TIB modules test results from Bari

(D. Giordano - S. My)

- Optical Inspection System

- Hybrid Test (ARC-System) before Assem.

- Module Assembling

- Hybrid Test (ARC-System) after Assem.

- Bonding

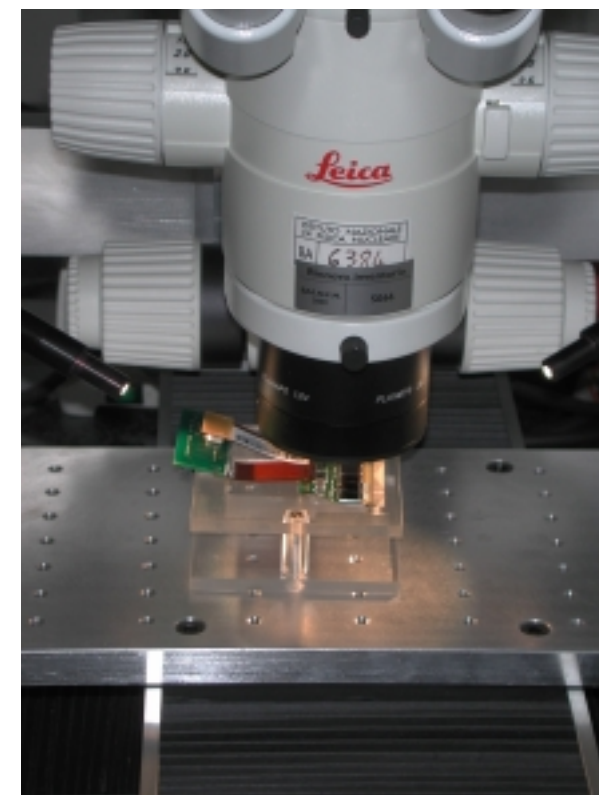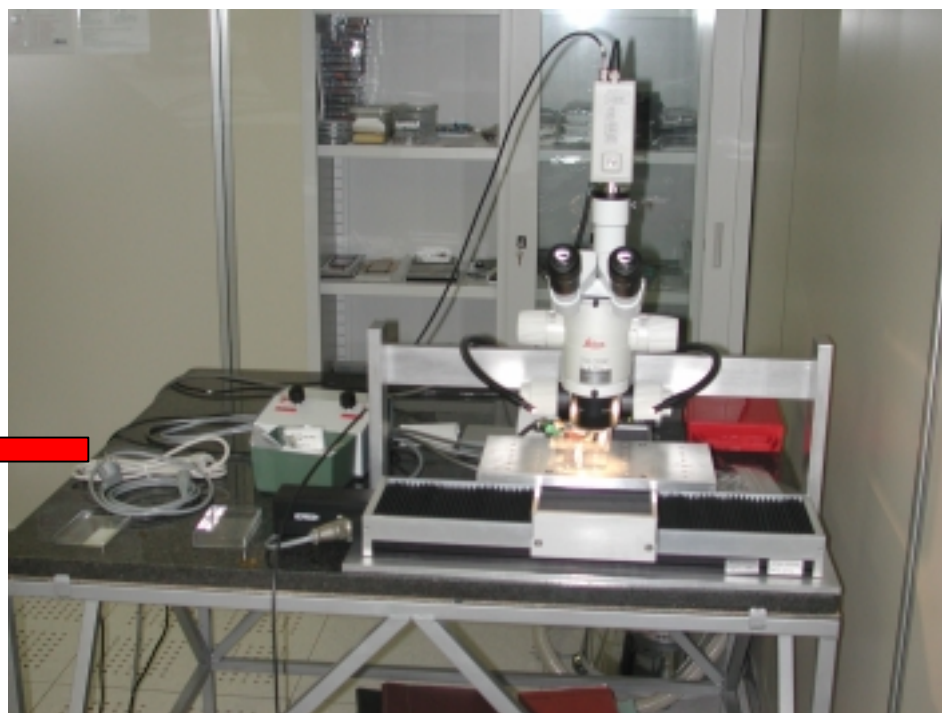- Module Test (CMS-like System)

Test results for:

TIB009	TIB010
•2 CSEM Sensors (daisy chained)	•2 CSEM Sensors (daisy chained)
•Ceramic Hybrid (4 APVs)	•Fr4_v1 Hybrid (4 APVs)

Fr4_v2 Hybrid

6 APVs (Only 4 connected to PA)

(preliminary results)
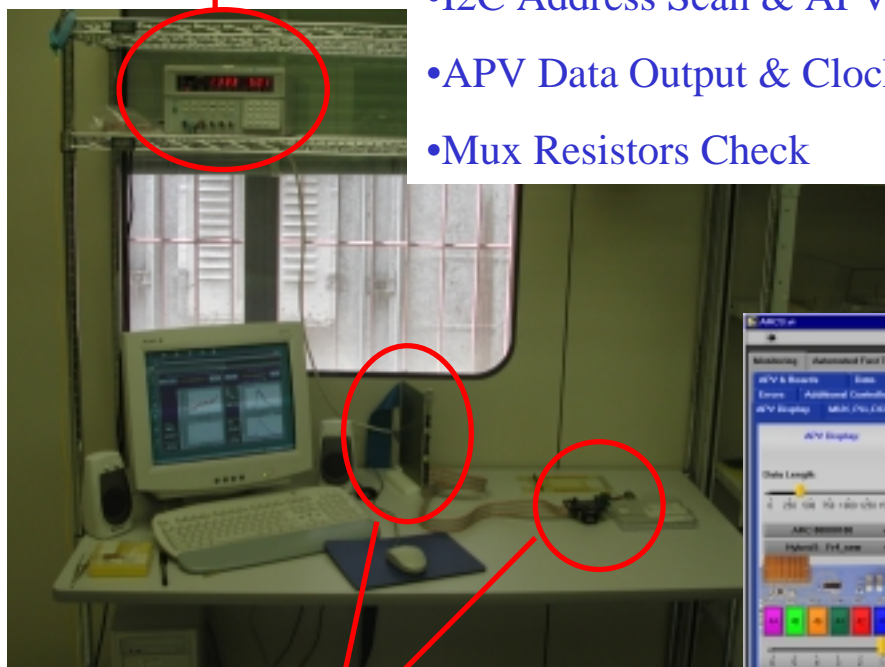
Optical Inspection System
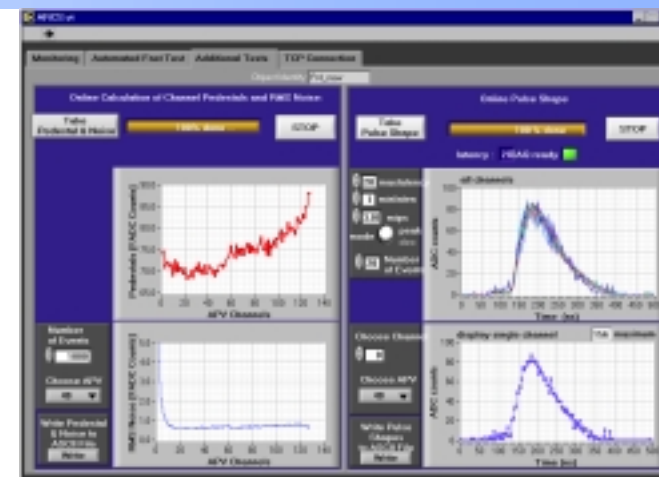
ARC System Setup

Automated Fast Test

- Self Test ARC System
- Low Voltage Control
- I2C Address Scan & APV R/W Cycles
- APV Data Output & Clock Distribution
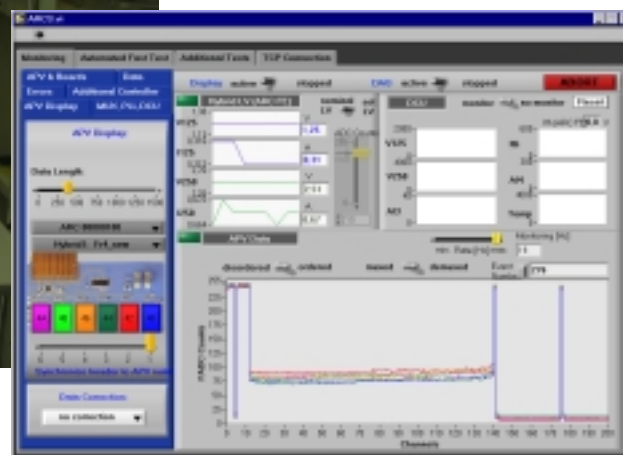- Mux Resistors Check

LV-Source
(+5 V , -5V)

ARC System

Noise, Pedestal & Calibration

APV Settings

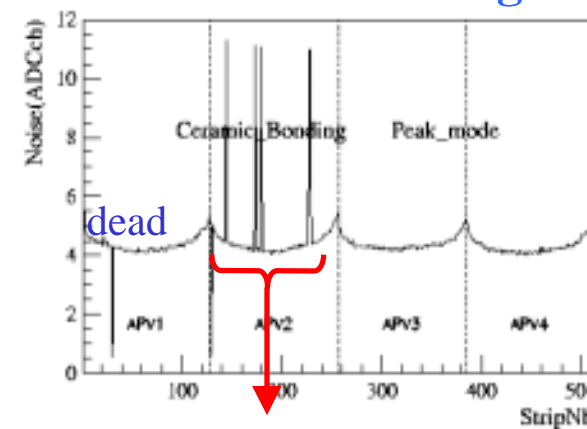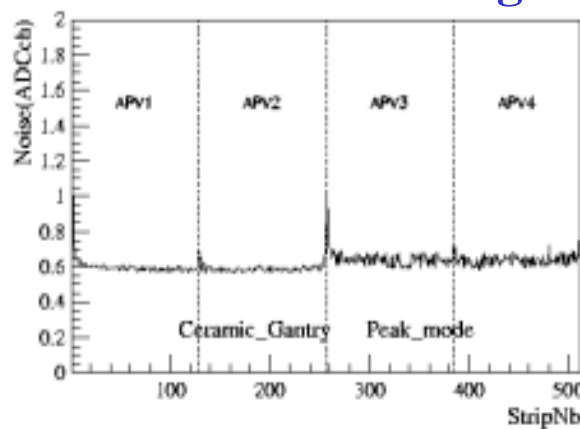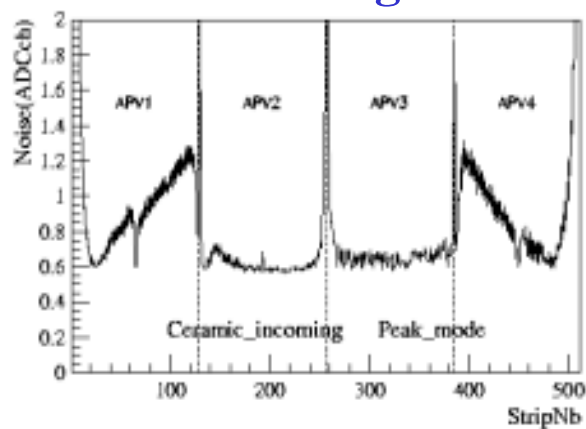|	
IPRE	98
IPCASC	52
IPSF	34
ISHA	34
ISSF	34
IPSP	55
IMUXIN	34
ICAL	29
VFP	30
VFS	60
VPSP	40

Domenico Giordano

CMS-week   June 2002

Ceramic hybrid Noise

Incoming

After Assembling
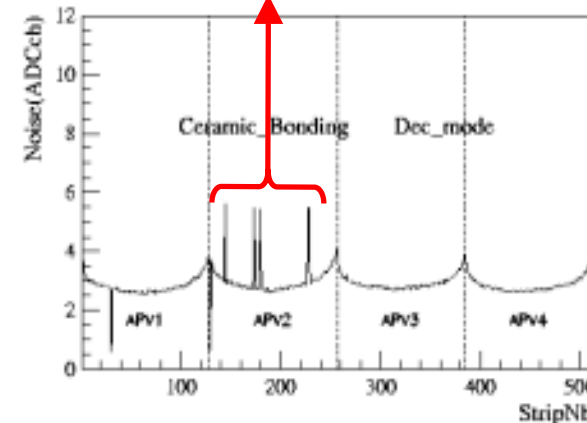
After Bonding

Peak

Dec

PA structure ?

dead

Missing bonding:
143,172,178,226,227

no HV

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CMS-week   June 2002
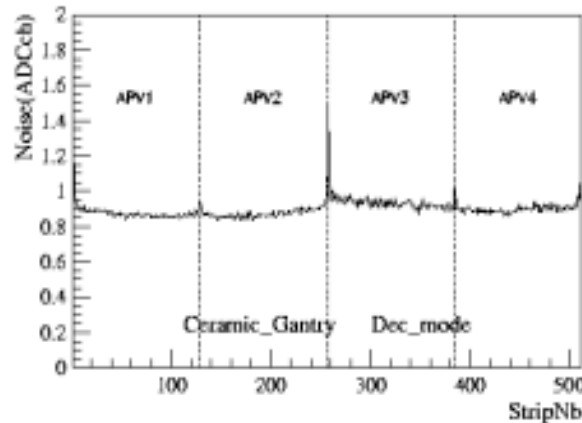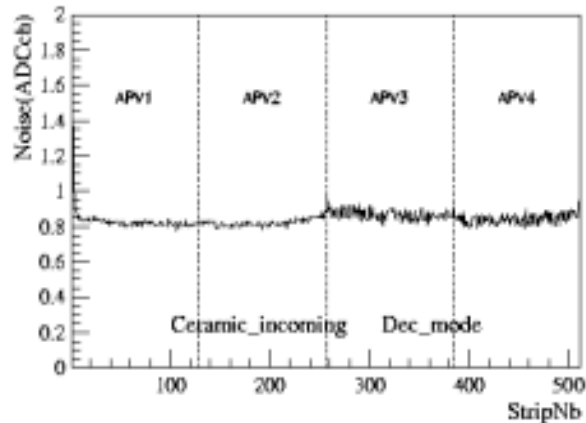
Ceramic Calibration Psh

APV2 After Bonding (no HV)

Peak   Dec

missing
bonding:
143,172,
178,226,
227

Fr4 _v1 hybrid Noise

No HV

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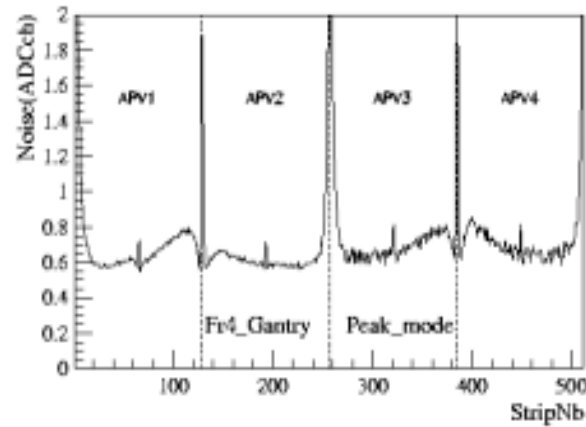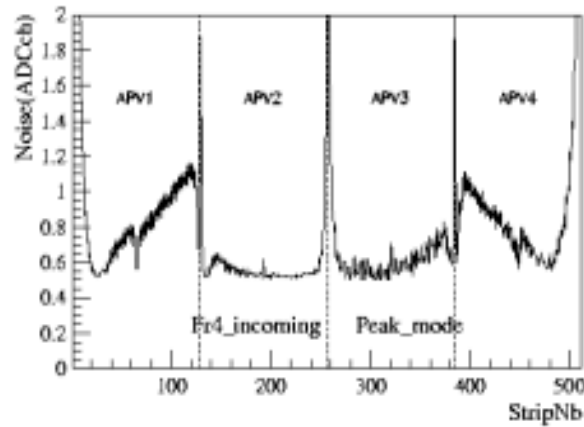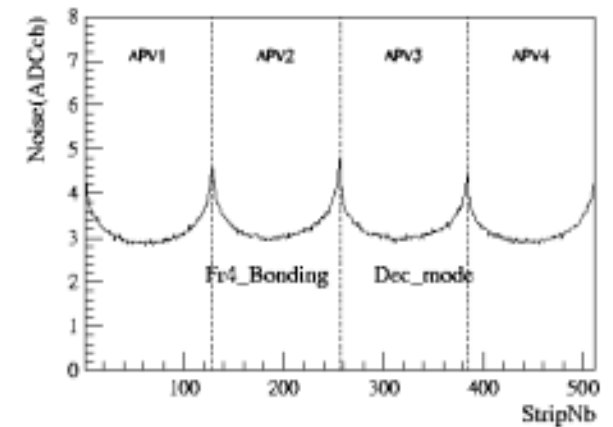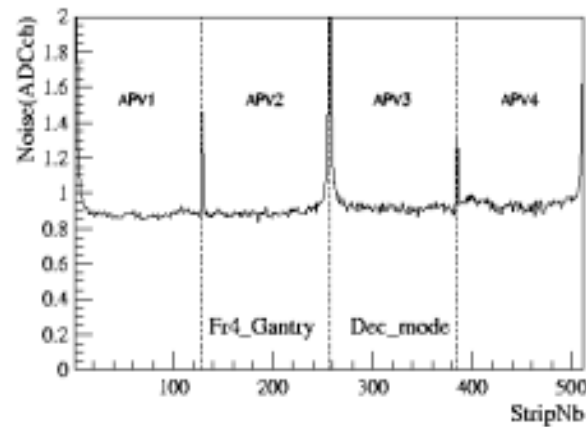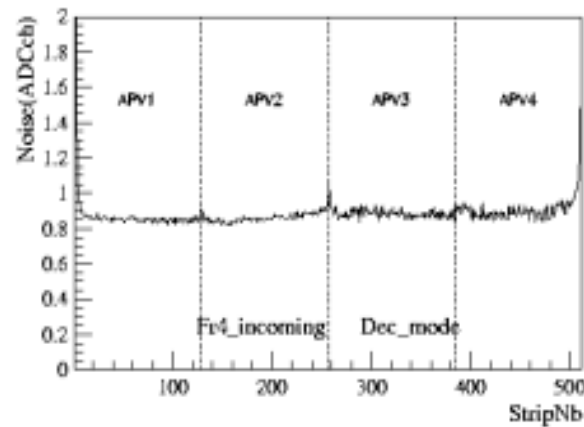
Fr4_v2 hybrid (Version 2)
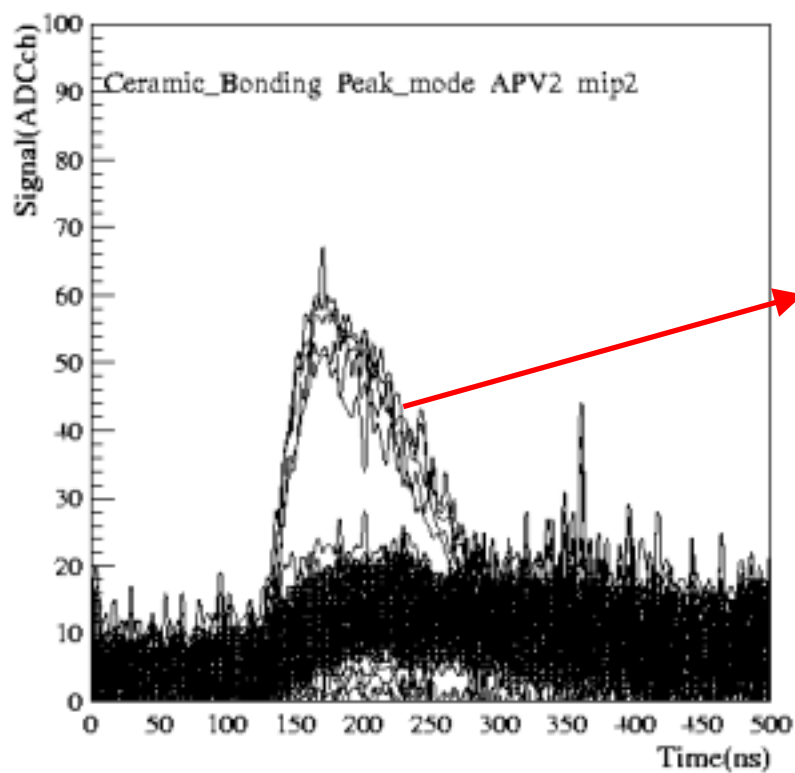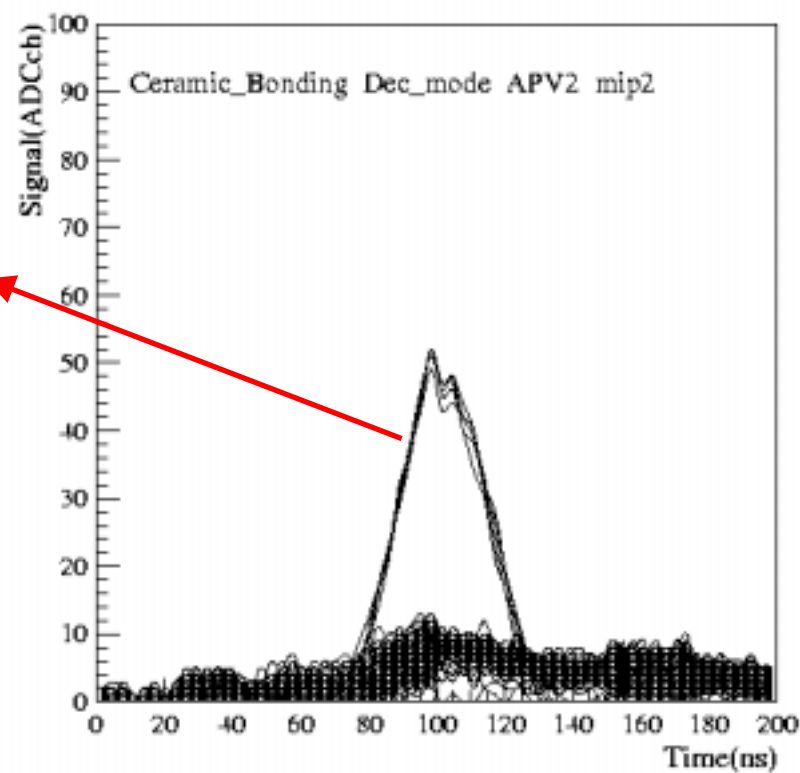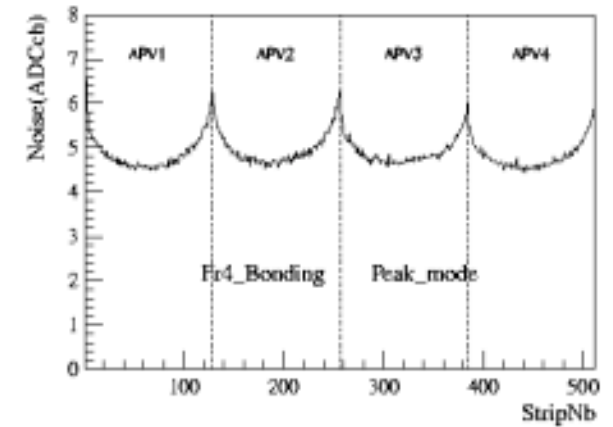
(Peak mode)

Incoming

After Assembling
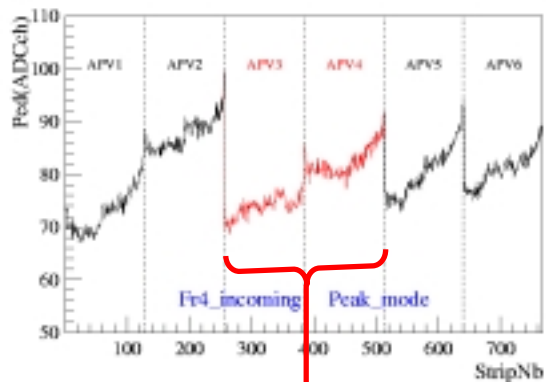
After Bonding

APVs not-connected

Pedestal

Noise

no HV

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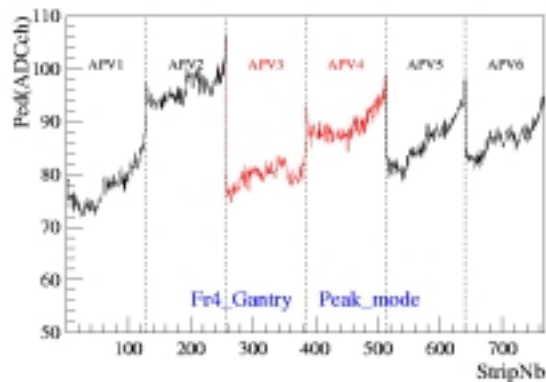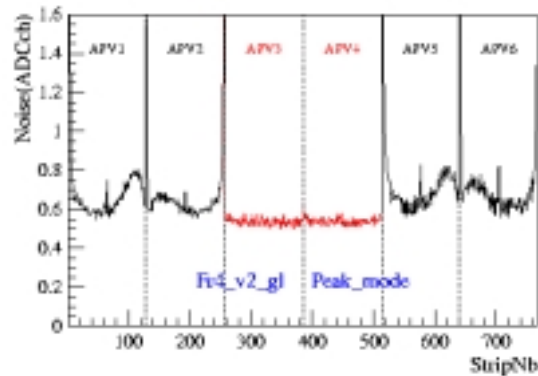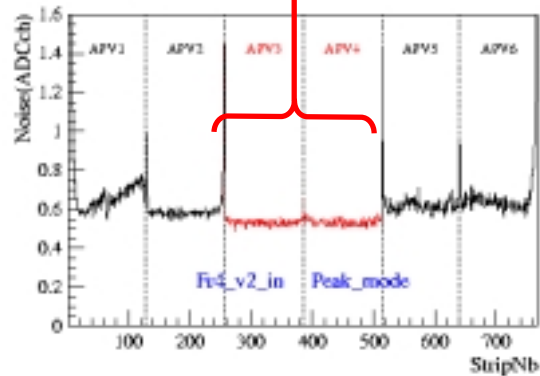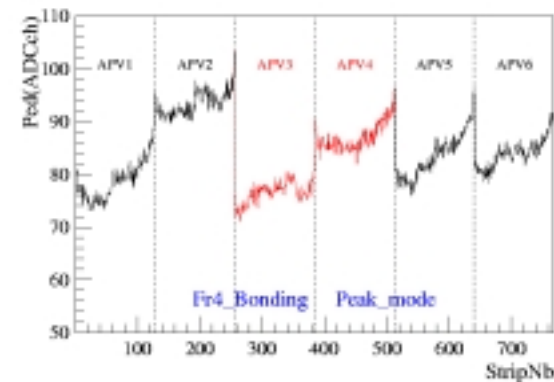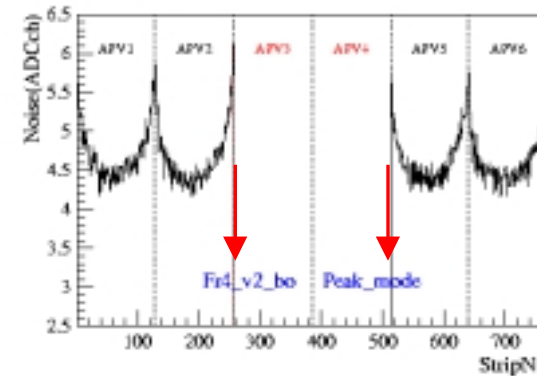
CMS-like System Setup

Lyon DAQ with TSC

analysis tool: Torino macro

TIB009
Depletion Voltage: 220 V
Bias: 300 V
I ~8 µA

TIB010
Depletion Voltage: 200 V
Bias: 300 V
I ~13 µA

Peak

APV1
mean: 1.32
rms: 0.16

APV2
mean: 1.3
rms: 0.1

APV3
mean: 1.33
rms: 0.06

APV4
mean: 1.31
rms: 0.12

Dec

TIB009 Bad Strips

Number of bad strips 16:

chip 1 strip 1   peak   Raw Noise + Noise;   dec Raw Noise + Noise

chip 1 strip 21   peak   OK;   dec   Calibration

chip 1 strip 30   peak Raw Noise + Noise + Cal;   dec   as peak

chip 1 strip 128   peak   OK;   dec Raw Noise

chip 2 strip 129   peak Raw Noise + Noise + Cal;   dec Raw Noise + Noise + Cal

chip 2 strip 144   peak   OK;   dec Calibration

chip 2 strip 173   peak   OK;   dec Calibration

chip 2 strip 179   peak   OK;   dec Calibration

chip 2 strip 227   peak   Raw Noise;   dec Calibration

chip 2 strip 228   peak   OK;   dec Calibration

unbonded strips on APV2

chip 2 strip 256   peak   Raw Noise;   dec Raw Noise + Noise

chip 3 strip 319   peak Raw Noise + Noise;   dec   OK

chip 3 strip 384   peak   OK;   dec   Raw Noise

chip 4 strip 480   peak   OK;   dec   Raw Noise

chip 4 strip 511   peak   OK;   dec Raw Noise

chip 4 strip 512   peak Raw Noise + Noise;   dec Raw Noise + Noise

Cut methods:
cuts in chip average value
percentage

	low	high
Pedestal:	0.10	0.10
Noise:	0.20	0.20
RNoise :	0.20	0.20
Calibration:	0.20	0.10

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(after CMN subtraction)

Peak

APV1
mean: 1.38
rms: 0.15

APV2
mean: 1.40
rms: 0.15

APV3
mean: 1.40
rms: 0.05

APV4
mean: 1.42
rms: 0.28

TIB010 Noise
(after CMN subtraction)
Dec

APV1
mean: 1.79
rms: 0.36

APV2
mean: 1.84
rms: 0.28

APV3
mean: 1.79
rms: 0.06

APV4
mean: 1.82
rms: 0.49

TIB010 Bad Strips

Cut methods:
cuts in chip average value percentage

Pedestal: low 0.10 high 0.10
Noise: low 0.20 high 0.20
RNoise :   low 0.20 high 0.20
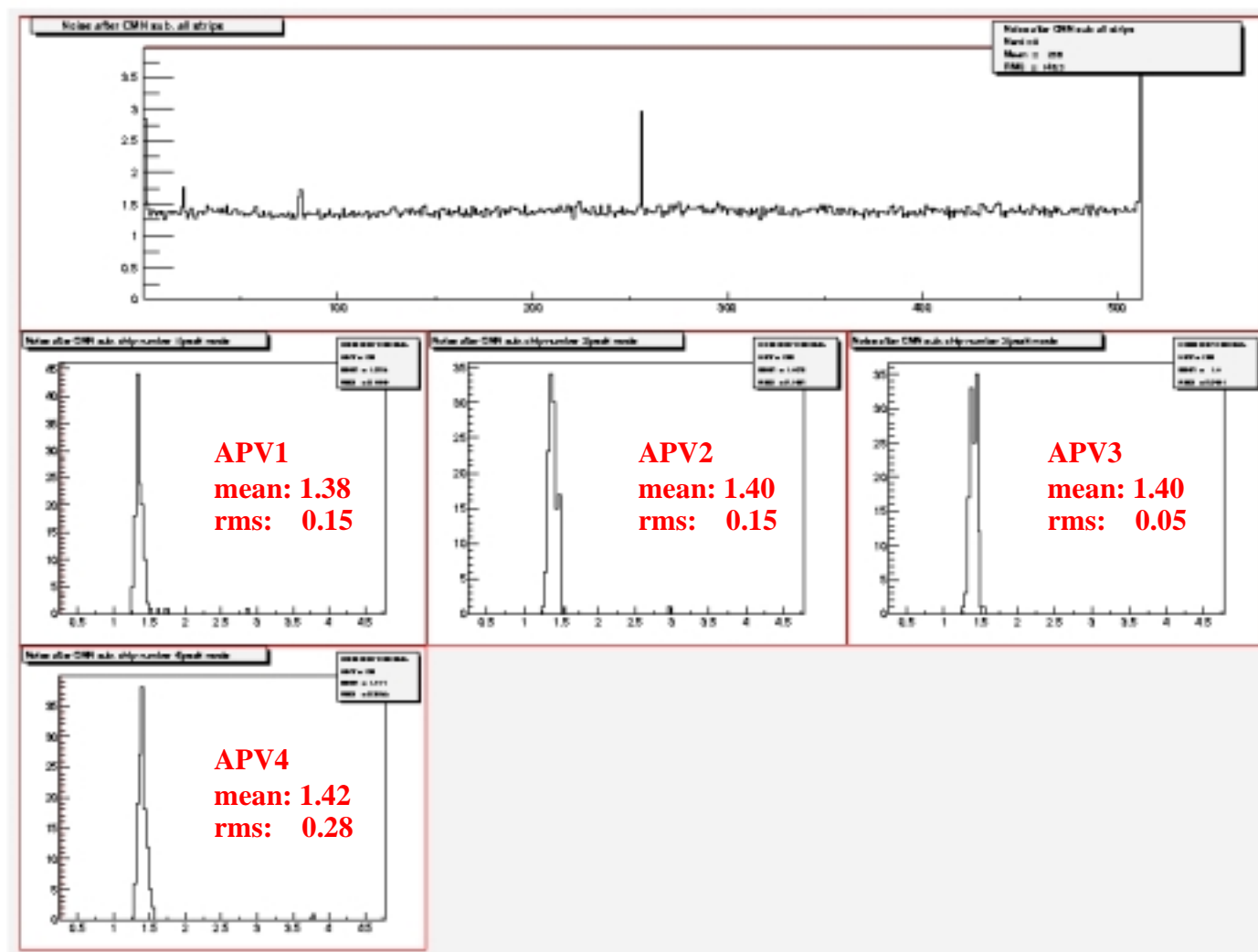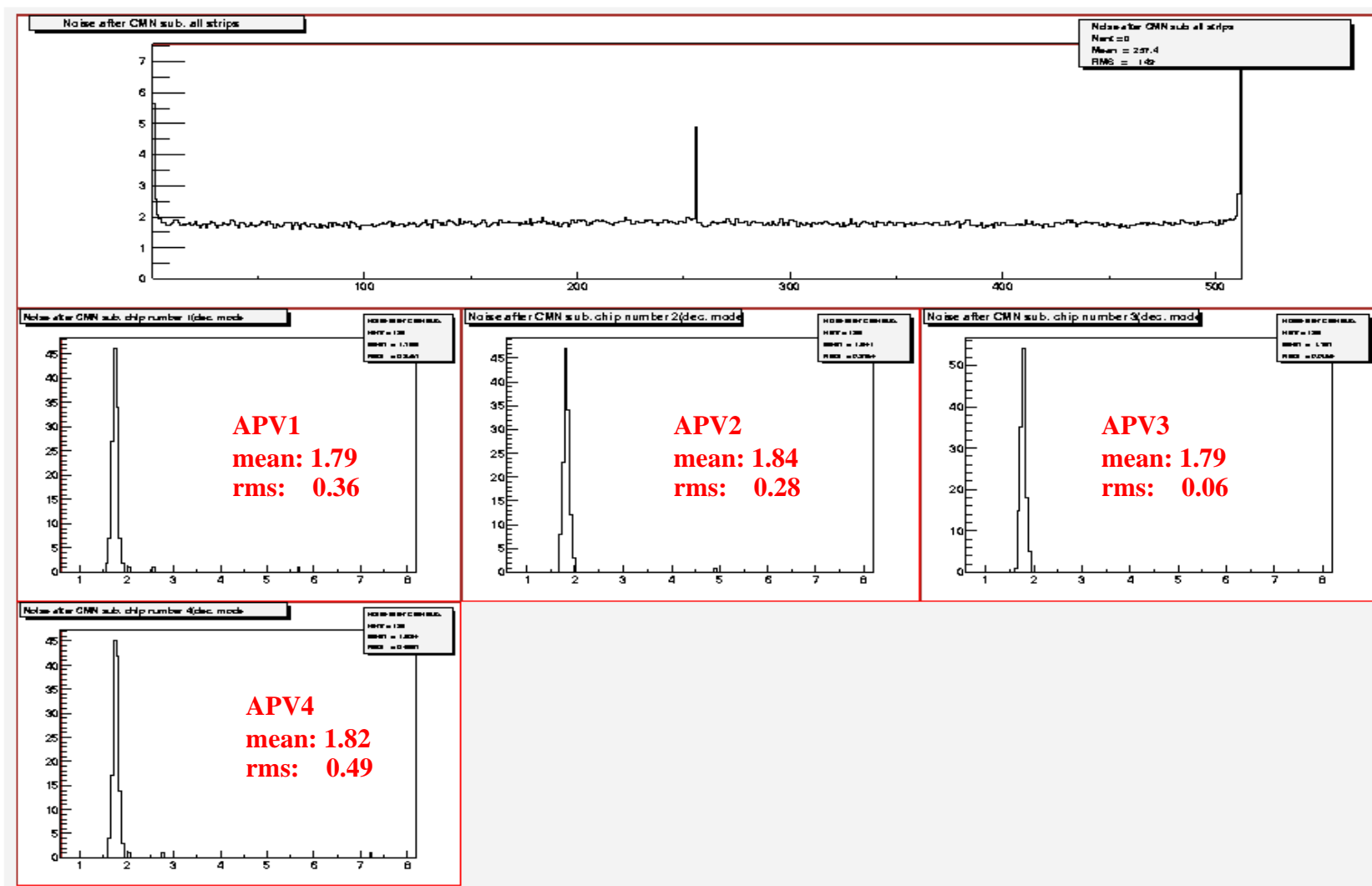Calibration: low 0.20 high 0.10

Number of bad strips 8:

chip 1 strip 1   peak Raw Noise + Noise;   dec Raw Noise + Noise
chip 1 strip 2   peak   OK;   dec Raw Noise + Noise
chip 1 strip 21   peak Raw Noise + Noise;   dec   OK
chip 1 strip 81   peak   Noise;   dec   OK
chip 2 strip 256   peak Raw Noise + Noise;   dec Raw Noise + Noise
chip 2 strip 257   peak   OK;   dec   Raw Noise
chip 4 strip 511   peak   OK;   dec Raw Noise + Noise
chip 4 strip 512   peak Raw Noise + Noise;   dec Raw Noise + Noise

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Antwerpen's Sw
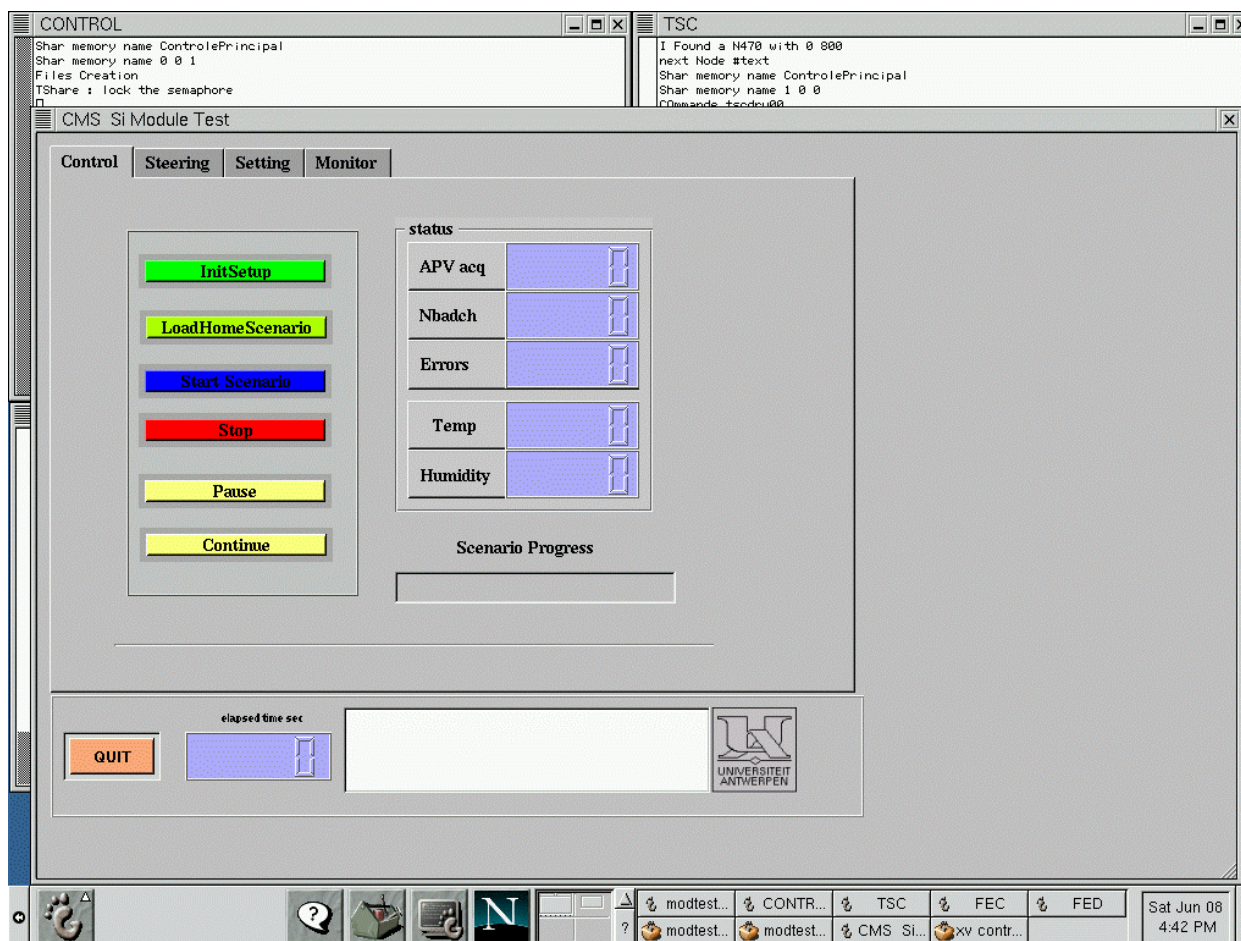
- installed last week

- module test foreseen

  next week

Next Step:
  implement temperature
  and umidity sensors
  (Wien TRHX)