

# Run 2A

# ICEBERG PD

Rory Fitzpatrick on behalf of ICEBERG PD

ICEBERG Coordination Meeting

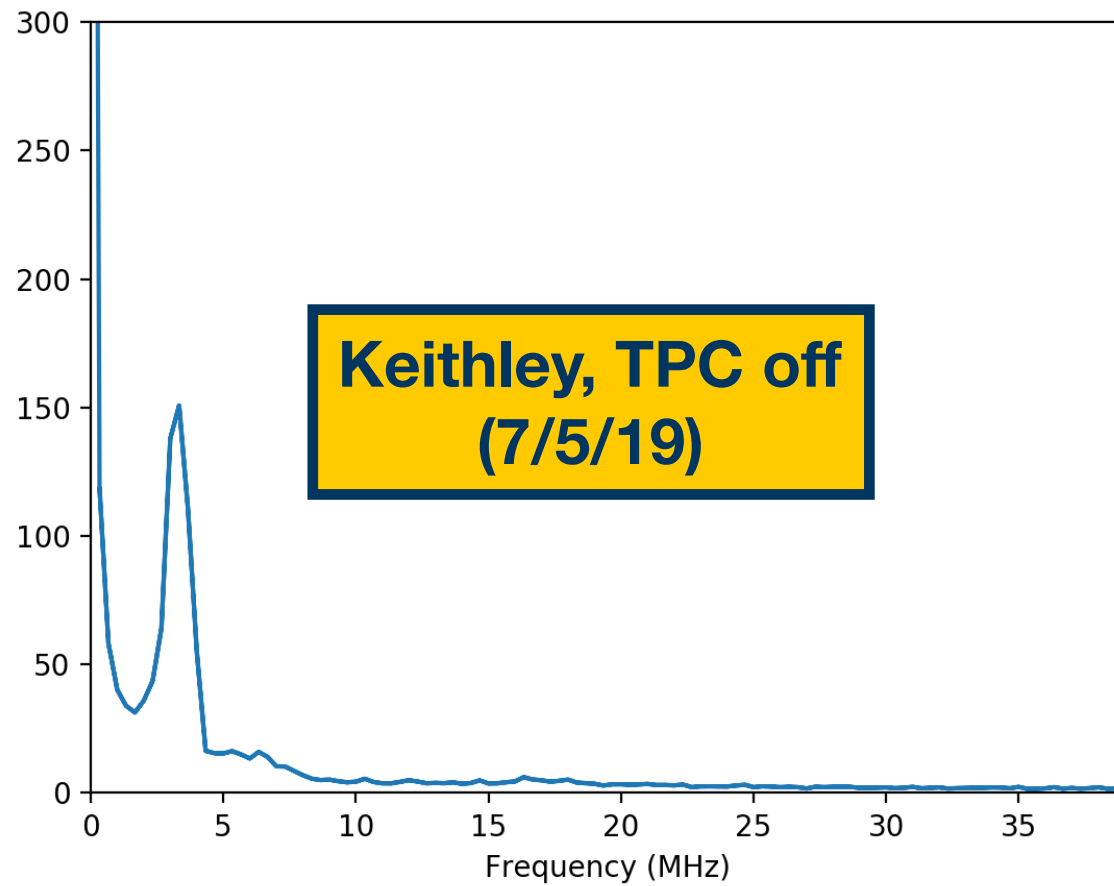
July 11, 2019

# overview

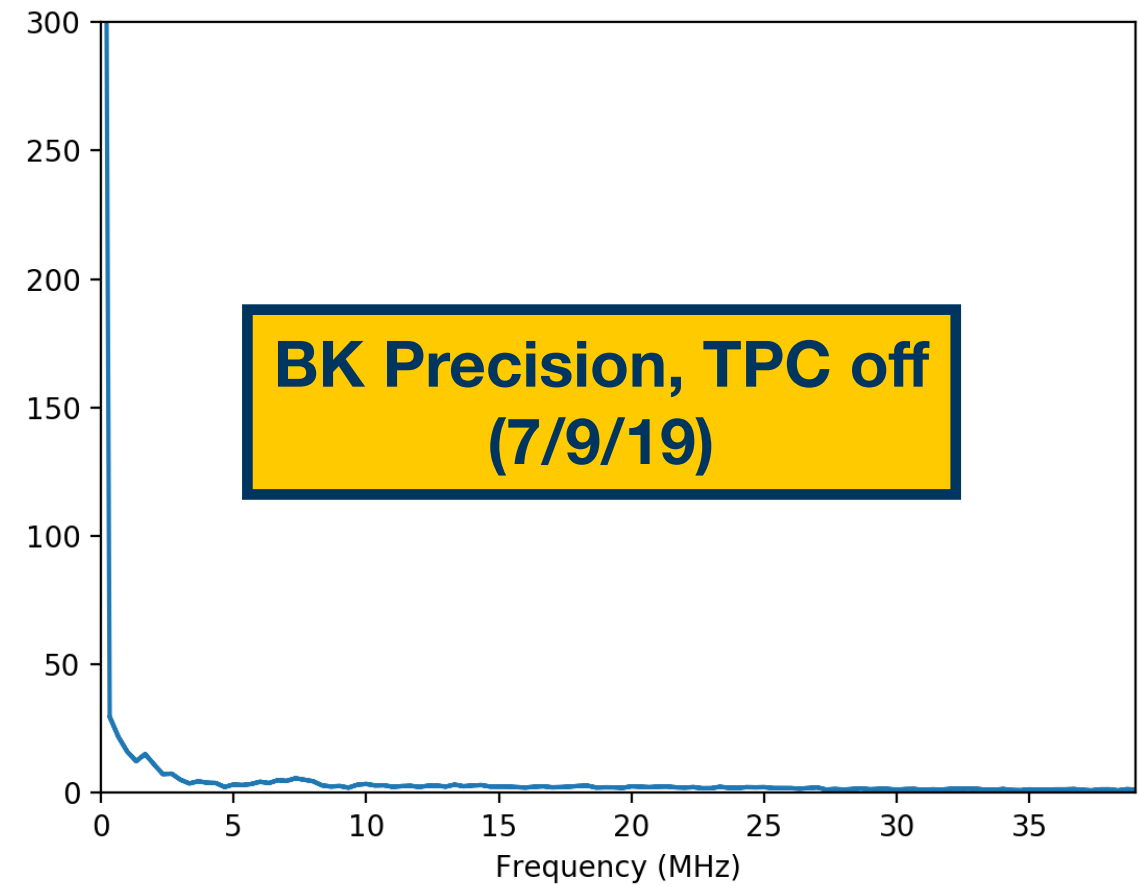
- We've replaced the Keithley 2400 with a BK Precision 9110 60V/5A power supply for biasing the sipms.
- Ran DAPHNE continuously for ~15 hrs yesterday with no readout issues.

# power supply

avg. FFT (X-ARAPUCA)



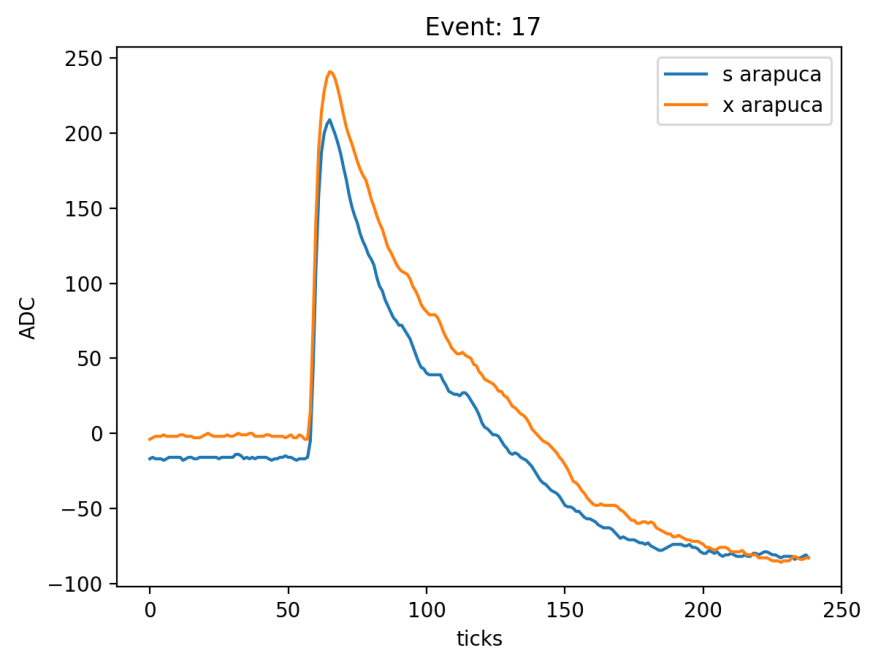
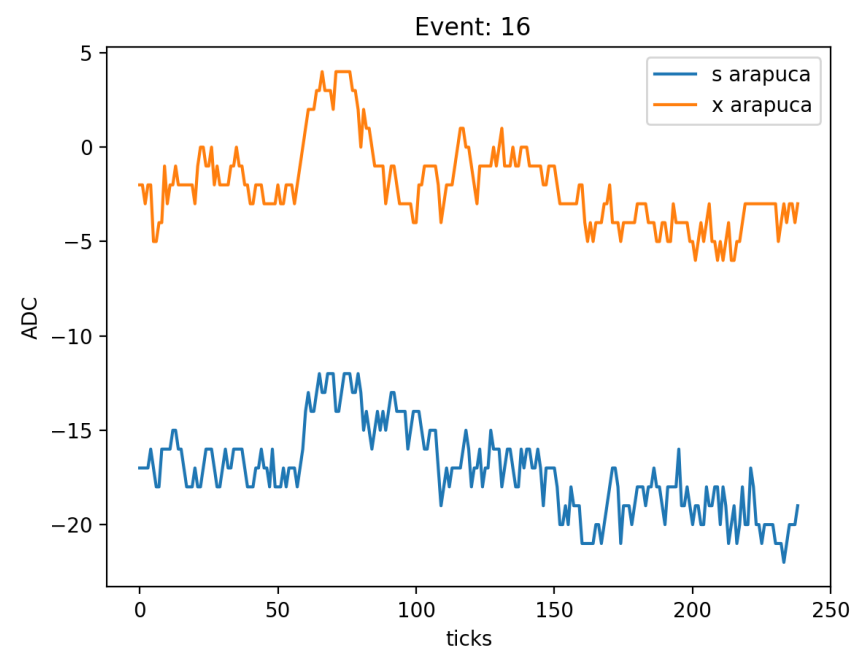
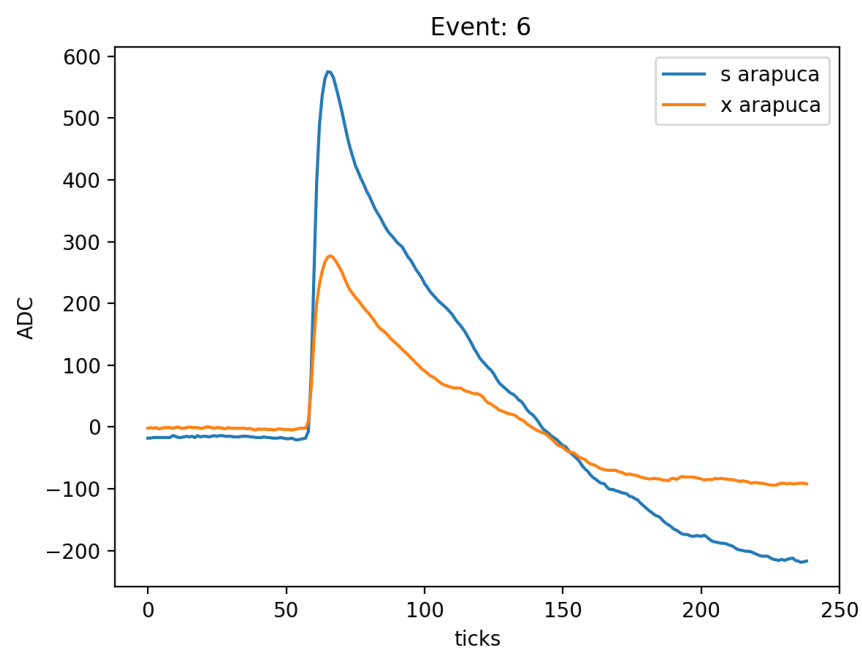
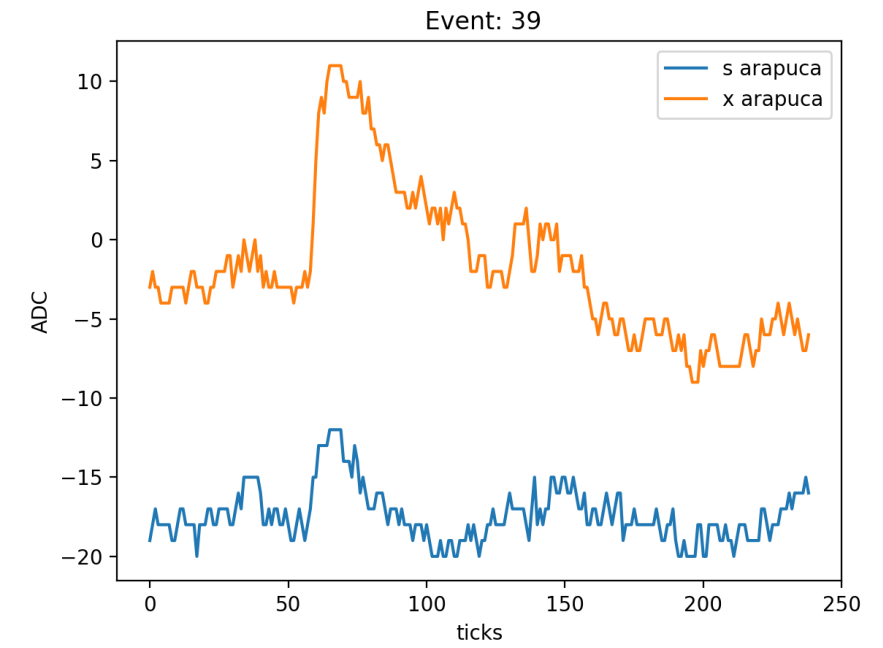
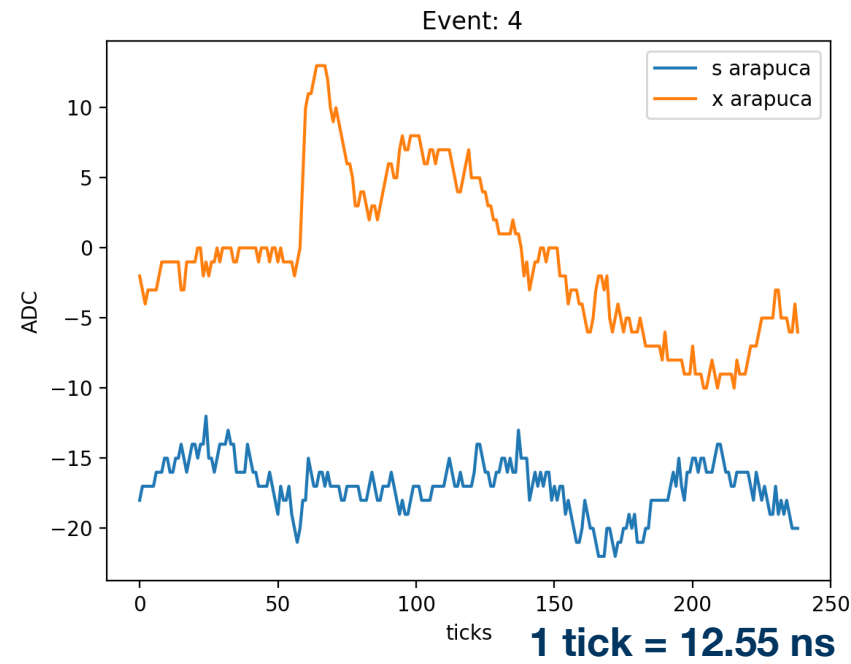
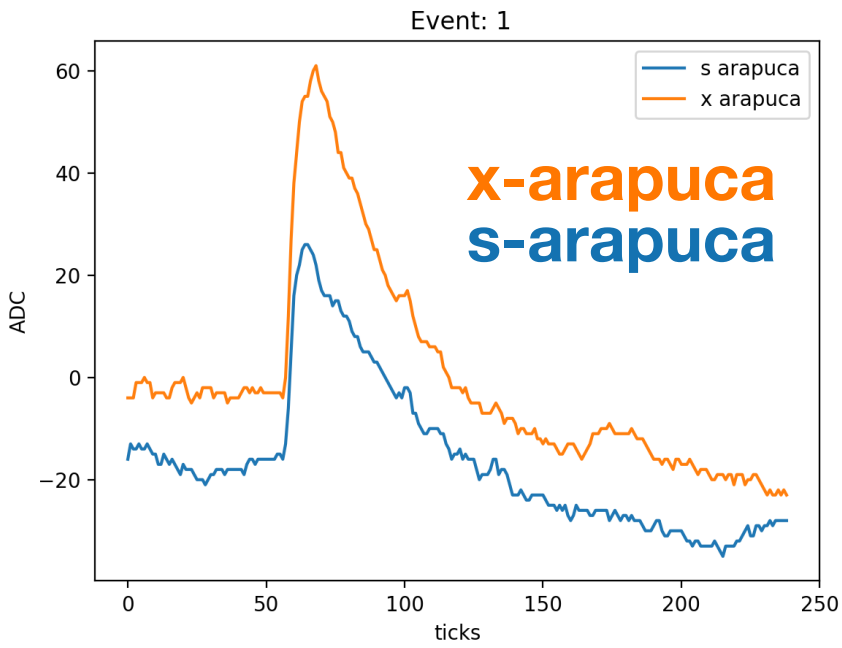
avg. FFT (X-ARAPUCA)



Observation of noise at low frequency is limited by our 3 $\mu$ s readout window.

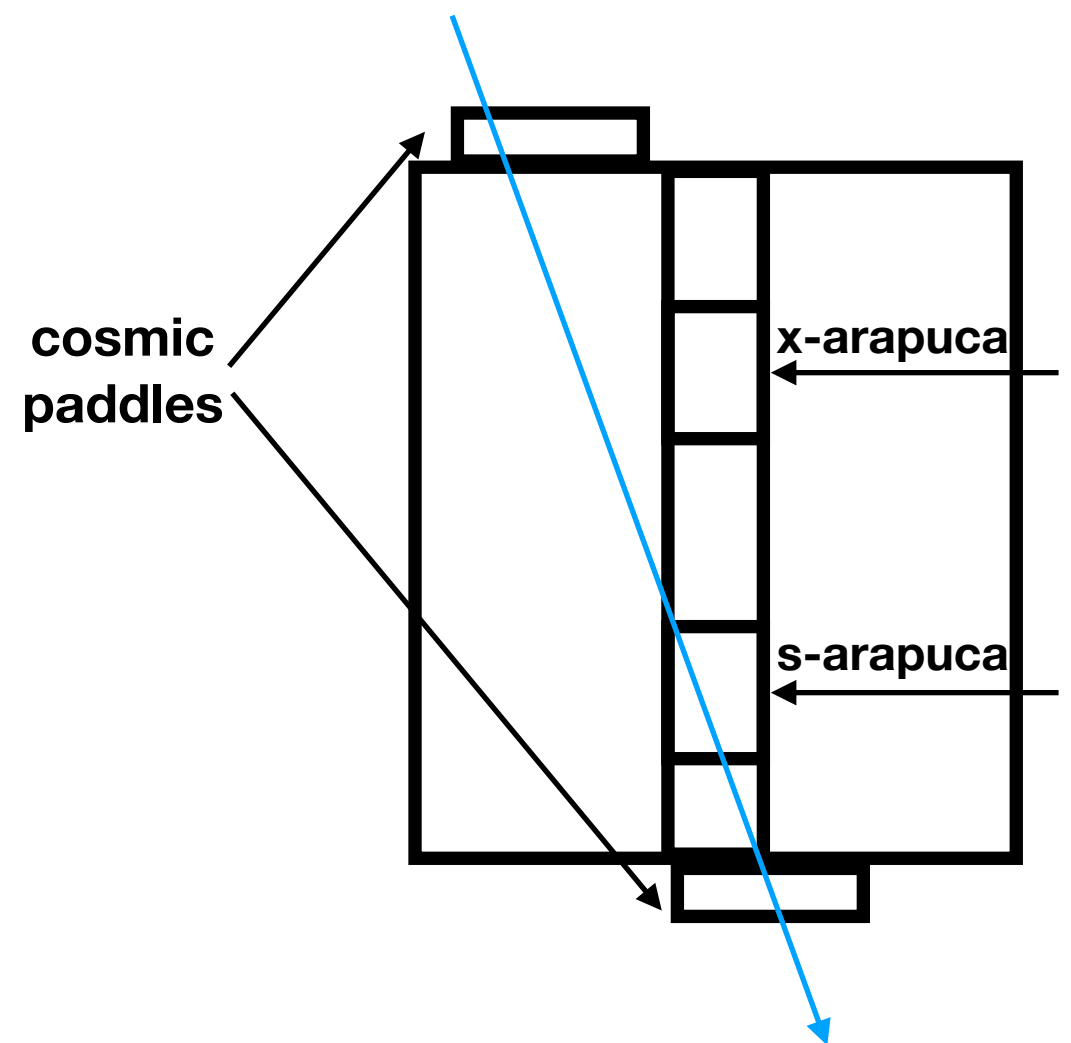
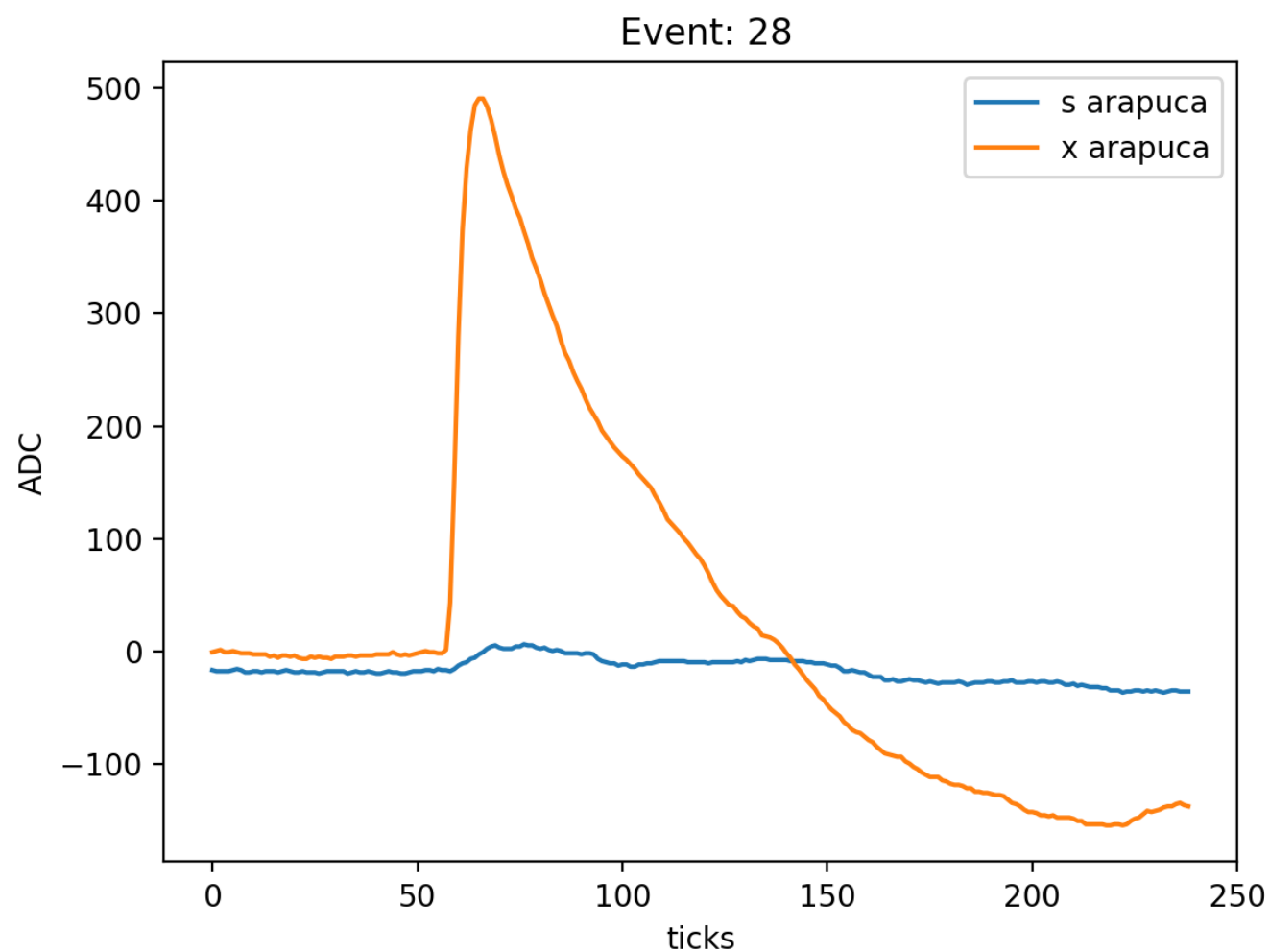
# Run 2A signals

TPC on  
 $V_b = 48\text{ V}$

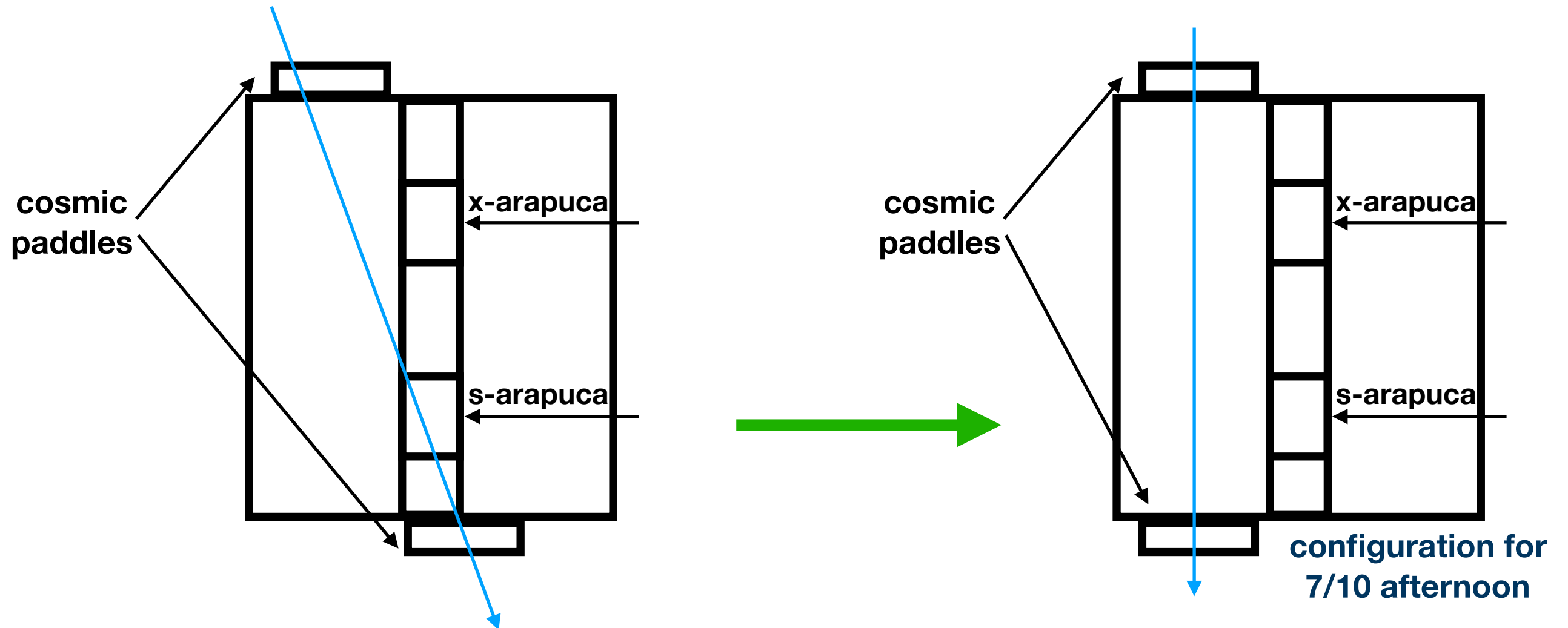


# cosmic paddle placement

Yesterday morning we realized the cosmic paddles were placed such that the two arapucas saw significantly different levels of light on average.

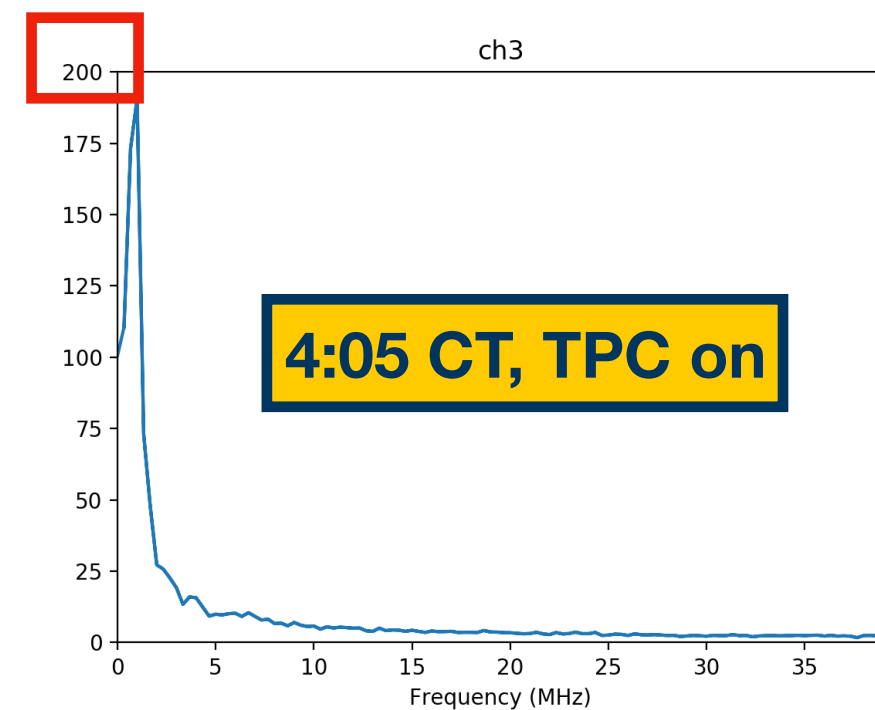
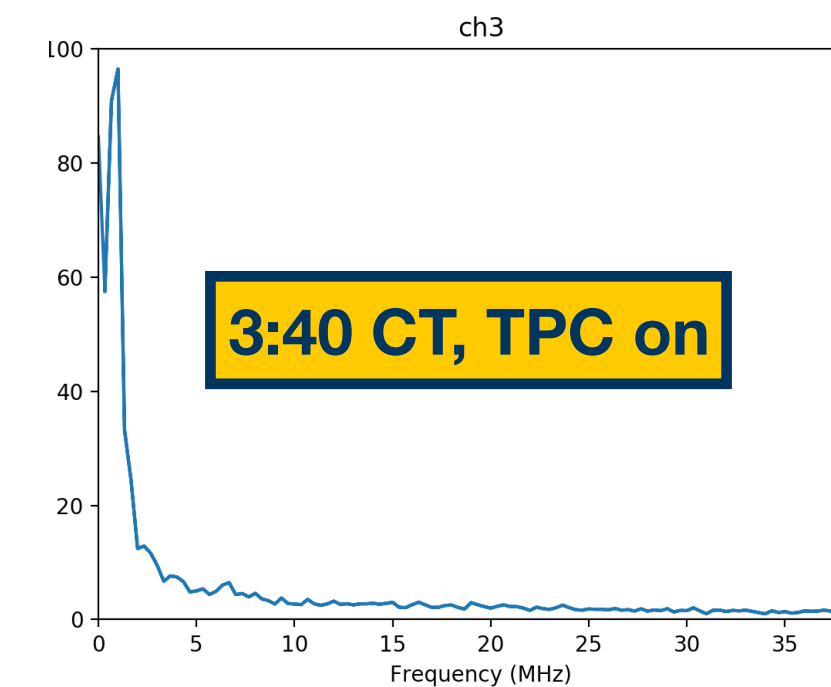
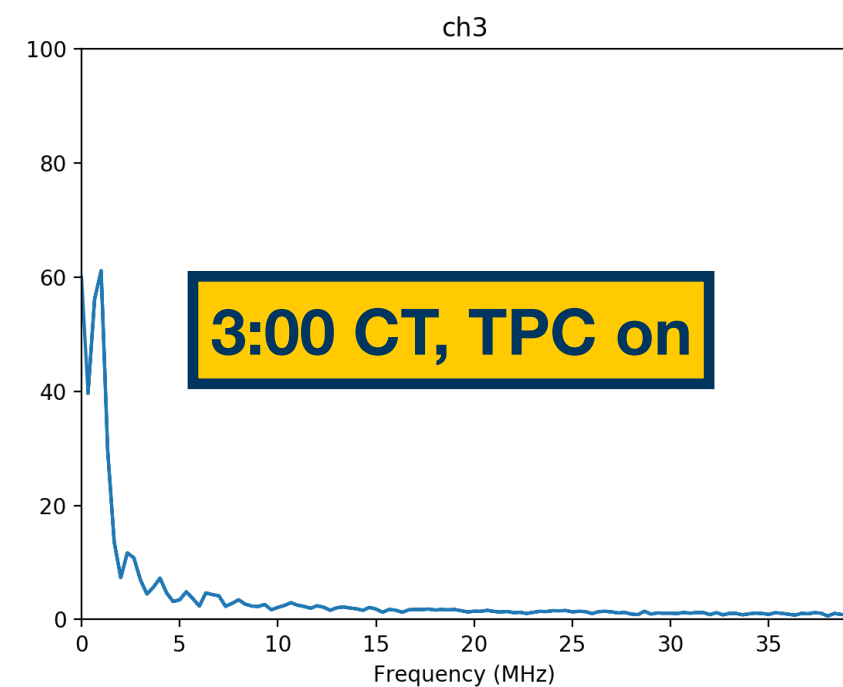
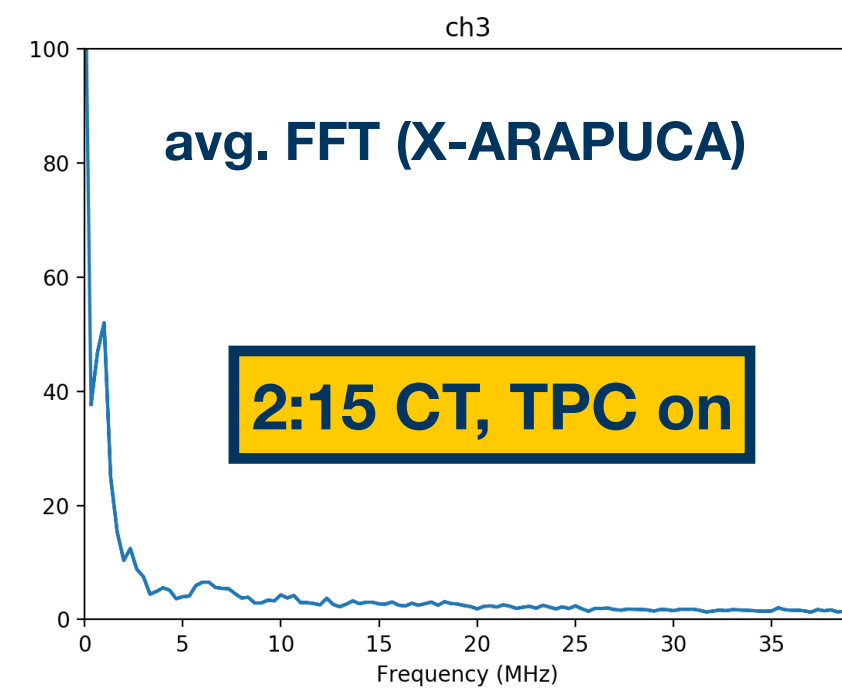
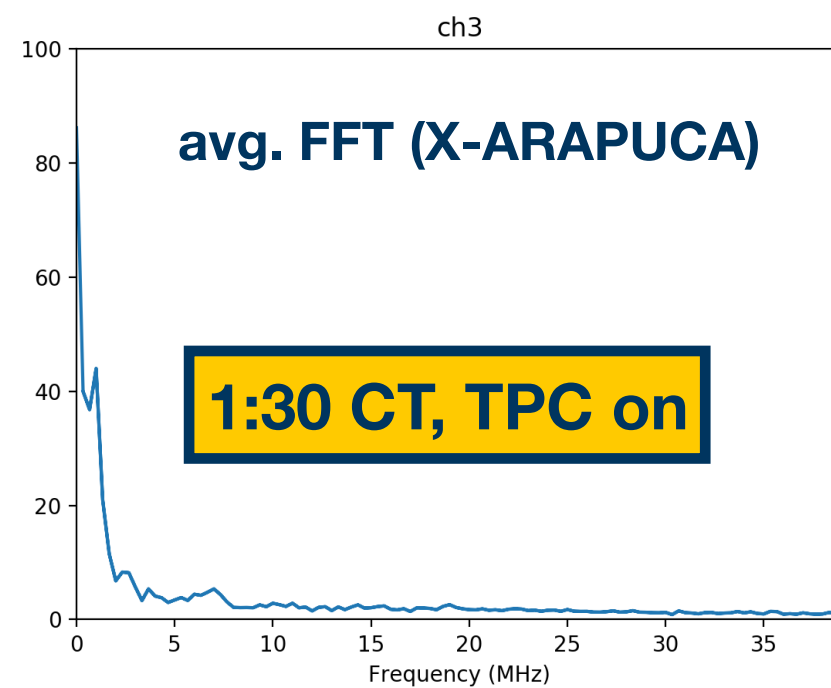
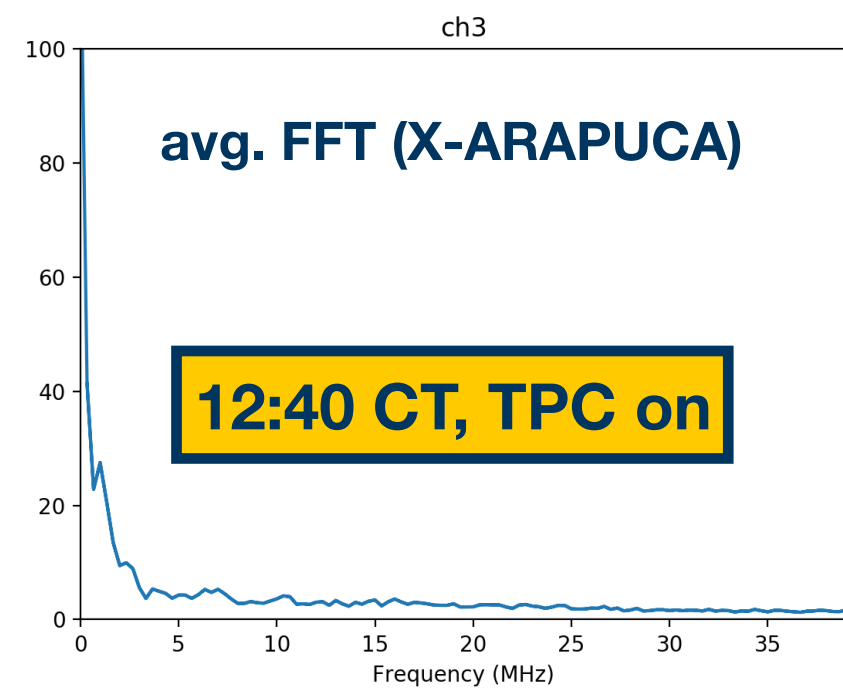


# cosmic paddle placement



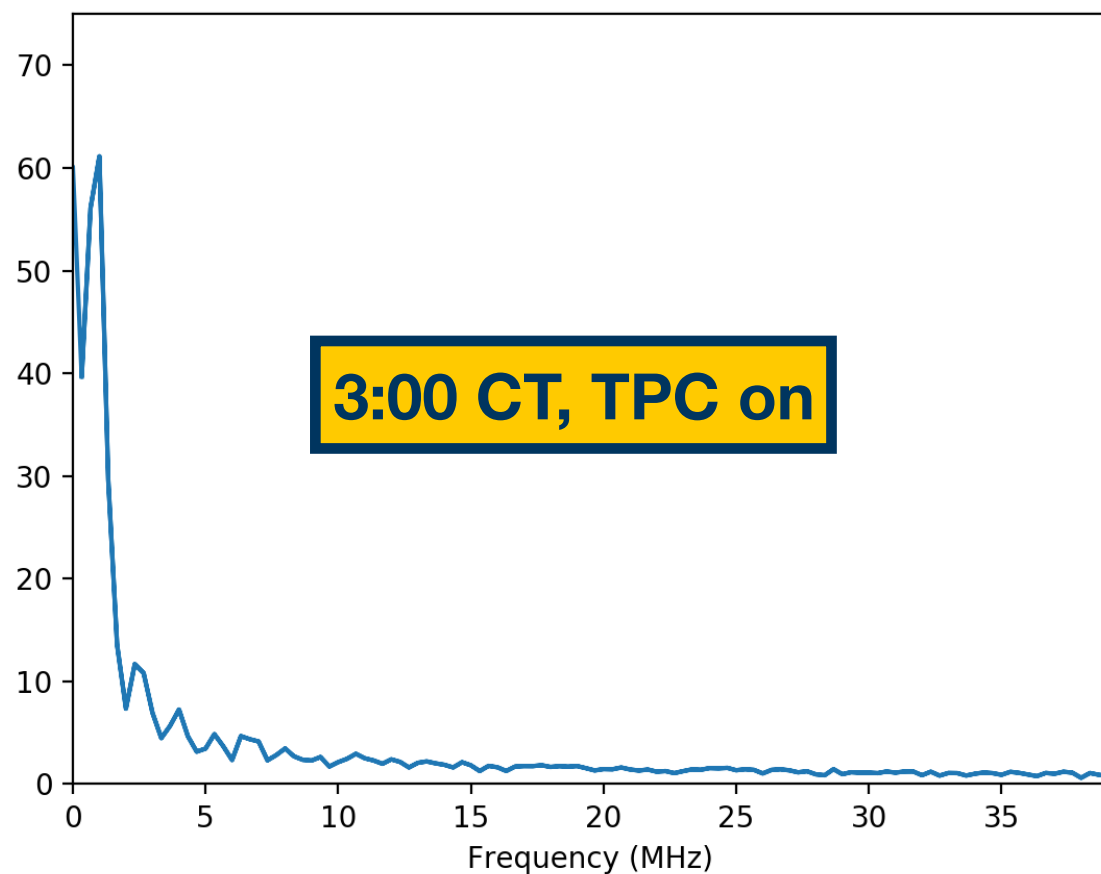
**Light exposure on the s-arapuca significantly improved after this change. It is important that the paddles are configured such that both light detectors see similar levels of light (this is already being kept in mind).**

# PD noise evolution (7/10)

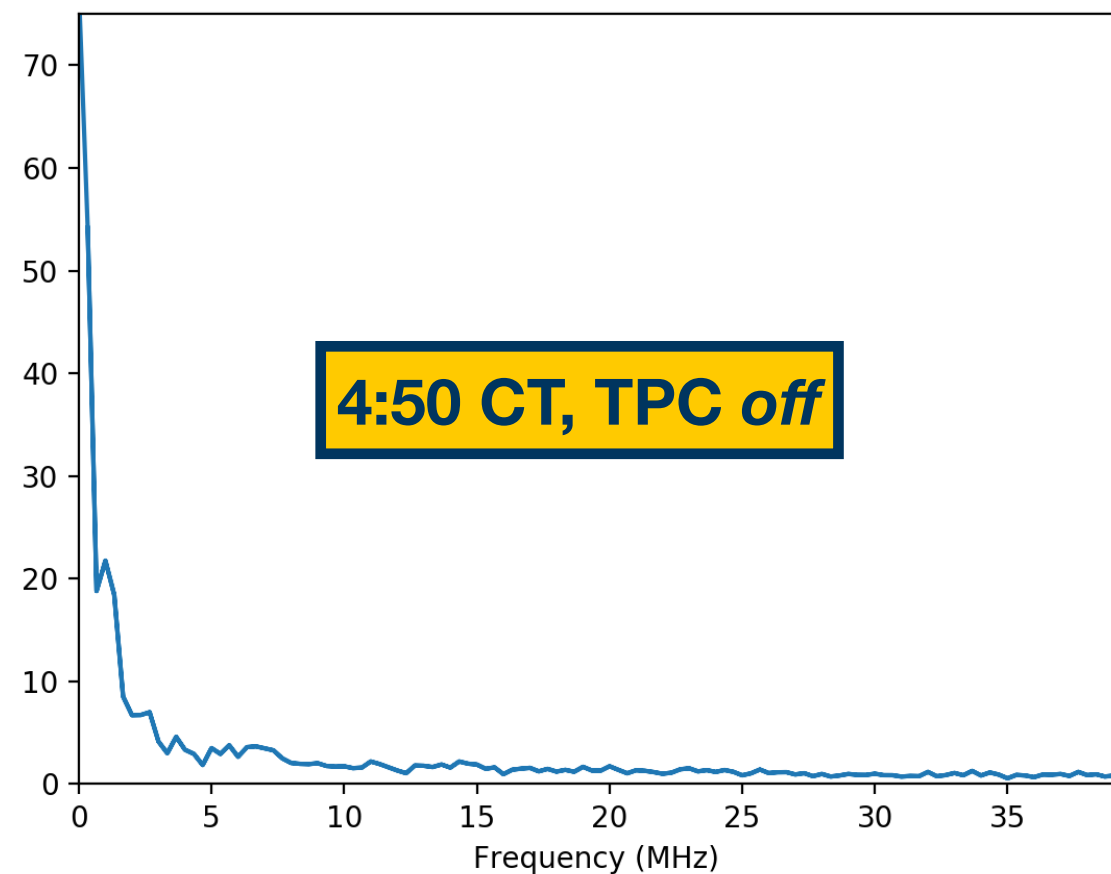


# PD noise evolution (7/10)

avg. FFT (X-ARAPUCA)



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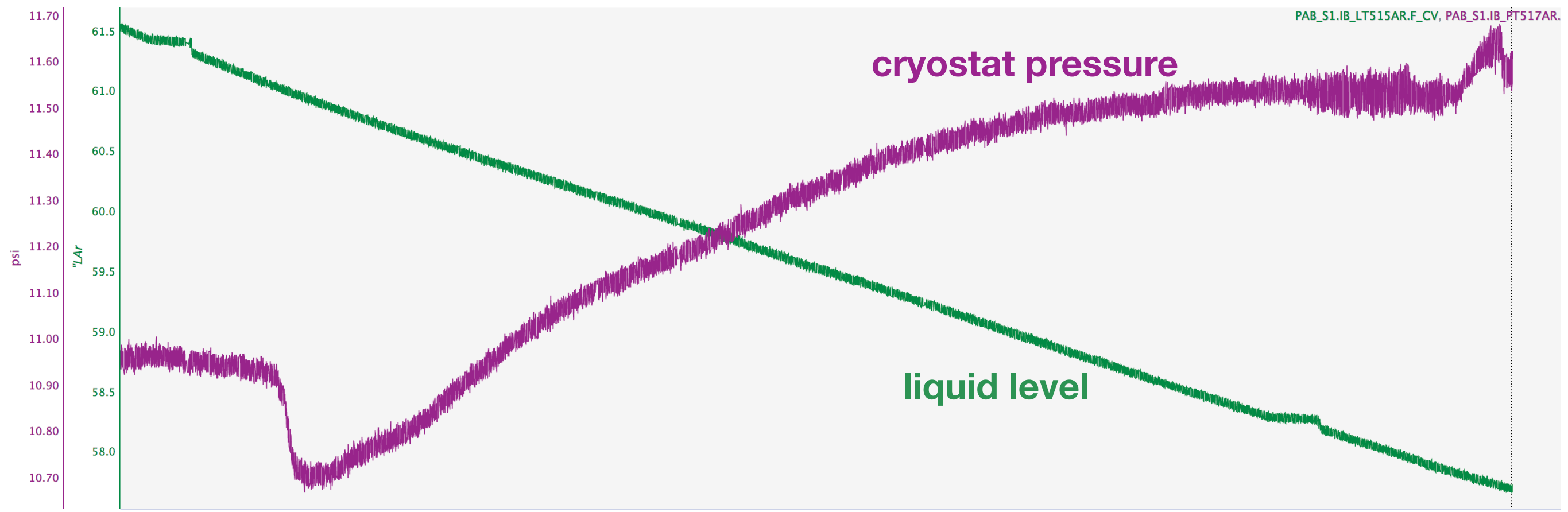
Noise levels were satisfactory Tuesday - Wednesday morning before the LAr level reached the top of the RF box. The TPC was on Tuesday evening-Wednesday evening.



# summary

- Power supply replacement significantly reduced PD noise.
- Ran DAPHNE continuously for ~15 hrs yesterday with no readout issues.
- Indication of noise increase when LAr level is below top of RF box and the TPC is on.
- Working on a full analysis of the data that was collected during Run 2A.
  - Particularly the data taken after the cosmic paddles were moved.

**backup**



7/9/2019 11:52 PM CDT 18.1 hours 7/10/2019 5:58

3:00 pm 6:00 pm 9:00 pm Jul 10 3:00 am 6:00 am 9:00 am 12:00 pm 3:00 pm 6:00 pm 1.3 days

7/9/2019 Details

Name	Assets	Description	Lane	Max	Min
"LAR" PAB_S1.IB_LT515AR.F_CV		Condenser insulating vacuum pressure (F_CV)	1	61.558	57.658
psi PAB_S1.IB_PT517AR.F_CV		Cryostat pressure (F_CV)	1	11.682	10.667

**We saw an gradual increase in 800 kHz noise as the liquid level lowered below the TPC RF box. It disappeared when the TPC was turned off.**