

# ProtoDUNE Photon Detection Update

## Jan 10<sup>th</sup>, 2019

Chris Macias

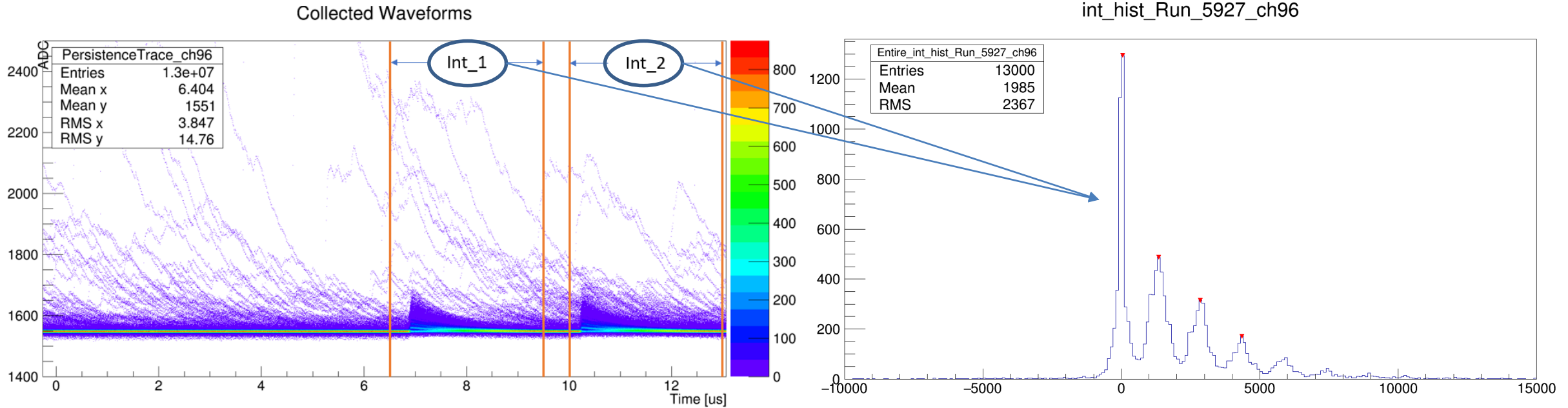
Indiana University, Caltech, FNAL

ProtoDUNE PD Update, Jan 10<sup>th</sup>, 2019

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# SensL Calibrations for APAs 1-3

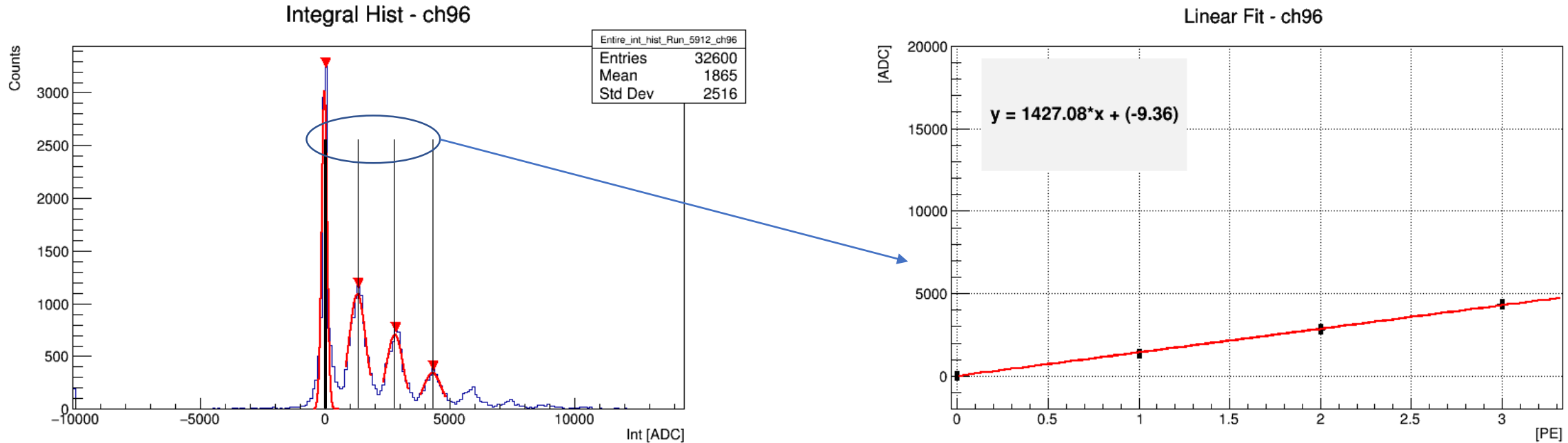
Run 5912 & 5927



- Pedestal calculated -> mean ([10,40] samples)
- Fixed integration interval -> [6.5,9.5] & [10.0,13.0]  $\mu\text{s}$  ([975,1425] & [1500,1950] samples)
- Bin integration values, Int\_1 & Int\_2, per 2000 sample event.

# SensL Calibrations for APAs 1-3

Run 5912 & 5927



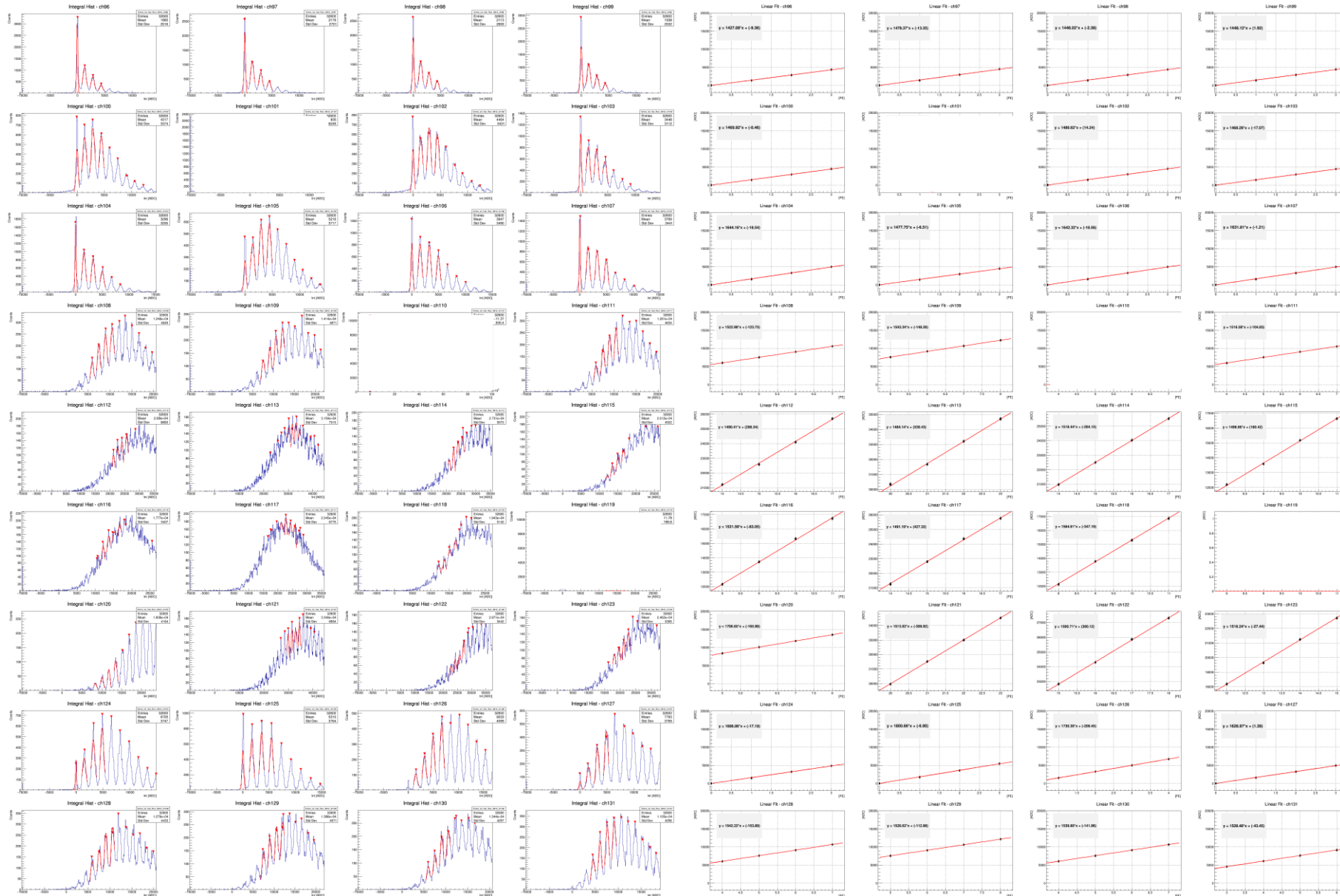
- Fit the lowest 4 consecutive PE peaks with a gaussian, using TF1 fit.
- Linear Fit, using
  - mean of each peak
  - sigma as error

# SensL Calibrations for APA 3

APA3-module	ch_x	ch_x+1	ch_x+2	ch_x+3
1	1427.08	1478.37	1448.02	1448.12
2	1469.92	-	1480.62	1468.28
3	1644.16	1477.75	1642.32	1631.81
5	1522.98	1543.34	-	1516.58
6	1490.41	1484.14	1518.44	1496.66
7	1531.59	1491.19	1564.61	-
8	1706.65	1513.92	1500.71	1516.24
9	1606.06	1800.66	1730.3	1626.97
10	1542.22	1528.62	1539.8	1528.48

# APA 3 SensL Fits

Run 5912 & 5927

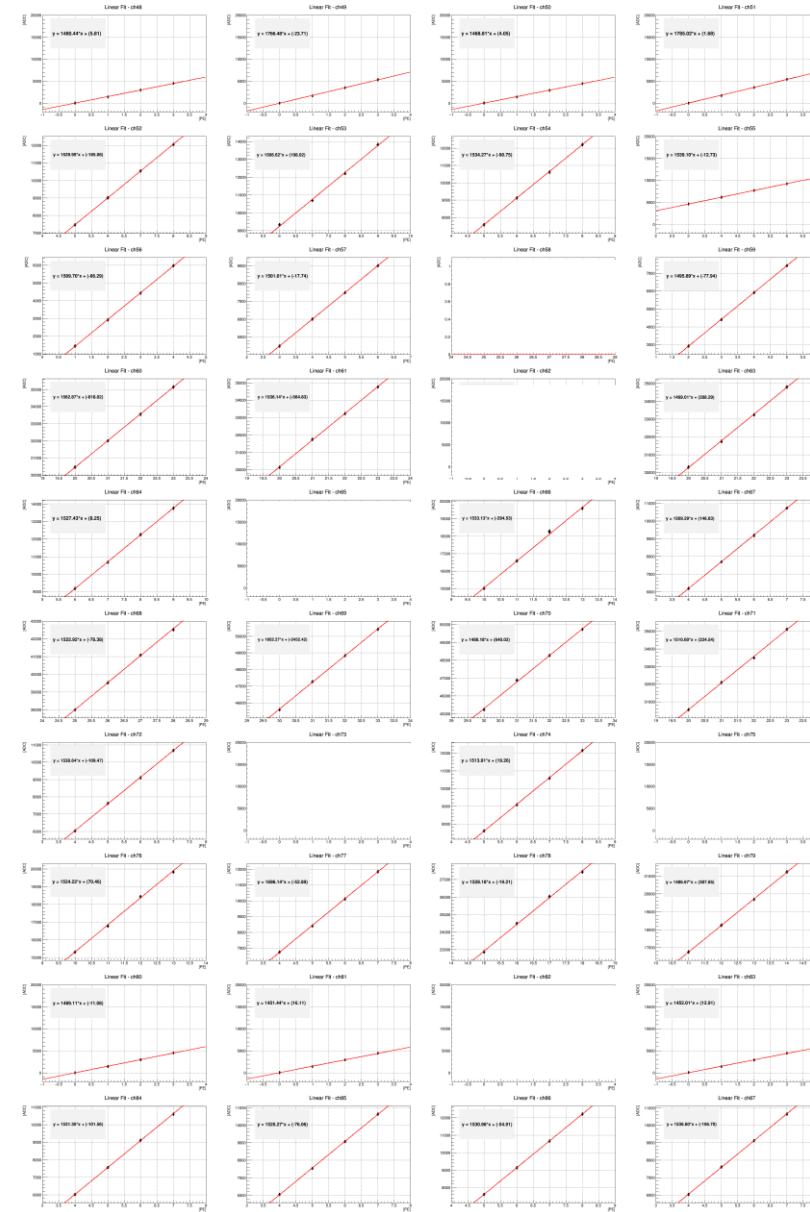
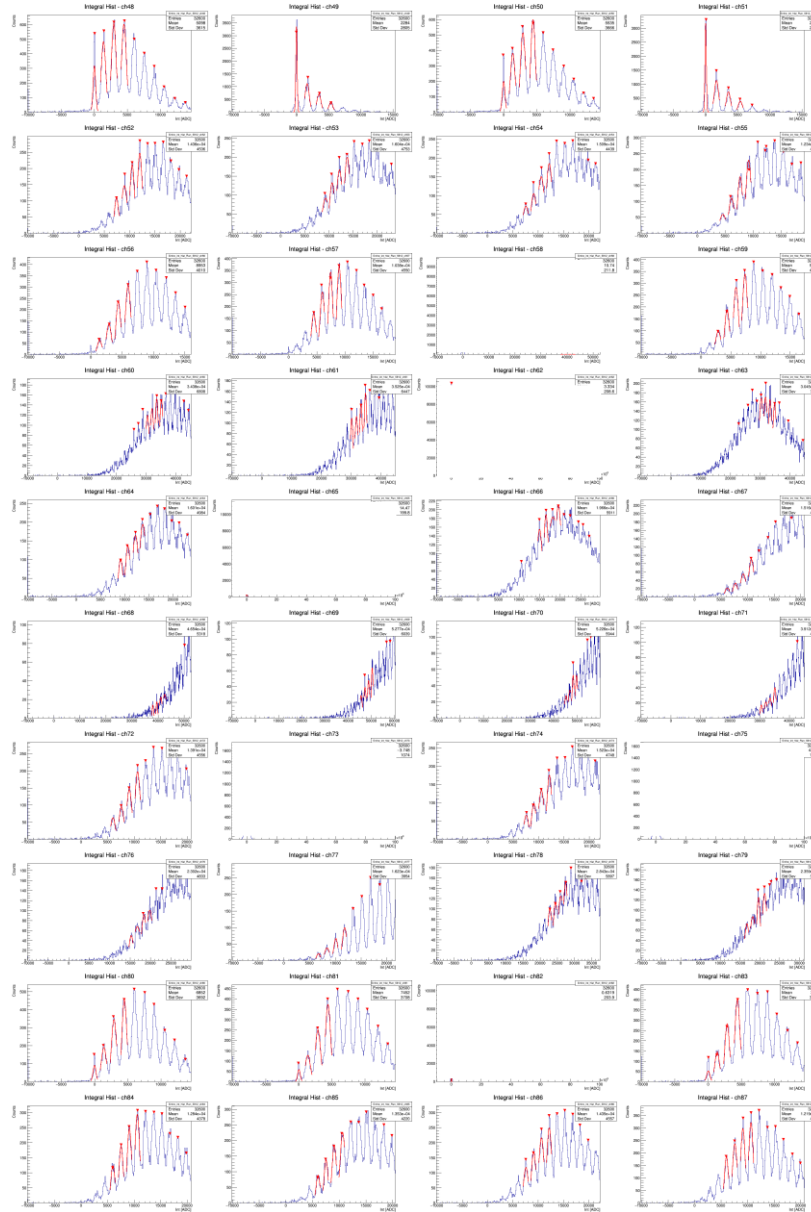


# SensL Calibrations for APAs 2

APA2-module	ch_x	ch_x+1	ch_x+2	ch_x+3
1	1480.44	1766.48	1468.81	1785.02
2	1529.99	1506.62	1534.27	1539.1
3	1509.7	1501.01	-	1495.89
4	1562.87	1536.14	-	1499.01
5	1527.43	-	1533.13	1509.29
6	1522.92	1602.27	1488.18	1510.6
7	1538.64	-	1513.91	-
8	1524.22	1696.14	1528.18	1486.67
9	1489.11	1451.44	-	1452.01
10	1531.3	1525.27	1530.96	1536.6

# APA 2 SensL Fits

Run 5912 & 5927



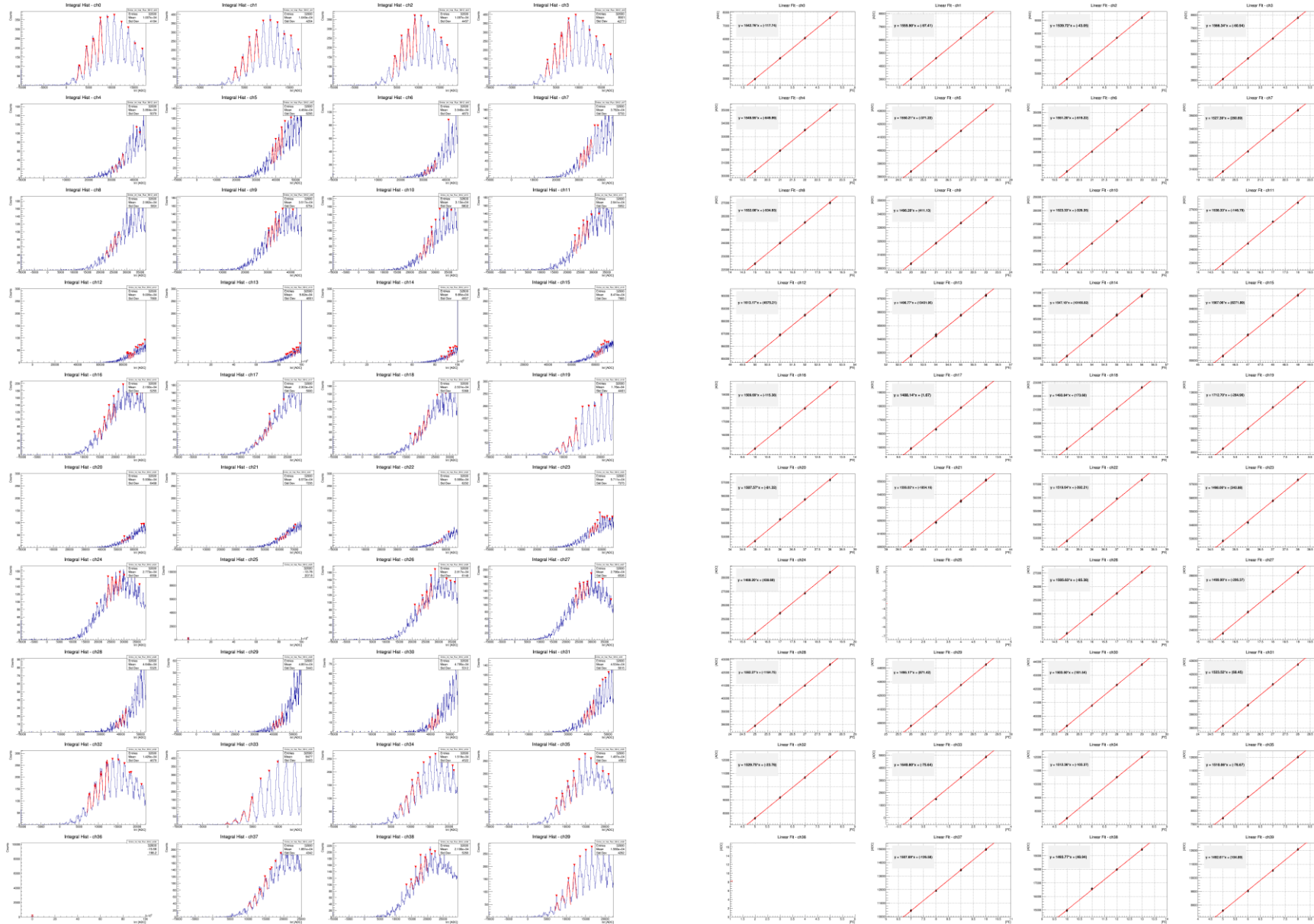
# SensL Calibrations for APAs 1

APA1-module	ch_x	ch_x+1	ch_x+2	ch_x+3
1	1,542.76	1,555.90	1,539.72	1,566.34
2	1,549.95	1,550.21	1,551.20	1,527.39
3	1,532.08	1,496.28	1,523.33	1,538.33
4	1,613.17	1,496.77	1,547.18	1,567.06
5	1,509.69	1,488.14	1,493.84	1,712.70
6	1,507.57	1,556.02	1,519.64	1,498.00
7	1,469.20	-	1,505.63	1,499.90
8	1,562.27	1,495.17	1,503.50	1,523.52
9	1,529.75	1,640.80	1,512.36	1,510.06
10	-	1,507.69	1,493.77	1,492.61




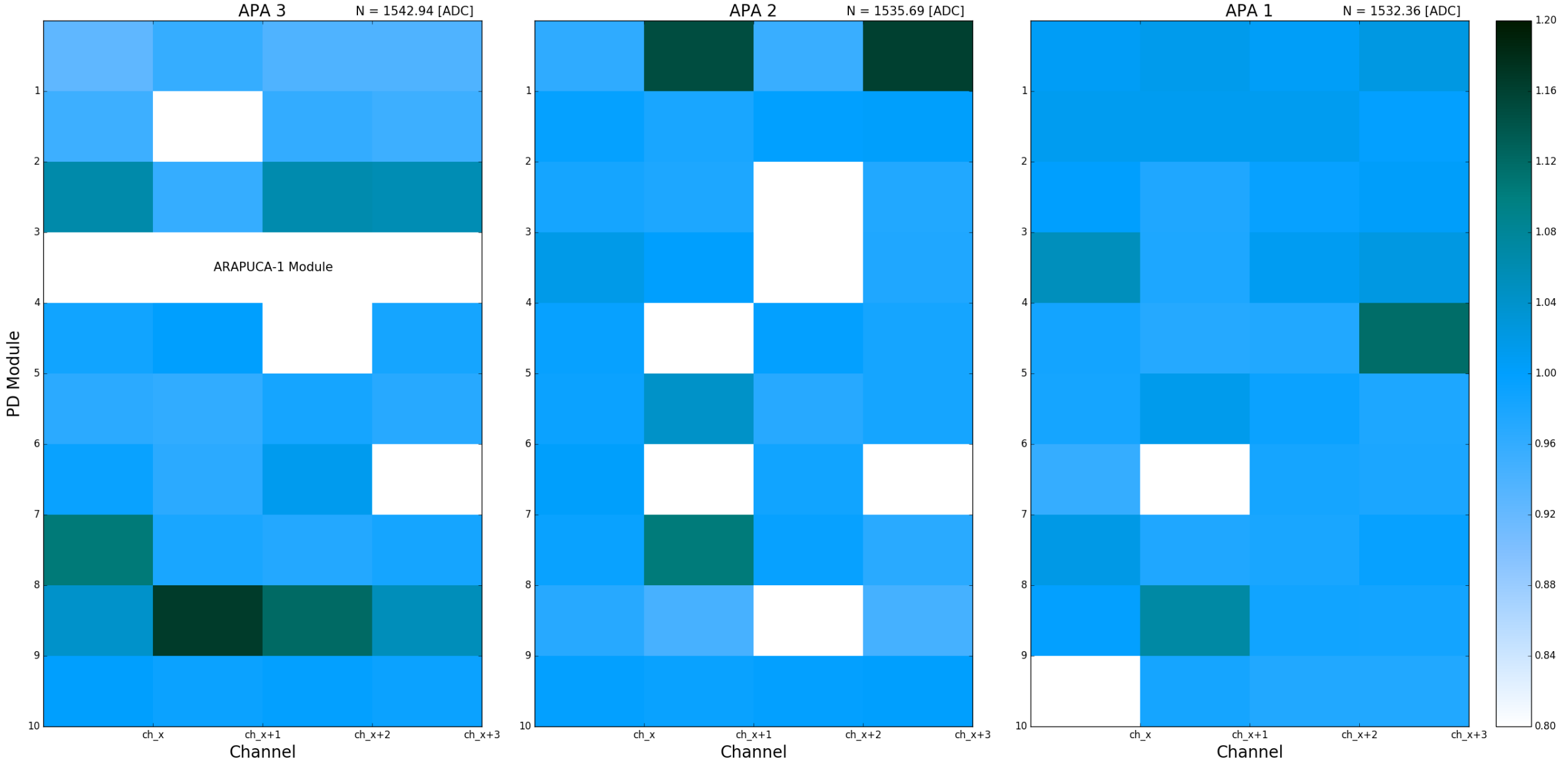
# APA 1 SensL Fits

Run 5912 & 5927




# Calibrations Normalized per APA

 = Ignored



# Calibrations Comparison- Ratio(Bryan/Chris)

 = Ignored

