Outer Tracker Upgrade Group Meeting

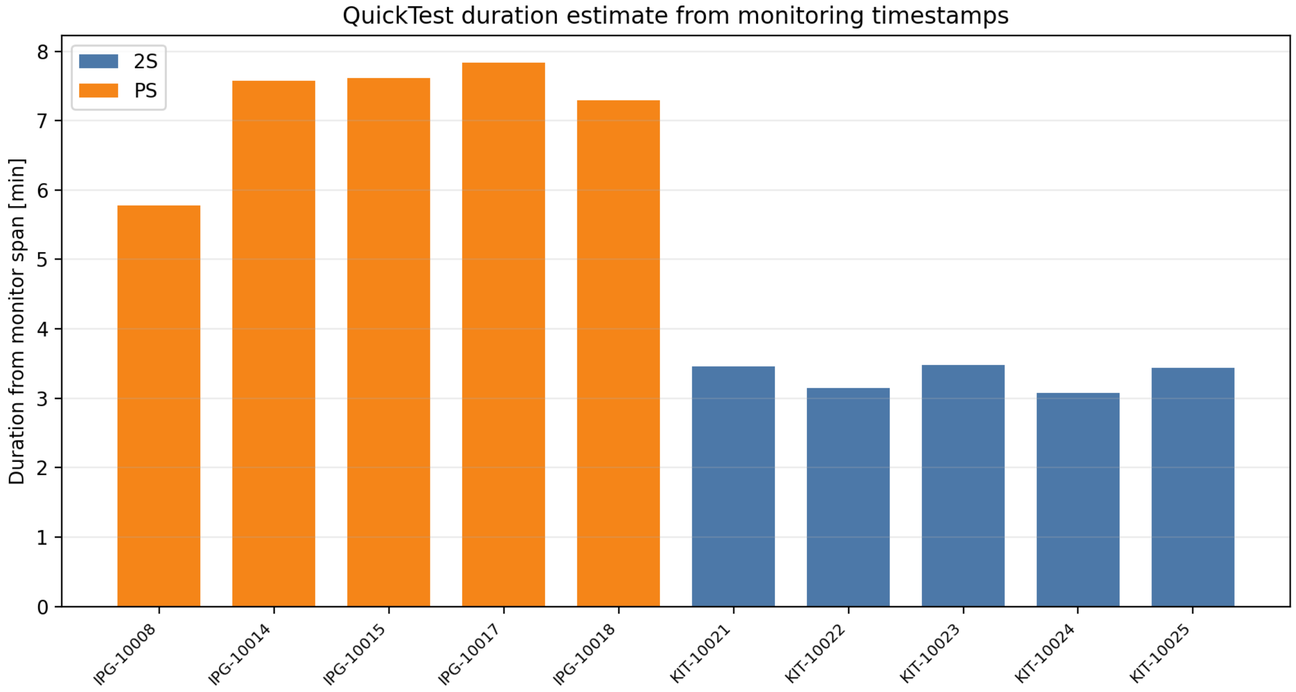
1 July 2026
IP2I

Arnab Purohit

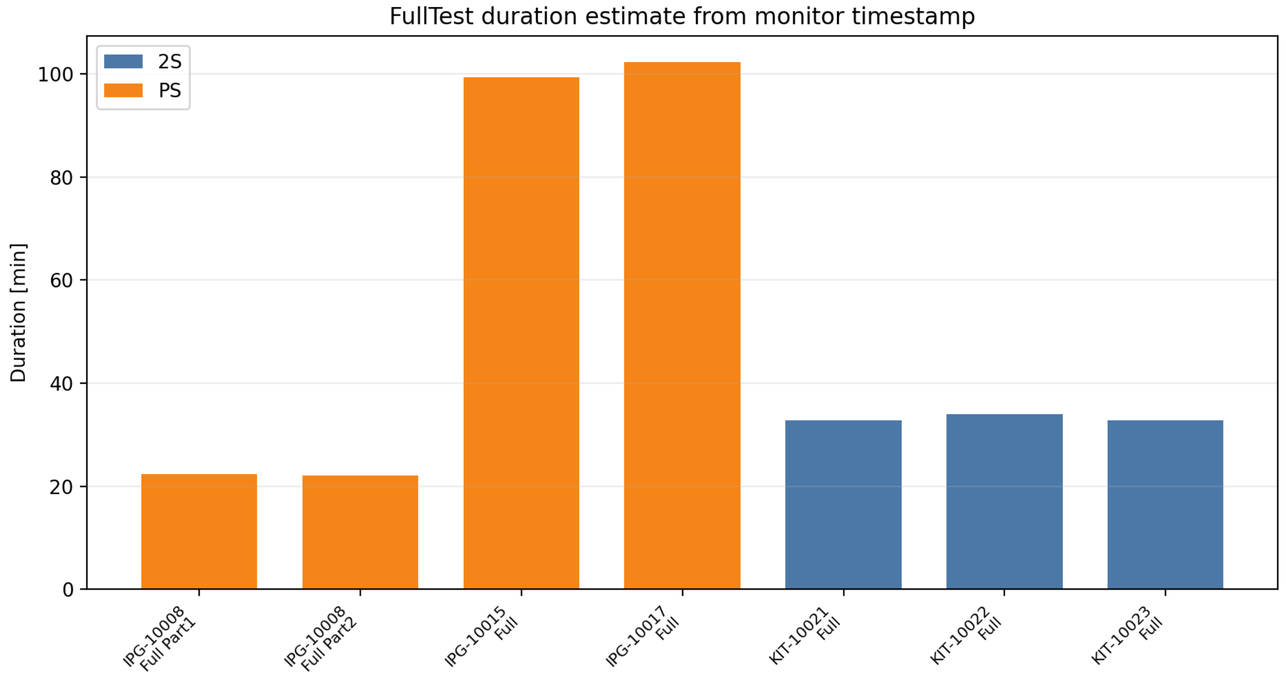
News

1. Houmani tested all the new Optical modules and found everything OK.
2. New versions of Ph2_ACF, GIPHT and POTATO are installed.
    - Timing Tests were performed
3. Eva is progressing well with the instruction manual. (Adding expert tab)

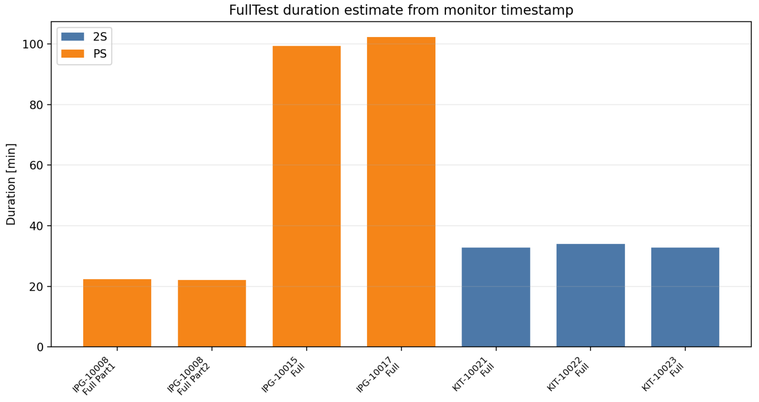
Reception test timing (Quick Test)



Reception test timing (Full Test)



Reception test timing (Full Test)



Stefan Maier 3:37 PM
I forward this message to the PS module experts. But for me it also takes at least 90 min (or more) @Fabio Ravera @Irene Zoi

Irene Zoi 3:55 PM
Commented on **Arnab Purohit**'s message: **There is a local network with other devices but for 2S modules the Fulltest takes ~30 min.**

> For us it is more 15-20 minutes for 2S

Arnab Purohit 3:44 PM
There is a local network with other devices but for 2S modules the Fulltest takes ~30 min. *Edited*

Stefan Maier 3:45 PM

> Same for us

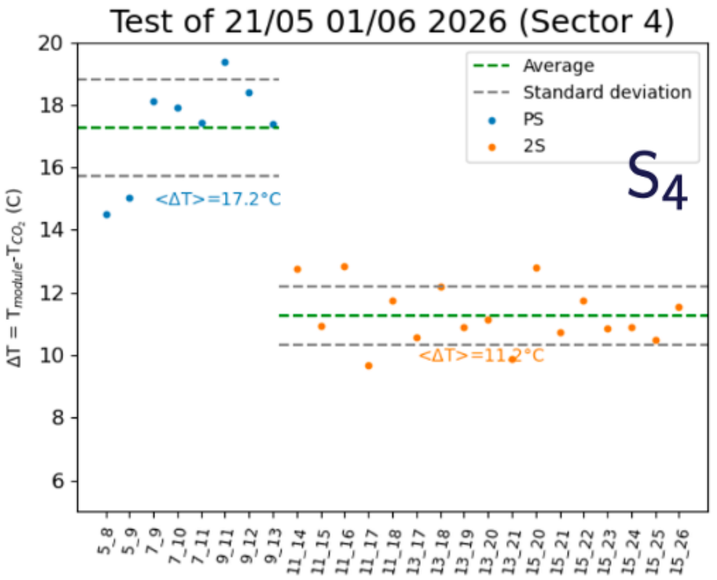
So, our setup is not taking long for the full test. At least it is validated by Stefan, the GIPHT developer. May be bare Ph2_ACF takes a little less time.

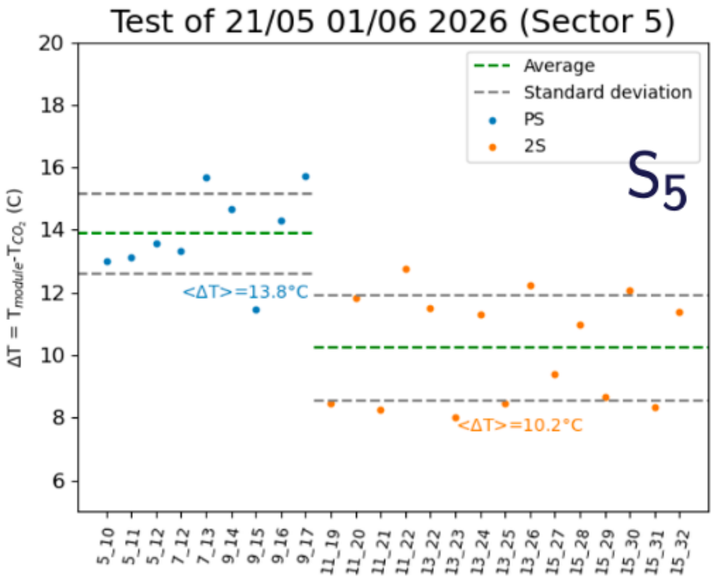
Cold Test

First time in Lyon

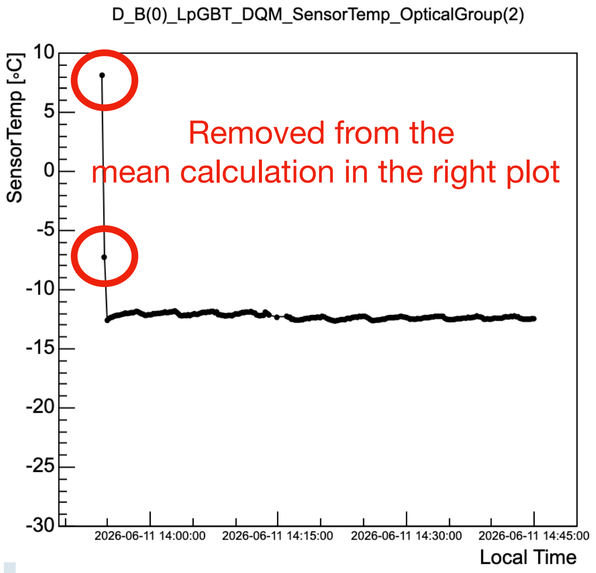
News

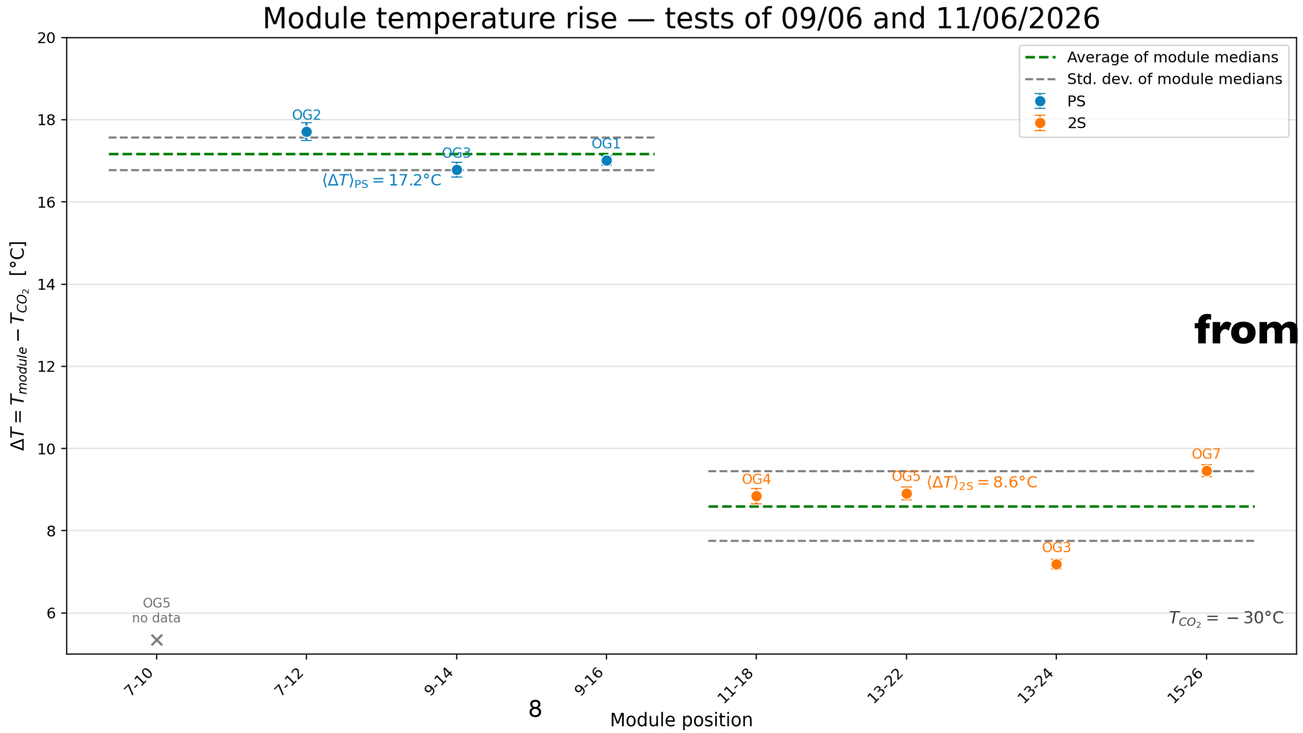
1. Analysing the results from the cold tests of the 8 modules (4PS+42S).
2. We could run optical communication test for all modules except one PS module (in position 7-10).
    1. We have run LPGBTId test for all modules
3. The quickest is not yet possible yet for PS modules.
4. Updated the DCS.





Plots from Muriel

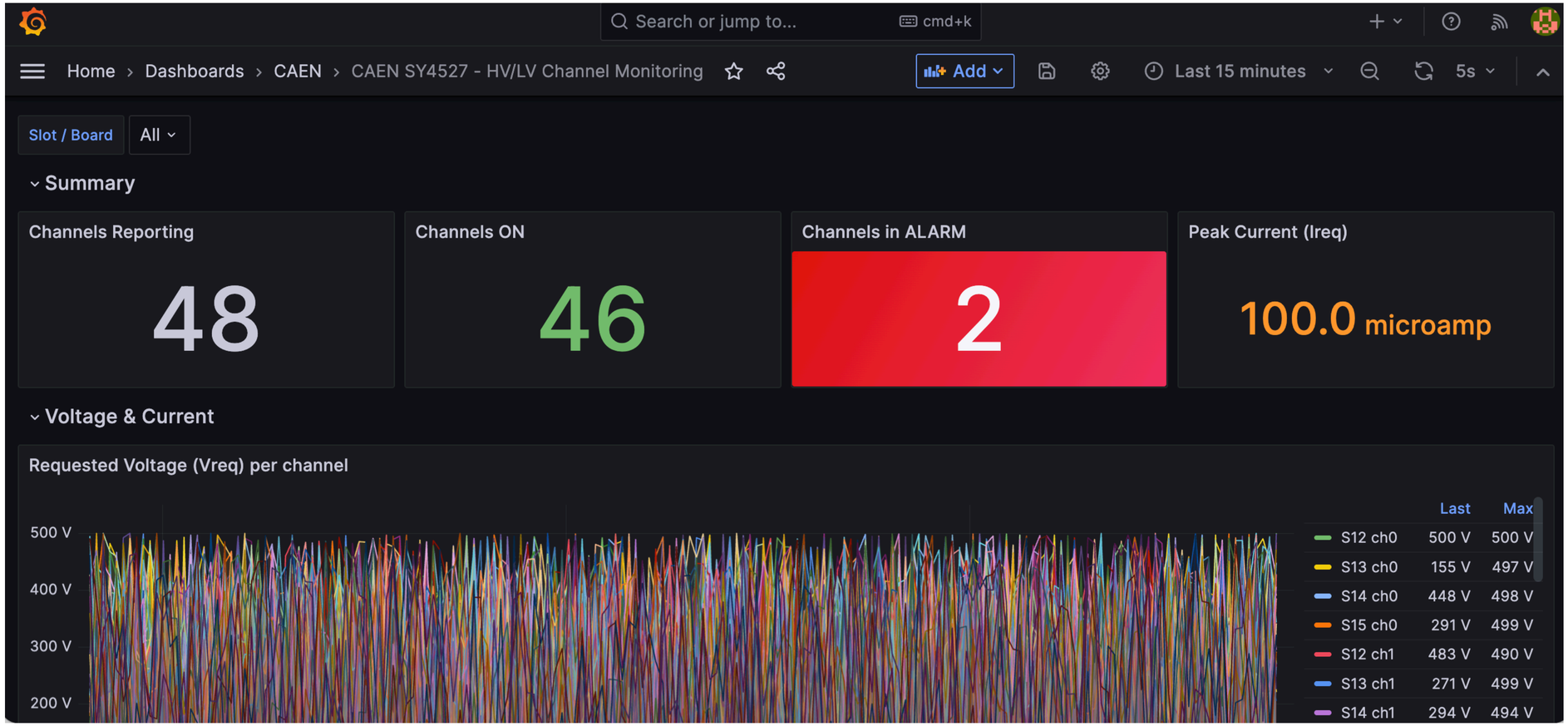




from Real module test

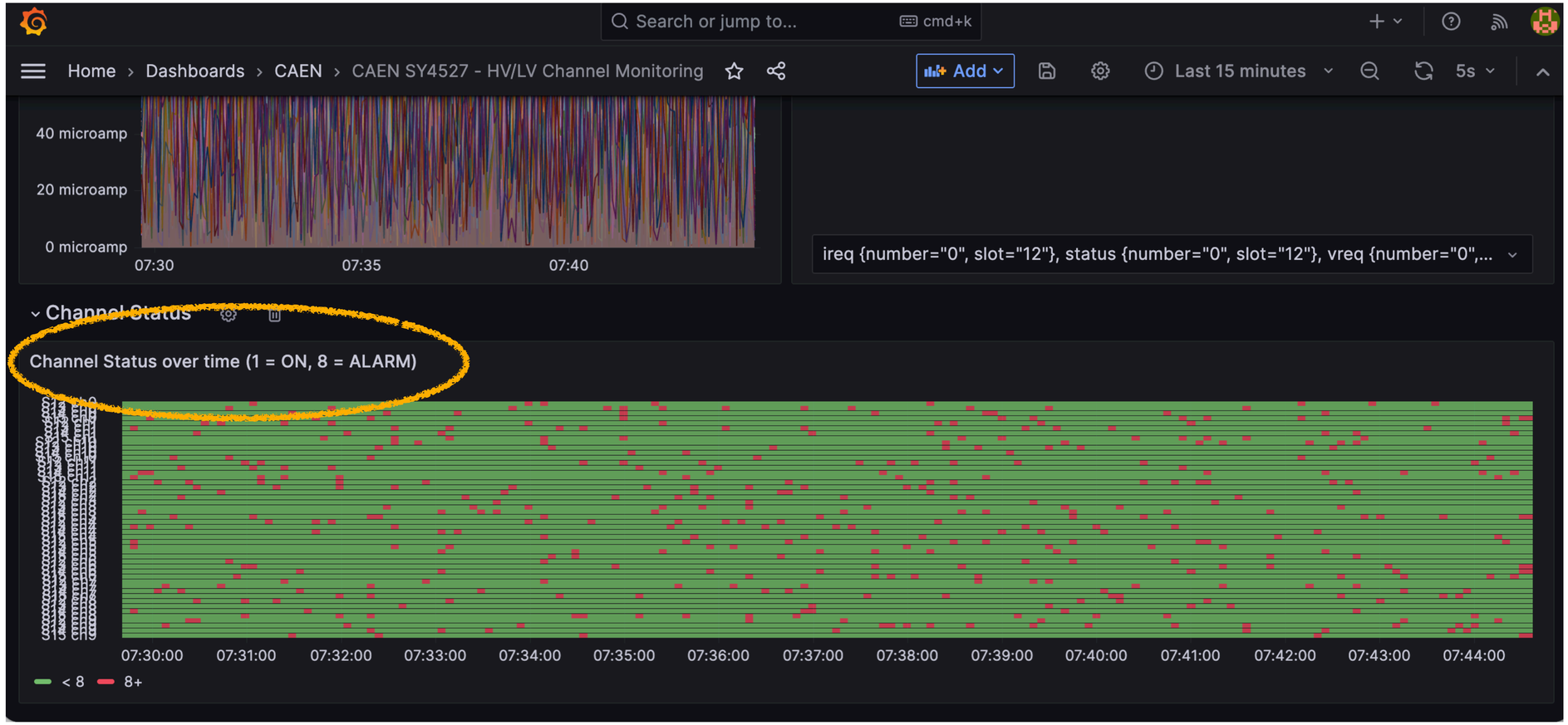
Ongoing work & To do

Cold Test, DCS



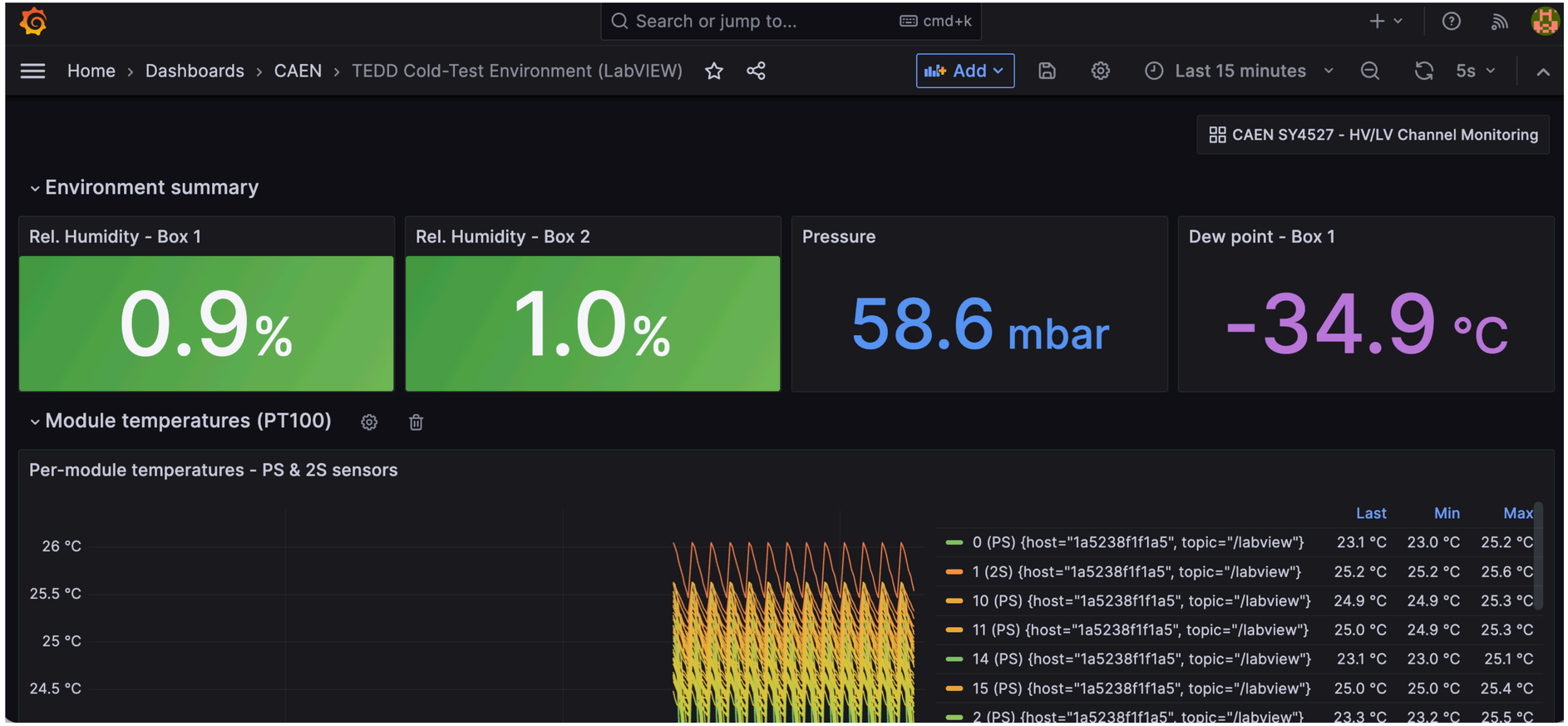
Ongoing work & To do

Cold Test, DCS



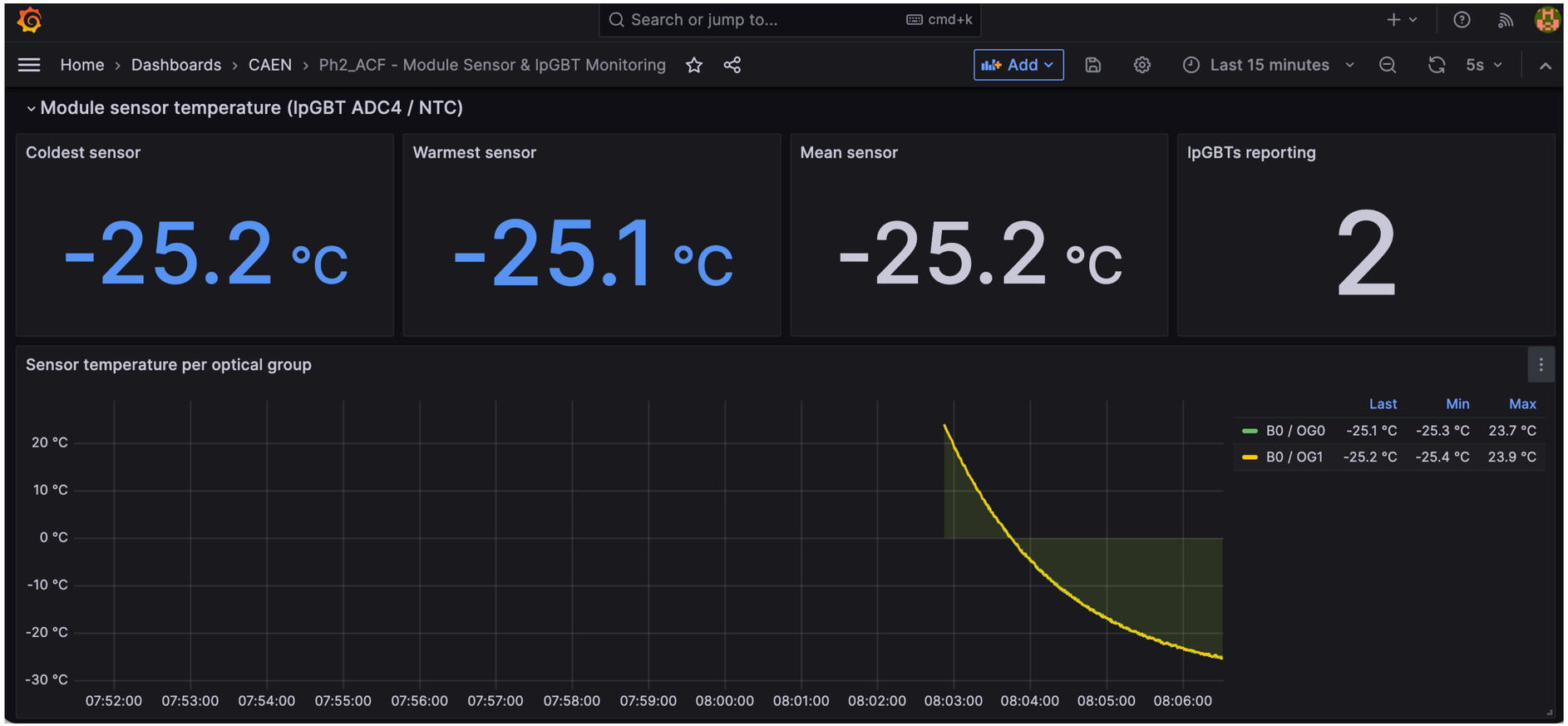
Ongoing work & To do

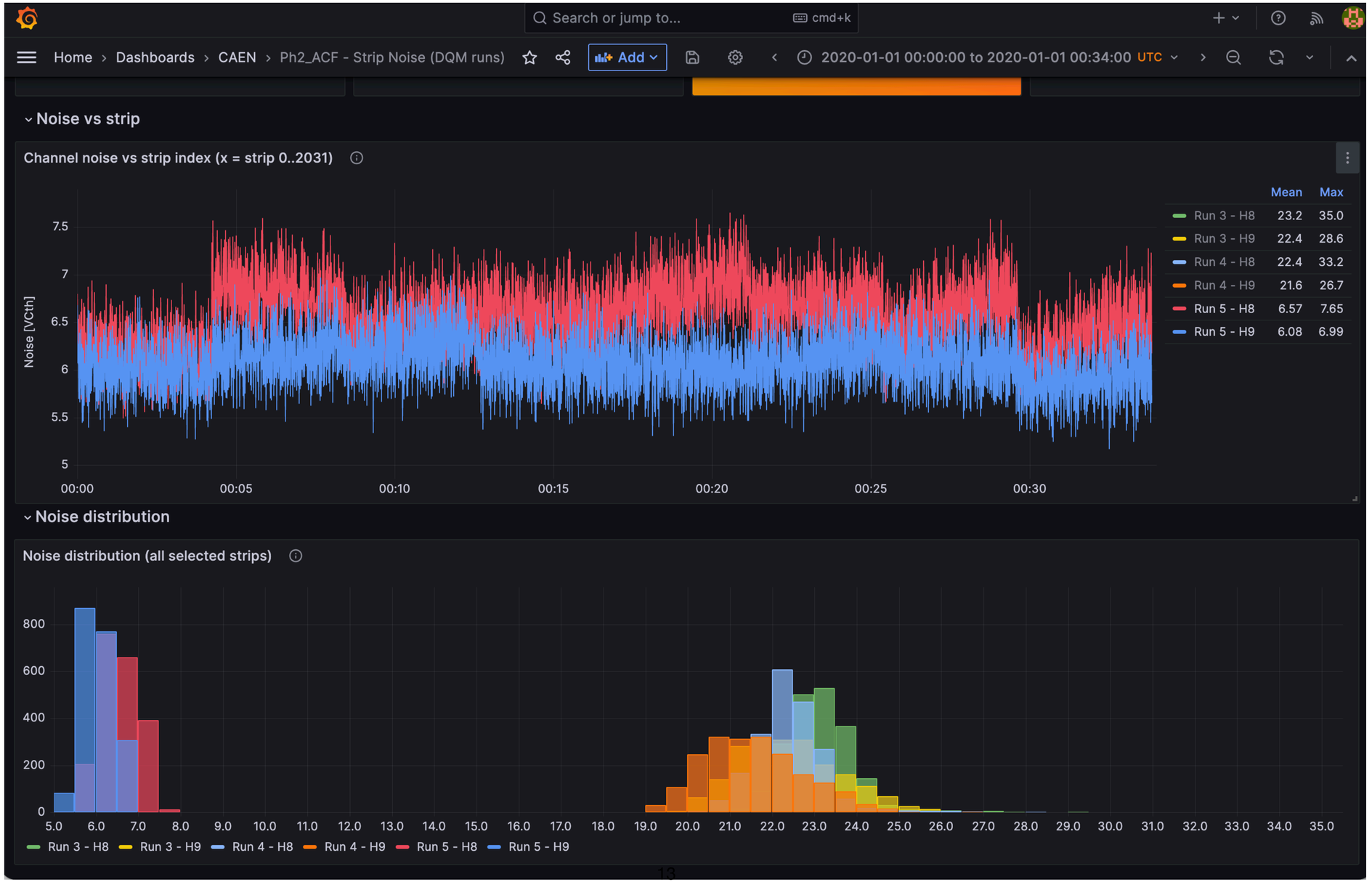
Cold Test, DCS



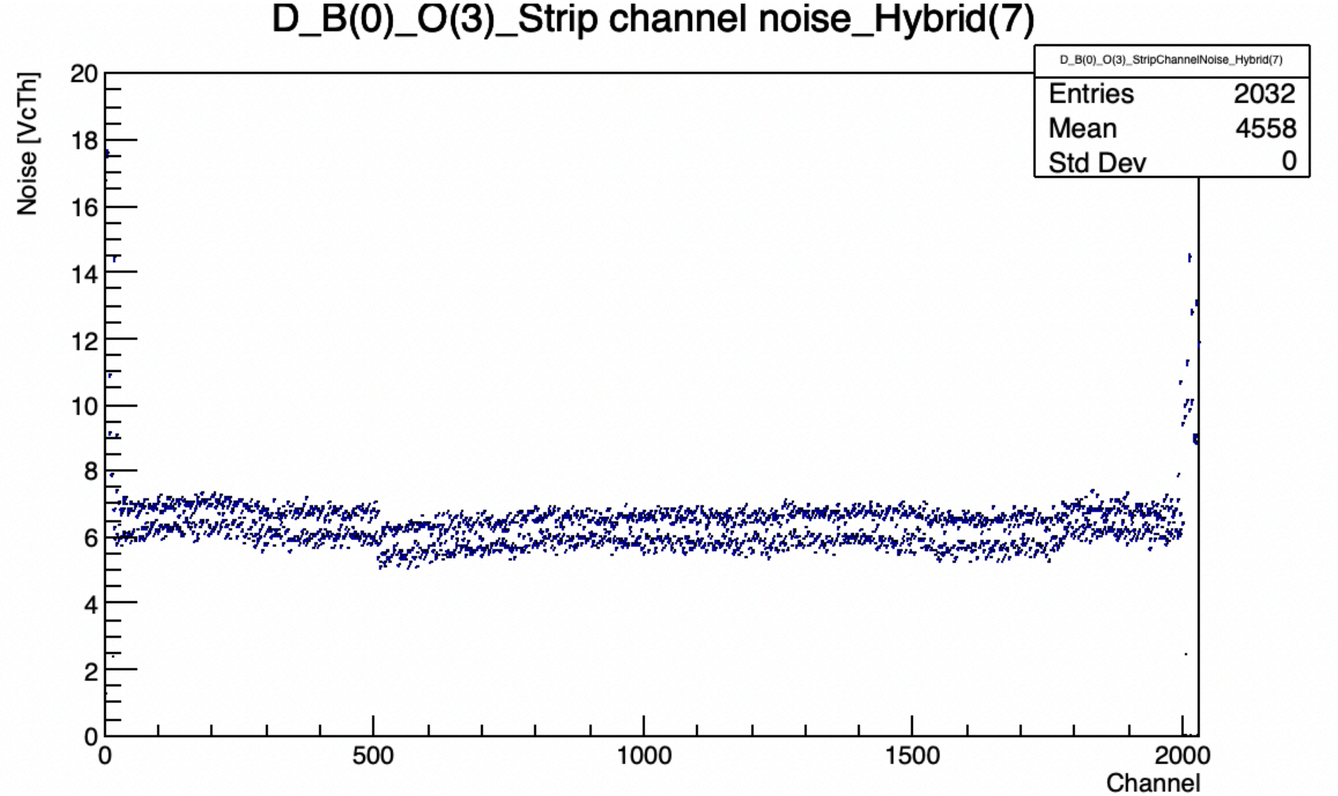
Ongoing work & To do

Cold Test, DCS




Search or jump to... cmd+k
Home › Dashboards › CAEN › Ph2_ACF - Strip Noise (DQM runs)
Add
2020-01-01 00:00:00 to 2020-01-01 00:34:00 UTC
Noise vs strip
Channel noise vs strip index (x = strip 0..2031)
Noise [VCth]
7.5
7
6.5
6
5.5
5
00:00
00:05
00:10
00:15
00:20
00:25
00:30
Mean Max
Run 3 - H8 23.2 35.0
Run 3 - H9 22.4 28.6
Run 4 - H8 22.4 33.2
Run 4 - H9 21.6 26.7
Run 5 - H8 6.57 7.65
Run 5 - H9 6.08 6.99
Noise distribution
Noise distribution (all selected strips)
800
600
400
200
0
5.0 6.0 7.0 8.0 9.0 10.0 11.0 12.0 13.0 14.0 15.0 16.0 17.0 18.0 19.0 20.0 21.0 22.0 23.0 24.0 25.0 26.0 27.0 28.0 29.0 30.0 31.0 32.0 33.0 34.0 35.0
Run 3 - H8 Run 3 - H9 Run 4 - H8 Run 4 - H9 Run 5 - H8 Run 5 - H9

For 2S modules



For 2S modules

Louvain

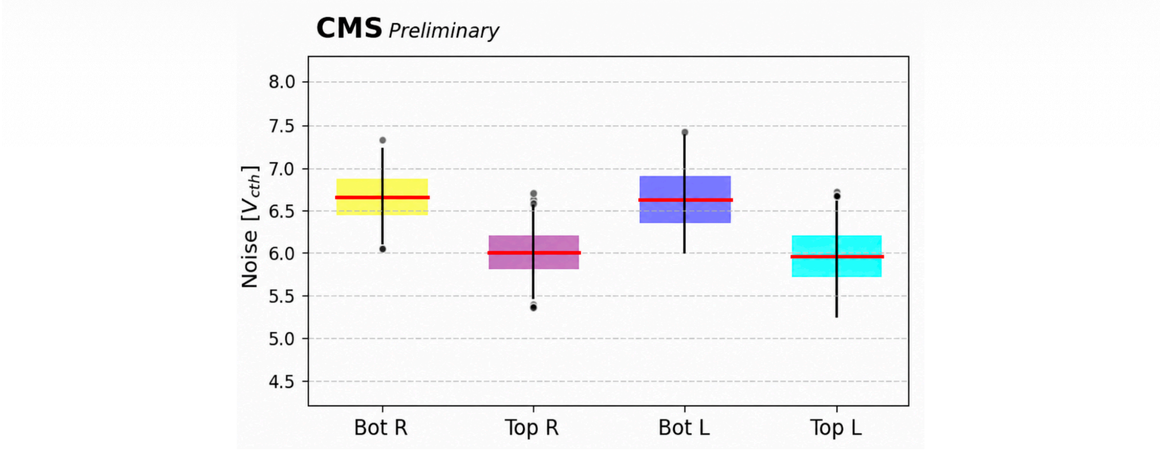
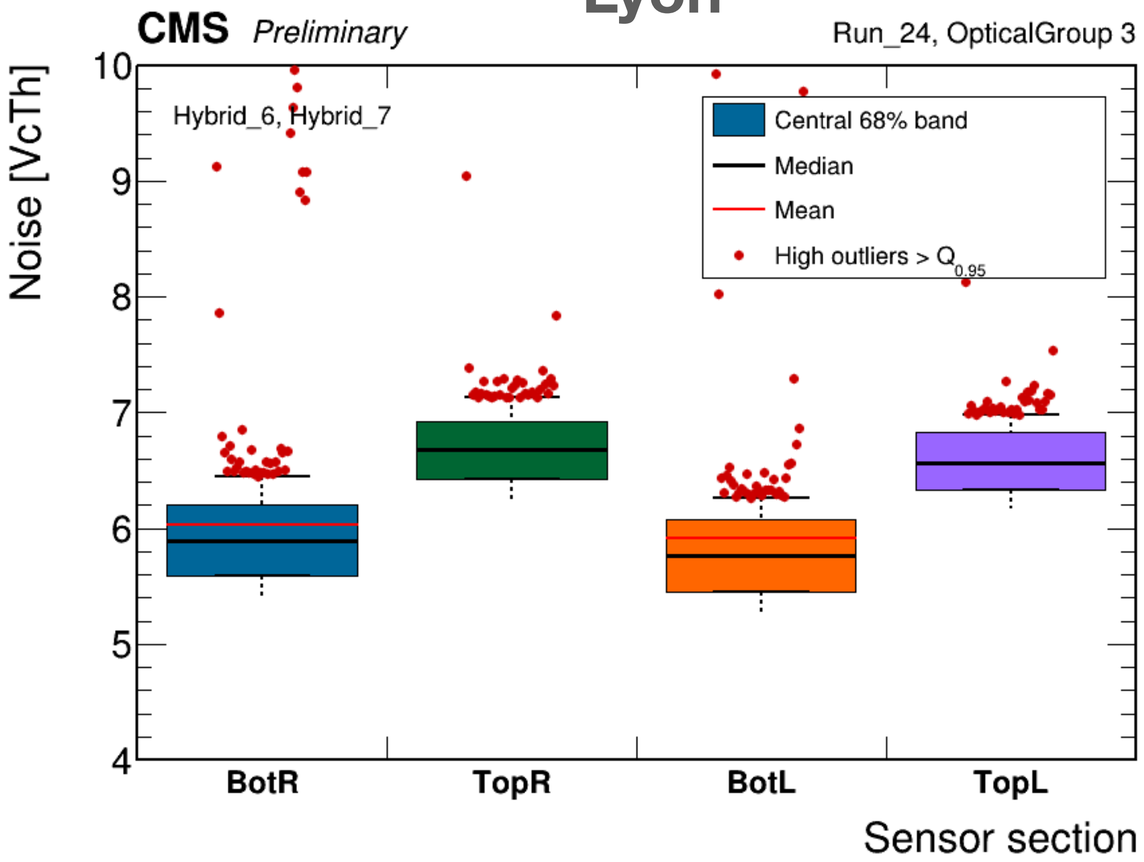
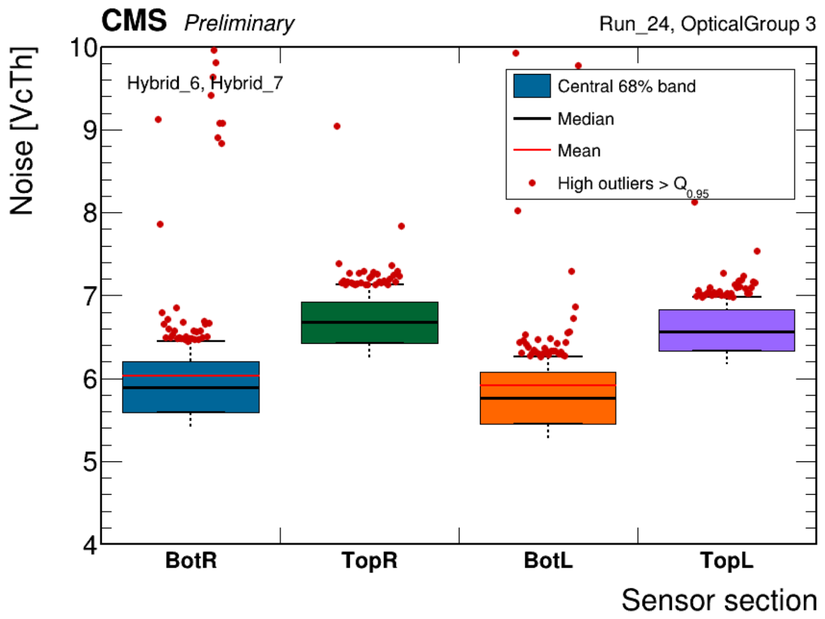


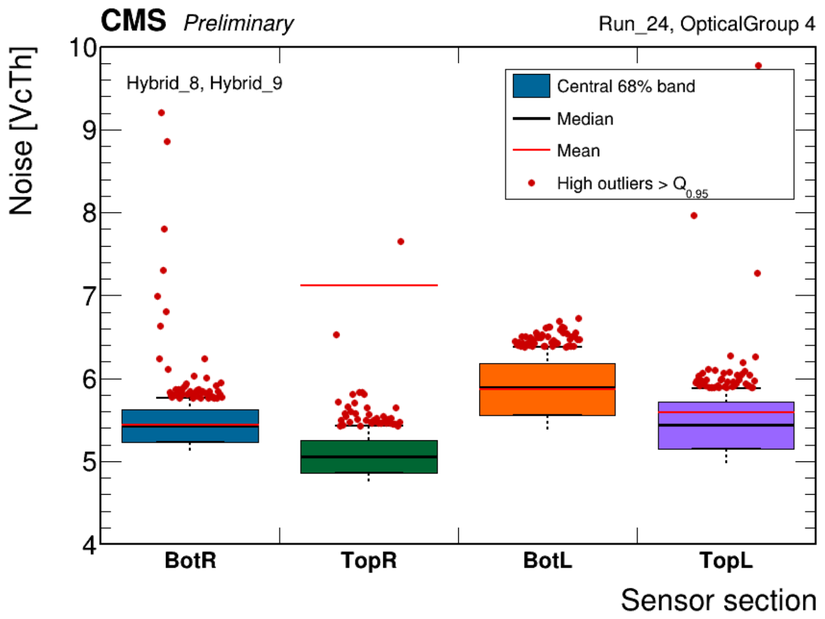
Figure: **Noise Summary for a typical module.** Each bin shows the everage value of measured noise in units of V_{cth} for each of BotR, TopR, BotL, TopL. **BotR** refers to bottom

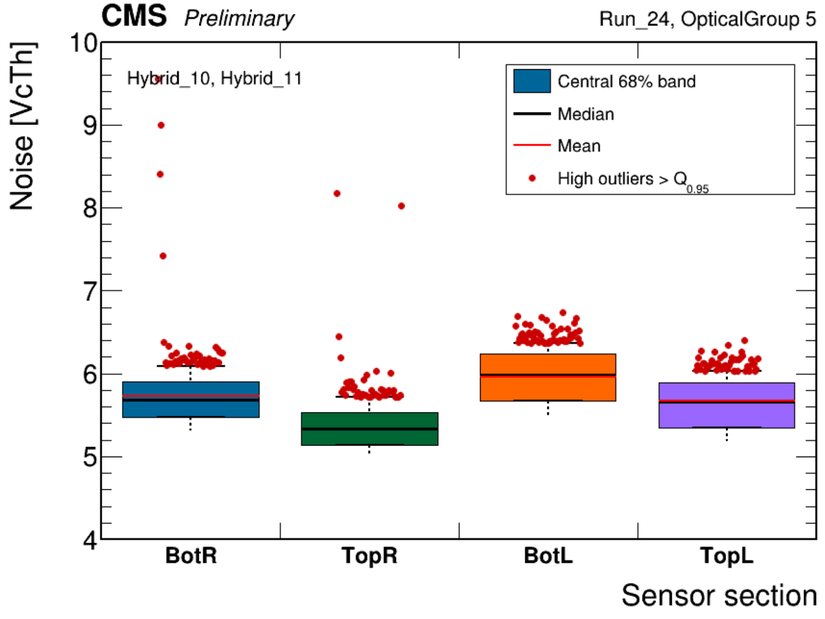
Lyon

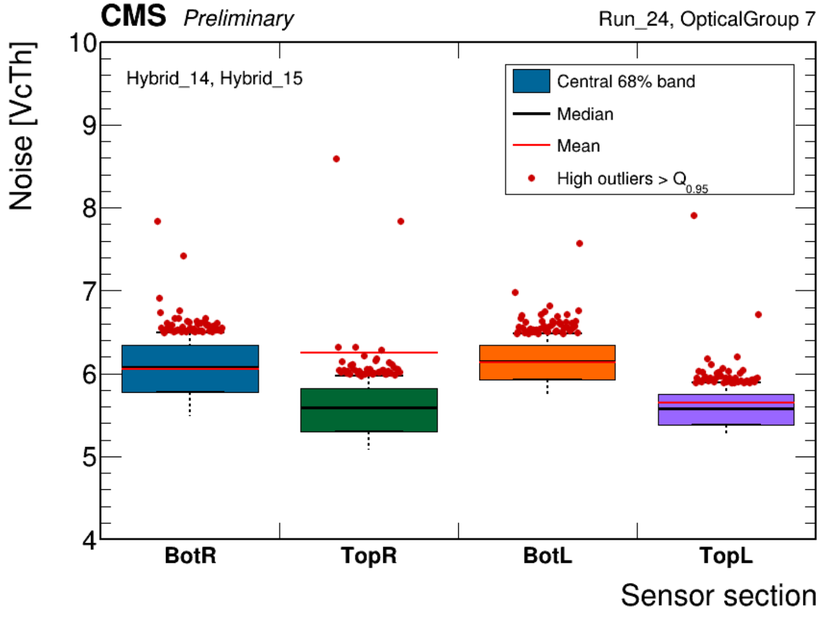


For 2S modu

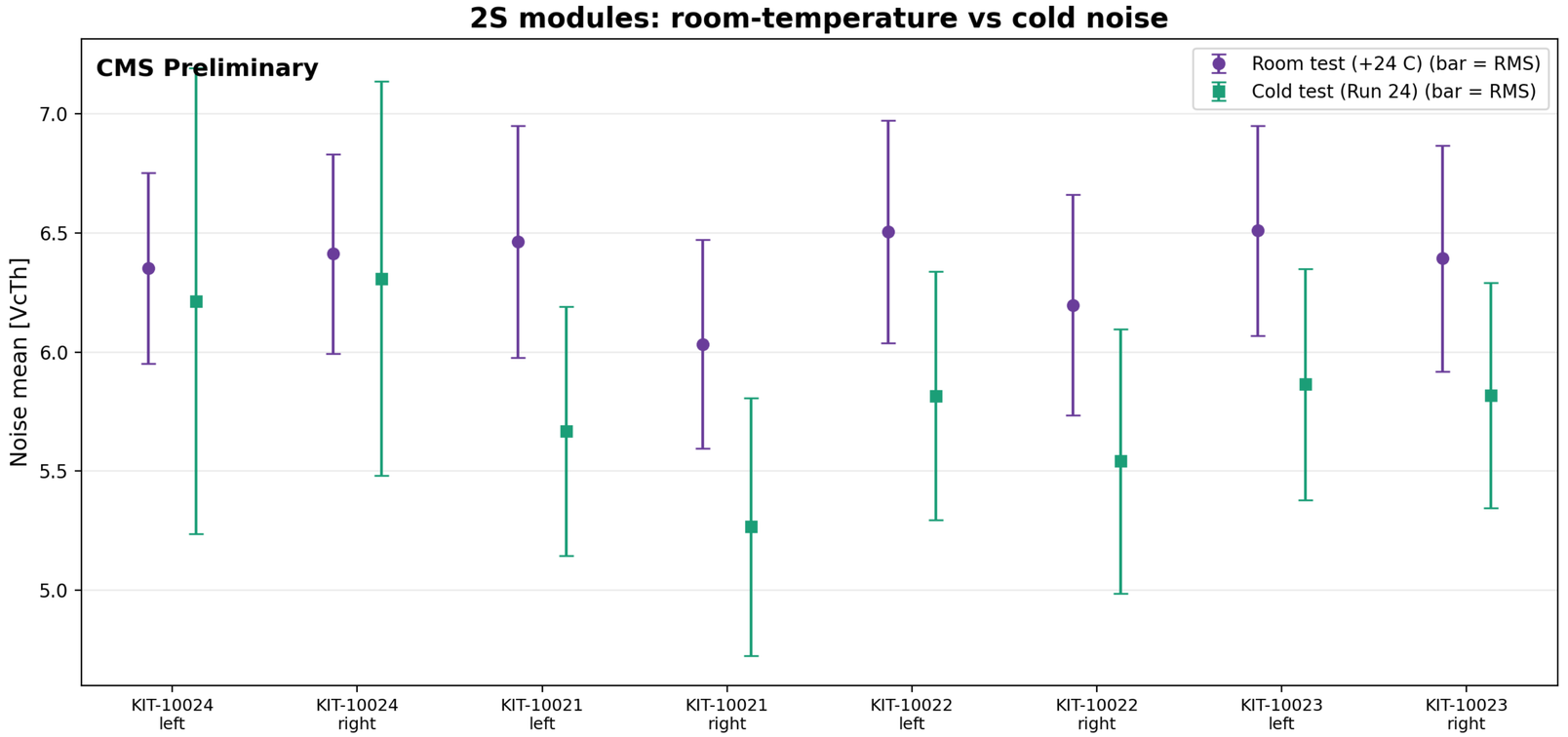

CMS Preliminary
Run_24, OpticalGroup 3
Hybrid_6, Hybrid_7
Central 68% band
Median
Mean
High outliers > Q0.95
Noise [VcTh]
BotR
TopR
BotL
TopL
Sensor section


CMS Preliminary
Run_24, OpticalGroup 4
Hybrid_8, Hybrid_9
Central 68% band
Median
Mean
High outliers > Q0.95
Noise [VcTh]
BotR
TopR
BotL
TopL
Sensor section


CMS Preliminary
Run_24, OpticalGroup 5
Hybrid_10, Hybrid_11
Central 68% band
Median
Mean
High outliers > Q0.95
Noise [VcTh]
BotR
TopR
BotL
TopL
Sensor section


CMS Preliminary
Run_24, OpticalGroup 7
Hybrid_14, Hybrid_15
Central 68% band
Median
Mean
High outliers > Q0.95
Noise [VcTh]
BotR
TopR
BotL
TopL
Sensor section

For 2S modules



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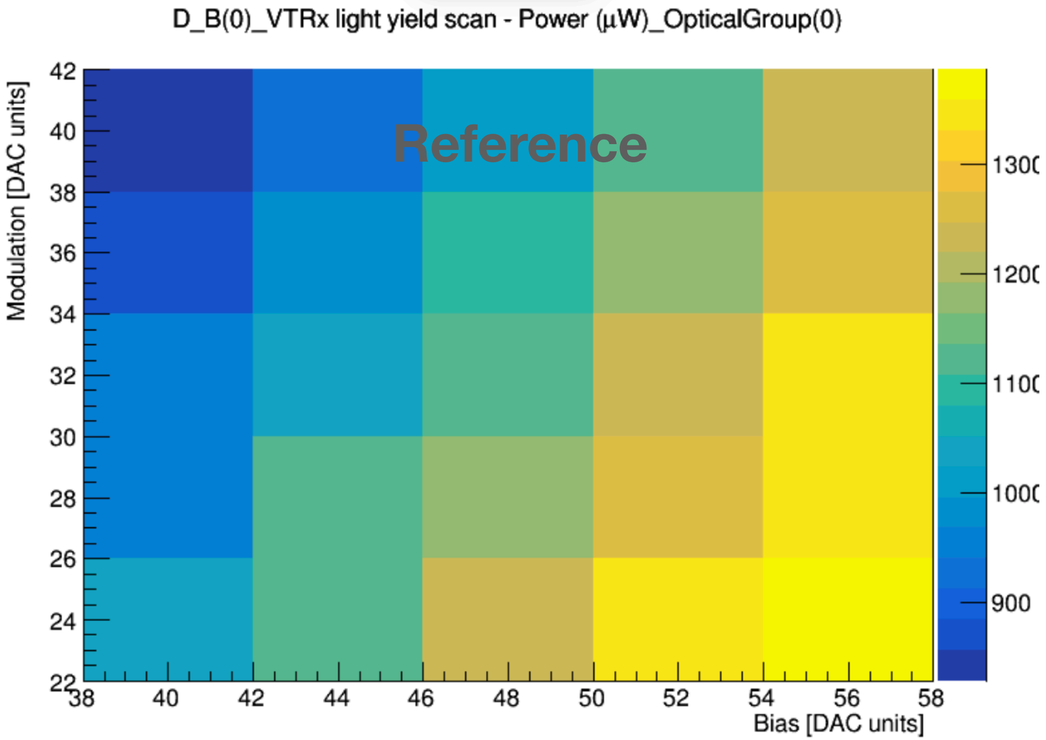

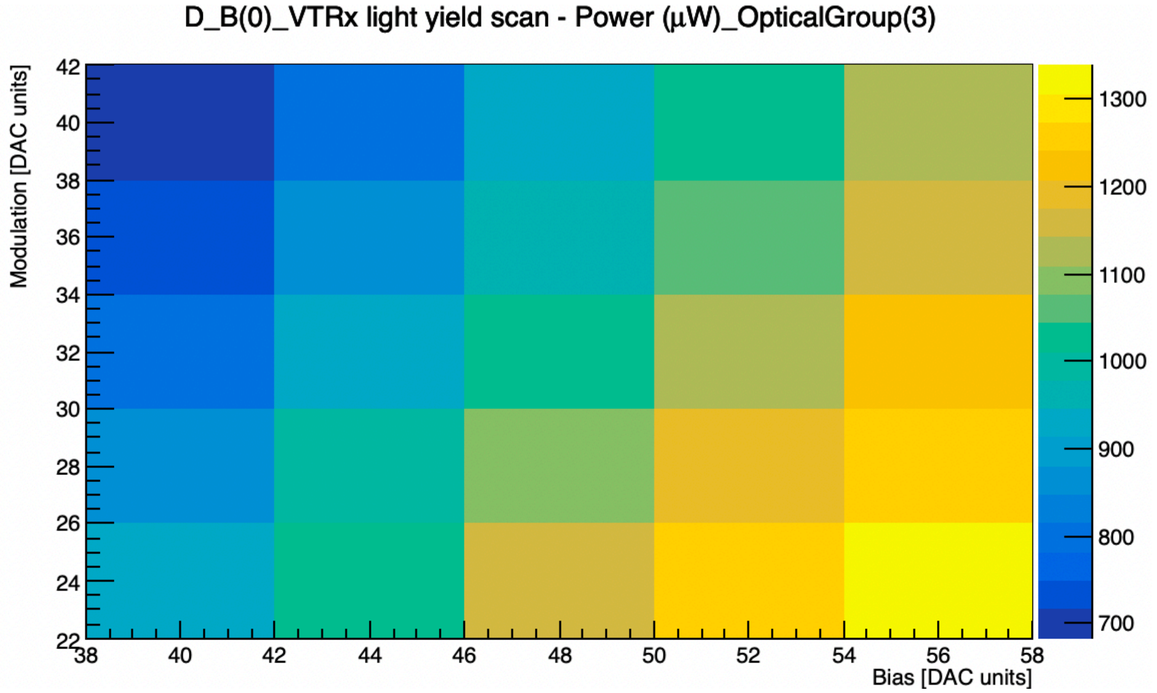

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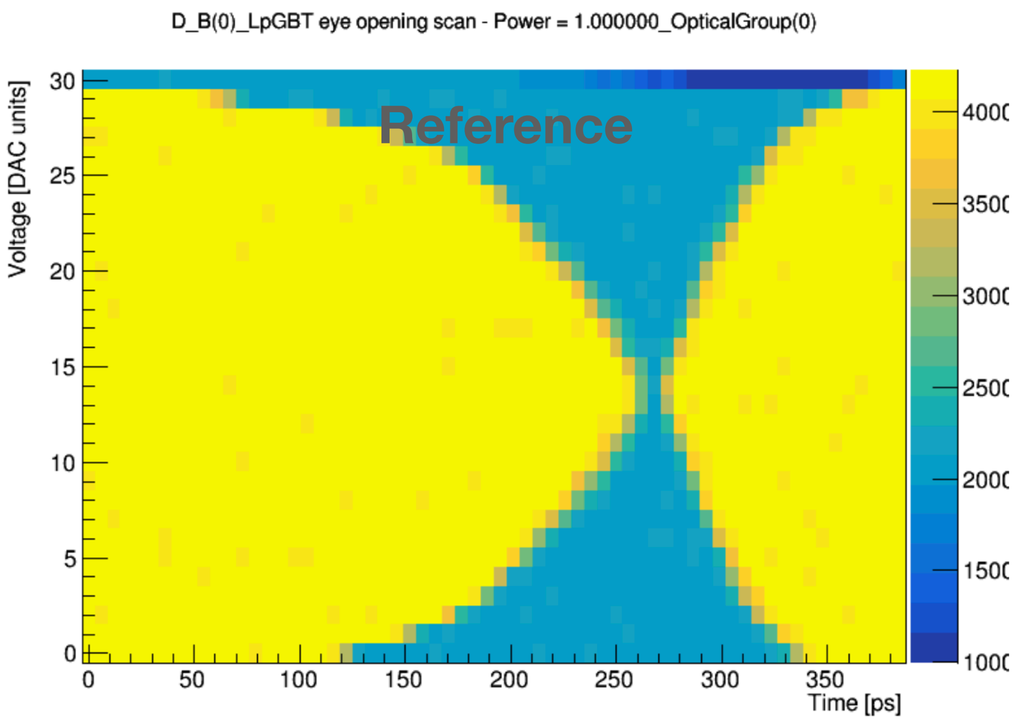

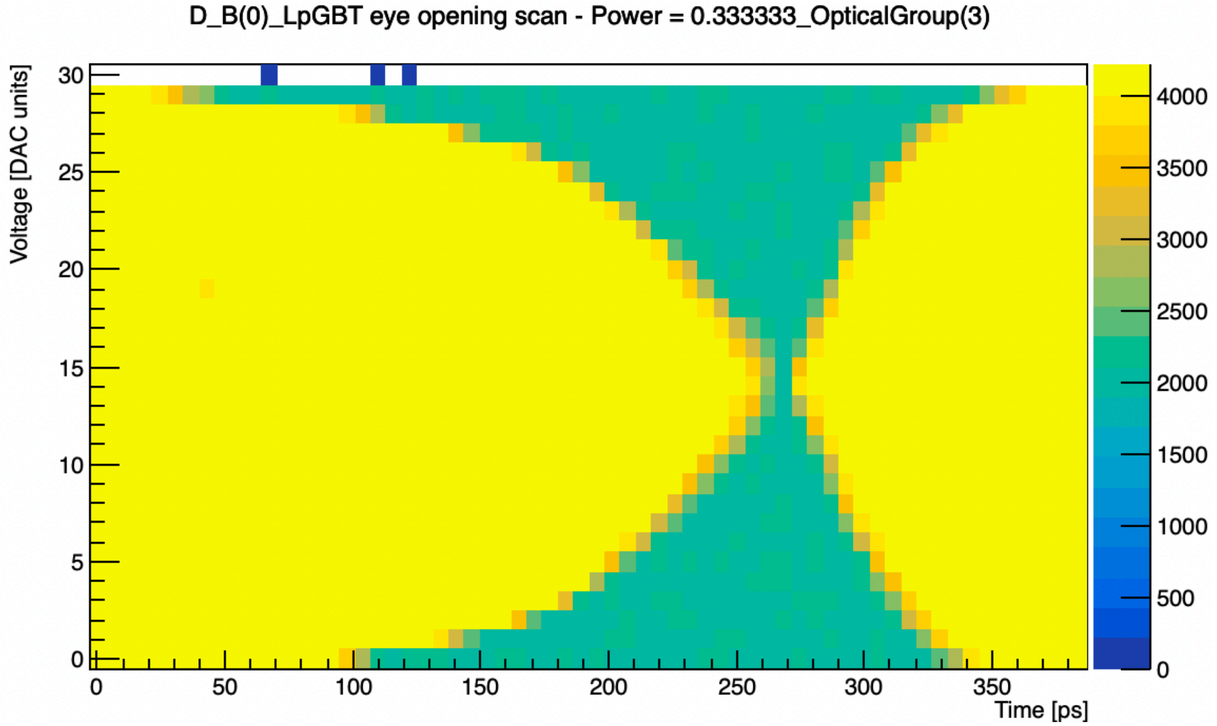

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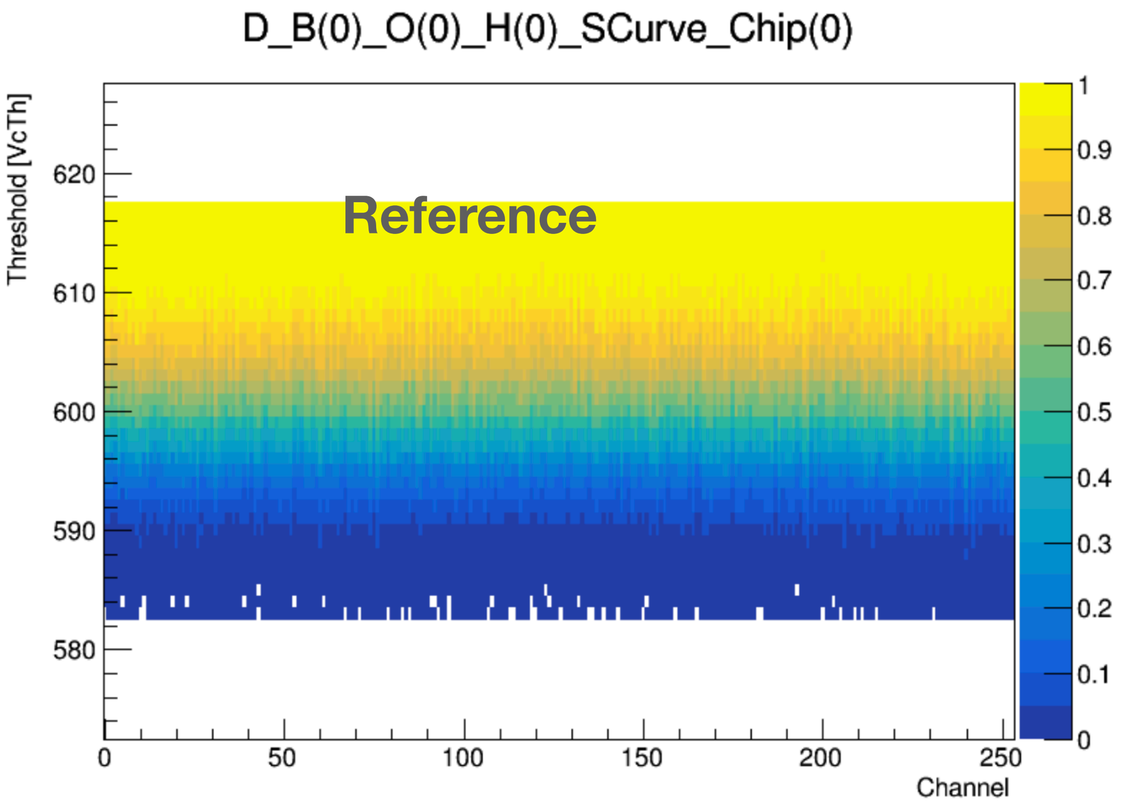

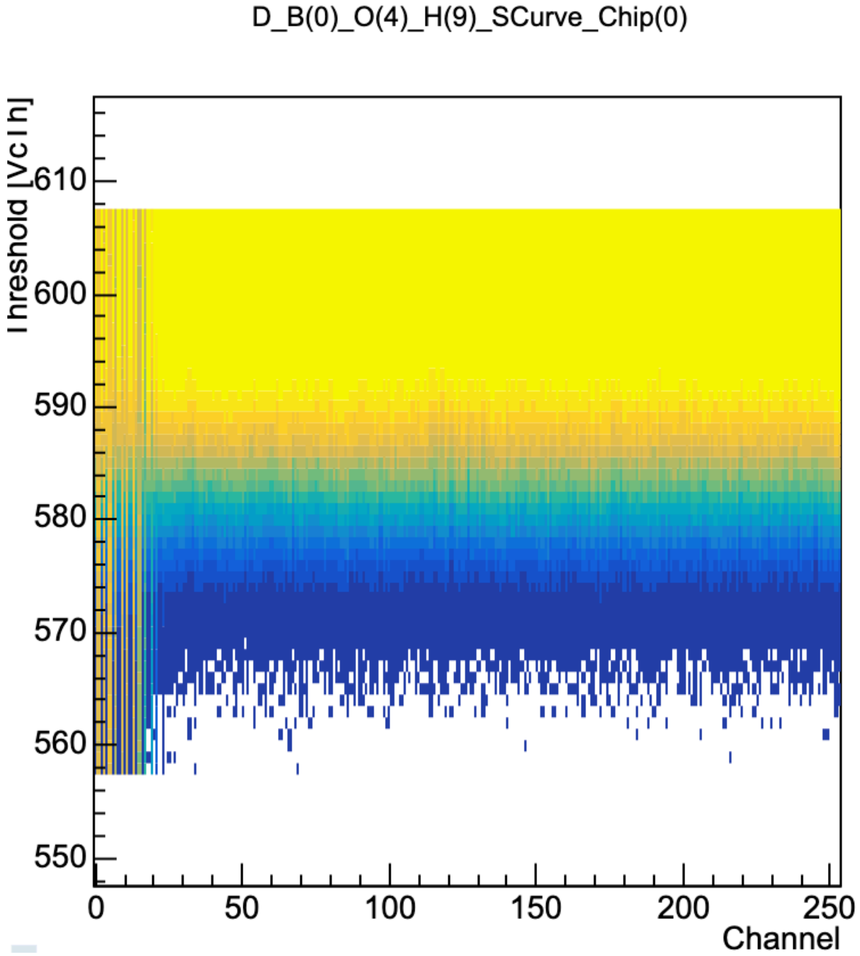

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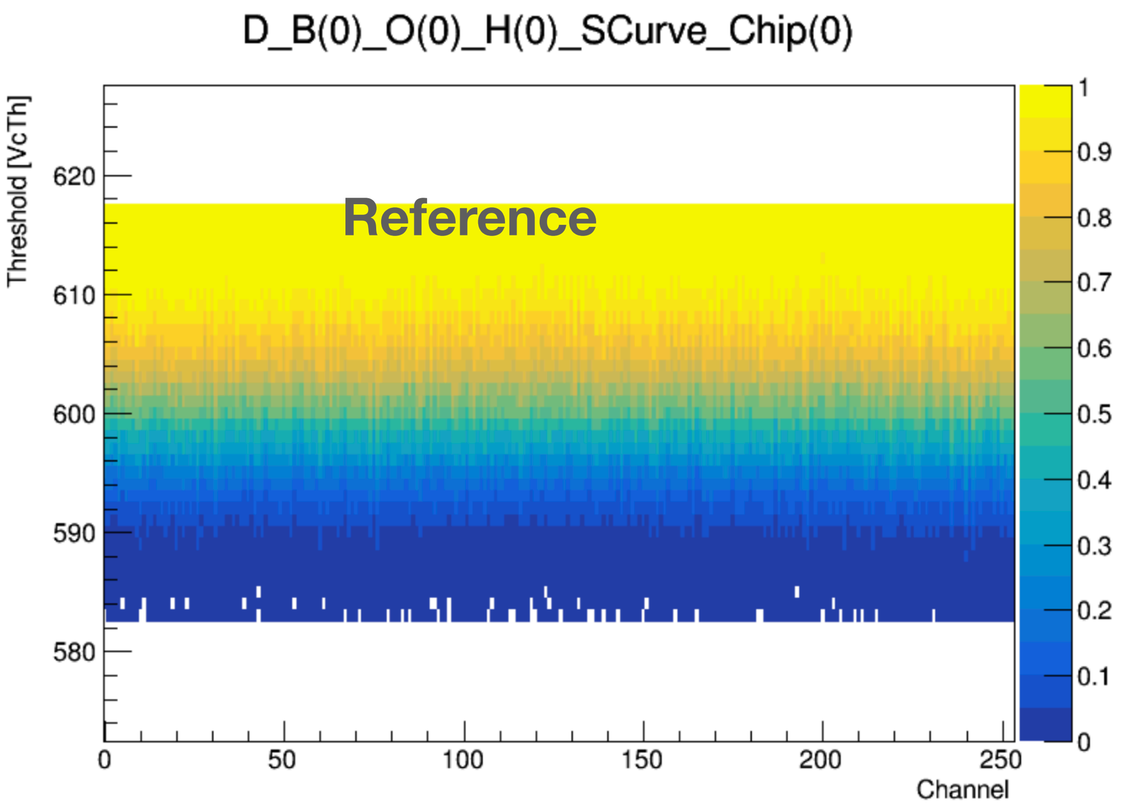

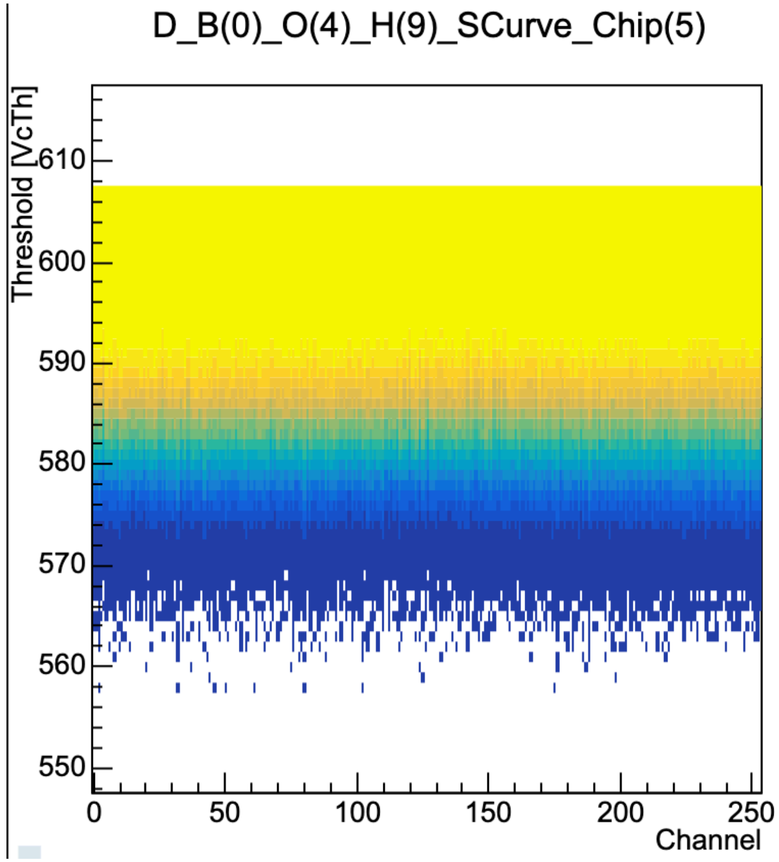

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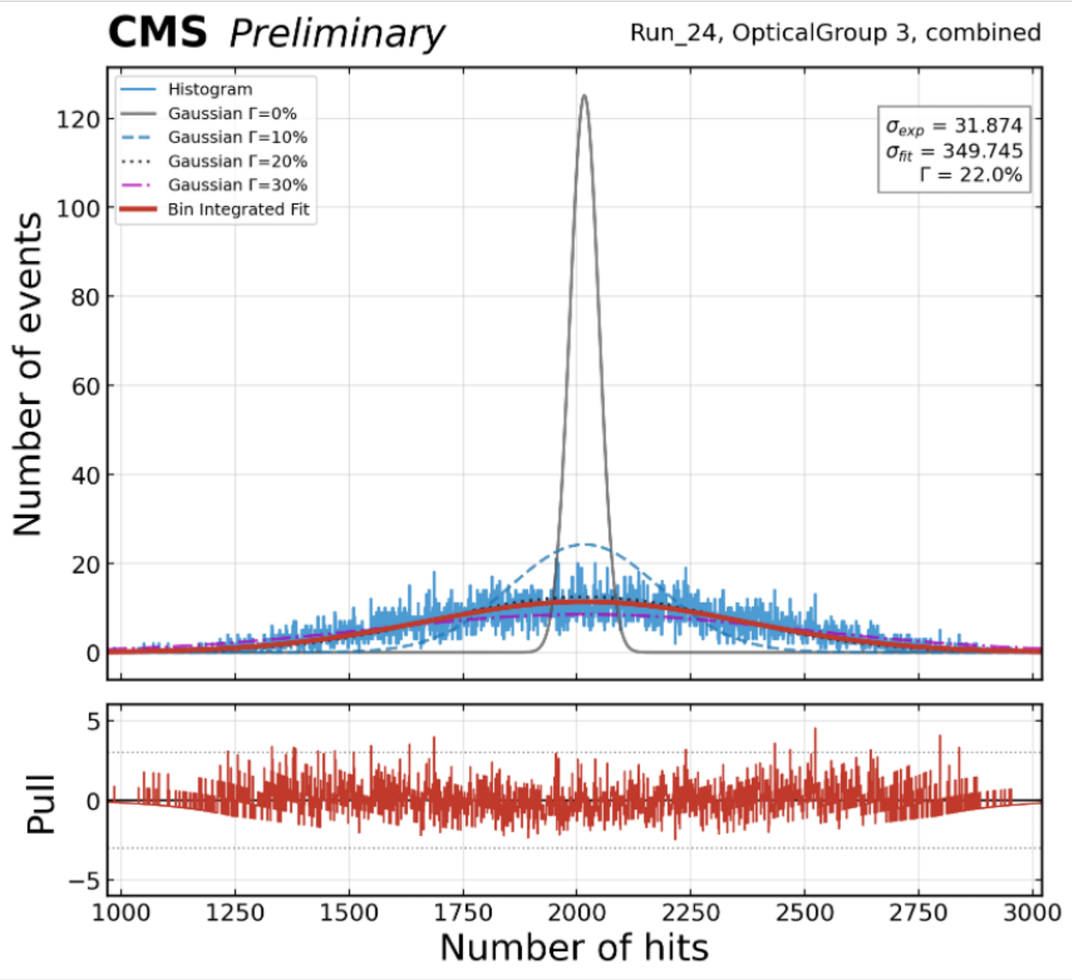


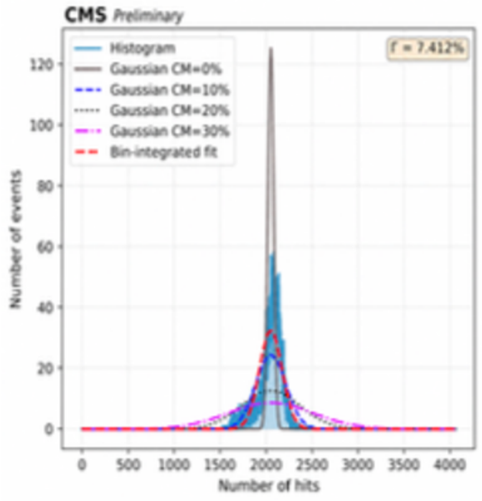
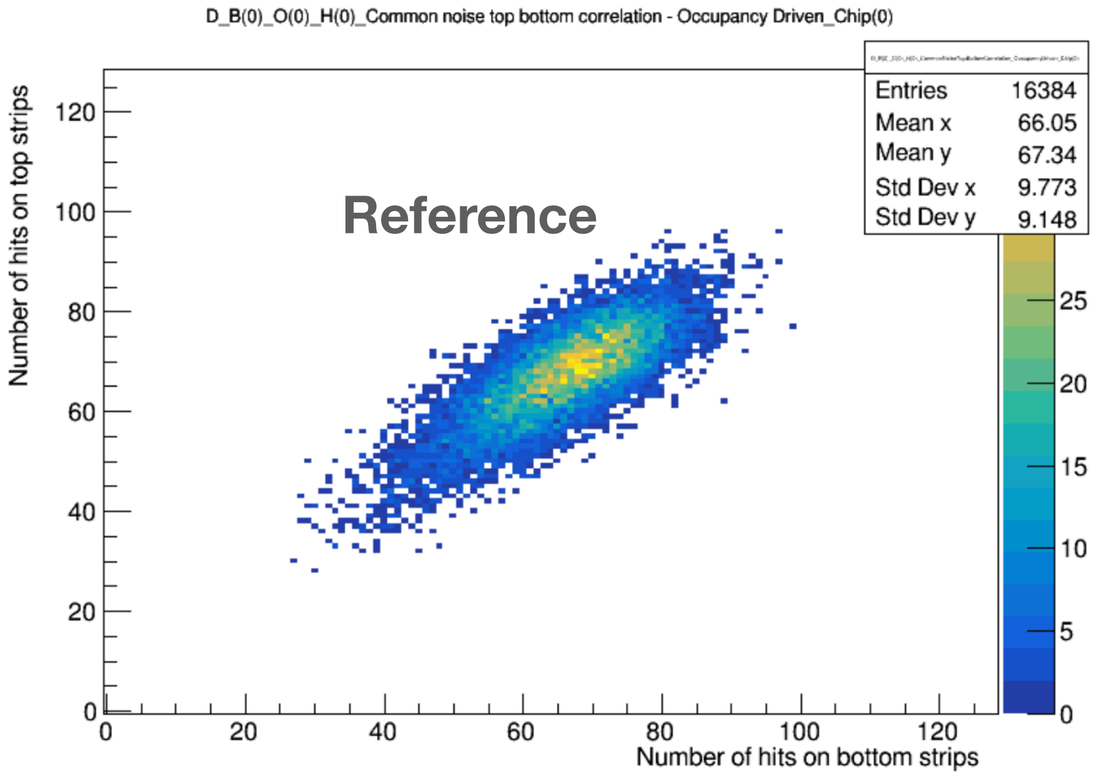


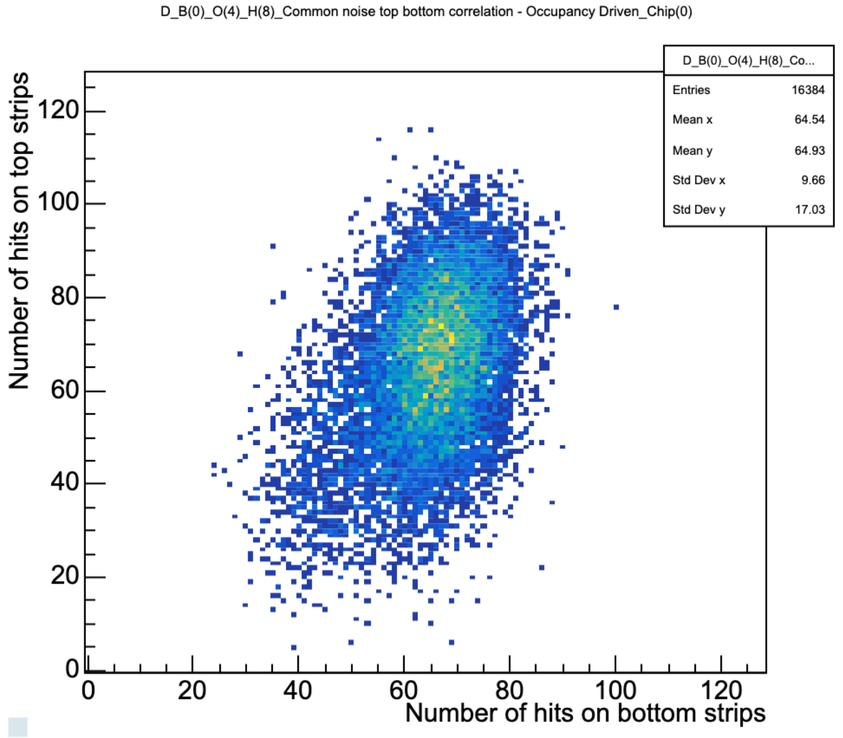
Figure: **Fit Distribution for a typical module**. The plot shows the hit distribution and noise characterization for module. It compares the measured hit occupancy distribution with several Gaussian models corresponding to different levels of common-mode (CM) noise. **Blue histogram** represents the measured distribution of hits for the module. **Gray Solid Curve – Gaussian CM=0%** represents an idealized case with no common-mode noise. **Blue Dashed Curve – Gaussian CM=10%** includes a small common-mode noise. **Black Dotted Curve – Gaussian CM=20%** is broader distribution. **Magenta Dash-Dot Curve – Gaussian CM=30%** widest gaussian reprensenting large common-mode noise. **Red Dashed Curve – Bin-integrated fit** is the fitted model (a likelihood fit with Poisson bin statistics) to the measured histogram and the fit width is much larger than ideal CM=0% case, indicating subtantial spread in ocuupancy. Γ **(gamma)** represents the fraction value of common-mode noise. σ_{exp} **(ecpected width)** is 31.873. σ_{fit} **(measured width from fit)** is 123.994.

For 2S modules

Optical group	Combined	FEH0	FEH1
OG 3	22.0%	29.6%	28.6%
OG 4	13.4%	23.3%	23.5%
OG 5	8.9%	20.7%	21.8%
OG 7	9.6%	29.7%	30.1%

For 2S modules





For 2S modules