RH0017 Characterization and Ph2ACF Threshold Adjustment bug

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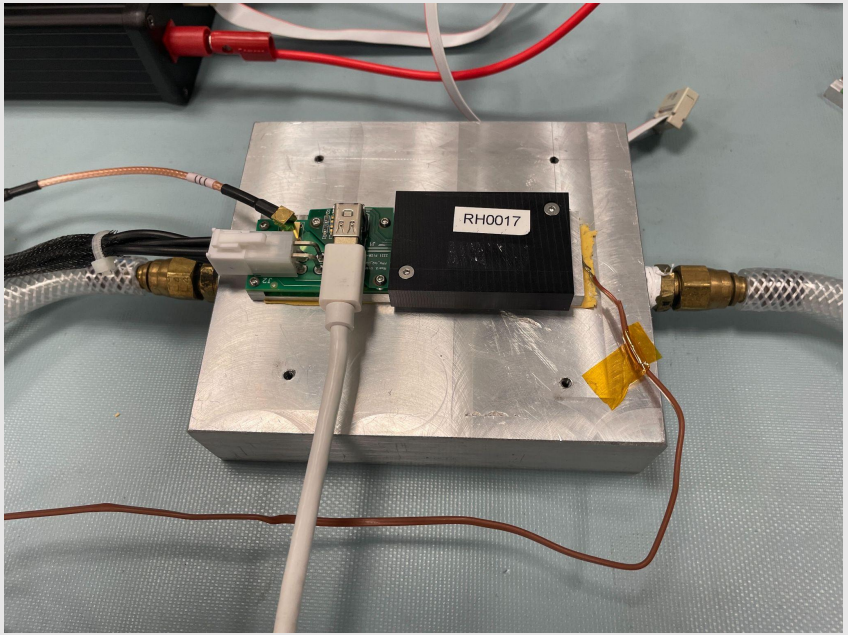
June 21, 2023

RH0017 Setup

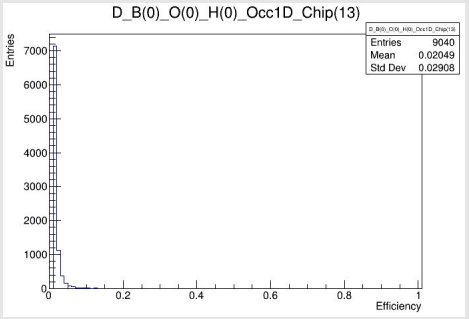
Run Parameters

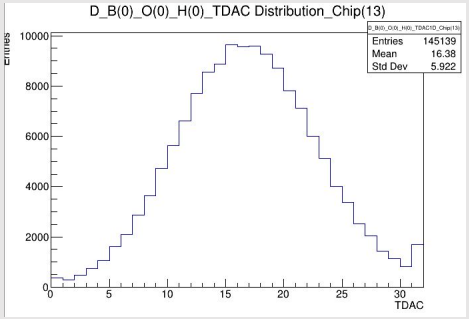
Chip 12 Trim Bits:	VDDA = 7, VDDD = 7
Chip 13 Trim Bits:	VDDA = 7, VDDD = 8
LV Settings:	4.5 A @ 2 V
HV(max):	80 V
I (max):	0.29 uA
Cooling Base Plate Temp:	15.2 C
Sensor:	manual thermoelement
Software Version:	Ph2_ACF_v4-13
Firmware Version:	QUAD_ELE_CROC_v4-6.bit
Ambient Temperature:	21.3 C
Ambient Humidity:	53%
Dew Point:	11.3 C
Baseplate temperature:	15.2 C

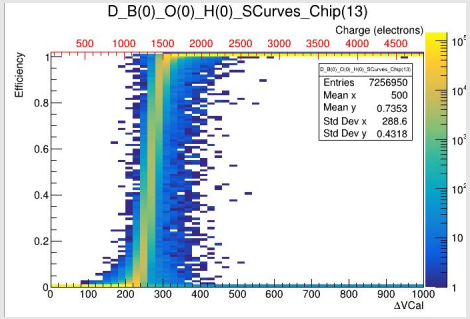


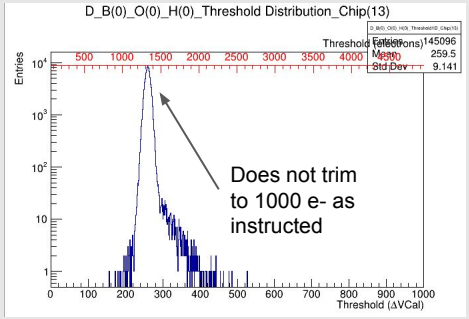
Trimming difficulties:

Initial Chip 13 difficulties: butted up against ThrStart = 405. Only Chip 13 shown

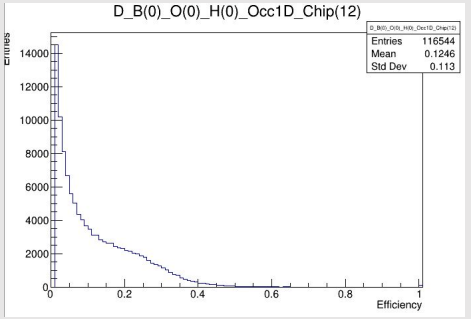


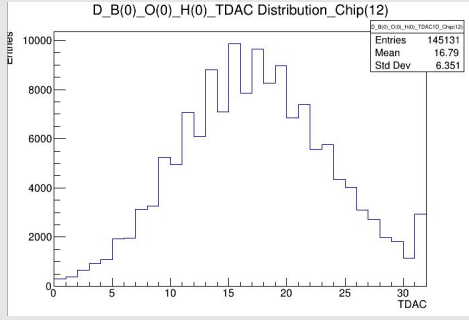


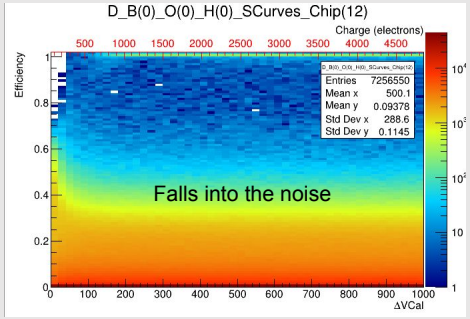


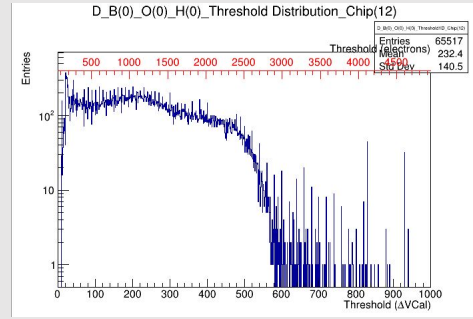


Subsequent chip 12 difficulties, only present when ThrStart lowered from 405 to 385 (binary search issue)





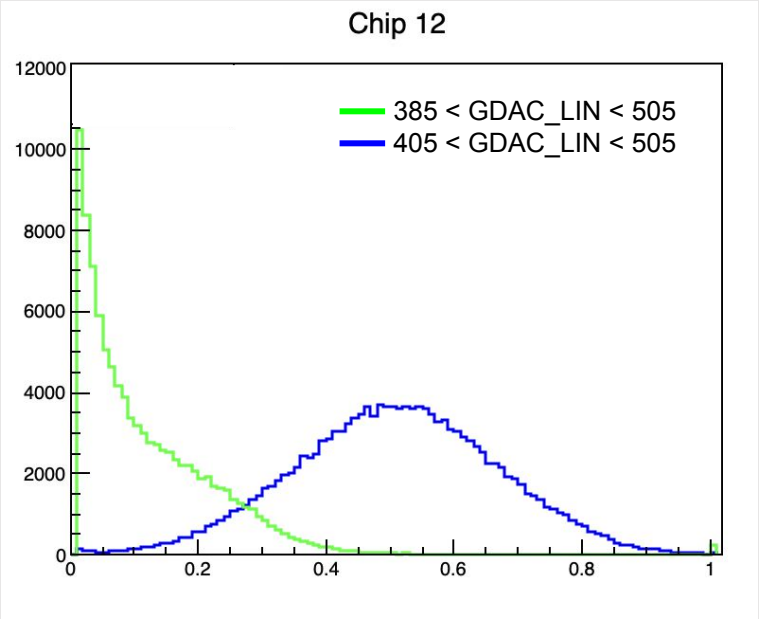




Show chip 12 isolated

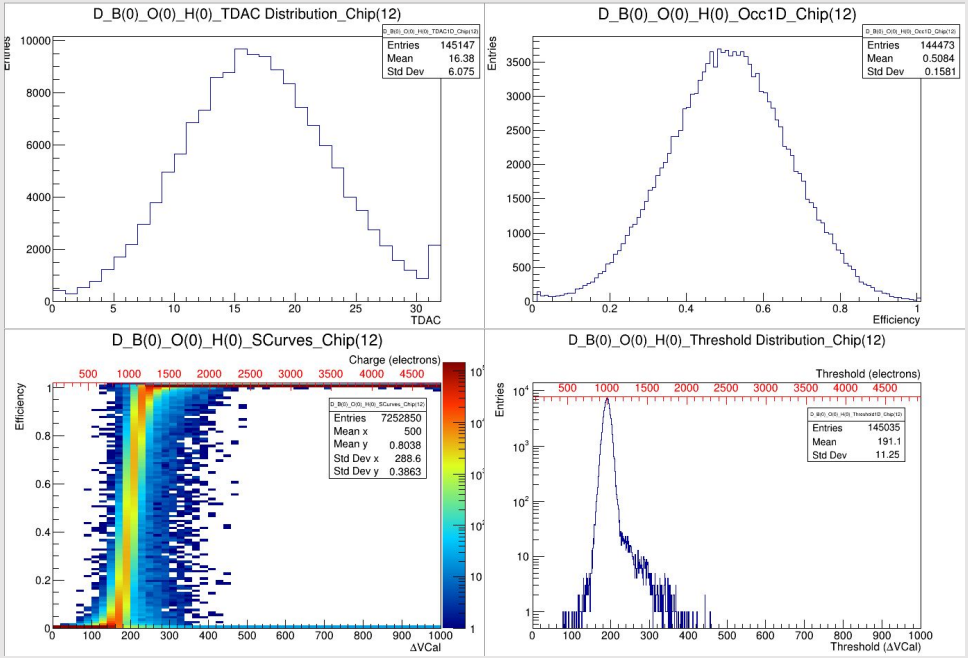
Occupancy after threshold equalization with modified search range

1000 e-



Isolated performance, best trim so far to 1000 e-

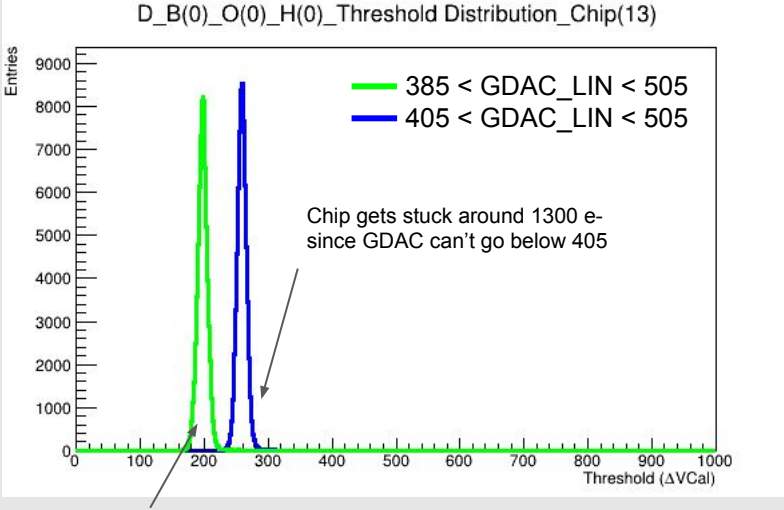
ThrStart = 405
ThrEnd = 505



Show chip 13 isolated

Threshold 1D for chip 13 with and without GDAC lower bound

1000 e-

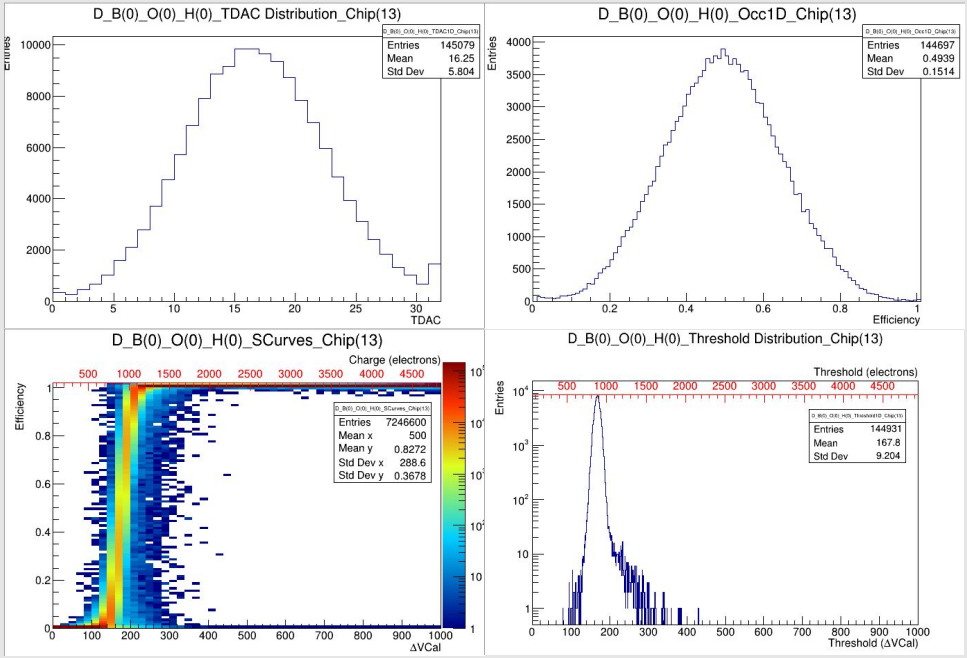


Nice behavior when freed, trims to 1000 e- perfectly

Isolated performance, best trim so far to 900 e-

ThrStart = 385

ThrEnd = 505



Conclusions

Chip #	ThrStart = 405, ThrEnd = 505	ThrStart = 385, ThrEnd = 505
12	Trimmed to 1000 e- but can go further	Binary search gets lost in noise somewhere between 1200 and 1000 e-
13	GDAC lin stuck at 405 for 1200 e- and lower	Trimmed to 900 e-

- Default limits in Ph2_ACF_v4-13: ThrStart 340 to 440
- Need either better way to perform binary search and not get stuck in noise OR
- Need mutually acceptable bounds (seems unlikely)
- 340 is definitely too low