

LED Monitoring Update Calorimetry Meeting

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University
of Regina

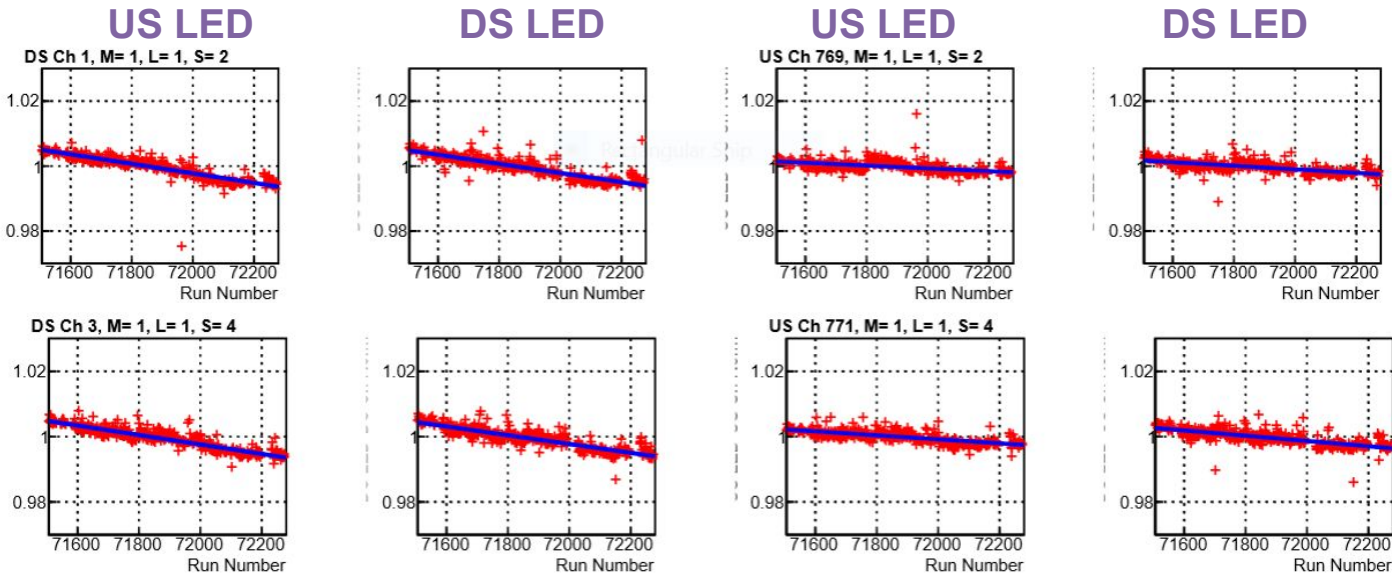
Motive

We observed slopes in plots for fall 2019 motivating us to look back:

- Check for other run periods
- Create plots for fall 2018 run period (Run No. 50810-51638)
 - Fit plot to observe slope
 - Make sure everything is working properly

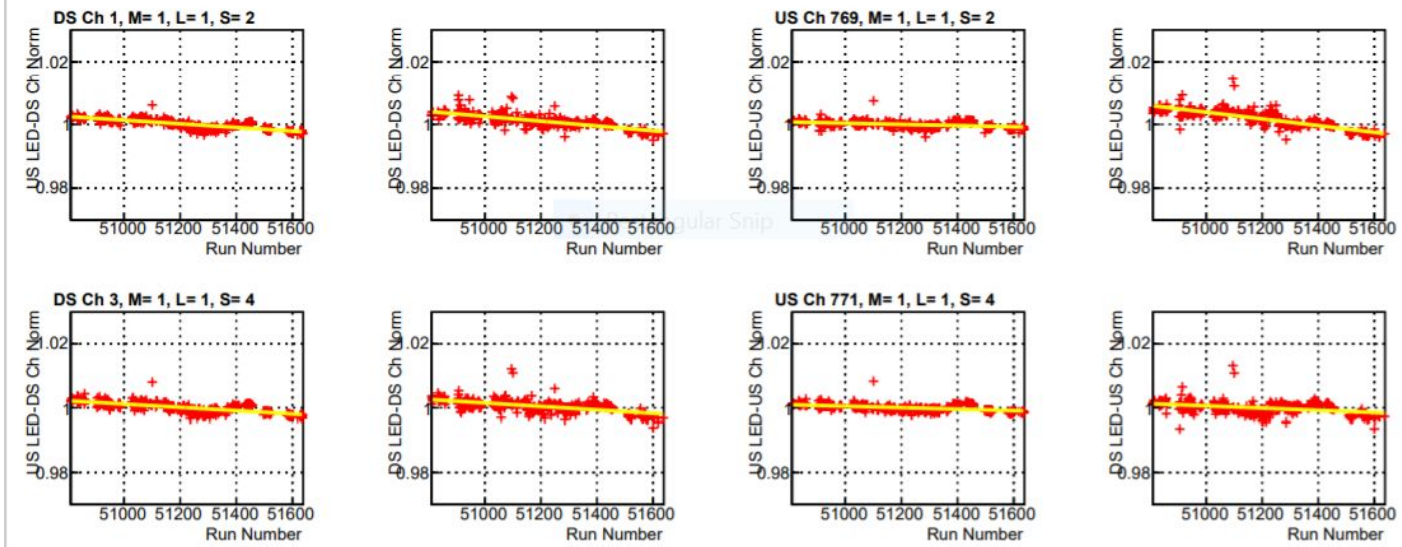
Normal Plots

Fall 2019



Fall 2018

Slight slope in DS LED



Downstream SiPMs

Upstream SiPMs 3



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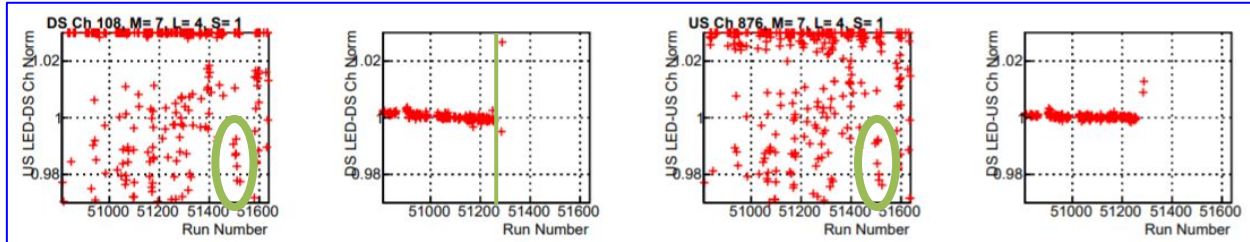
LED fluctuations (Fall 2018)

US LED

DS LED

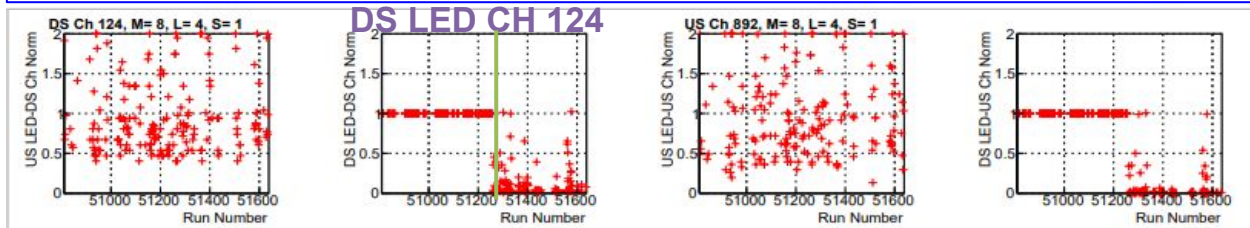
US LED

DS LED

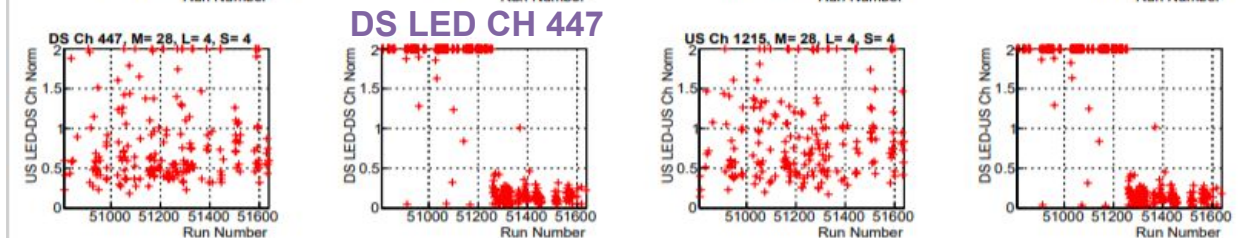
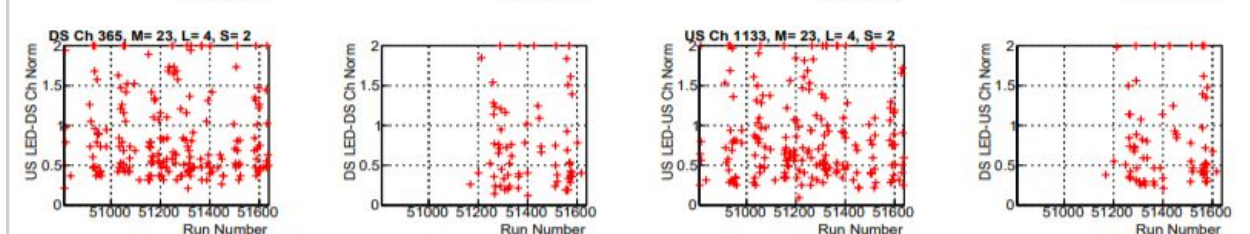
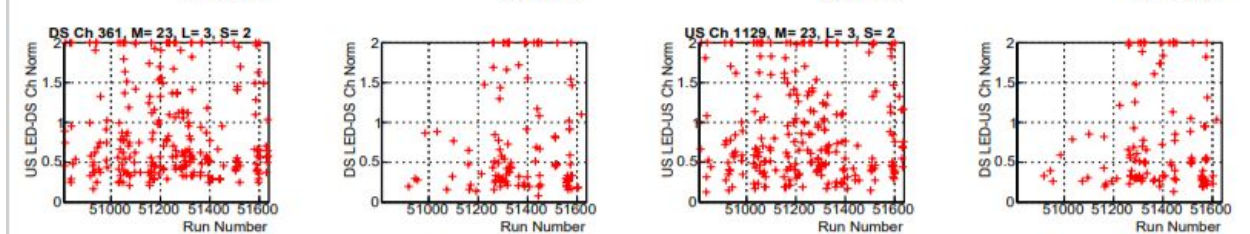


↑ Y Axis
0.97 to
1.03

Blue Box
[set]



↑ Y Axis
0 to 2



Trends seen in the DS LEDs of Ch 124 and 447 were very common

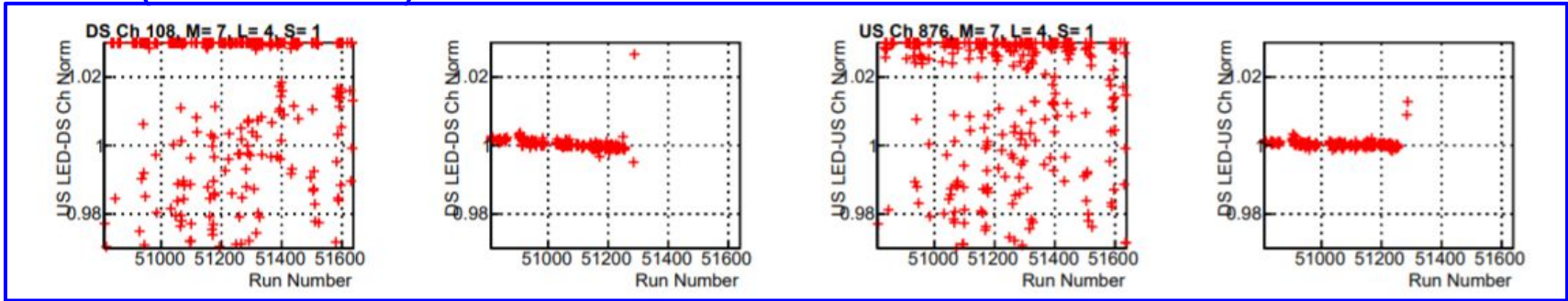
- Fluctuations in DS LEDs are more common

Fluctuations are similar in corresponding US and DS LED

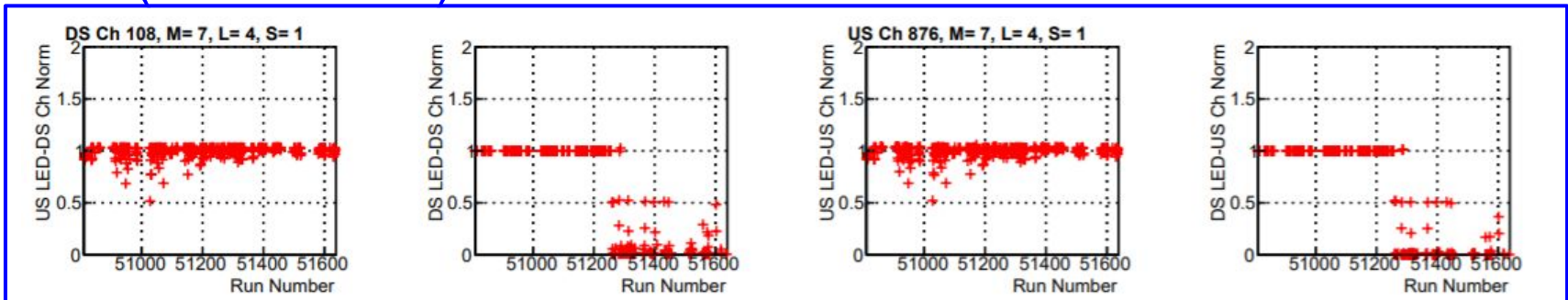
- Issue with LED



Set (zoomed in)



Set (zoomed out)

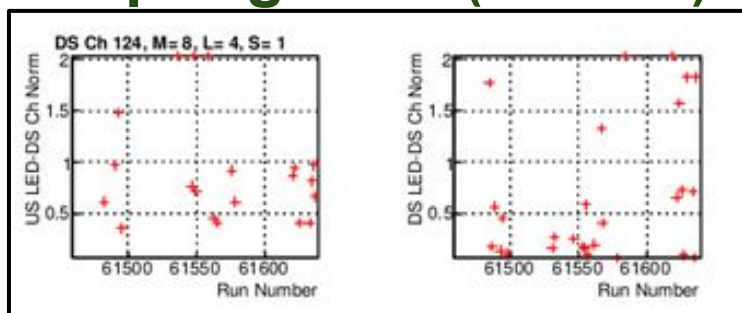
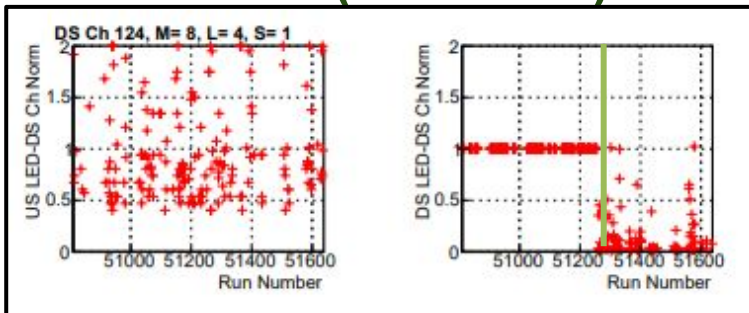


- 243 sets of plots had issue with DS LED
- 11 sets had issue with US LED
- 9 sets had issue with DS and US LED

Fall 2018 (402 runs)

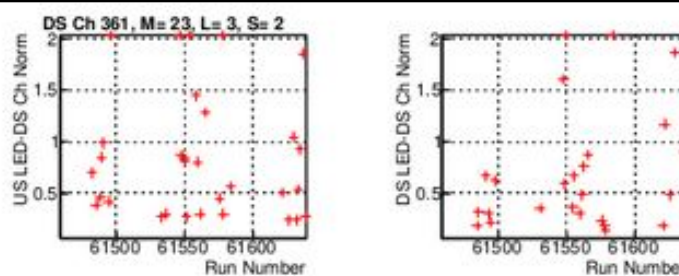
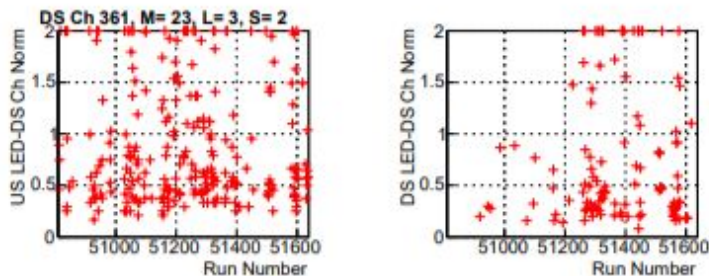
Spring 2019 (64 runs)

Ch 124

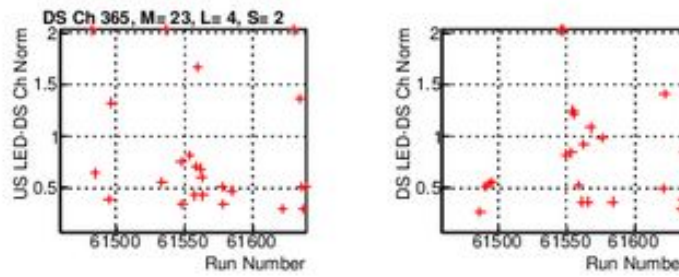
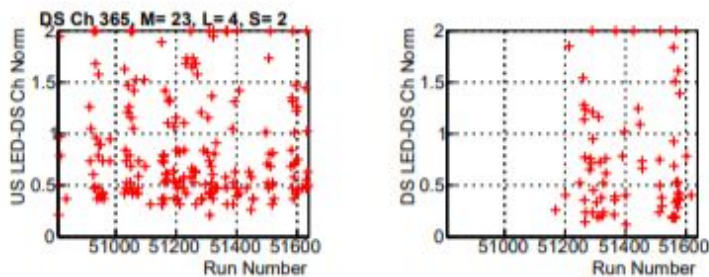


Black box [single channel]

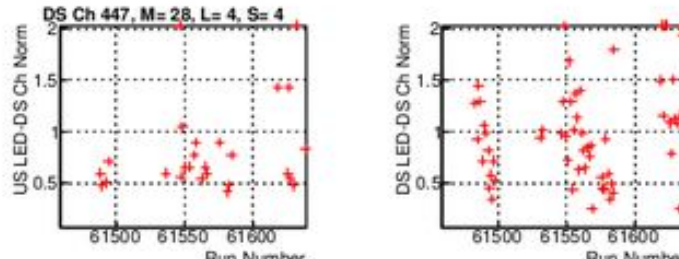
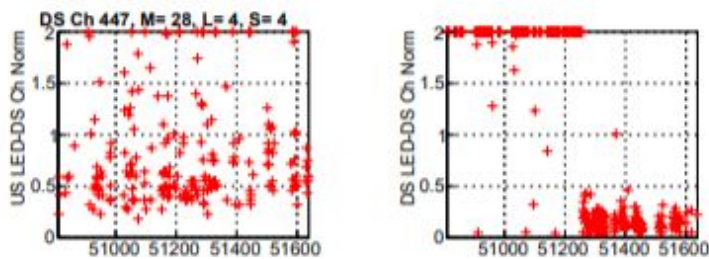
Ch 361



Ch 365



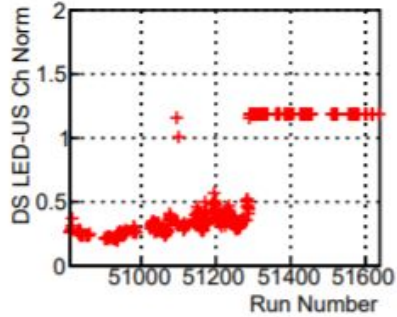
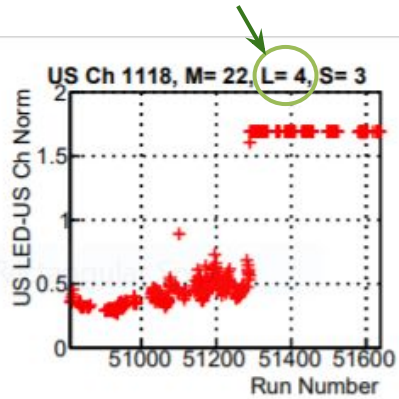
Ch 447



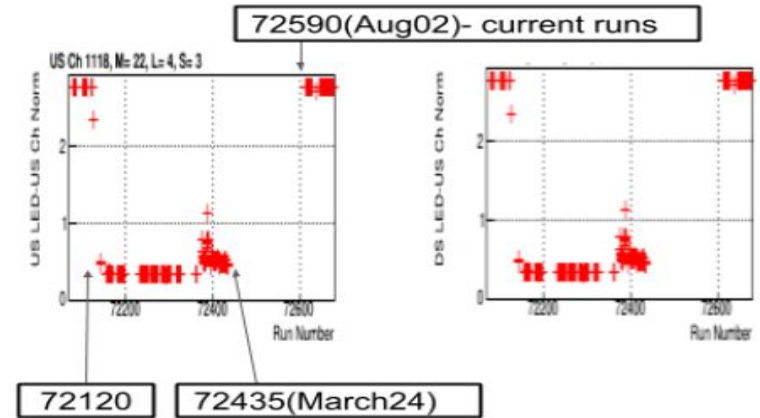
Issue with Upstream SiPM

Channel 1118

Fall 2018

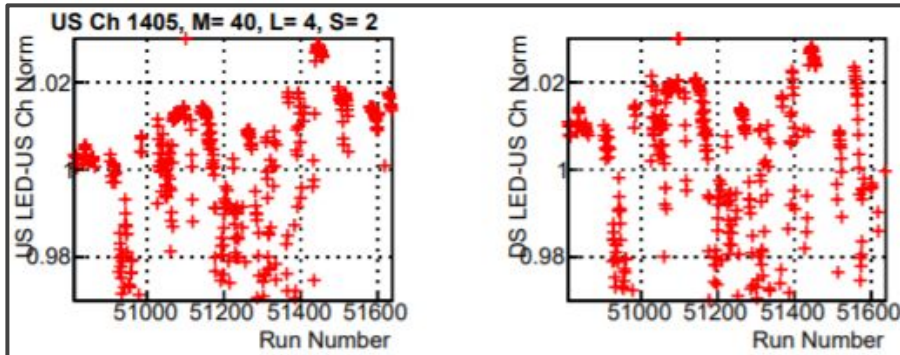


Fall 2019

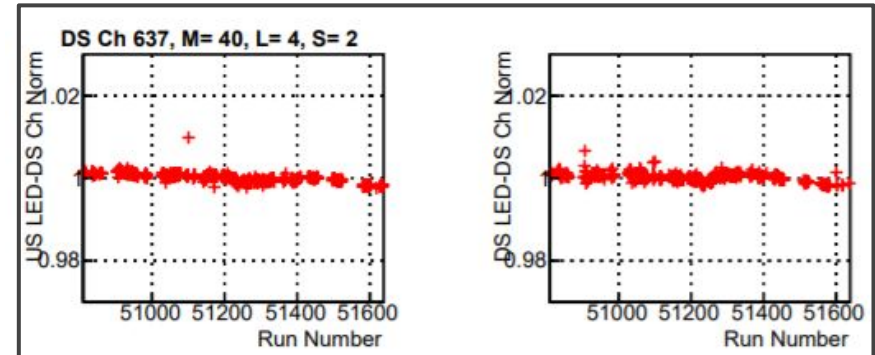


Channel 1405

~ 2% fluctuations



Channel 637



Fall 2018

7

Conclusion

- Channel 1118 and 1405 only channels with SiPM issue
- Fluctuations in LEDs are seen more often in DS LED than US LED
- Plots seem to reinforce fall and spring 2019 data
- Next Step: Examine older run periods?

