BPIX Module Testing Status - Week 49

10th January 2007

Production overview

Production Status: 283 modules produced (275 / 8)

- 197/36 graded as A/B $\rightarrow$ 82%
- 50 graded as C $\rightarrow$ 18%

Module Testing Report of Week 49:

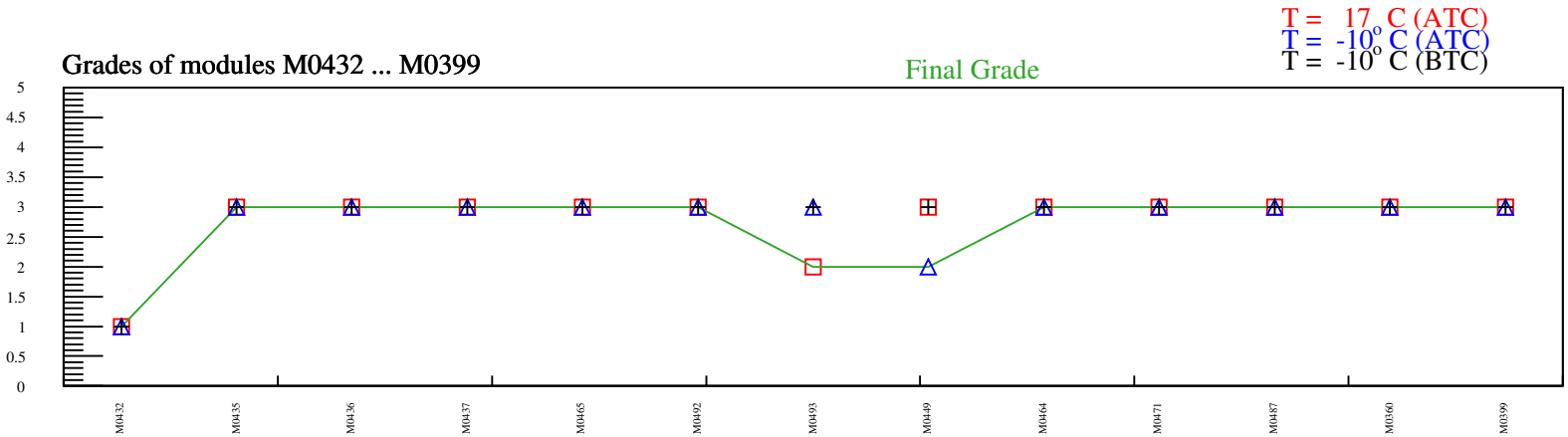
- 11/2 modules fully tested and therm. cycled (0 retested)

	Modules			*Half-Modules*		
Grade	**A**	**B**	**C**	**A**	**B**	**C**
T = -10^o C, BTC*	10	0	1	2	0	0
T = -10^o C, ATC	9	1	1	2	0	0
T = $+17^o$ C, ATC	9	1	1	2	0	0
Final Grade	8	2	1	2	0	0

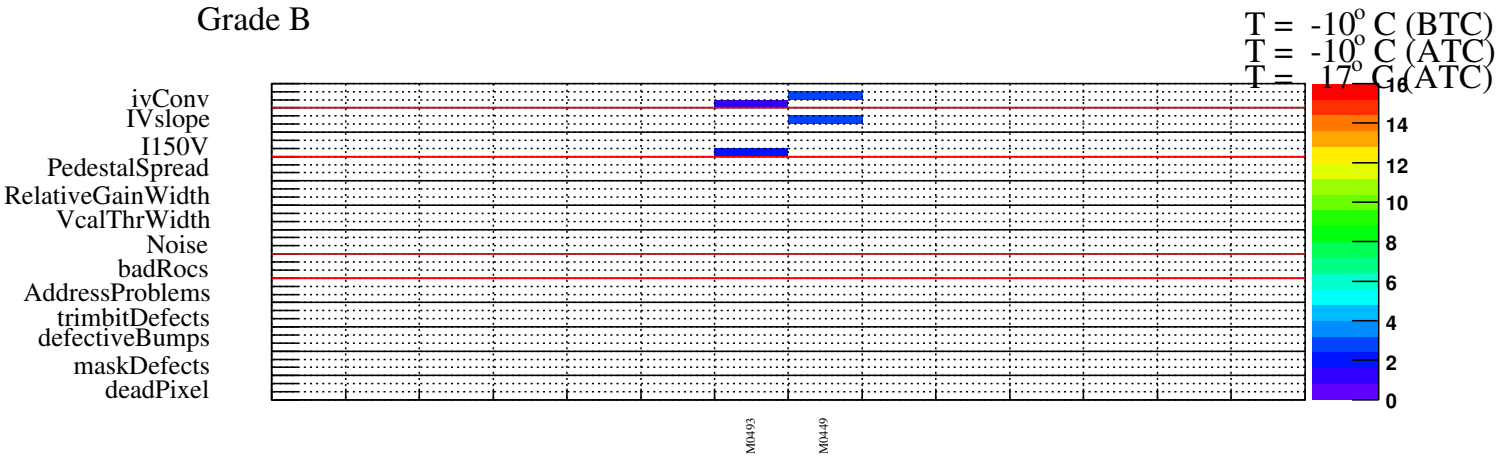
- no retests with new DAC settings

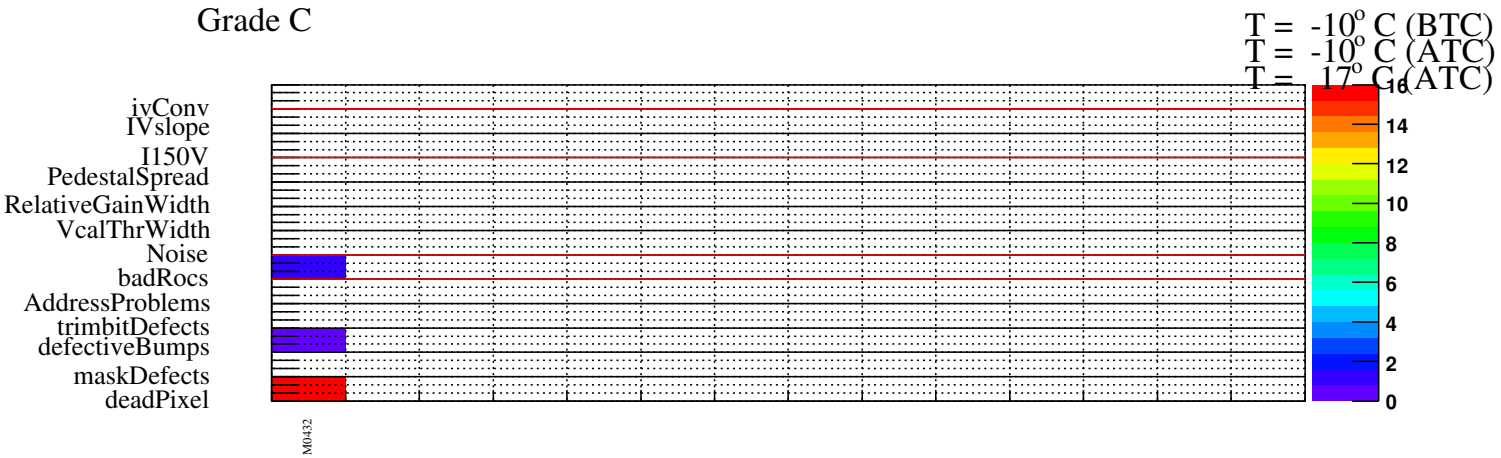
*without IV-criteria

Production summary



Module Failures Overview

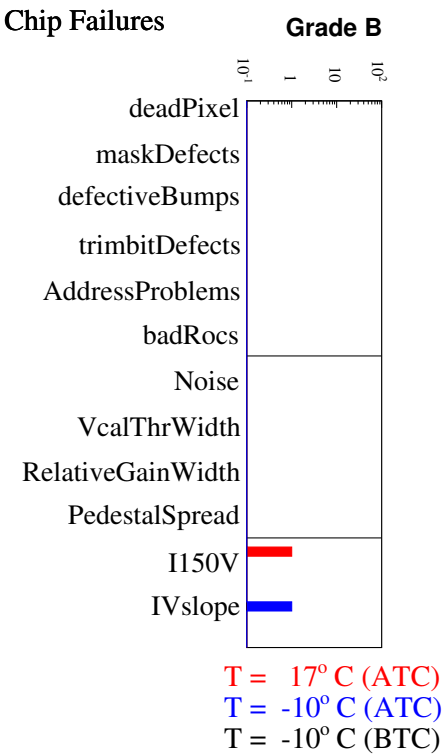


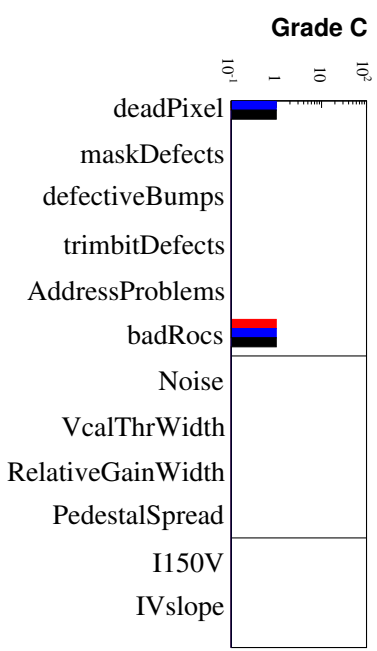


Production quality

Grade B

Grade C Failures





← Pixel defects

← Chip performance

← Module IV

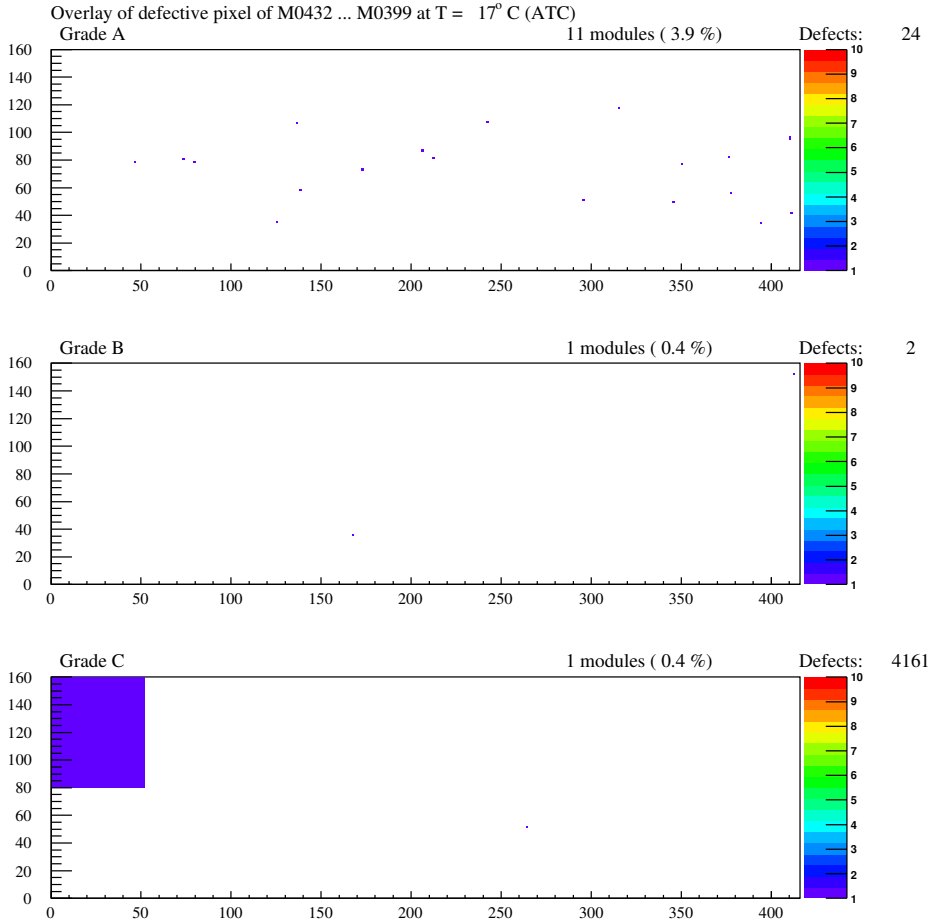
Defective pixel $T = 17^oC$ (ATC)

Overlay of all fully tested modules at T = $+17^o$ C (ATC)

Grade A
(11 modules)

Grade B
(1 modules)

Grade C
(1 modules)



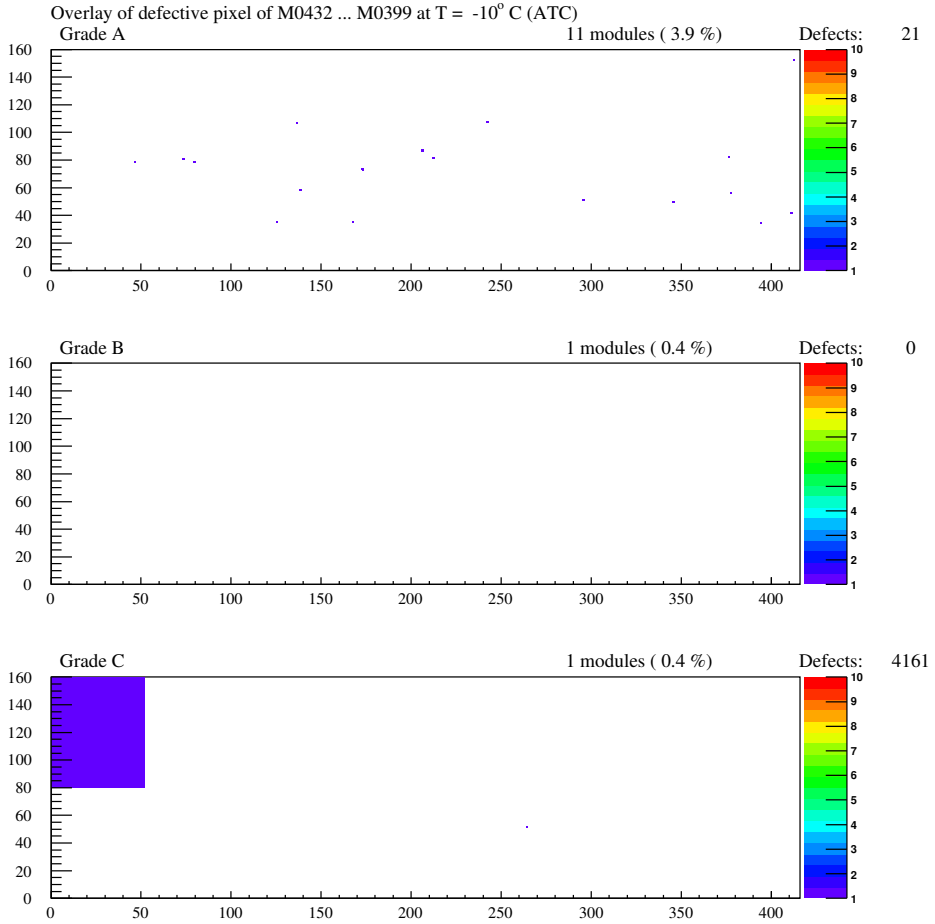
Defective pixel $T = -10^oC$ (ATC)

Overlay of all fully tested modules at T = -10^o C (ATC)

Grade A
(11 modules)

Grade B
(1 modules)

Grade C
(1 modules)



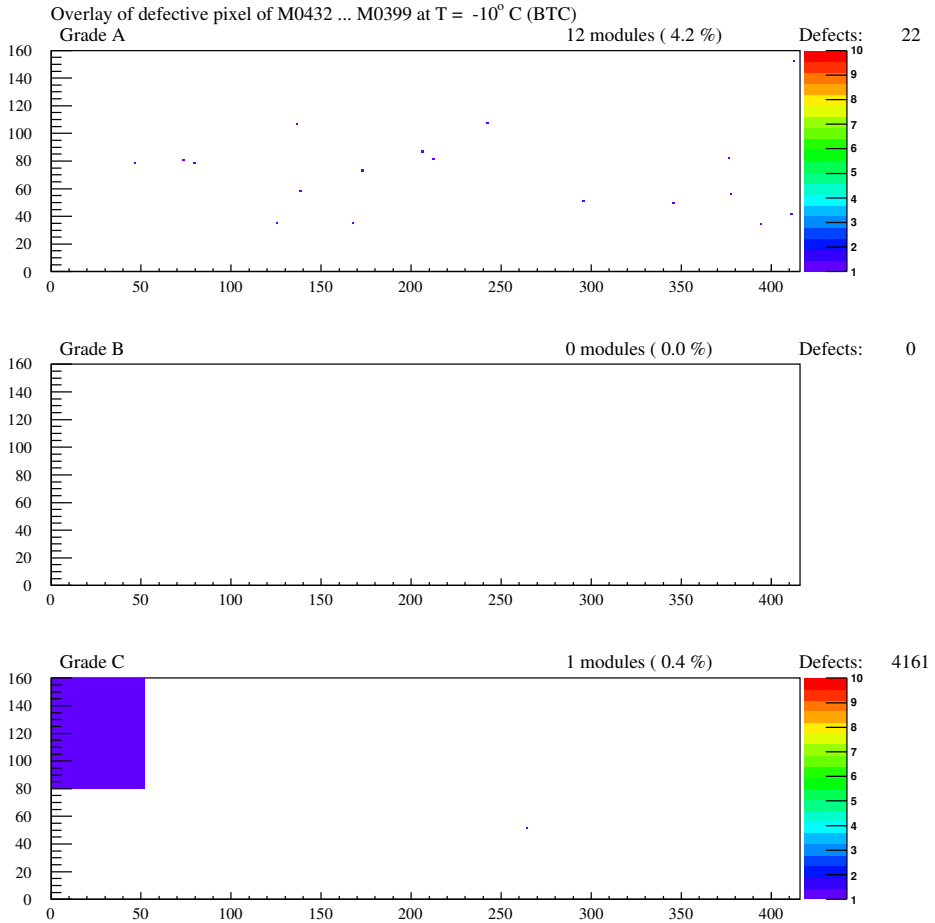
Defective pixel $T = -10^oC$ (BTC)

Overlay of all fully tested modules at T = -10^o C (BTC)

Grade A
(12 modules)

Grade B
(0 modules)

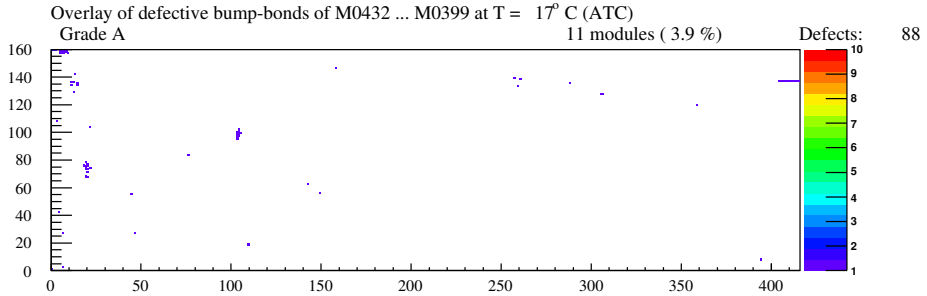
Grade C
(1 modules)



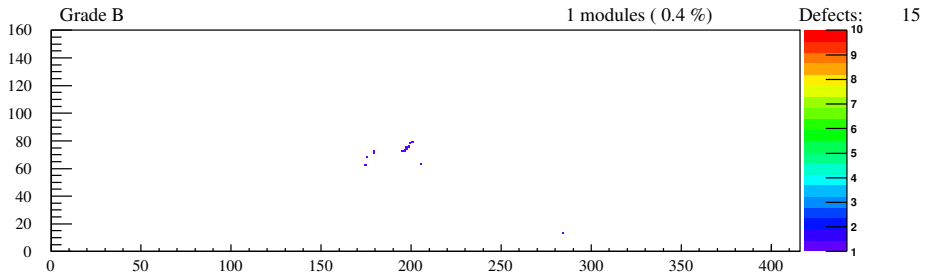
Defective bump-bonds $T = 17^{o}C$ (ATC)

Overlay of all fully tested modules at T = $+17^{o}$ C (ATC)

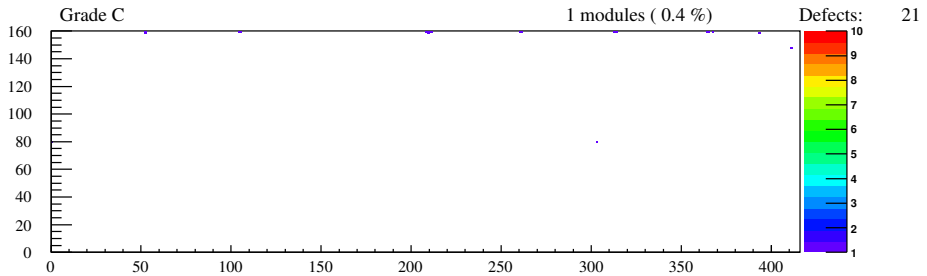
Grade A
(11 modules)



Grade B
(1 modules)



Grade C
(1 modules)



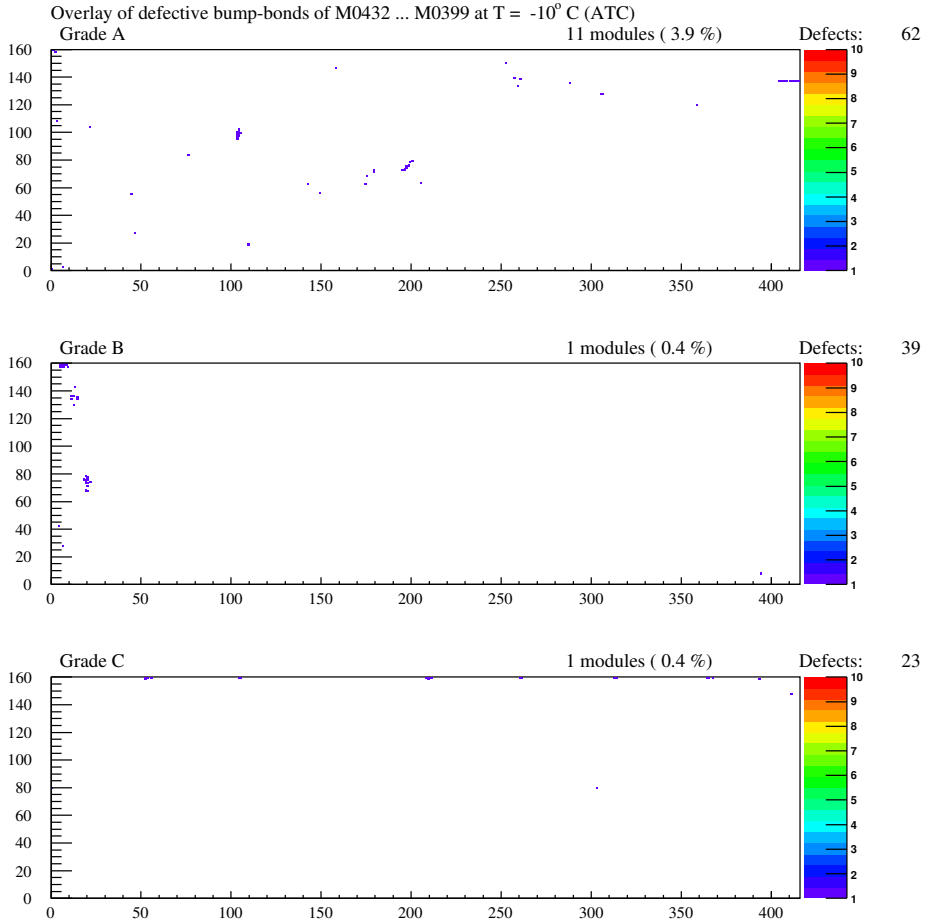
Defective bump-bonds $T = -10^{o}C$ (ATC)

Overlay of all fully tested modules at T = -10^{o} C (ATC)

Grade A
(11 modules)

Grade B
(1 modules)

Grade C
(1 modules)



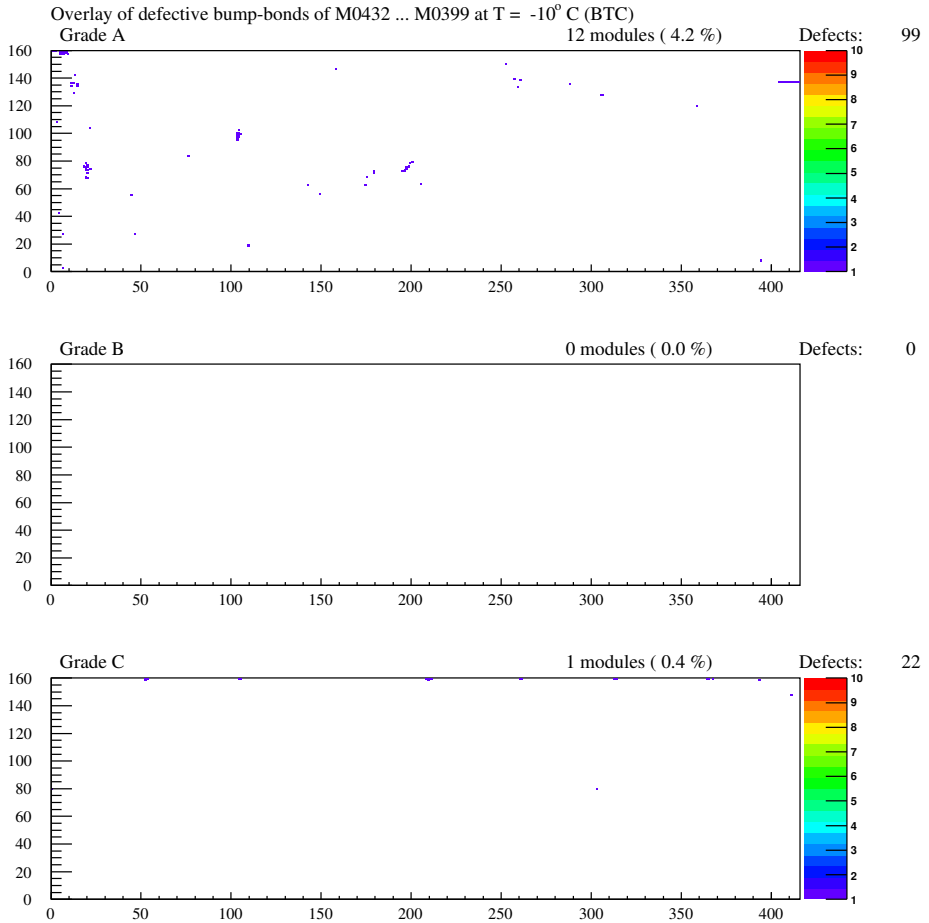
Defective bump-bonds $T = -10^{o}C$ (BTC)

Overlay of all fully tested modules at T = -10^{o} C (BTC)

Grade A
(12 modules)

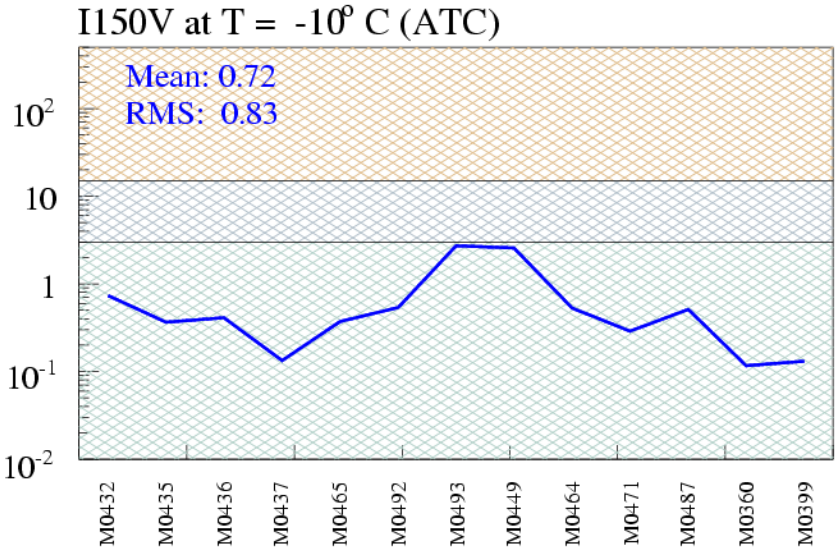
Grade B
(0 modules)

Grade C
(1 modules)

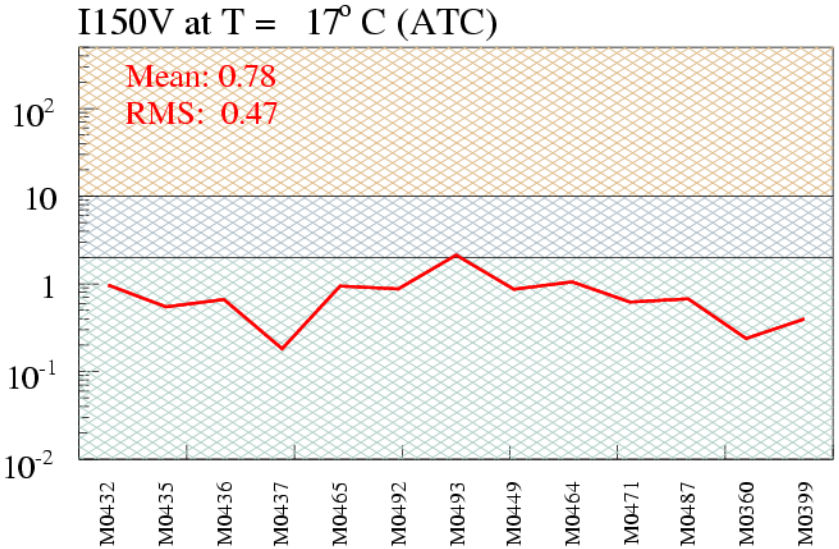


Current at 150 V

Current at 150 V (in μA) at $T = 17^oC$ and $T = -10^oC$



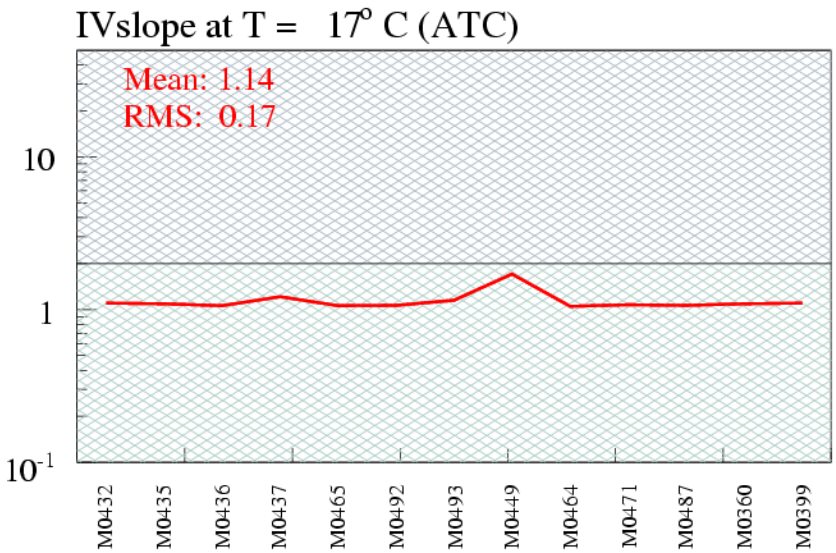
recalculated

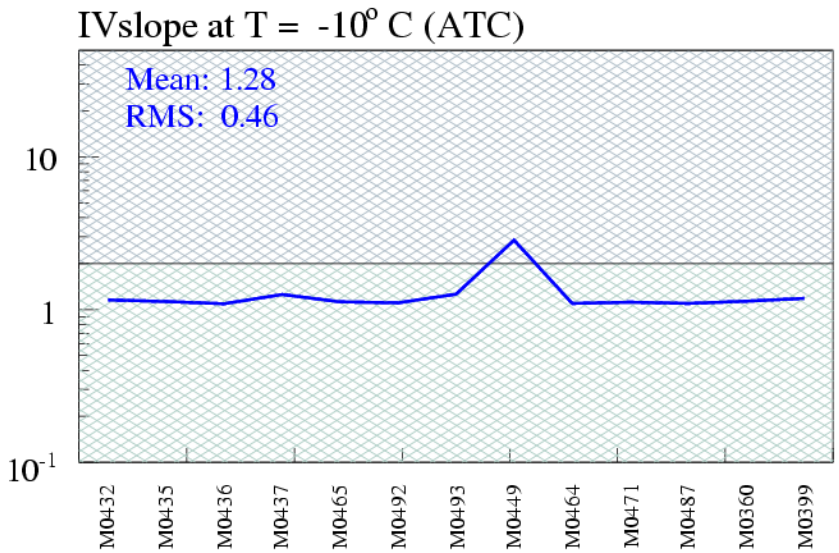


measured

Slope of IV-Curve

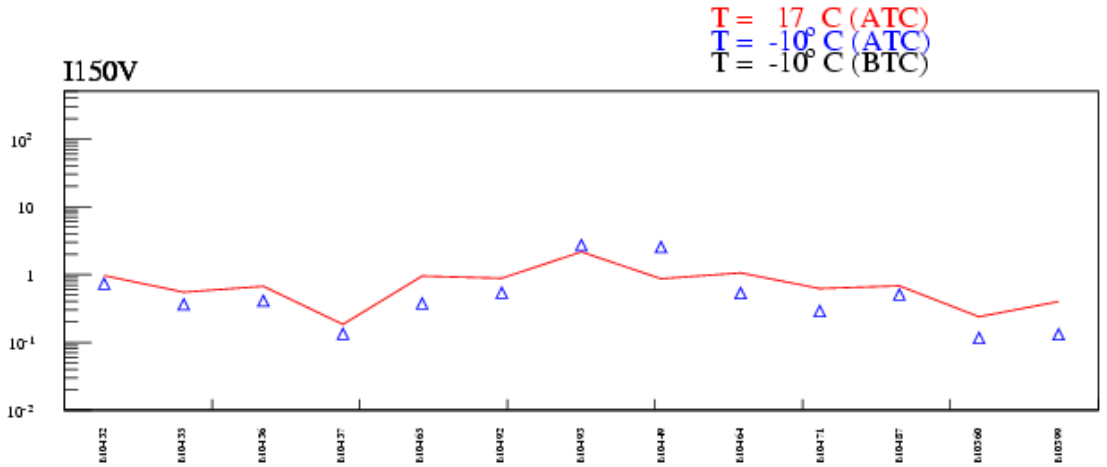
Slope of IV-Curveat $T = 17^oC$ and $T = -10^oC$

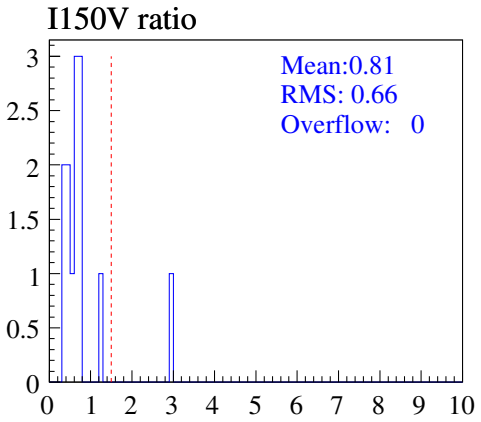


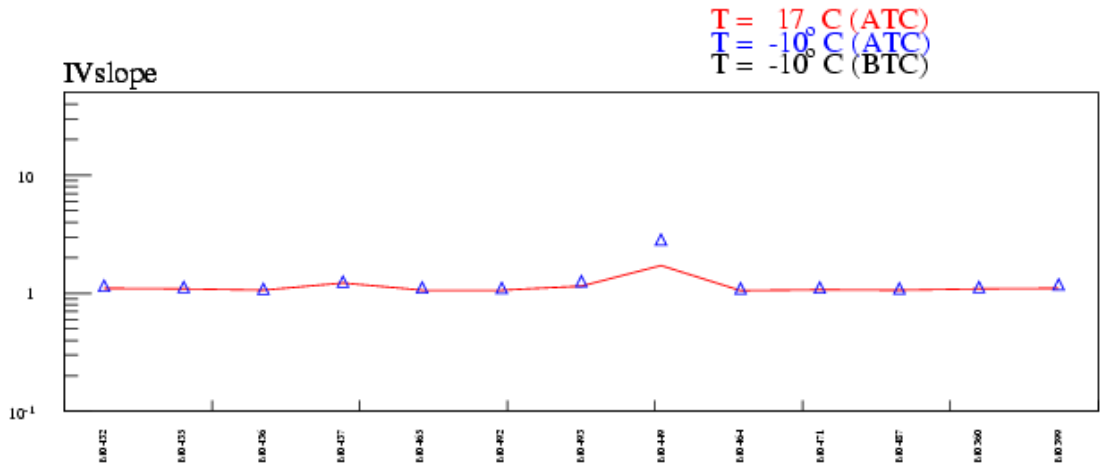


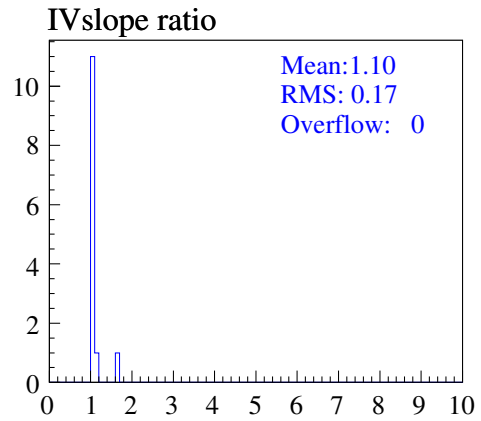
Current recalculation to $T = 17^oC$

Cross check of recalculated values with measured values

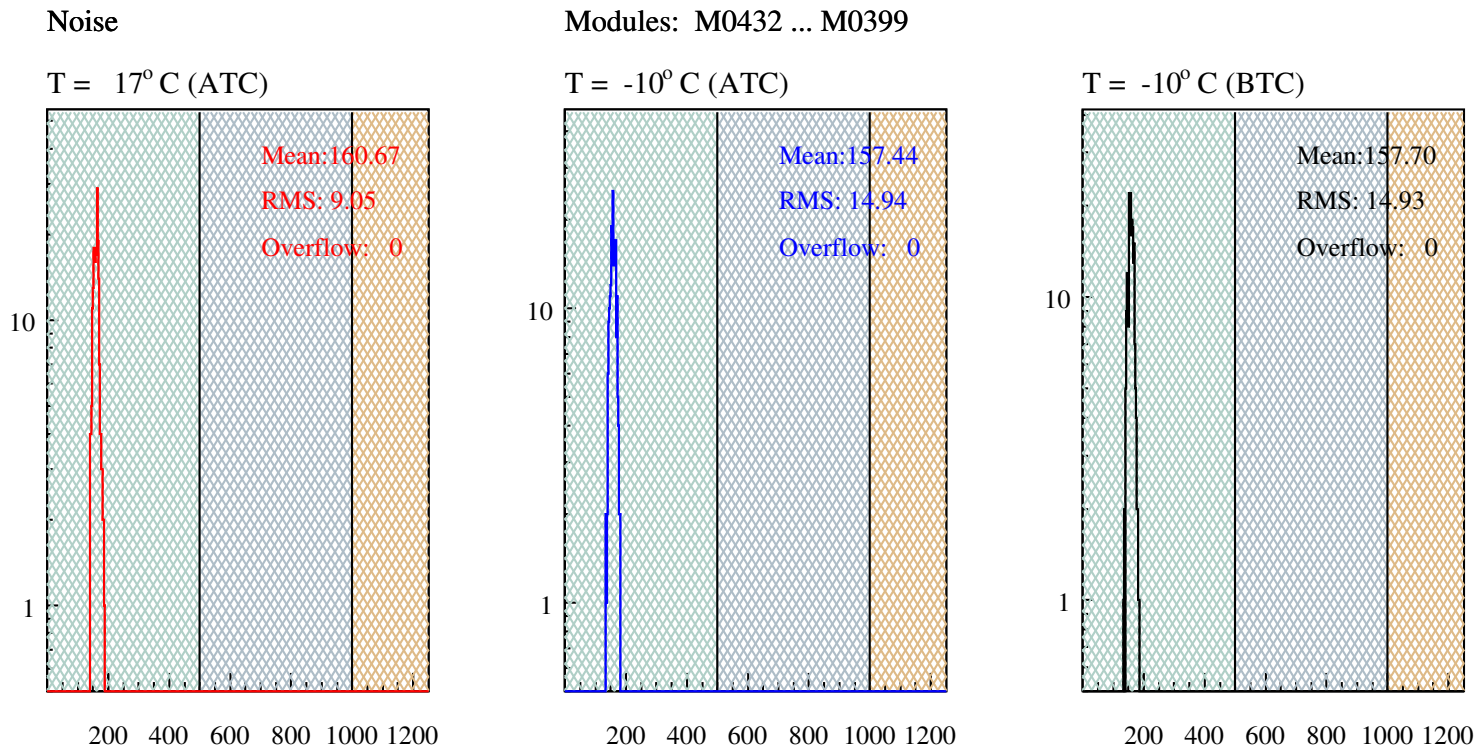








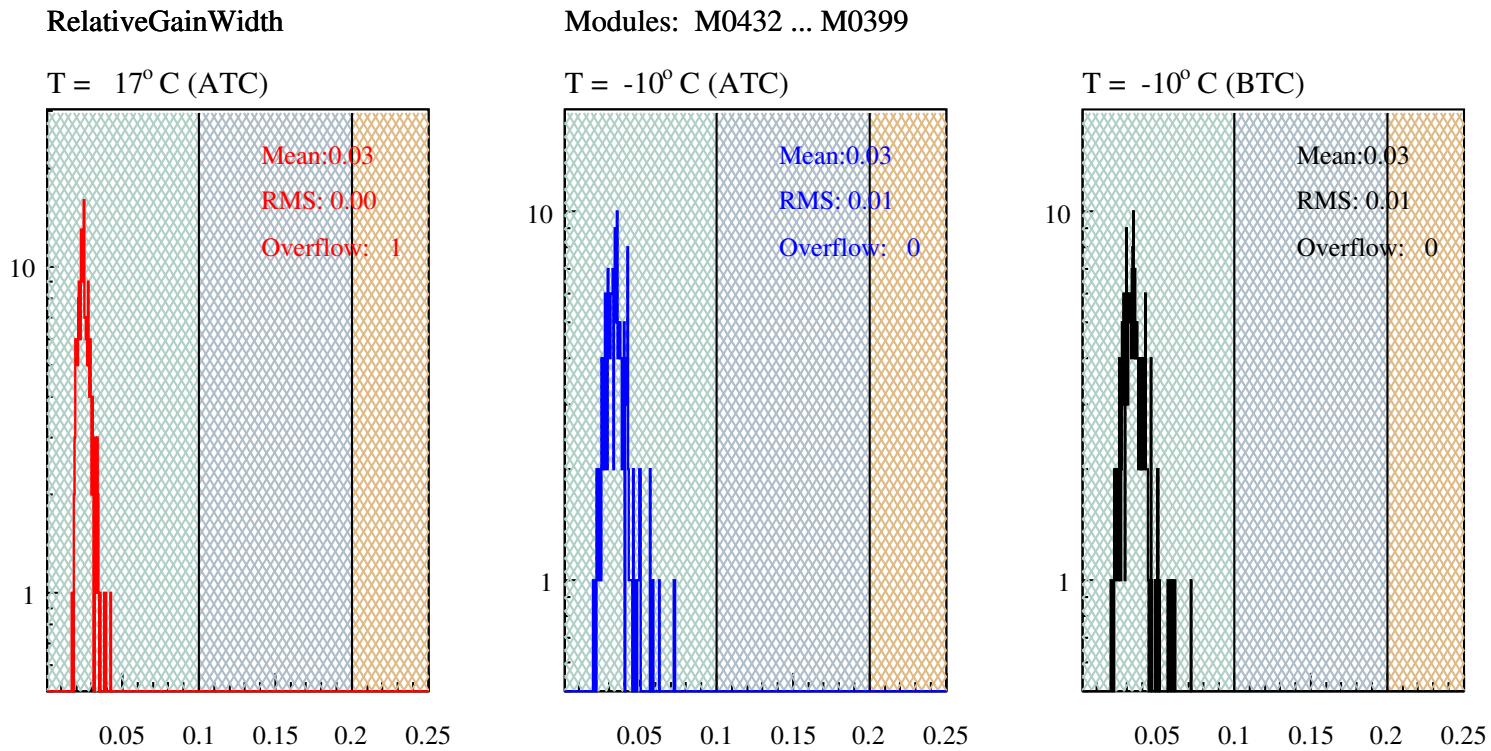
MeanNoise of chips



Noise in e^-

Relative Gain Width

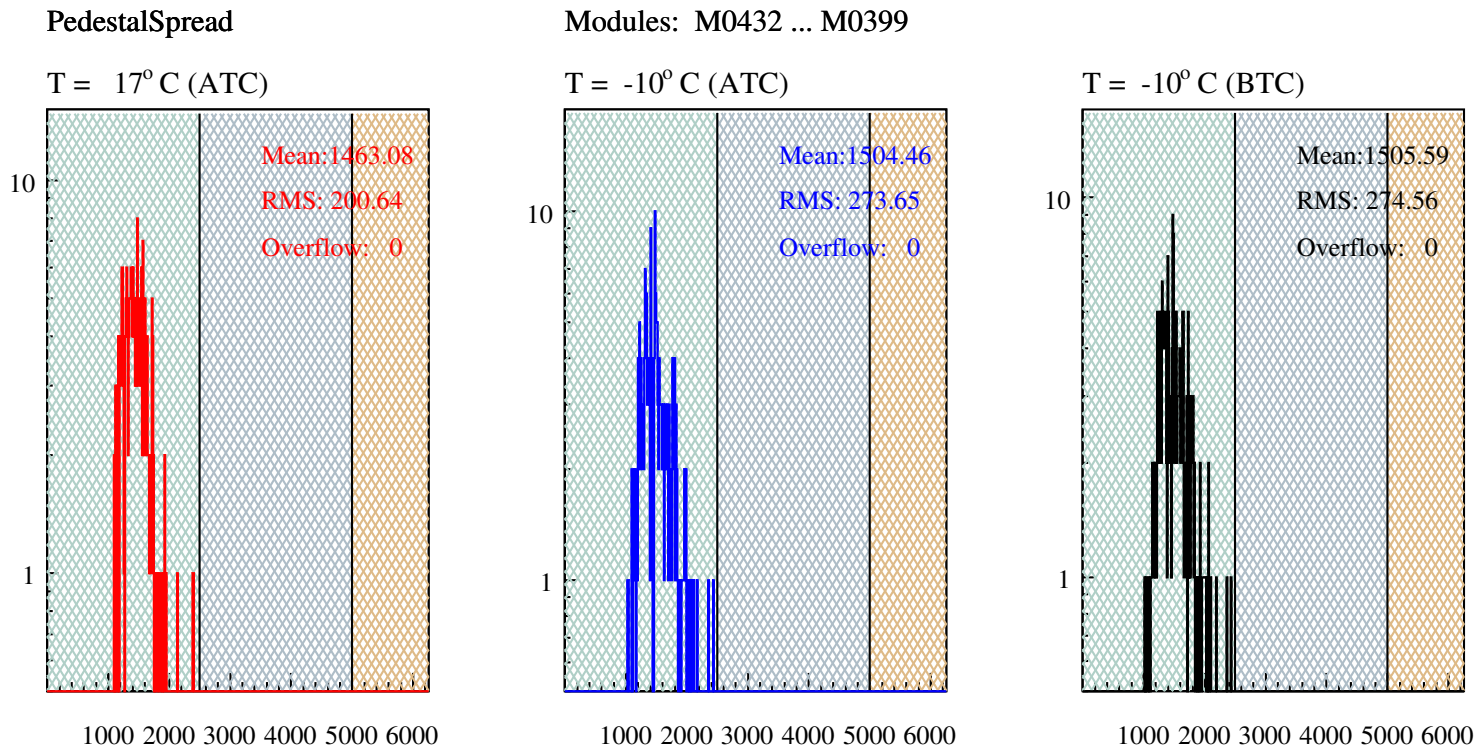
RelativeGainWidth of chips



Rel. Gain Width in %

Pedestal Spread

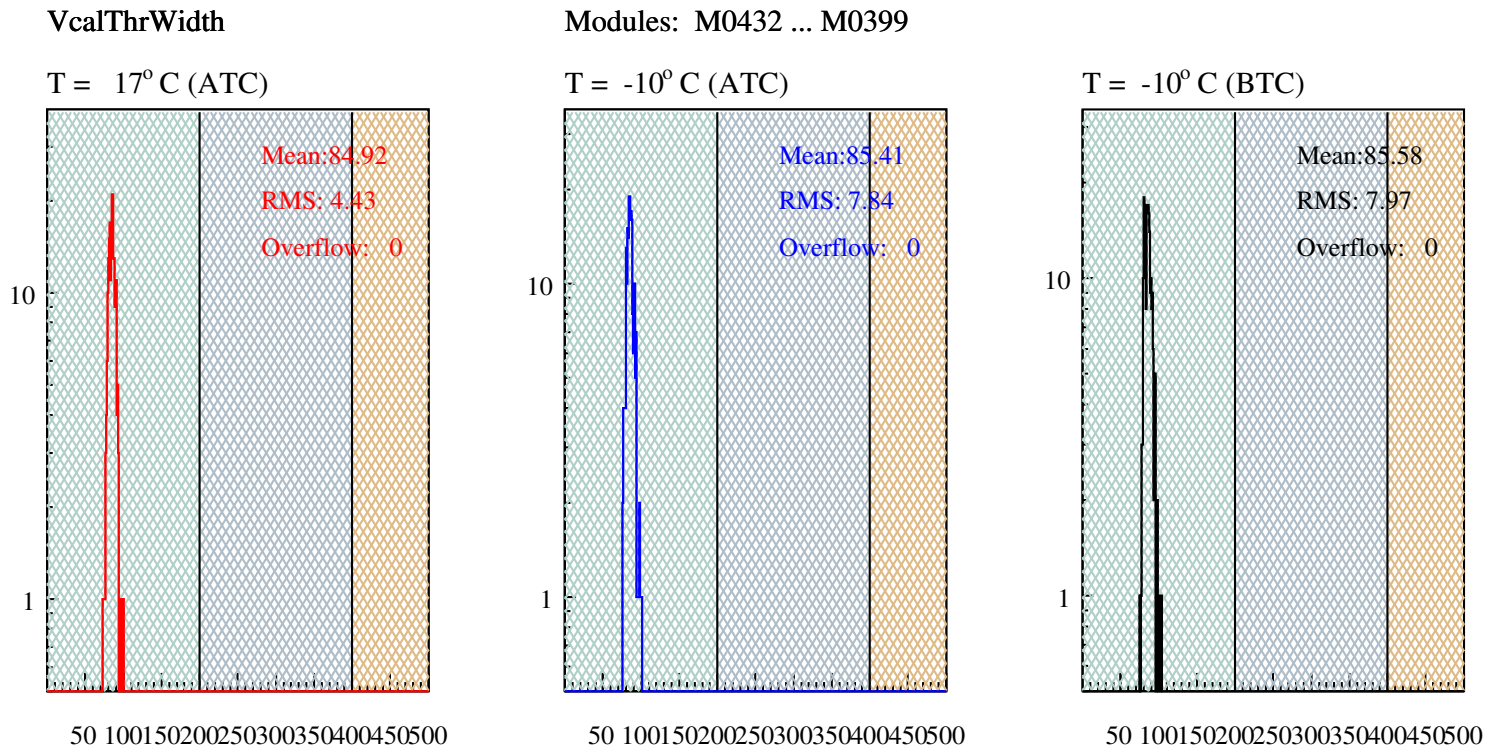
PedestalSpread of chips



Pedestal Spread in e^-

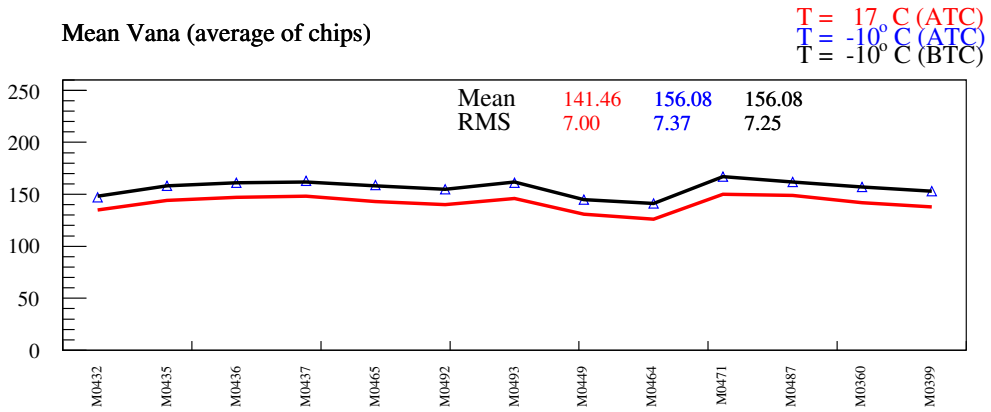
Vcal Threshold Width

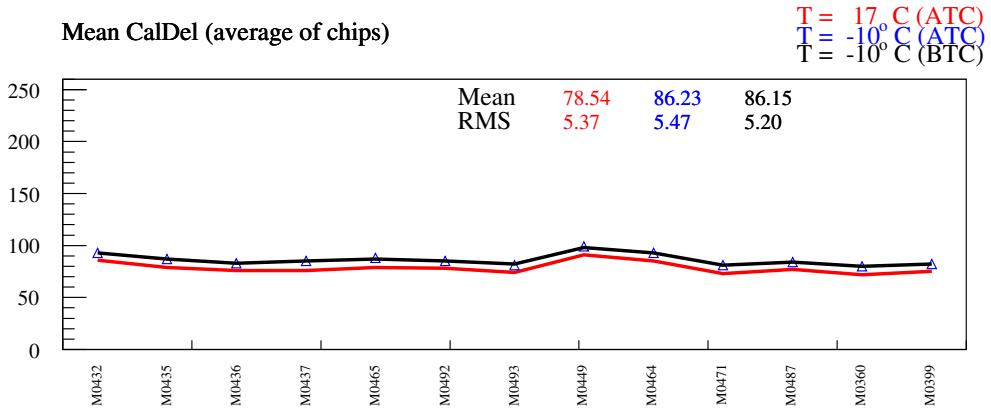
VcalThresholdWidth of chips



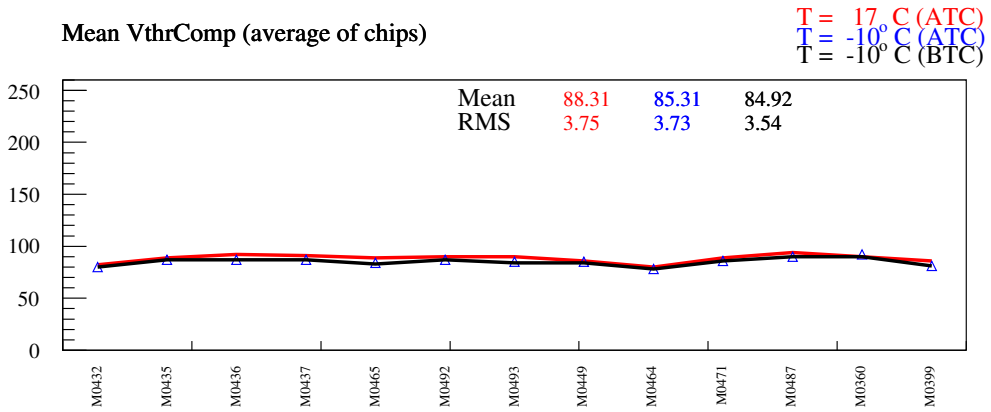
Operational parameters I

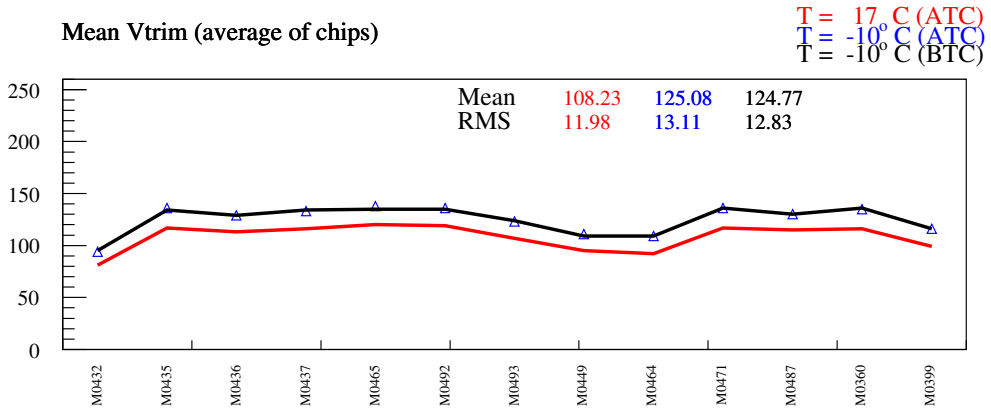
Mean DACs I





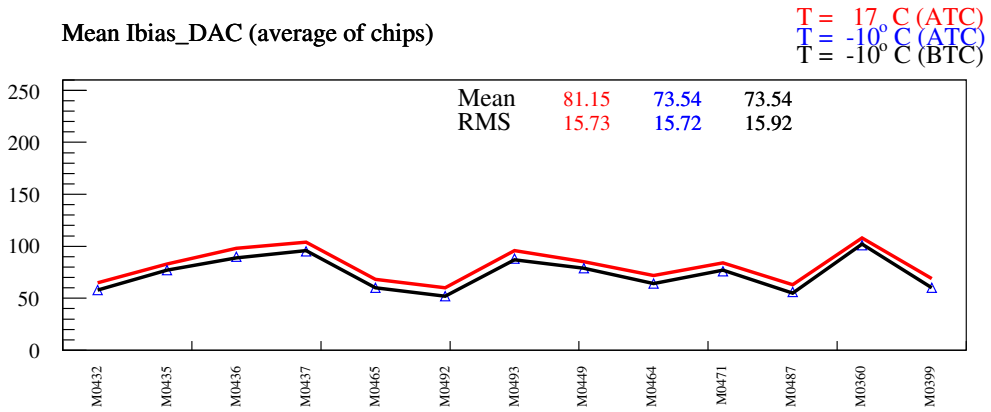
Mean DACs II

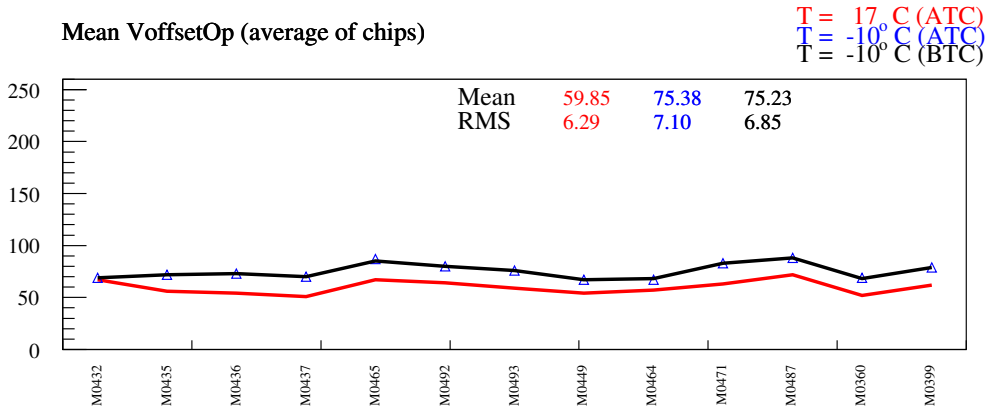

Mean VthrComp (average of chips)
T = 17 C (ATC)
T = -10° C (ATC)
T = -10° C (BTC)
Mean 88.31 85.31 84.92
RMS 3.75 3.73 3.54
250
200
150
100
50
0
M0432
M0435
M0436
M0437
M0465
M0492
M0493
M0449
M0464
M0471
M0487
M0360
M0399


Mean Vtrim (average of chips)
T = 17 C (ATC)
T = -10° C (ATC)
T = -10° C (BTC)
Mean 108.23 125.08 124.77
RMS 11.98 13.11 12.83
250
200
150
100
50
0
M0432
M0435
M0436
M0437
M0465
M0492
M0493
M0449
M0464
M0471
M0487
M0360
M0399

Operational parameters III

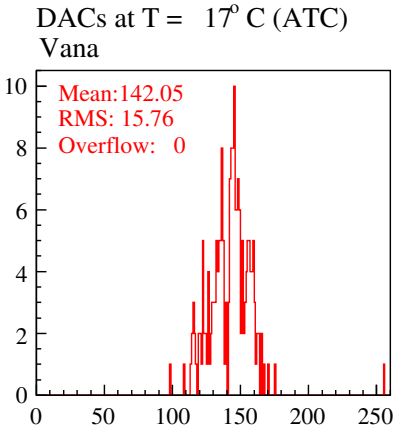
Mean DACs III

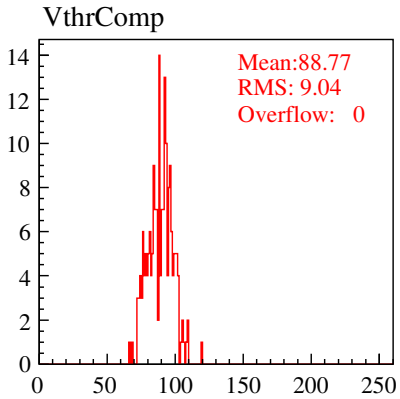


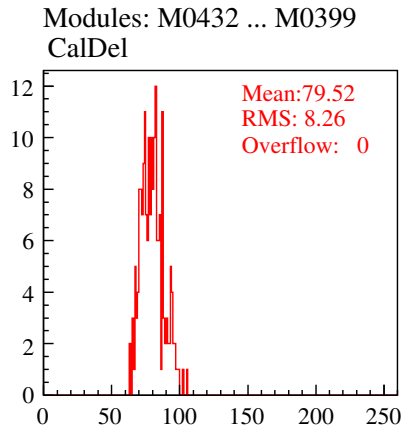


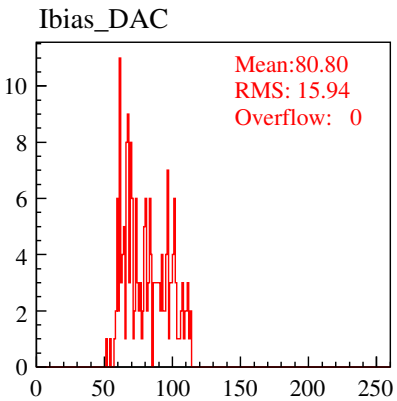
Operational parameters at $T = +17^{o}C$ (ATC)

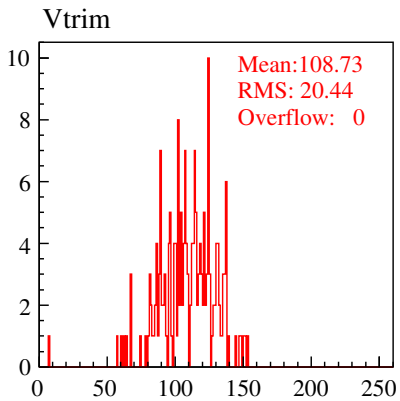
DAC distribution (of chips)

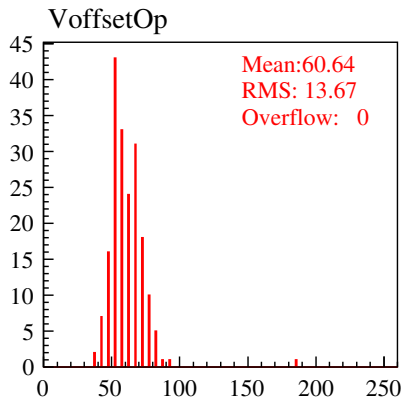






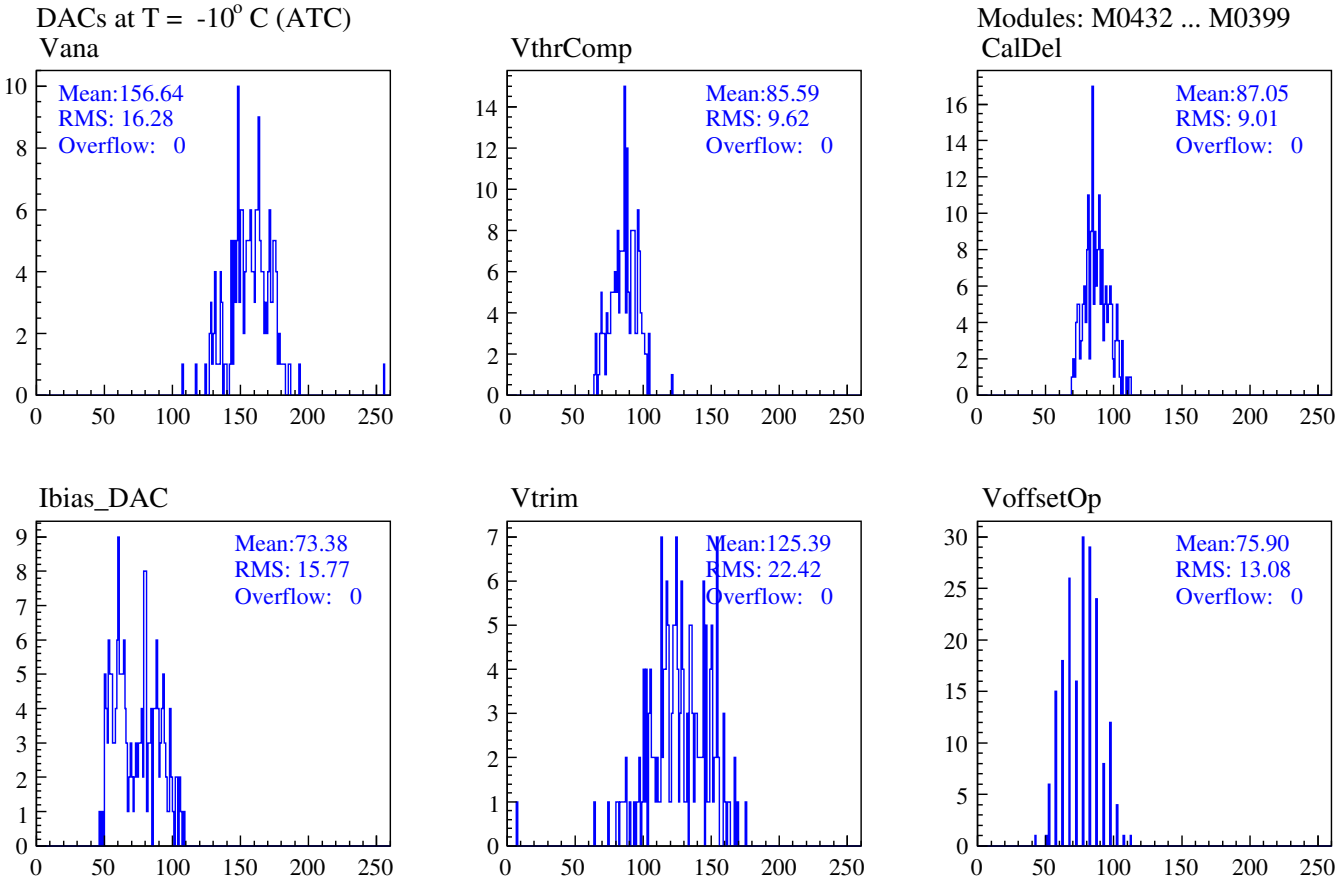






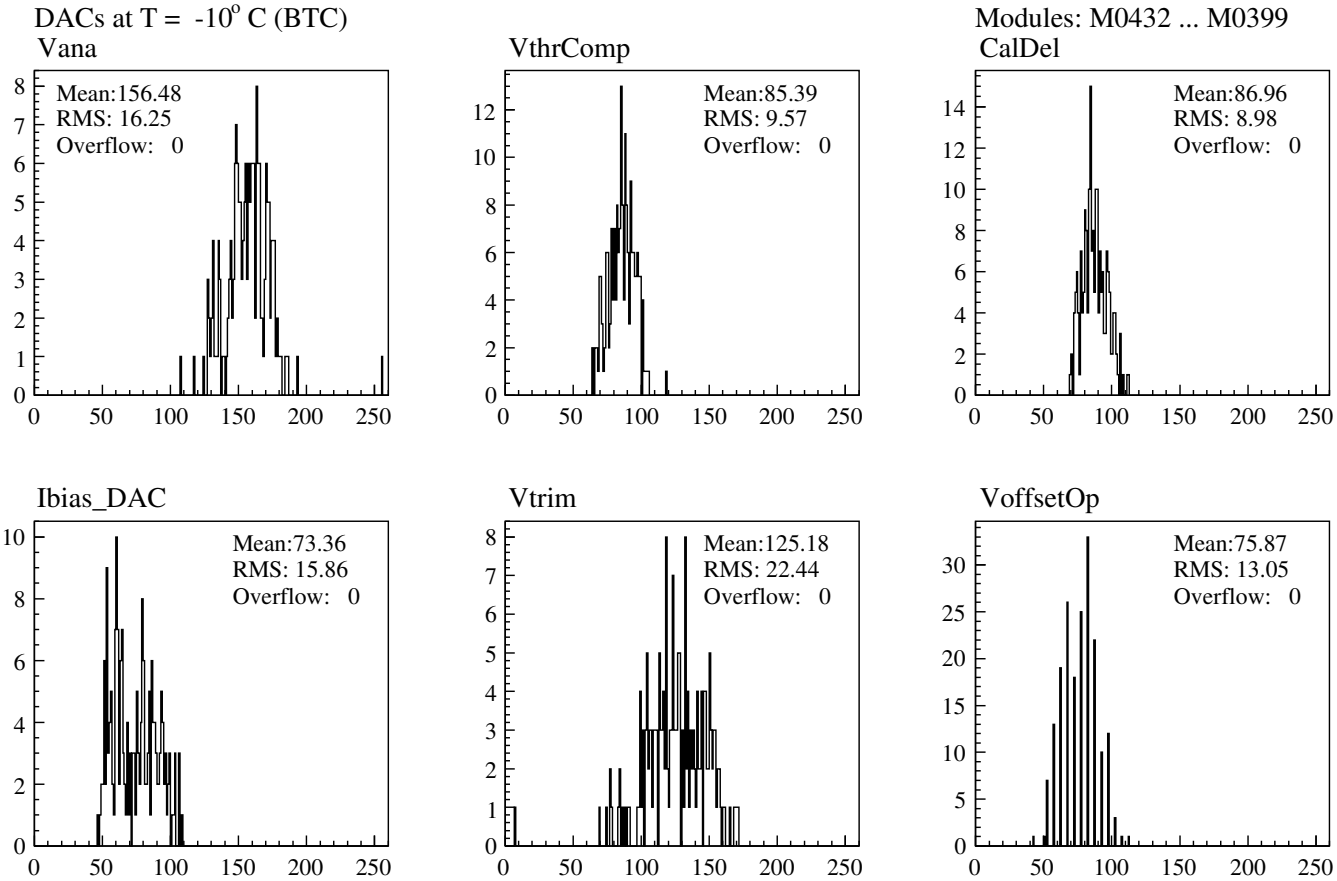
Operational parameters at $T = -10^{o}C$ (ATC)

DAC distribution (of chips)



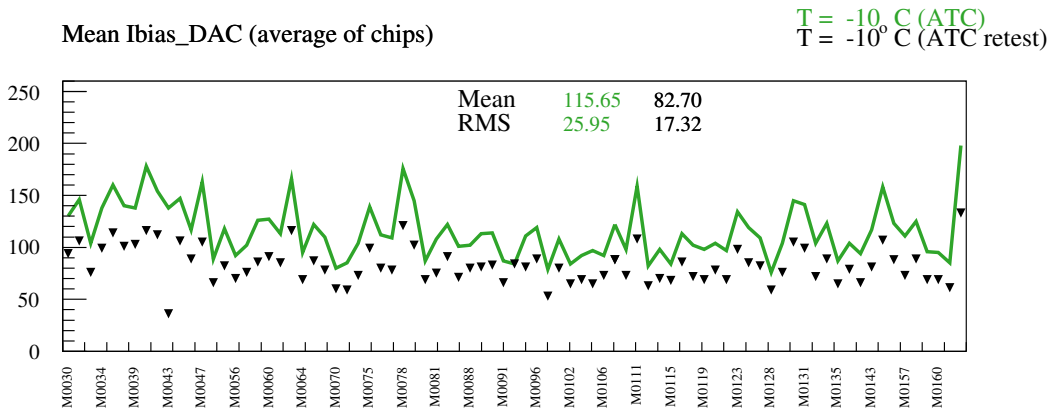
Operational parameters at $T = +17^{o}C$ (BTC)

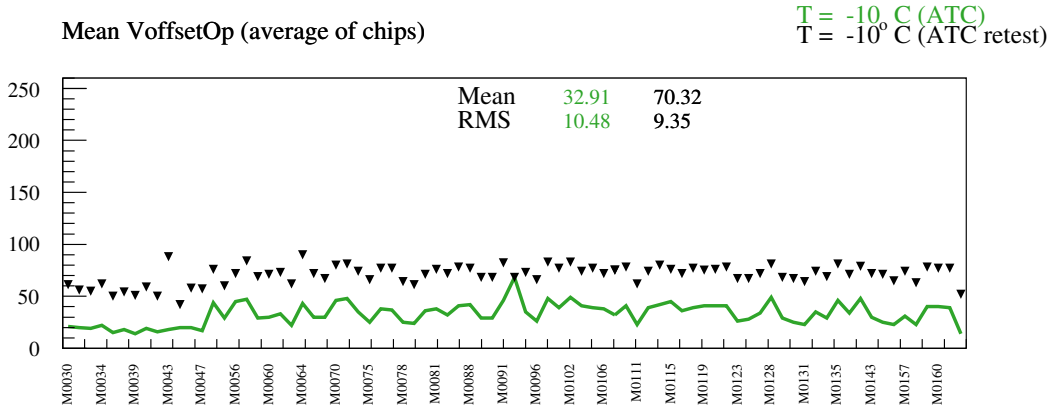
DAC distribution (of chips)



Operational parameters

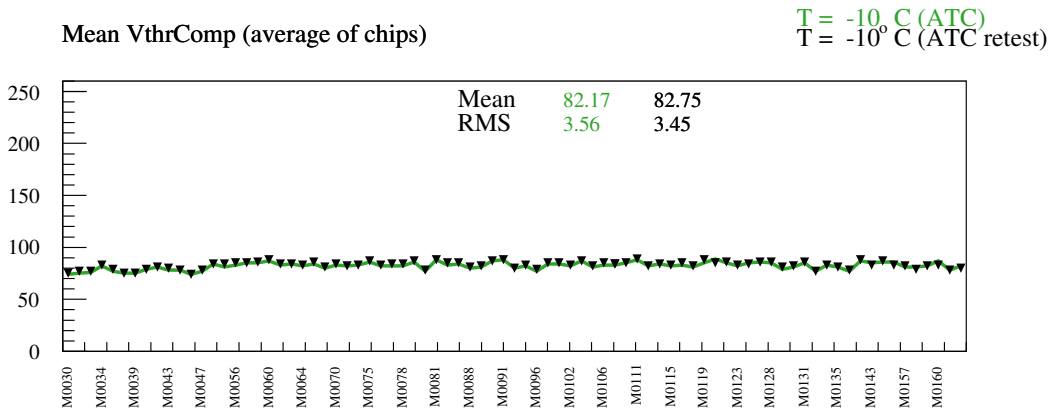
Mean DACs I

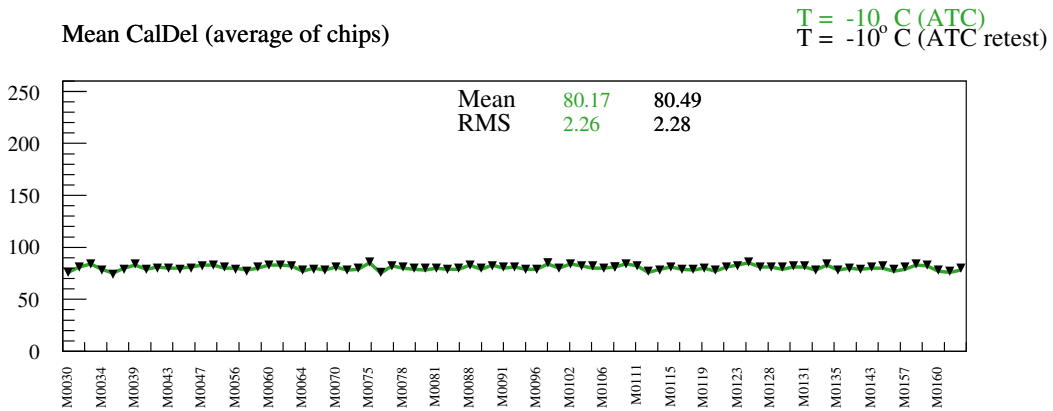




Operational parameters

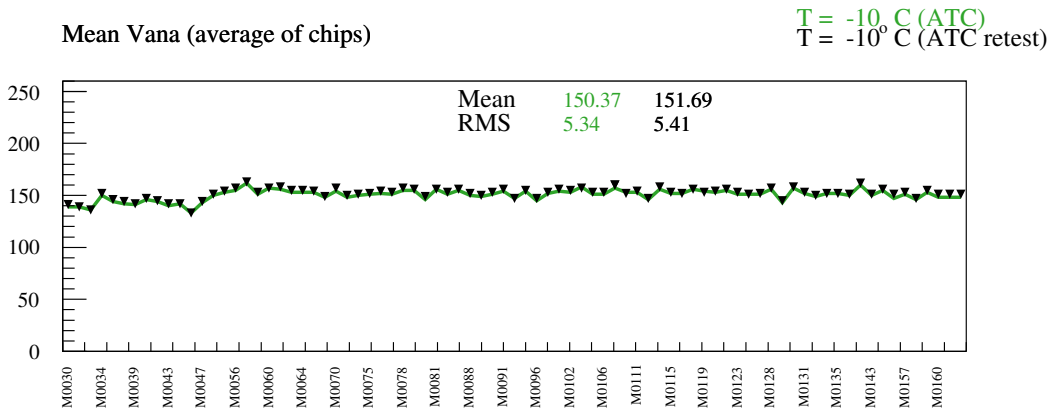
Mean DACs II

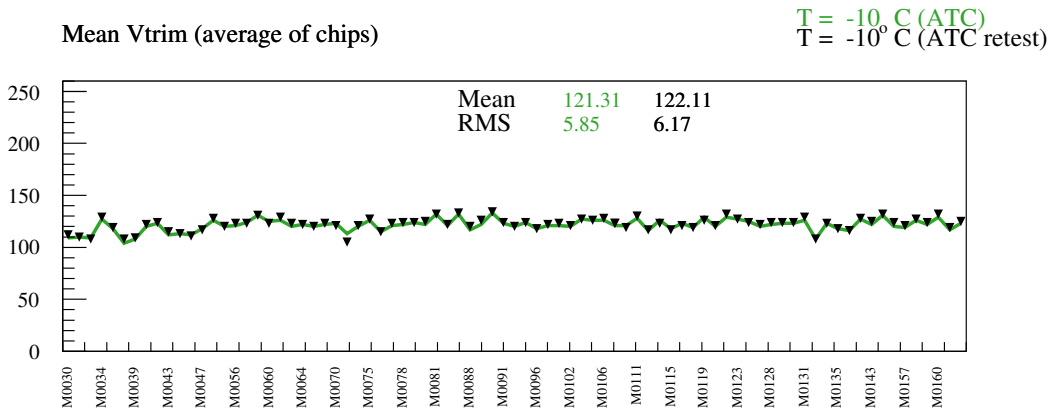




Operational parameters

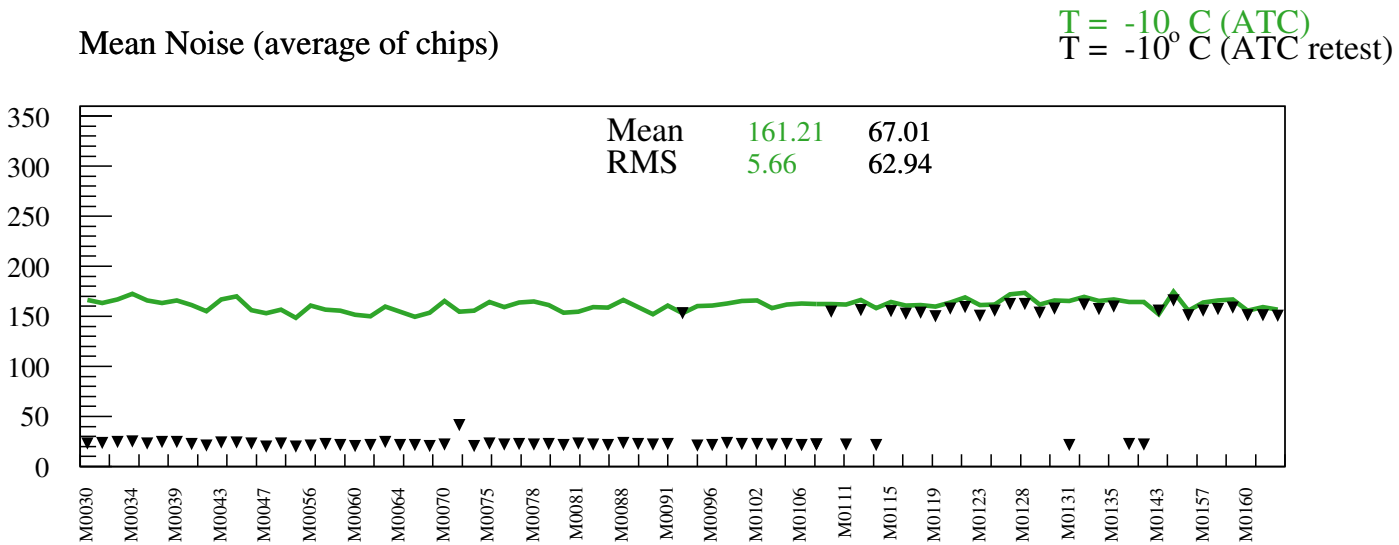
Mean DACs III





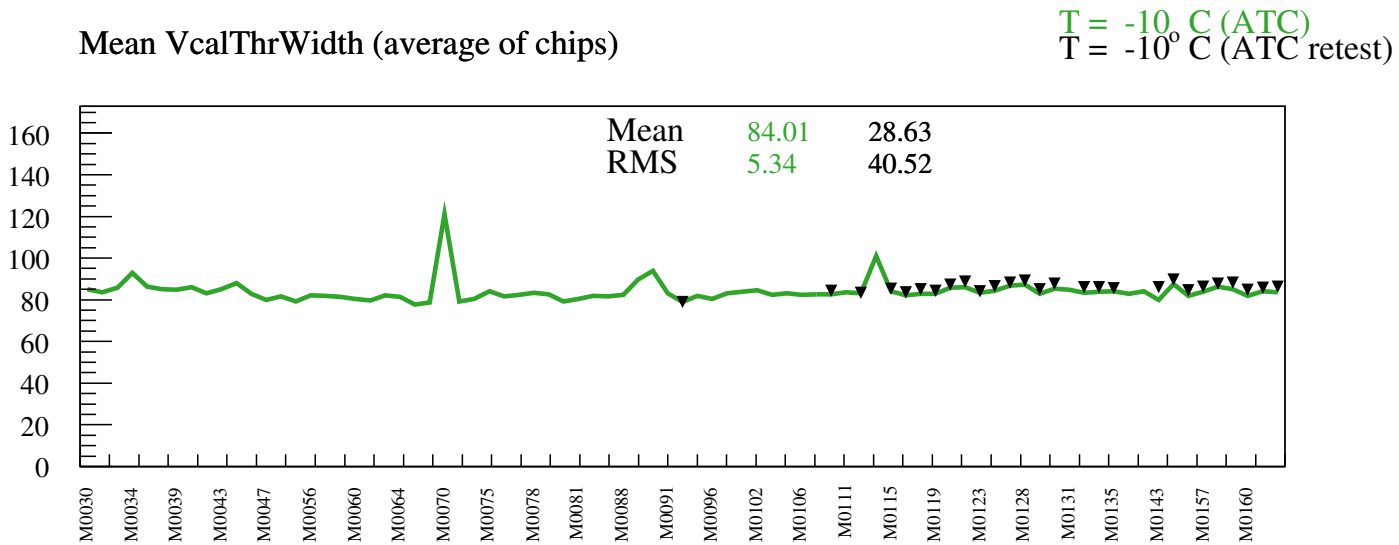
Performance parameters

Mean **Noise** [e^-] vs. Module Nr.



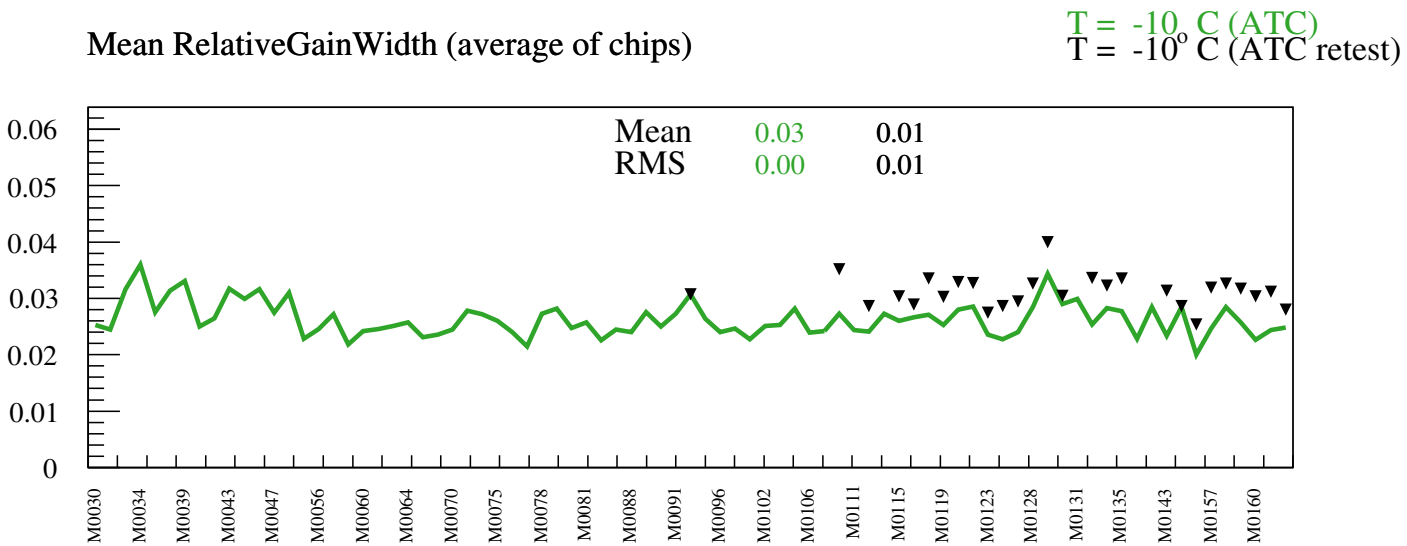
Performance parameters

Mean **VcalThresholdWidth** [e^-] vs. Module Nr.



Performance parameters

Mean **RelativeGainWidth** [%] vs. Module Nr.



Performance parameters

Mean **PedestalSpread** in [e^-] vs. Module Nr.