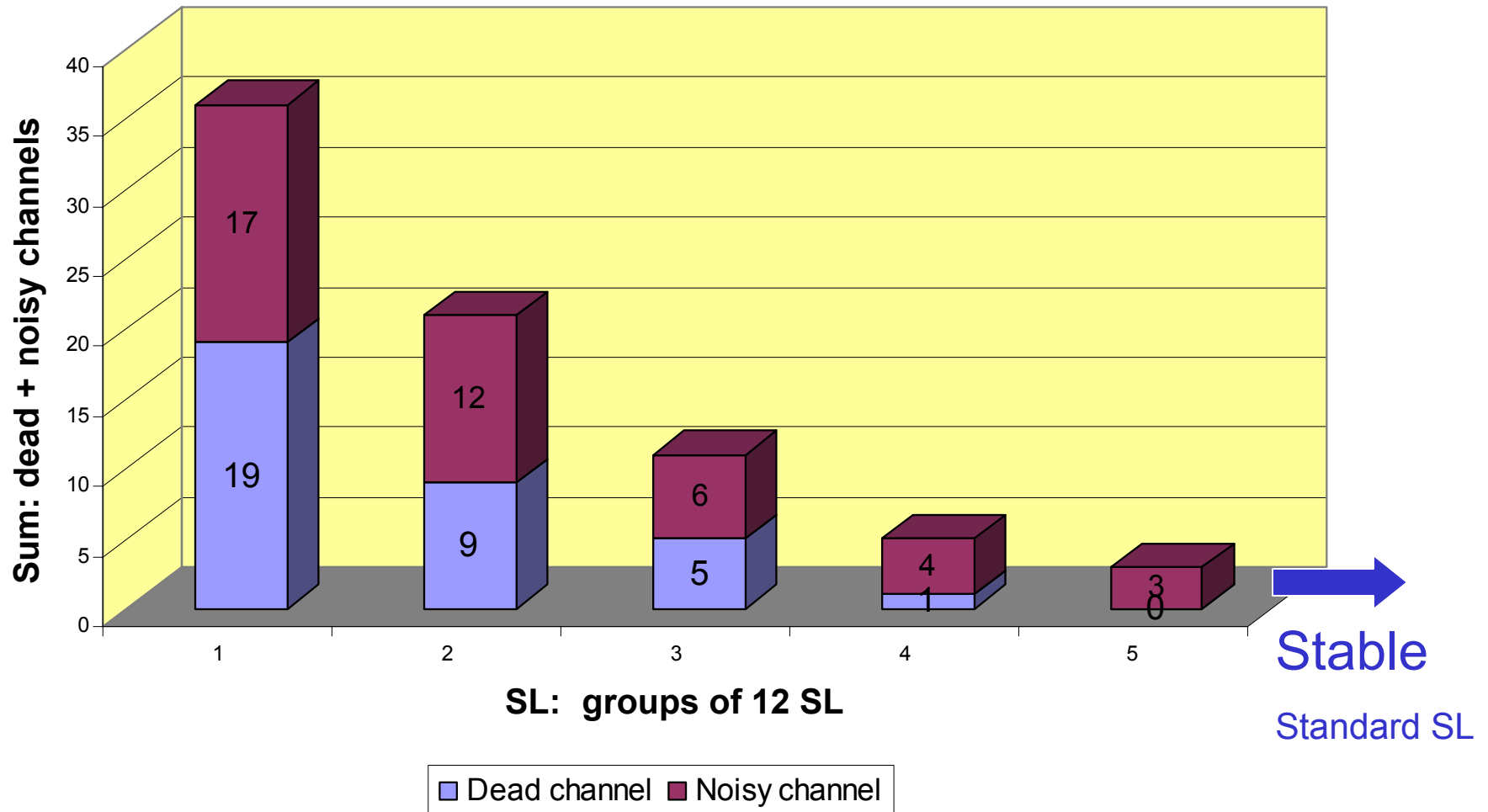
- **Wire tension** → OK
- **Wire position, corner block position, thickness** → OK
- **Chamber planarity** → under control
- **HV stability in ArCO₂** (3700/1800/-1400 V @ Aachen) → **Good**
- **Gastightness** → mostly above 140 min, some repair at Cern
- **Electrical functionality of all cells** → Cosmics Teststand
- **TDC time window**, check for disconnected electrodes
- **Noise behaviour** → av. 40 Hz
- **Efficiency** → >0.97/SL

71 SL out of 83 mechanically
finished SL are fully tested
QC mostly criteria fulfilled

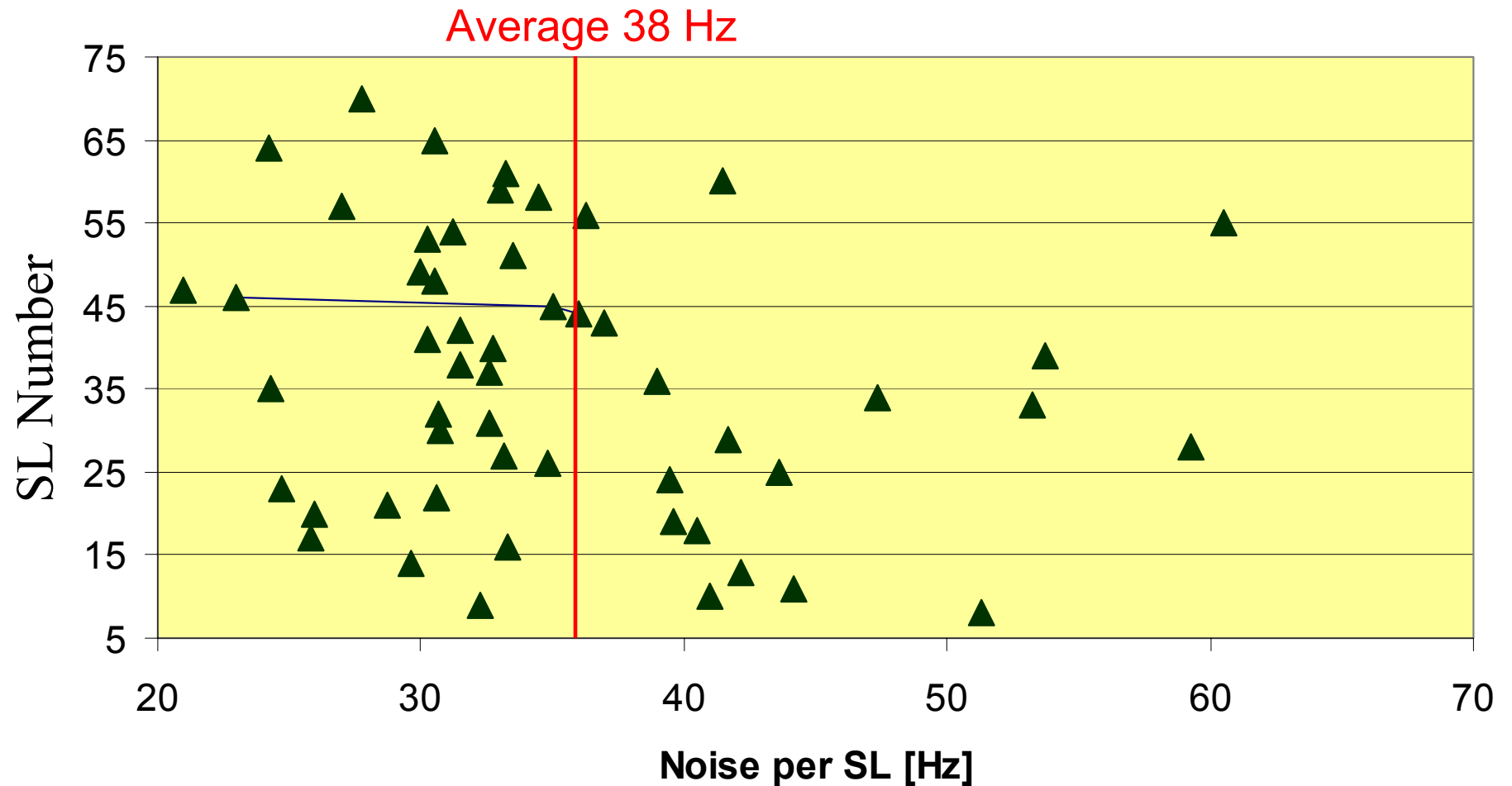
No. of Dead and Noisy Channels



Dead+Noisy Channels over Time

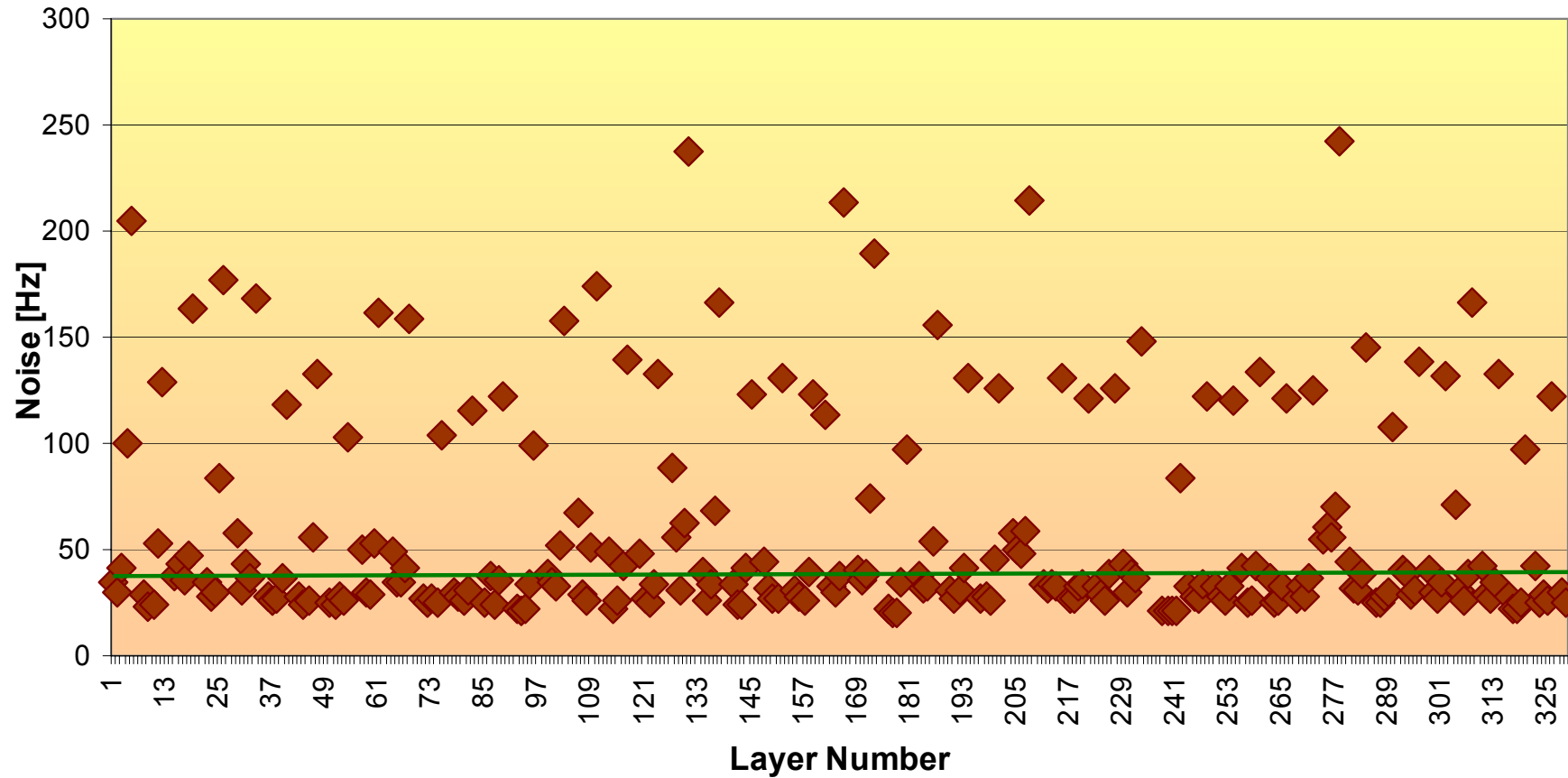


Average Noise per SL



Noise per Layer

Average Noise per layer



Meantime

71 fully tested SL

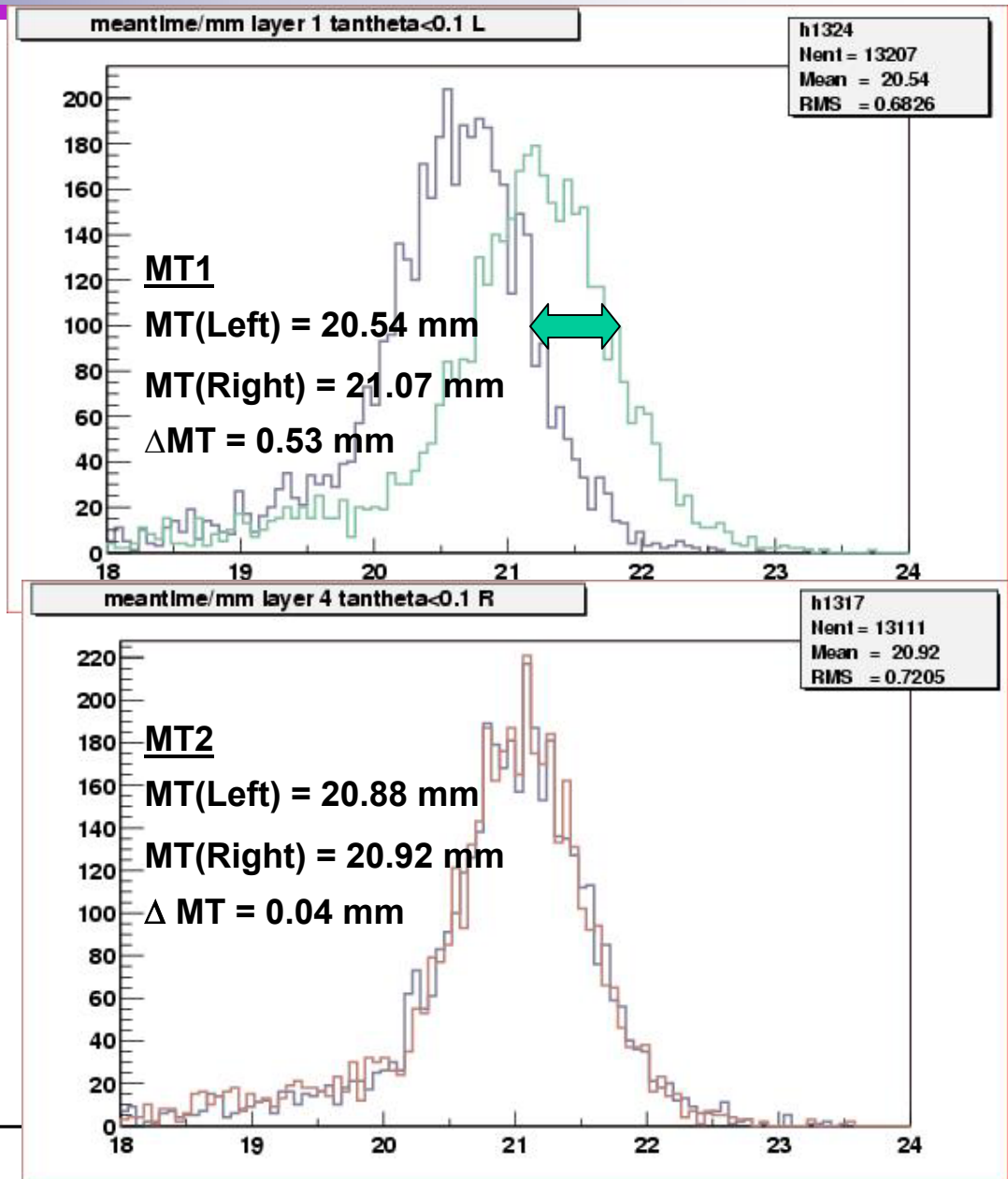
Except 3 SL, for all SL both meantimes agree within 100 micron (production accuracy)

3 Exceptions:

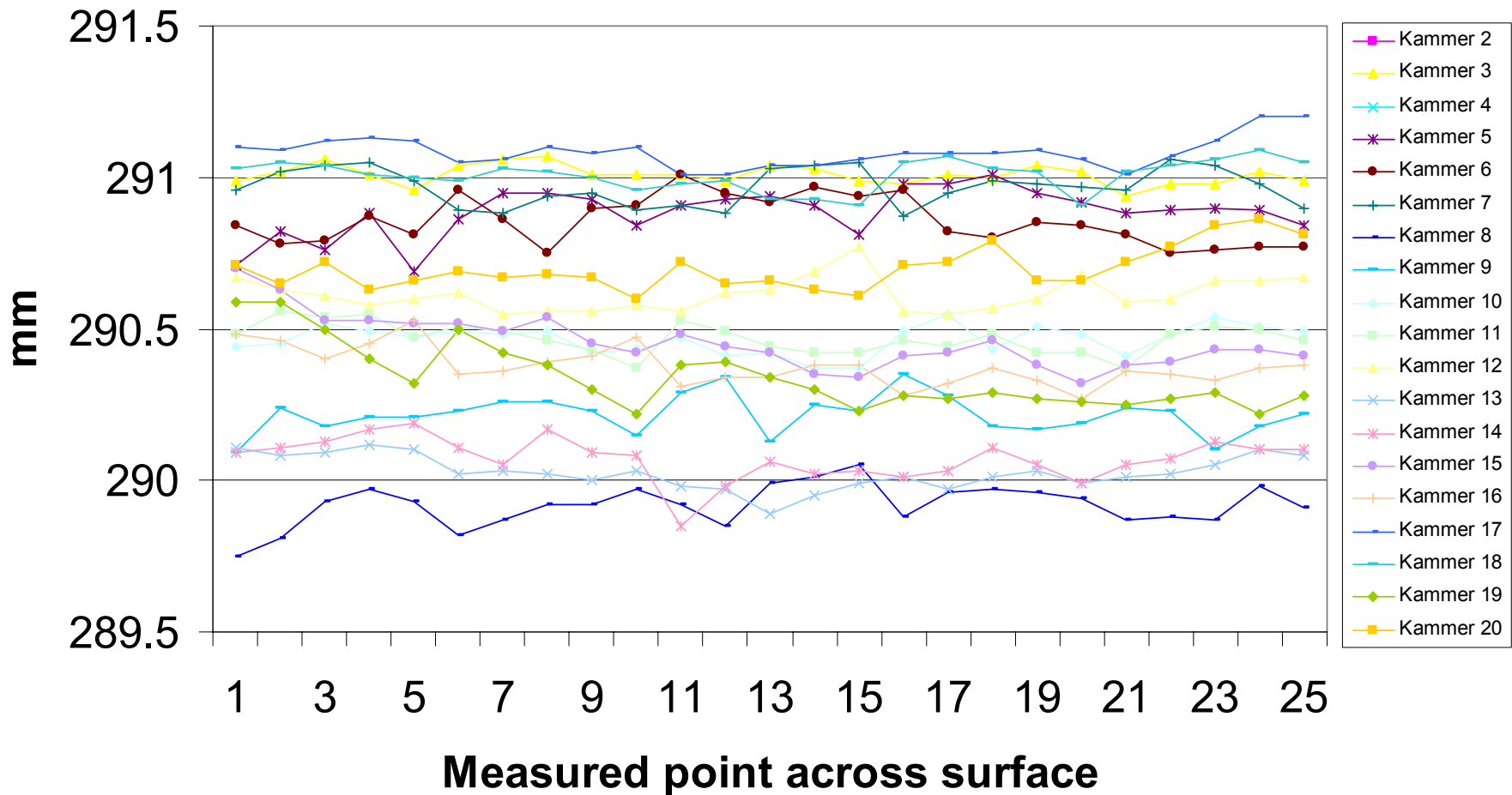
SL018, chamber003 0.53 mm

SL021, chamber008 0.22 mm

SL061, chamber020 0.15 mm



Chamber Thickness & Planarity



Average planarity within 250 micron

Average chamber thickness 290.6 ± 0.6 mm

Gastightness – Chamber Values

Chamber	Time constant [min]	Chamber	Time constant [min]
001	260	011	500
002	160	012	180
003	120	013	INF
004	520	014	INF
005	2000	015	1000
006	120	016	INF
007	INF	017	1200
008	580	018	INF
009	220	019	900
010	490	020	INF

Aachen
Next shipment

Ones marked in red will be repaired. Chambers are at Cern.

Slow Control Test

- Aachen: SL are being tested during regular testing procedures
- So far **~30%** of the cases require a slow control fix (board). One case required the exchange of the board.
- All future chambers (\geq chamber 013) will be slow control tested when arriving at CERN.
- Past chambers \rightarrow have been tested recently in the ISR. Here **50%** of all SL needed slow control repair.

Work done at the ISR

- **12 chambers at ISR, under gas**
- **All have been HV tested after transport**
 - 2 channels with HV problems
 - Fixed in May 2003 (1 loose wire at HVB, 1 damaged isolation)
- **Slow control tested**
 - 18/36 SL = 50% where slow control was OK
 - 12/36 SL = 33% slow control successfully repaired
 - 6 SL slow control still needs to be repaired (exchange cover) chambers 001, 004, 006, 007
- **Gastightness**
 - 10/12 chambers with tau > 140 min
 - Time constant 120...200 min will be improved. Covers altered. 4SL in chambers 001, 003, 006, 012