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Analysis of a single event from MPD 4.0

4 status words + (0x0080fbXX + 128 words + 0x00907XXX) x 12 + 3 status words + * there is 1 status word (x 11) in between the 130 word blocks.
1 APV = 130 words (1 header + 128 data + 1 trailer)
Therefore, total words in one event = 4 + 130x12 + 1x11 + 3 = 1578

Hexwords in one event (event #158)

Bank:G_US Length: 6312(I*1)/1578(I*4)/1578(Type) Type:Unsigned Integer*4

(158)

1-> **0x0007019e** 0x0040009f 0x00600ba6 0x00764605 0x0080fbf0 0x00880403 0x0088135e 0x0088235c
9-> 0x0088337c 0x00884385 0x0088536a 0x0088636a 0x0088737d 0x00888387 0x0088939a 0x0088a379
17-> 0x0088b375 0x0088c389 0x0088d383 0x0088e36c 0x0088f3a7 0x00890374 0x00891374 0x00892351
25-> 0x0089336d 0x00894389 0x008953a4 0x0089636b 0x0089738b 0x0089839f 0x008993c8 0x0089a363
33-> 0x0089b37c 0x0089c3ae 0x0089d3d1 0x0089e379 0x0089f385 0x008a0366 0x008a1376 0x008a2361
41-> 0x008a3373 0x008a4394 0x008a5383 0x008a6370 0x008a7379 0x008a83a2 0x008a93b7 0x008aa368
49-> 0x008ab385 0x008ac383 0x008ad392 0x008ae36a 0x008af383 0x008b0361 0x008b1398 0x008b2363
57-> 0x008b337a 0x008b439a 0x008b53a0 0x008b635c 0x008b736e 0x008b838d 0x008b93b4 0x008ba385
65-> 0x008bb382 0x008bc3ad 0x008bd3e0 0x008be388 0x008bf382 0x008c033d 0x008c138d 0x008c235d
73-> 0x008c3377 0x008c4393 0x008c537d 0x008c637a 0x008c737f 0x008c83a0 0x008c93a0 0x008ca373
81-> 0x008cb375 0x008cc3a7 0x008cd38f 0x008ce371 0x008cf394 0x008d0356 0x008d13b4 0x008d2377
89-> 0x008d3369 0x008d4398 0x008d53cc 0x008d6379 0x008d7386 0x008d8394 0x008d93cc 0x008da38d
97-> 0x008db384 0x008dc394 0x008dd3d0 0x008de37c 0x008df3a0 0x008e0374 0x008e139c 0x008e2388
105-> 0x008e336f 0x008e4390 0x008e5387 0x008e6374 0x008e737a 0x008e838f 0x008e938e 0x008ea380
113-> 0x008eb38a 0x008ec3a7 0x008ed39a 0x008ee370 0x008ef398 0x008f0394 0x008f13a5 0x008f2378
121-> 0x008f337a 0x008f43a7 0x008f53c3 0x008f638e 0x008f737f 0x008f839c 0x008f93cd 0x008fa375
129-> 0x008fb3a0 0x008fc39a 0x008fd372 0x008fe372 0x008ff3d6 0x009070db 0x009b8983 0x0080fbf1
137-> 0x008803ec 0x00881337 0x008823bc 0x008833e4 0x008843eb 0x008853ce 0x008863de 0x008873c5
145-> 0x008883f7 0x008893eb 0x0088a3ff 0x0088b3ce 0x0088c3ea 0x0088d3b3 0x0088e3fa 0x0088f3df
153-> 0x0089041d 0x008913f6 0x008923e6 0x008933d3 0x008943fc 0x00895403 0x0089642d 0x008973cf
161-> 0x008983f5 0x0089941b 0x0089a438 0x0089b3d3 0x0089c3f5 0x0089d407 0x0089e426 0x0089f3e7
169-> 0x008a0403 0x008a13e9 0x008a2406 0x008a33b8 0x008a440b 0x008a53f5 0x008a63fe 0x008a73bf
177-> 0x008a83e2 0x008a9402 0x008aa401 0x008ab3e3 0x008ac3fe 0x008ad40a 0x008ae401 0x008af3eb
……..
1537-> 0x008da42a 0x008db4e0 0x008dc3f8 0x008dd3db 0x008de431 0x008df4d3 0x008e043c 0x008e13f3
1545-> 0x008e2499 0x008e34ce 0x008e43d5 0x008e53c0 0x008e647a 0x008e749f 0x008e83fc 0x008e9437
1553-> 0x008ea4c4 0x008eb4f3 0x008ec3f9 0x008ed3f3 0x008ee458 0x008ef4f4 0x008f0424 0x008f1406
1561-> 0x008f2413 0x008f3485 0x008f4422 0x008f5419 0x008f6412 0x008f747b 0x008f8412 0x008f9408
1569-> 0x008fa42a 0x008fb4d7 0x008fc3df 0x008fd39d 0x008fe27c 0x008ff4ea 0x009072dd 0x009c2b83
1577-> 0x00200629 0x008b53d3

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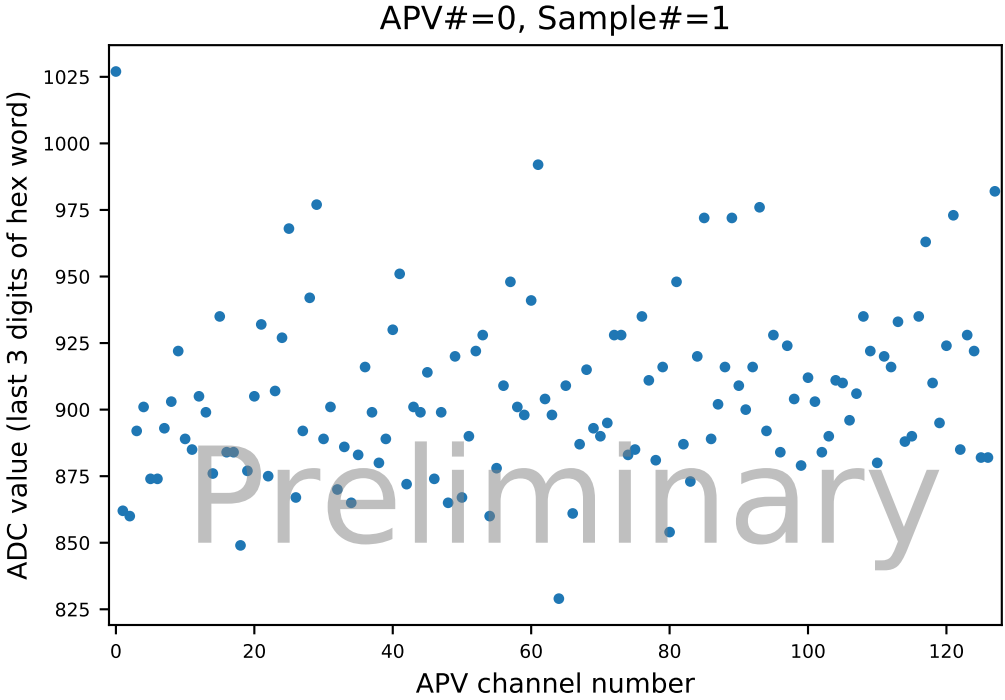
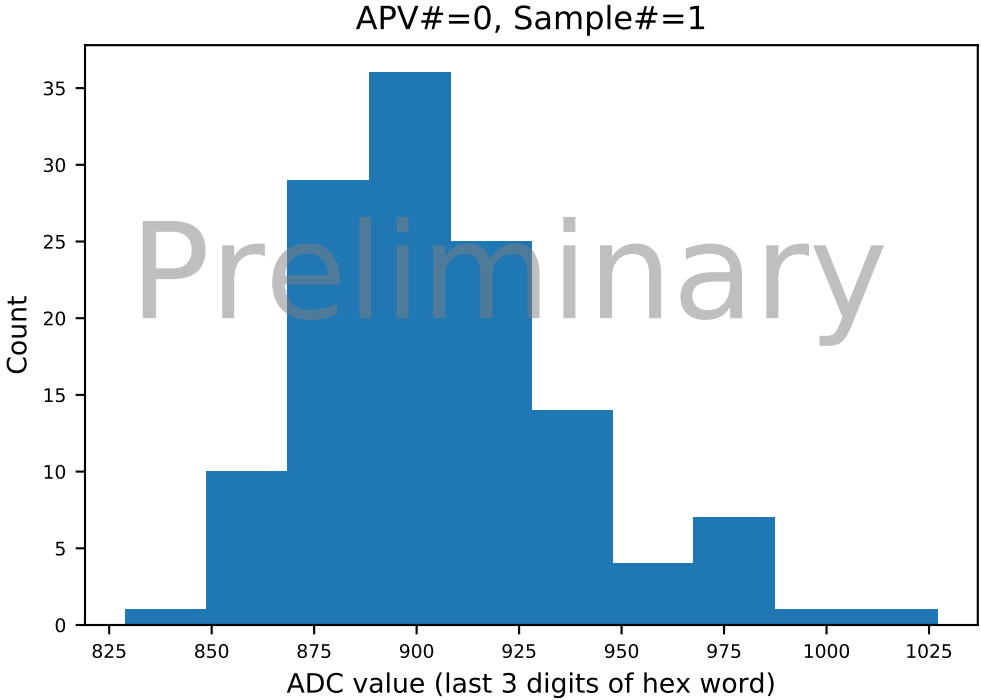
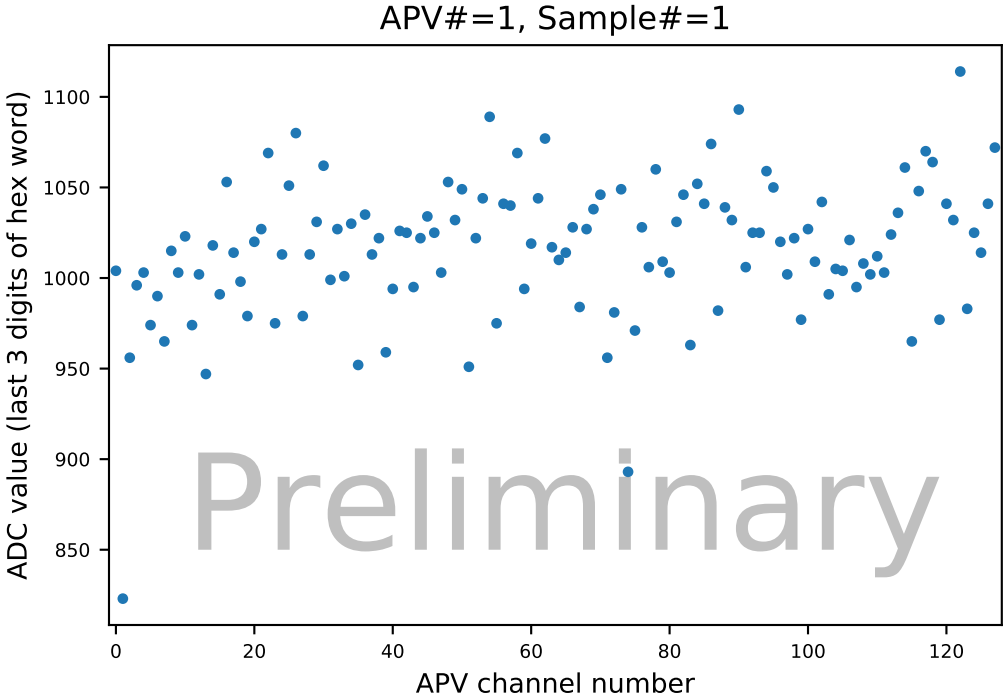
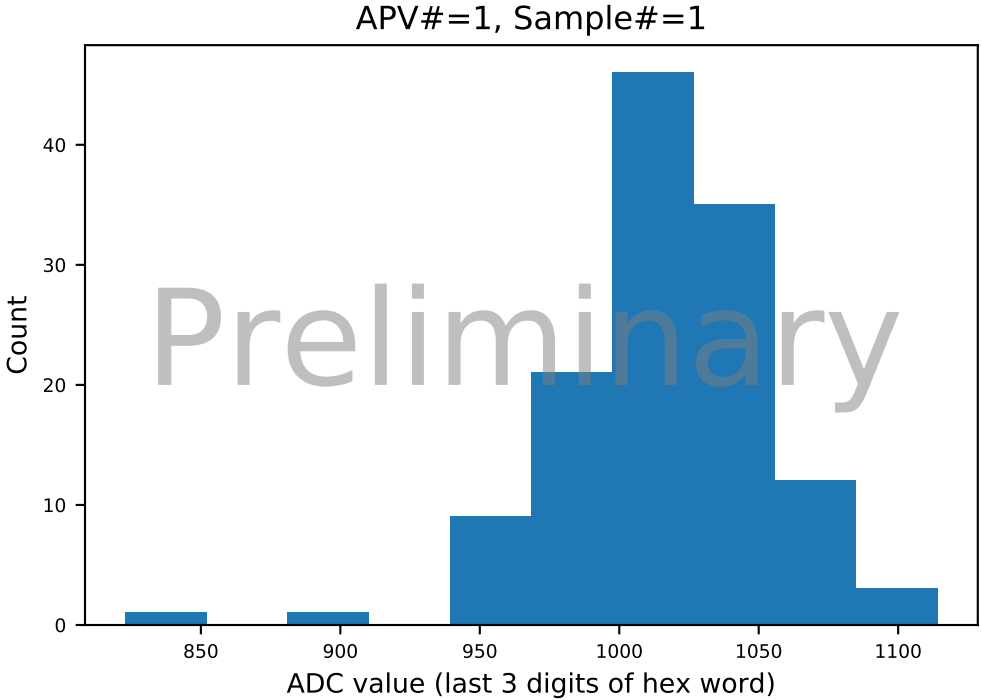
There are 3 samples in the events, each sample contains data words from 4 APVs. Each APV data block contains Data_Header + 128 data_words + Data_Trailer (Each event contains 12 APV data blocks). I wrote a python script to generate two types of plots per each 128 data-word-block, as mentioned as follows.

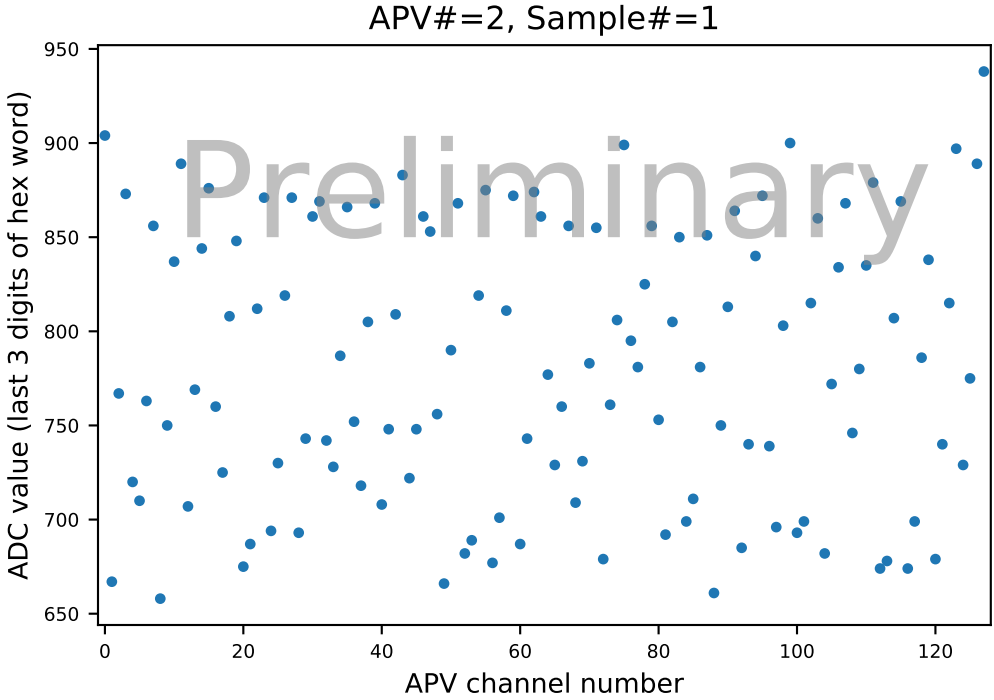
1) APV frame (ADC value Vs APV channel number)
2) A histogram of, Number of counts Vs ADC value

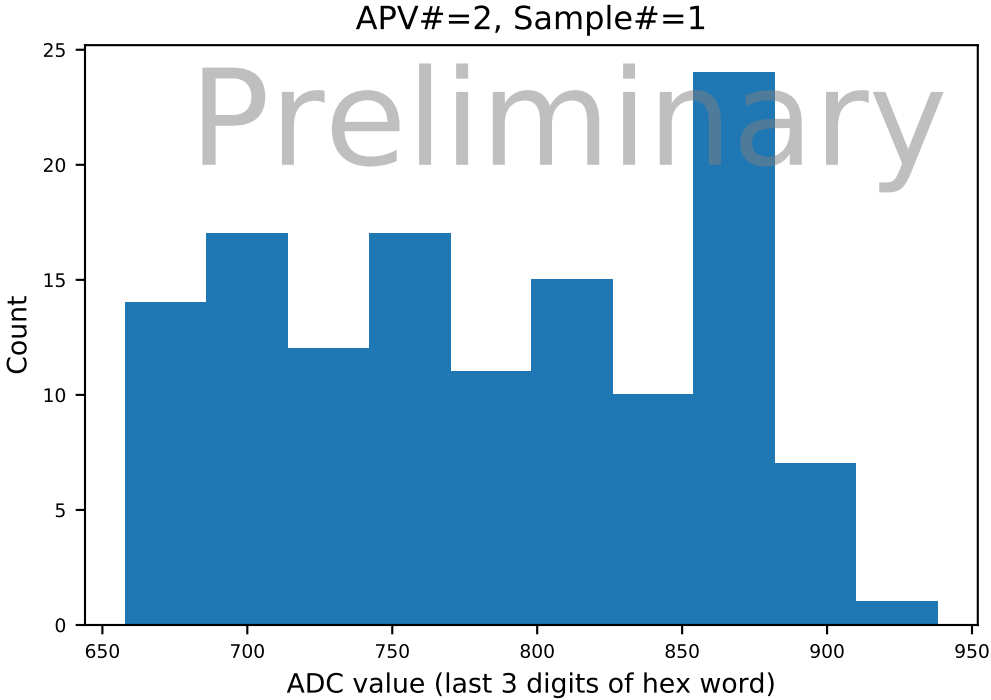

APV#=0, Sample#=1
ADC value (last 3 digits of hex word)
APV channel number
Preliminary
1025
1000
975
950
925
900
875
850
825
0
20
40
60
80
100
120

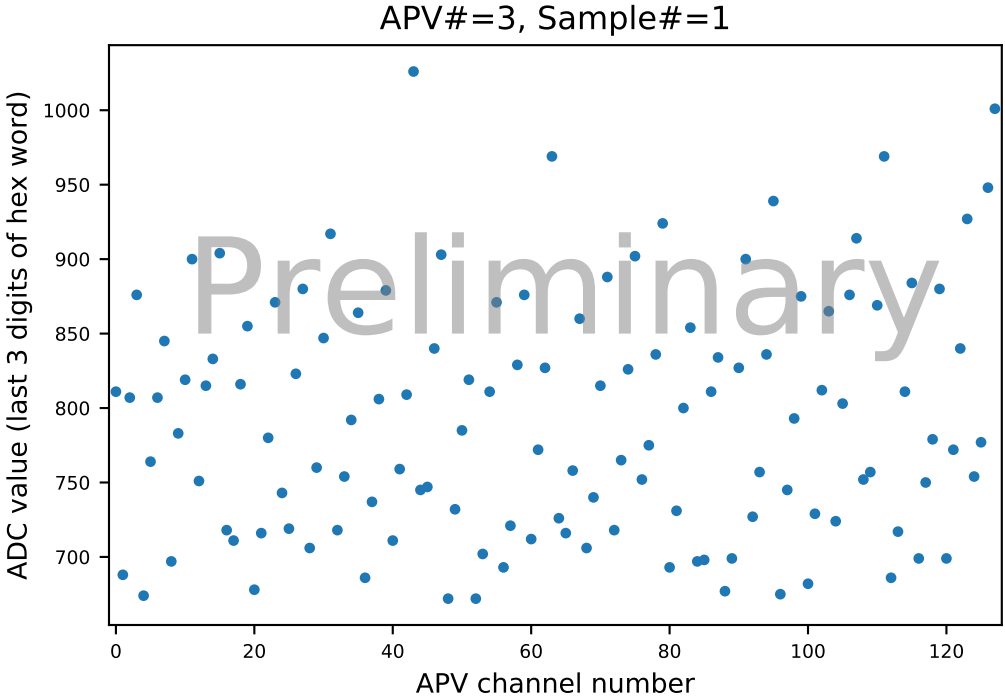

APV#=0, Sample#=1
Preliminary
Count
0
5
10
15
20
25
30
35
825
850
875
900
925
950
975
1000
1025
ADC value (last 3 digits of hex word)

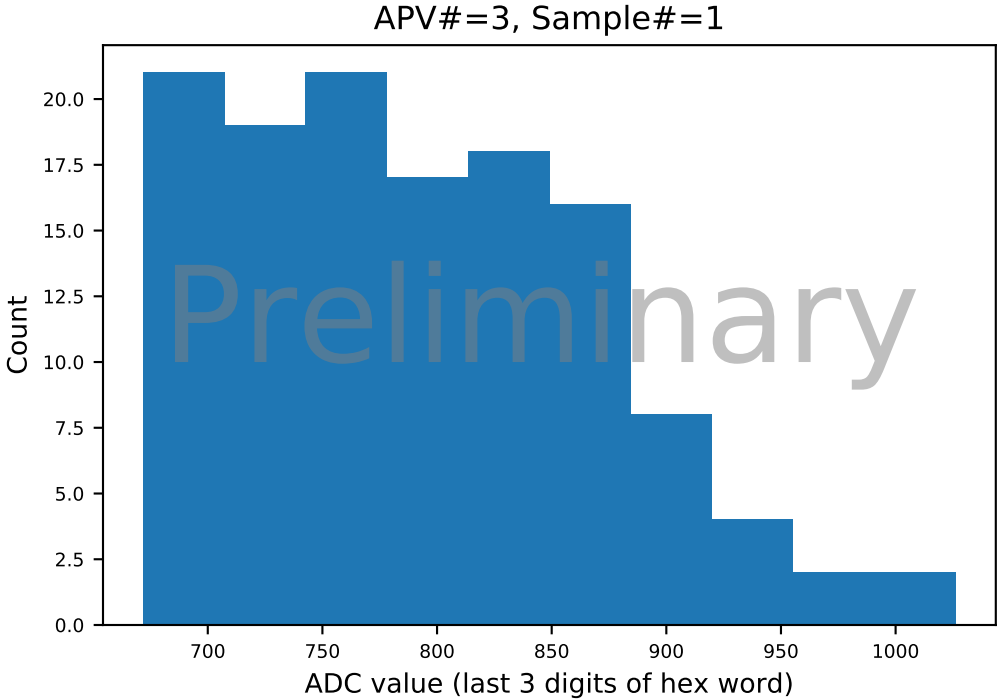

APV#=1, Sample#=1
ADC value (last 3 digits of hex word)
APV channel number
Preliminary
1100
1050
1000
950
900
850
0
20
40
60
80
100
120

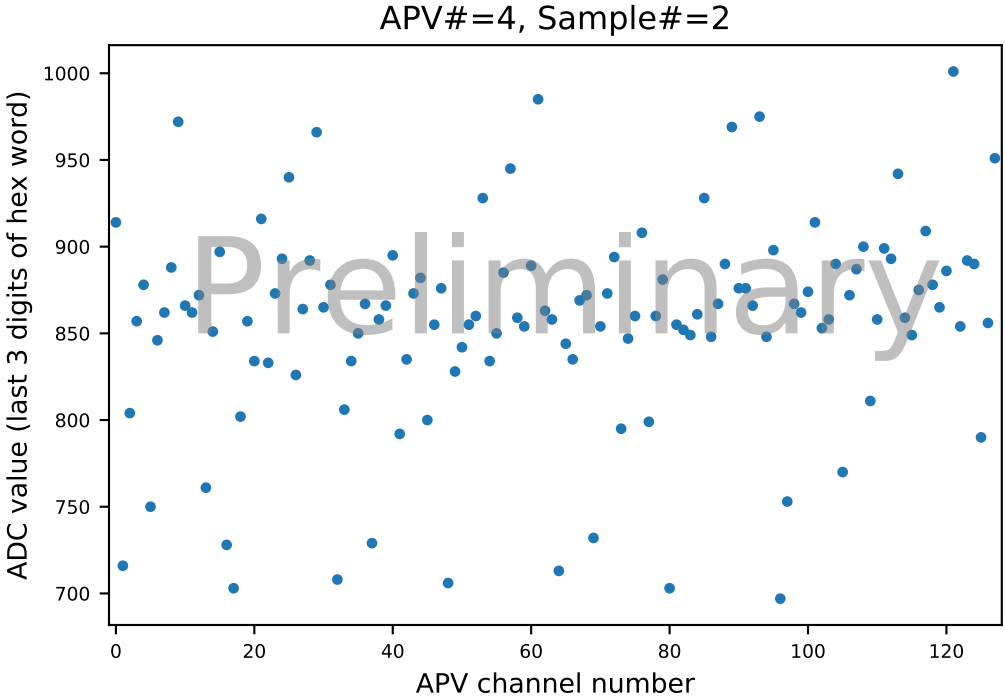

APV#=1, Sample#=1
Preliminary
Count
0
10
20
30
40
850
900
950
1000
1050
1100
ADC value (last 3 digits of hex word)

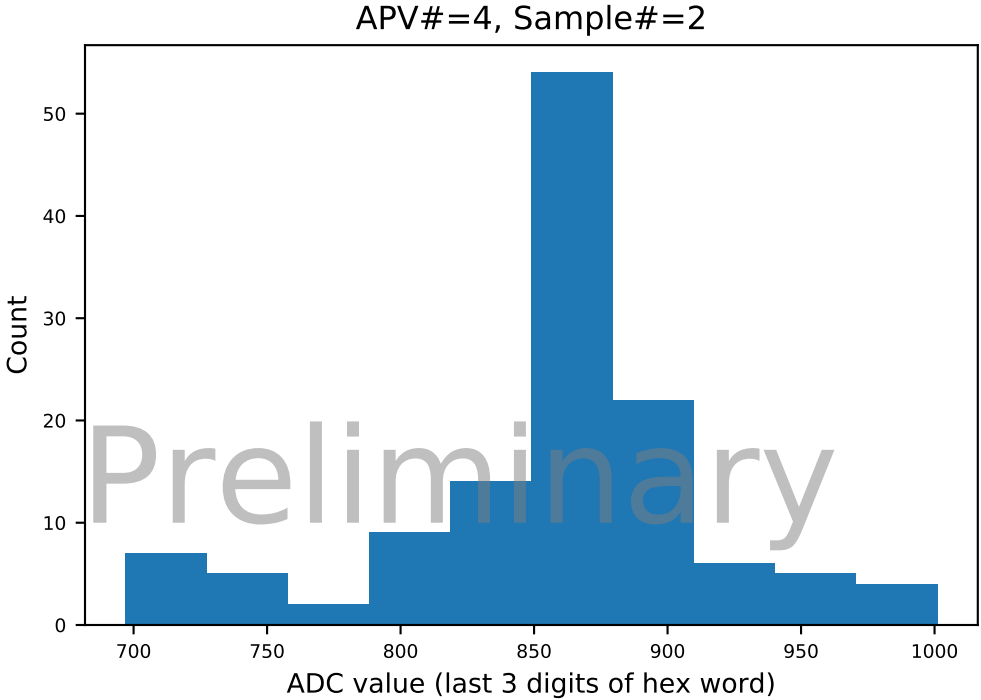

APV#=2, Sample#=1
Preliminary
ADC value (last 3 digits of hex word)
APV channel number
950
900
850
800
750
700
650
0
20
40
60
80
100
120

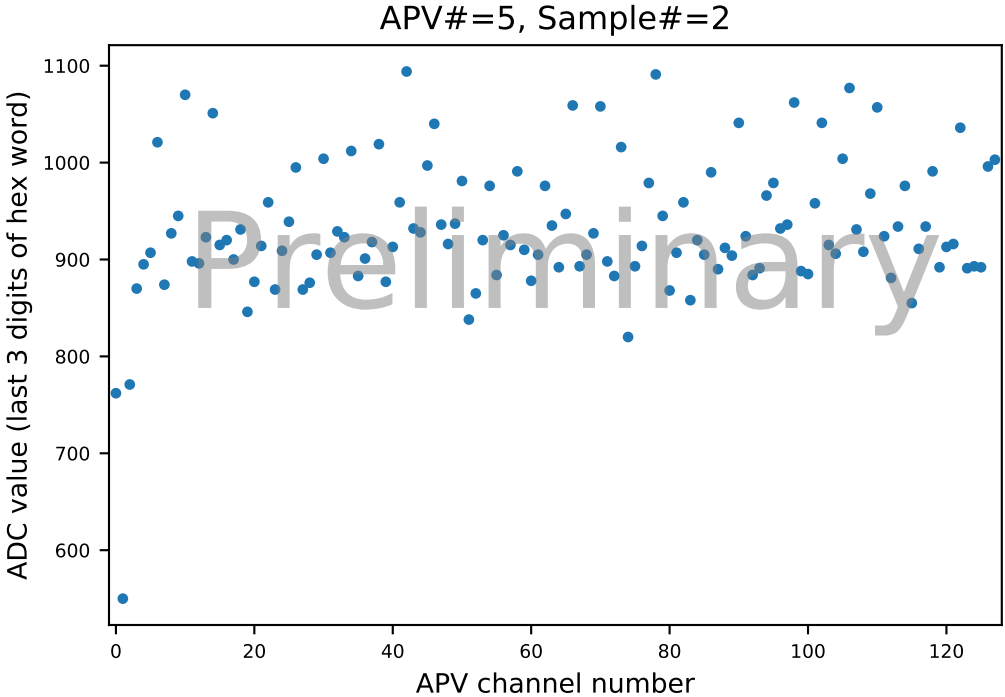

APV#=2, Sample#=1
Preliminary
Count
ADC value (last 3 digits of hex word)
0
5
10
15
20
25
650
700
750
800
850
900
950

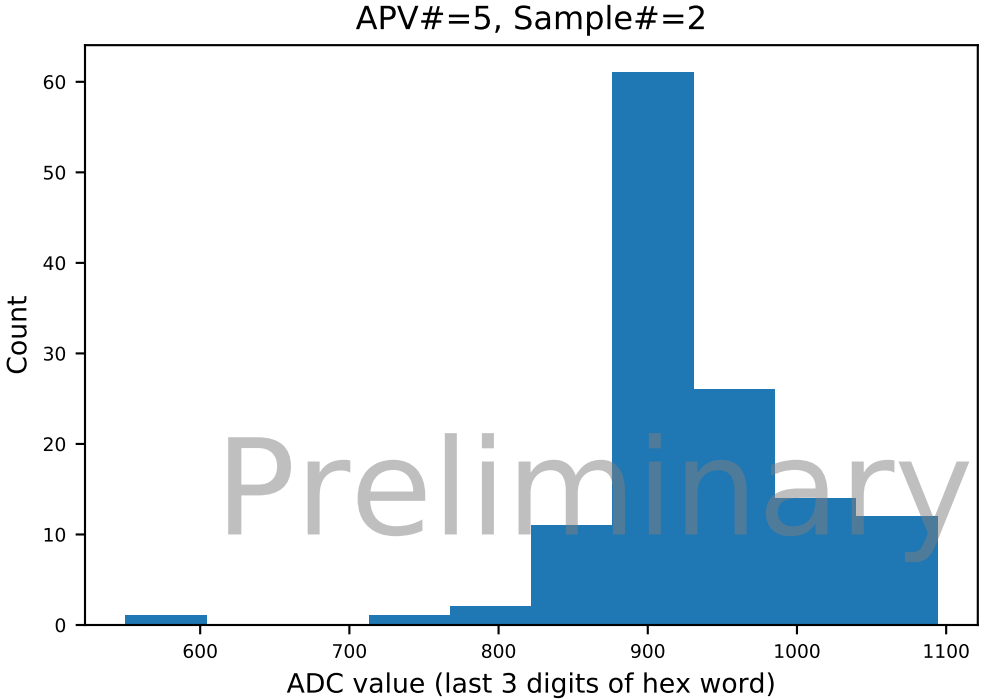

APV#=3, Sample#=1
Preliminary
ADC value (last 3 digits of hex word)
APV channel number
1000
950
900
850
800
750
700
0
20
40
60
80
100
120

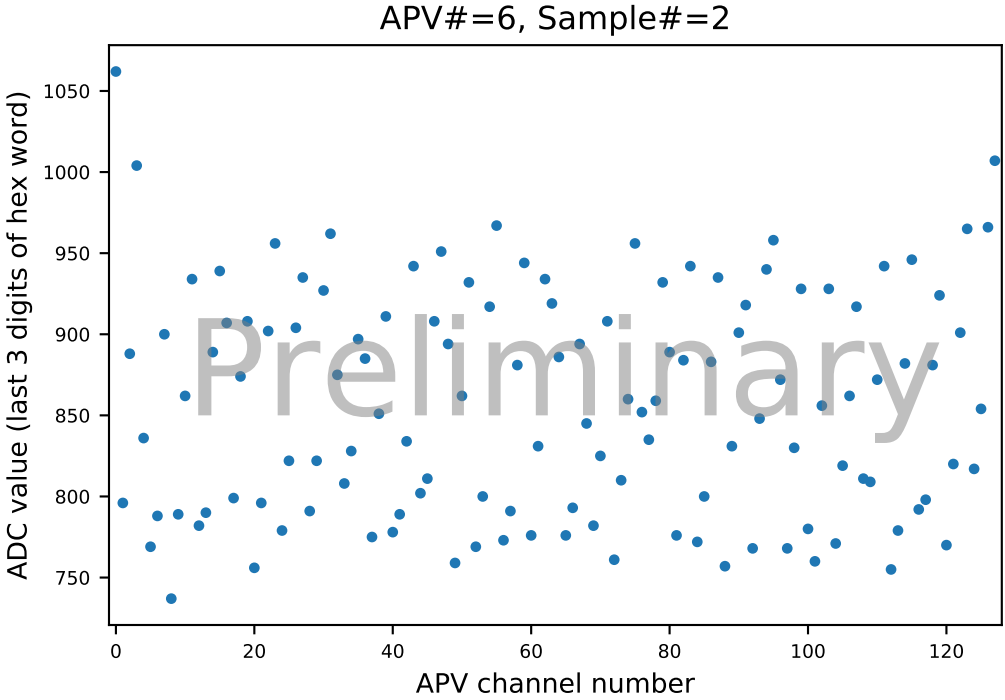

APV#=3, Sample#=1
Count
20.0
17.5
15.0
12.5
10.0
7.5
5.0
2.5
0.0
700
750
800
850
900
950
1000
ADC value (last 3 digits of hex word)
Preliminary

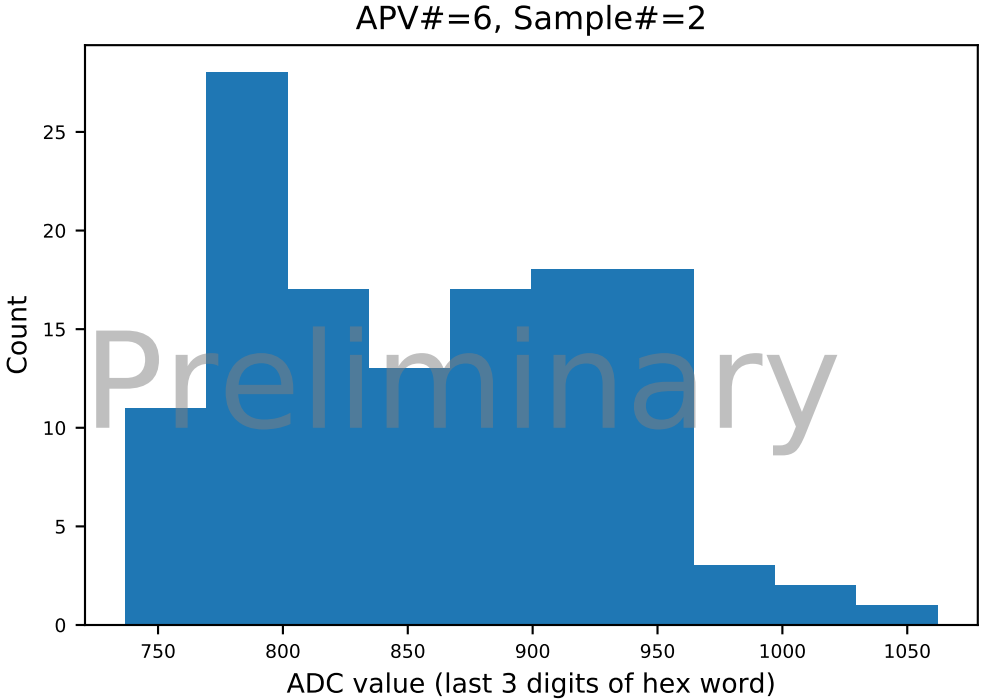

APV#=4, Sample#=2
ADC value (last 3 digits of hex word)
APV channel number
Preliminary
1000
950
900
850
800
750
700
0
20
40
60
80
100
120

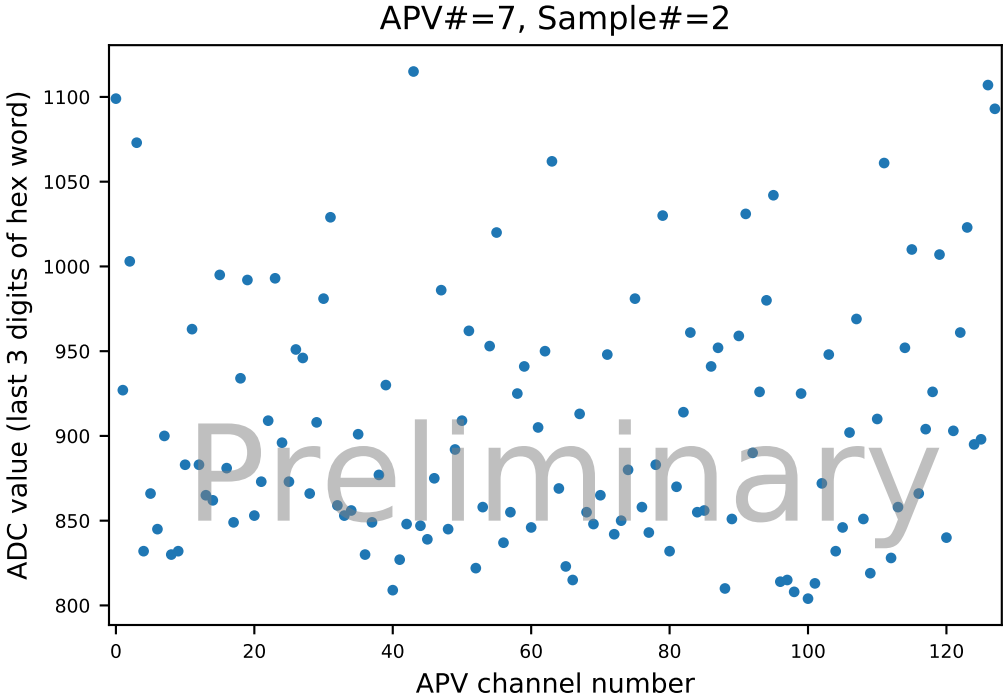

APV#=4, Sample#=2
Count
0
10
20
30
40
50
700
750
800
850
900
950
1000
ADC value (last 3 digits of hex word)
Preliminary

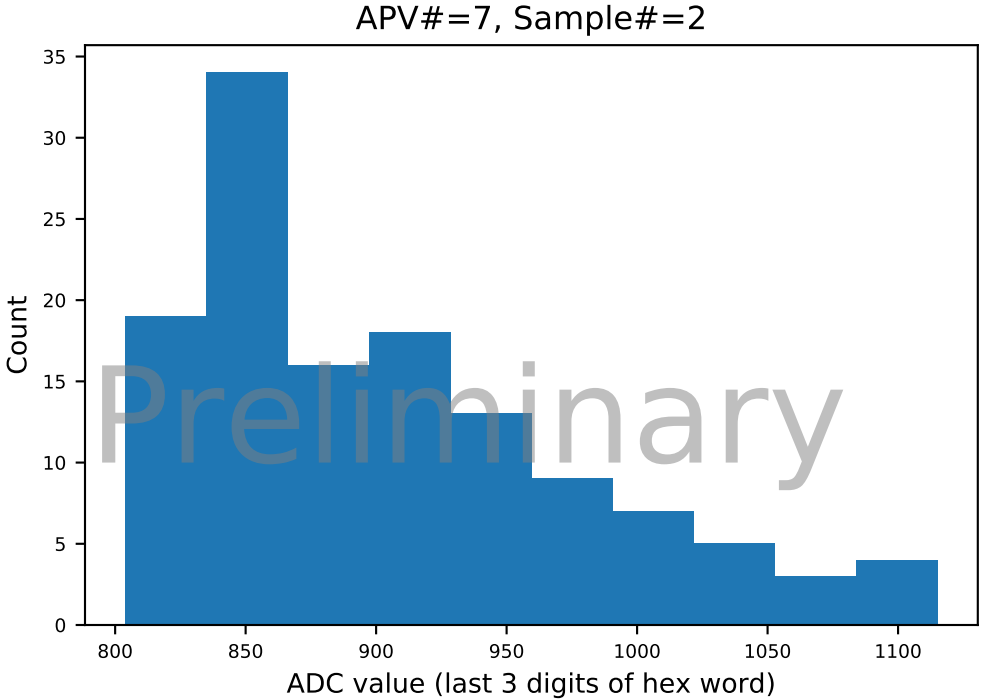

APV#=5, Sample#=2
ADC value (last 3 digits of hex word)
APV channel number
Preliminary
1100
1000
900
800
700
600
0
20
40
60
80
100
120

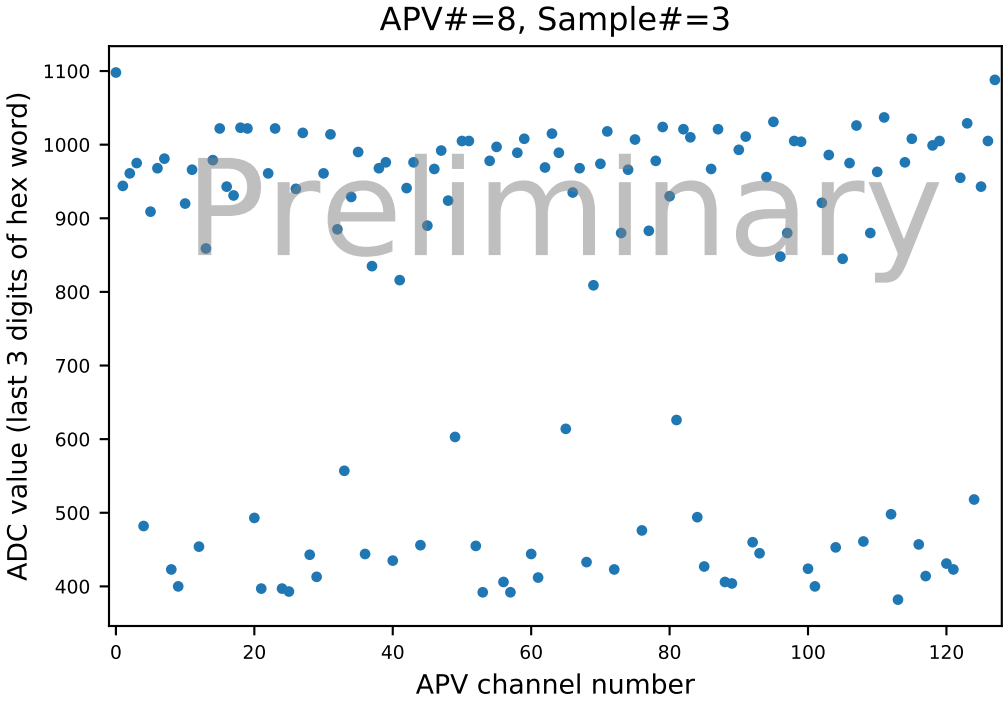

APV#=5, Sample#=2
Count
0
10
20
30
40
50
60
600
700
800
900
1000
1100
ADC value (last 3 digits of hex word)
Preliminary

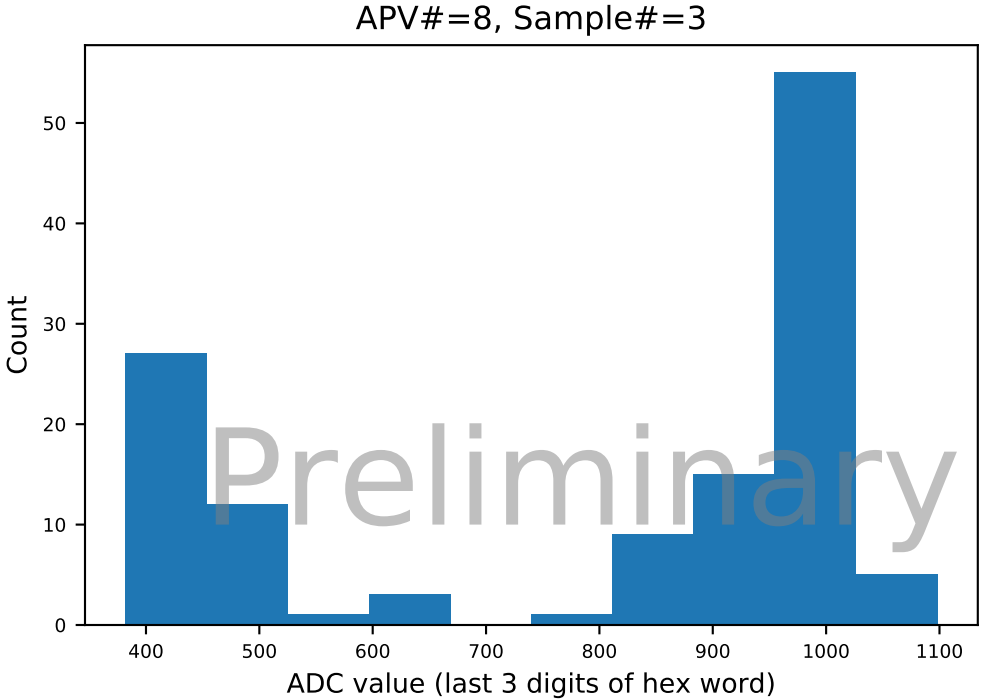

APV#=6, Sample#=2
ADC value (last 3 digits of hex word)
APV channel number
Preliminary
1050
1000
950
900
850
800
750
0
20
40
60
80
100
120

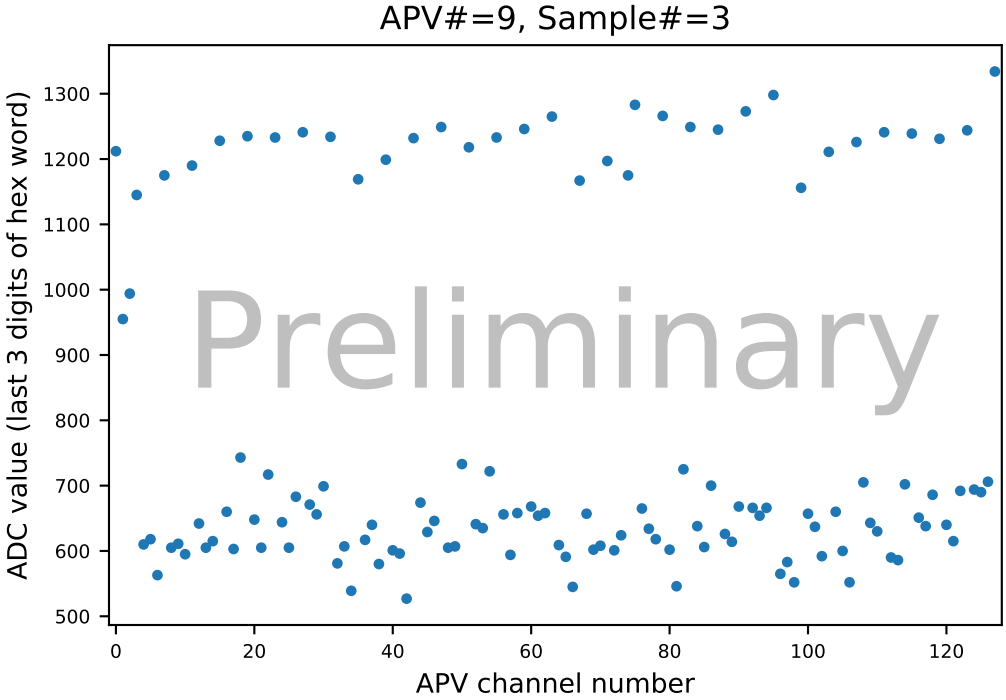

APV#=6, Sample#=2
Count
0
5
10
15
20
25
750
800
850
900
950
1000
1050
ADC value (last 3 digits of hex word)
Preliminary

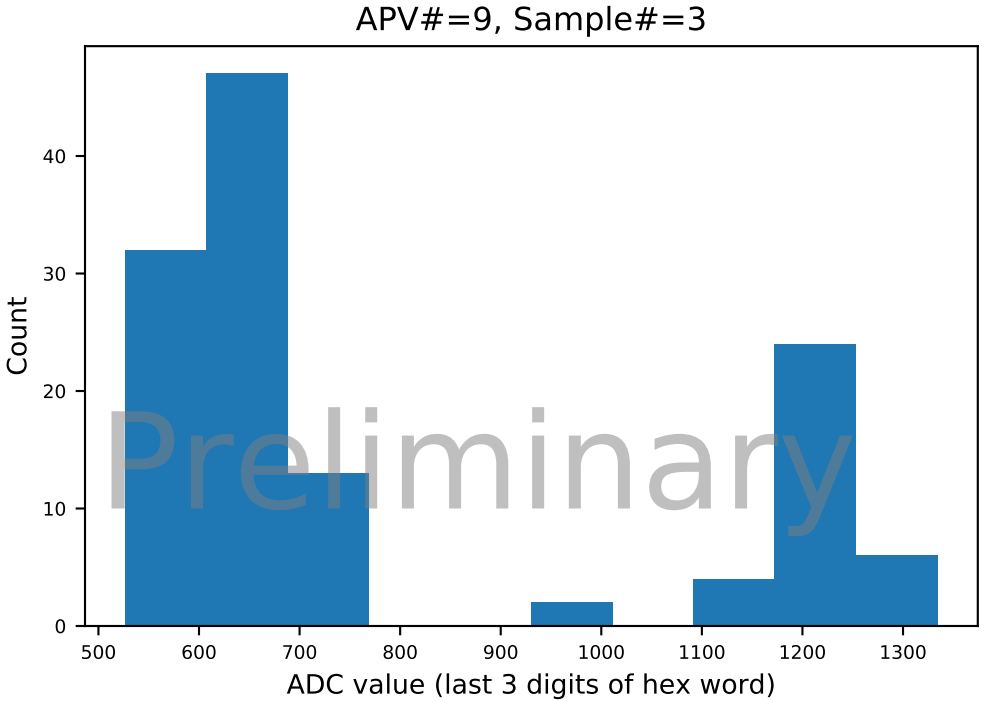

APV#=7, Sample#=2
ADC value (last 3 digits of hex word)
APV channel number
Preliminary
1100
1050
1000
950
900
850
800
0
20
40
60
80
100
120

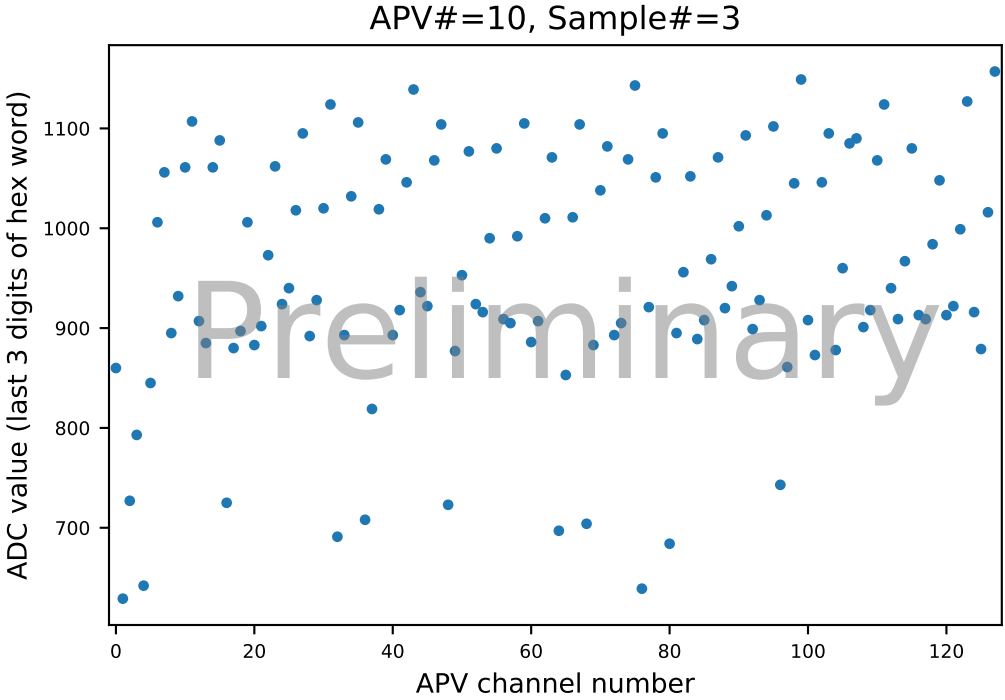

APV#=7, Sample#=2
Count
ADC value (last 3 digits of hex word)
Preliminary
0
5
10
15
20
25
30
35
800
850
900
950
1000
1050
1100

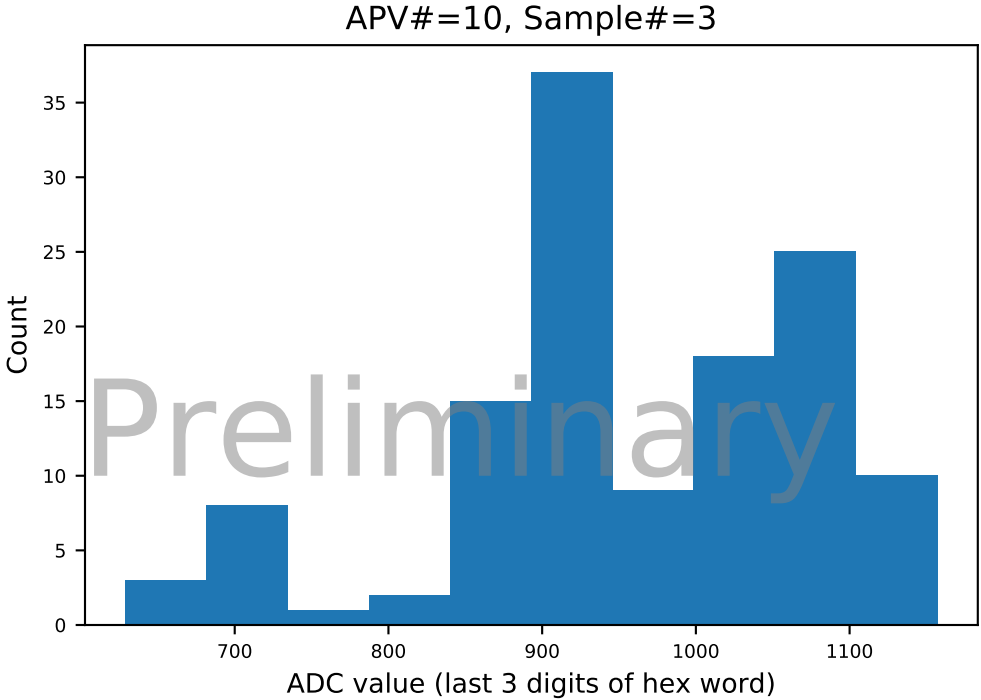

APV#=8, Sample#=3
Preliminary
ADC value (last 3 digits of hex word)
APV channel number
1100
1000
900
800
700
600
500
400
0
20
40
60
80
100
120

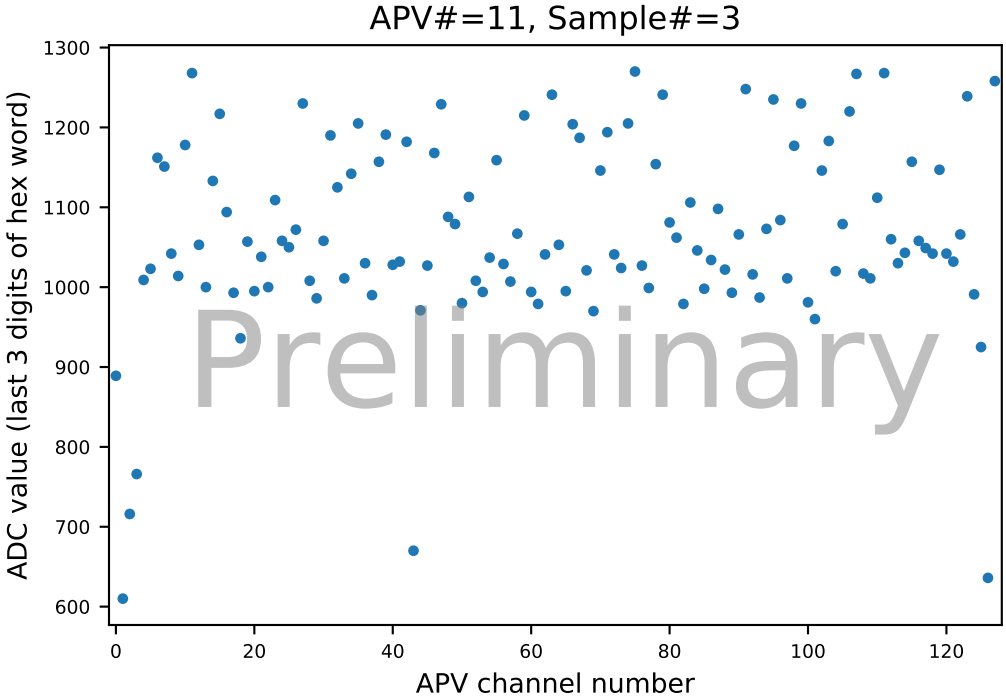

APV#=8, Sample#=3
Count
0
10
20
30
40
50
400
500
600
700
800
900
1000
1100
ADC value (last 3 digits of hex word)
Preliminary

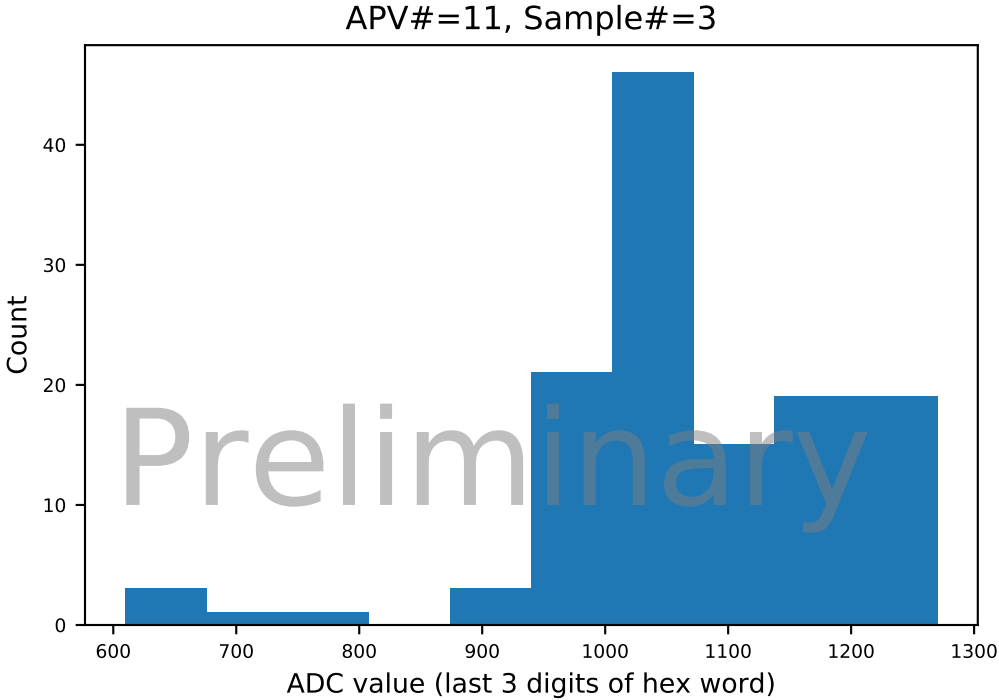

APV#=9, Sample#=3
ADC value (last 3 digits of hex word)
APV channel number
Preliminary
1300
1200
1100
1000
900
800
700
600
500
0
20
40
60
80
100
120


APV#=9, Sample#=3
Count
0
10
20
30
40
500
600
700
800
900
1000
1100
1200
1300
ADC value (last 3 digits of hex word)
Preliminary


APV#=10, Sample#=3
ADC value (last 3 digits of hex word)
1100
1000
900
800
700
0
20
40
60
80
100
120
APV channel number
Preliminary


APV#=10, Sample#=3
Count
ADC value (last 3 digits of hex word)
Preliminary
0
5
10
15
20
25
30
35
700
800
900
1000
1100


APV#=11, Sample#=3
ADC value (last 3 digits of hex word)
APV channel number
Preliminary
1300
1200
1100
1000
900
800
700
600
0
20
40
60
80
100
120


APV#=11, Sample#=3
Count
0
10
20
30
40
600
700
800
900
1000
1100
1200
1300
ADC value (last 3 digits of hex word)
Preliminary