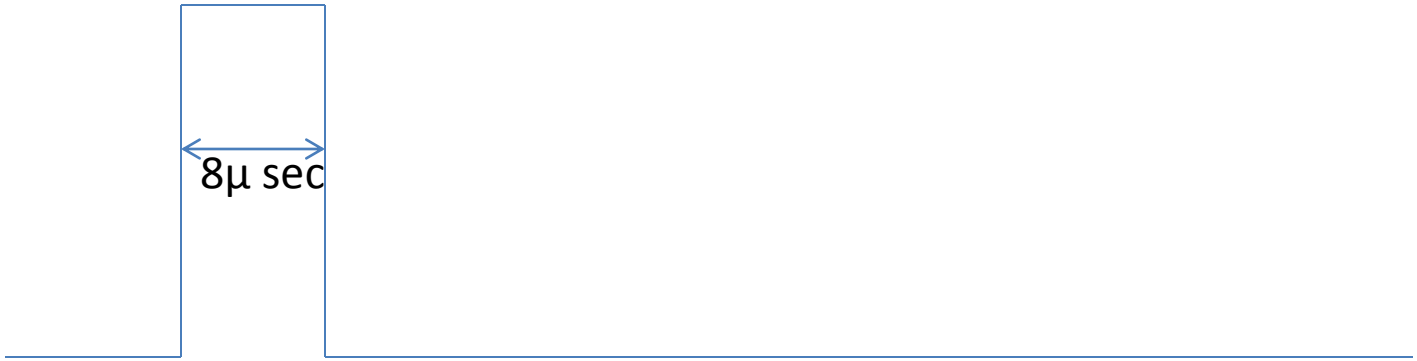
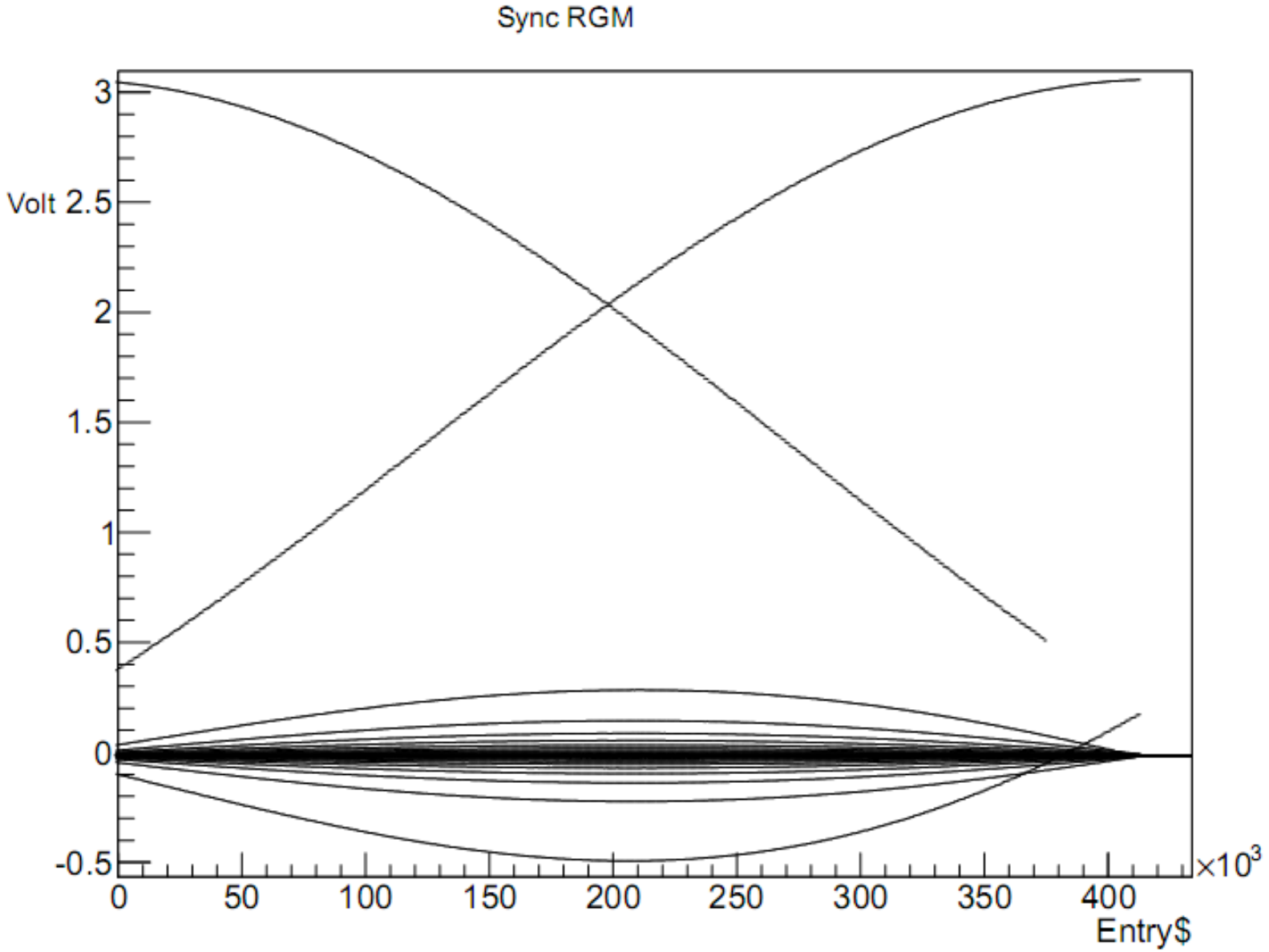
The Algorithm

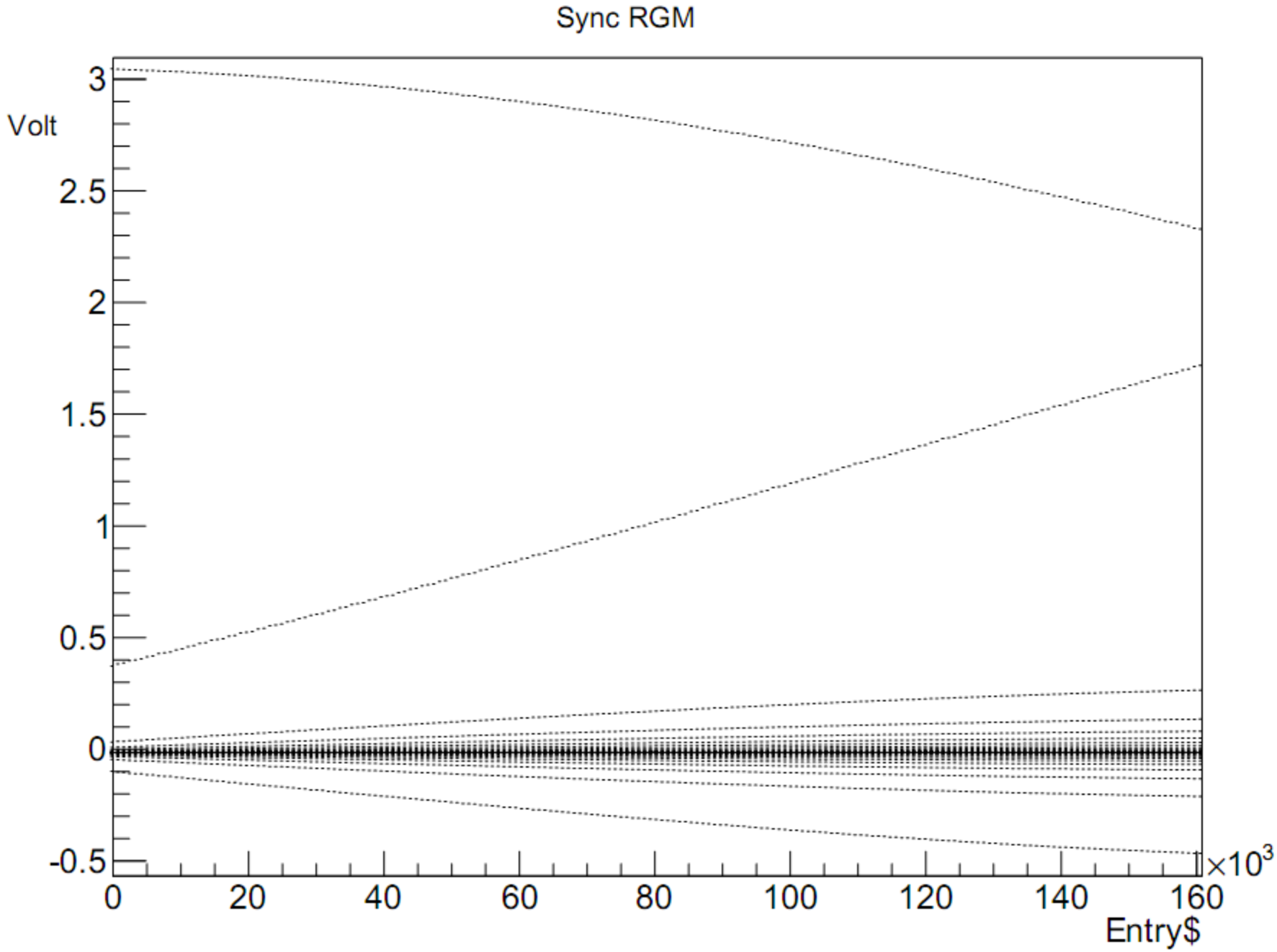
1. Take a sharp square 60Hz pulse of 4V height and 8 μ sec width.
2. Divide the signal into two parts one going to trigger and another going to channel-1.

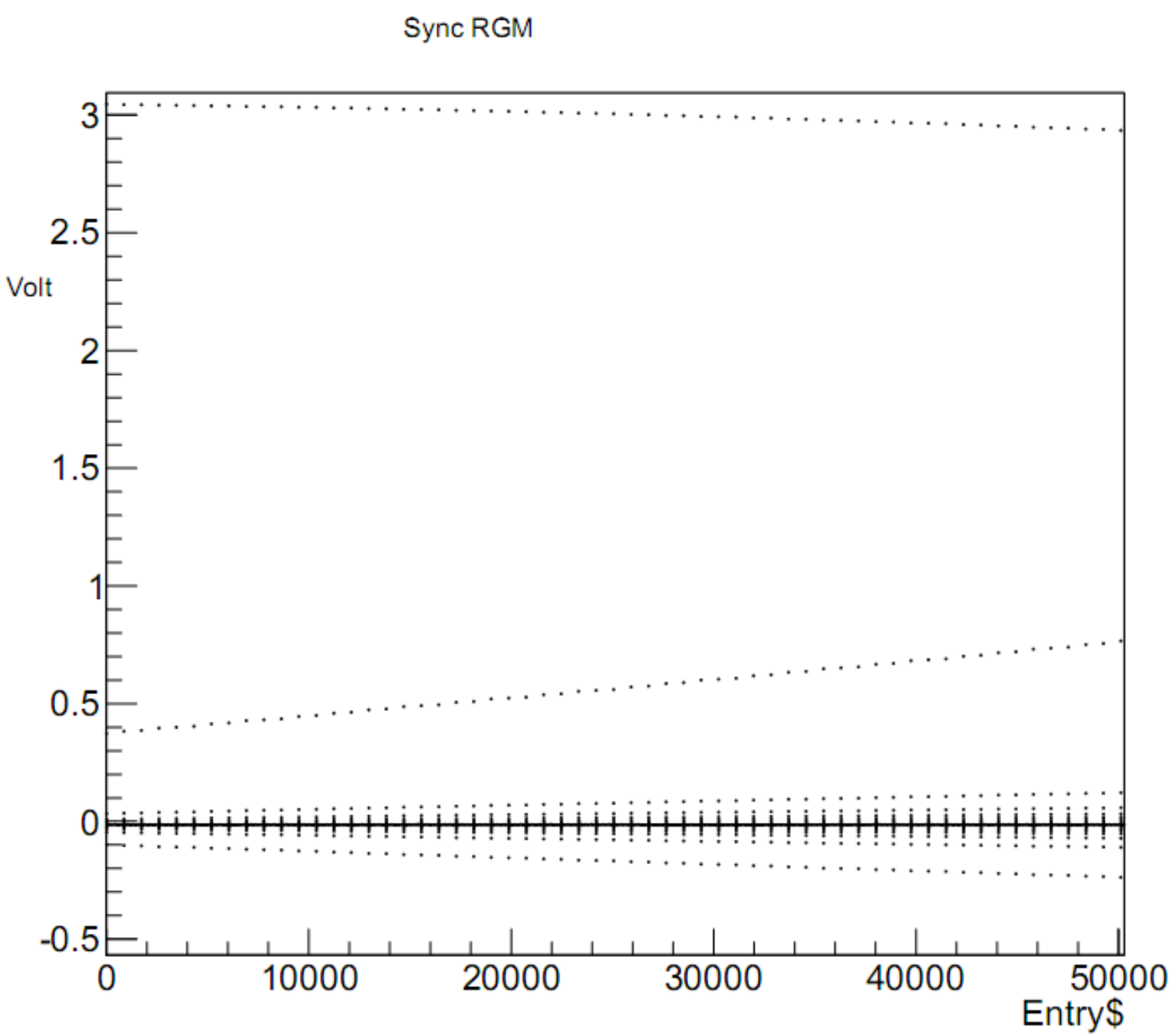


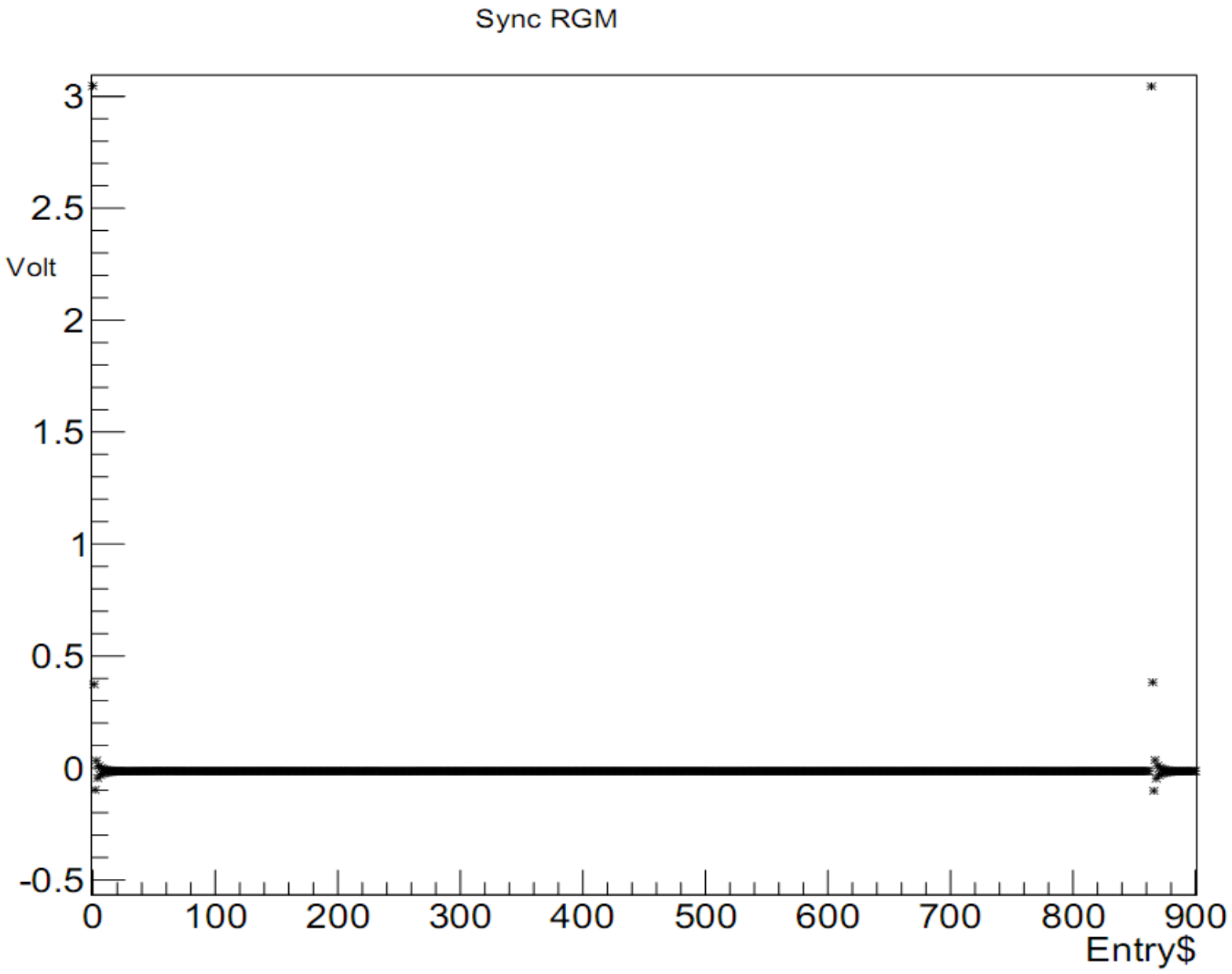
3. Take the data with DAQ at 64 KHz both in Synchronized RGM and Non-synchronized RGM.
4. For sufficient enough events (5000 for example) calculate the probability of finding the very first entry(entry after header) of the event which lies near 4V (in an small interval near 4V).
   Where , Probability=(Number of first entries close to 4V) /(Total number of events)
   In Sync mode expected probability= 1
   In non-sync mode expected probability= ½ (Since 8 micro volt is ½ of 16 micro volt)

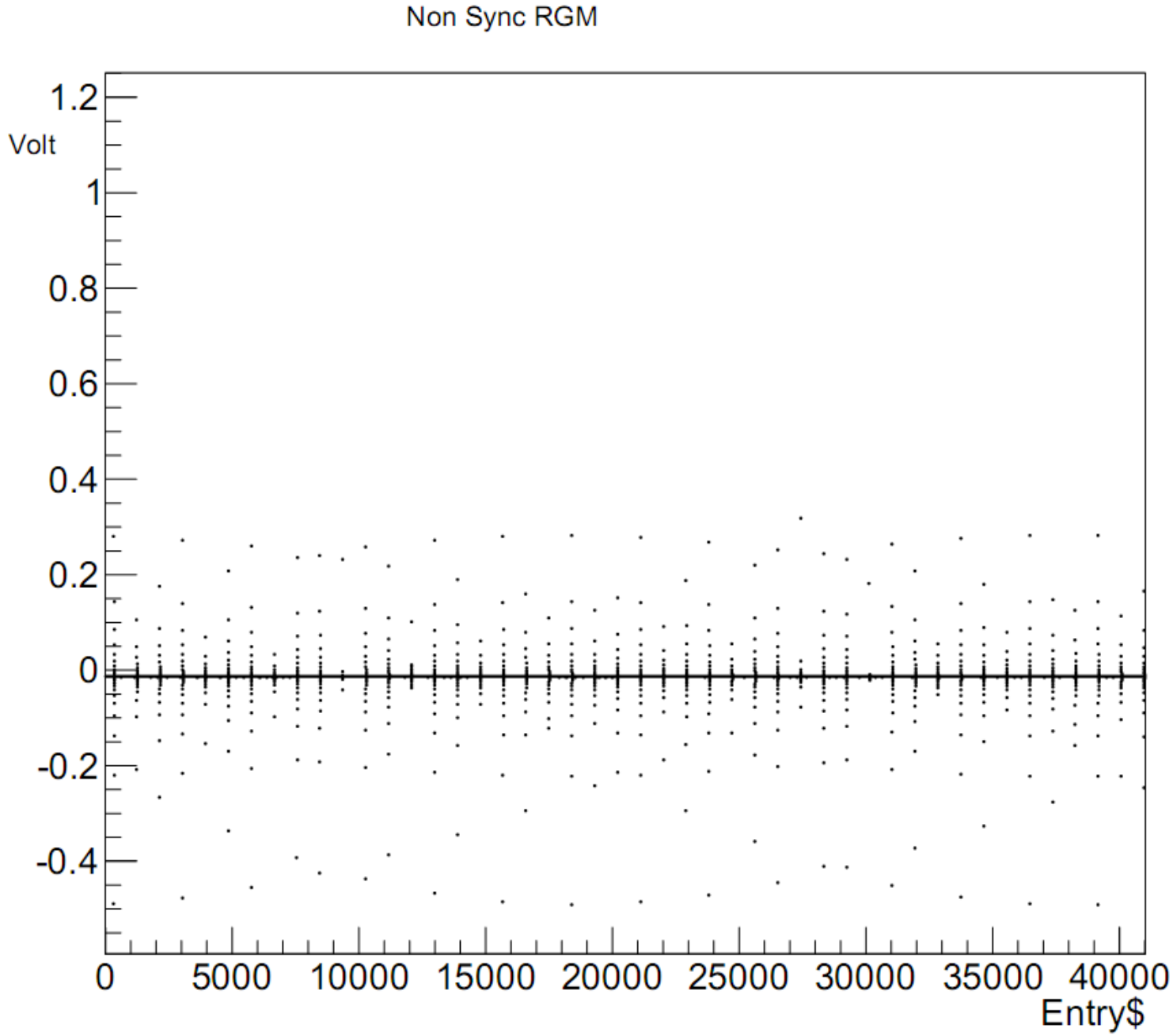
If DAQ is running at 64KHz, then the interval between two entries is about 16 μ sec .

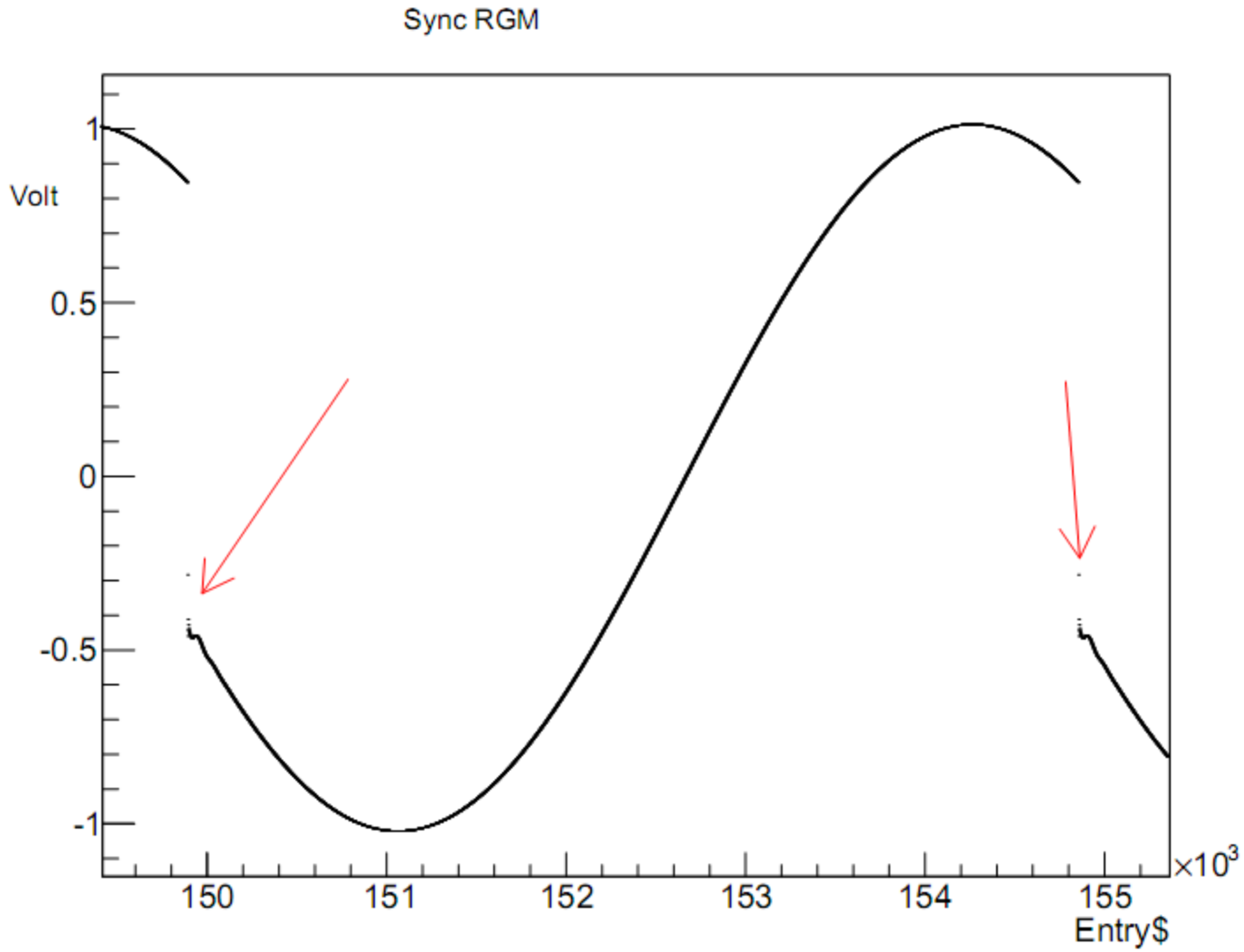

Sync RGM
Volt
3
2.5
2
1.5
1
0.5
0
-0.5
0
50
100
150
200
250
300
350
400
×10^3
Entry$

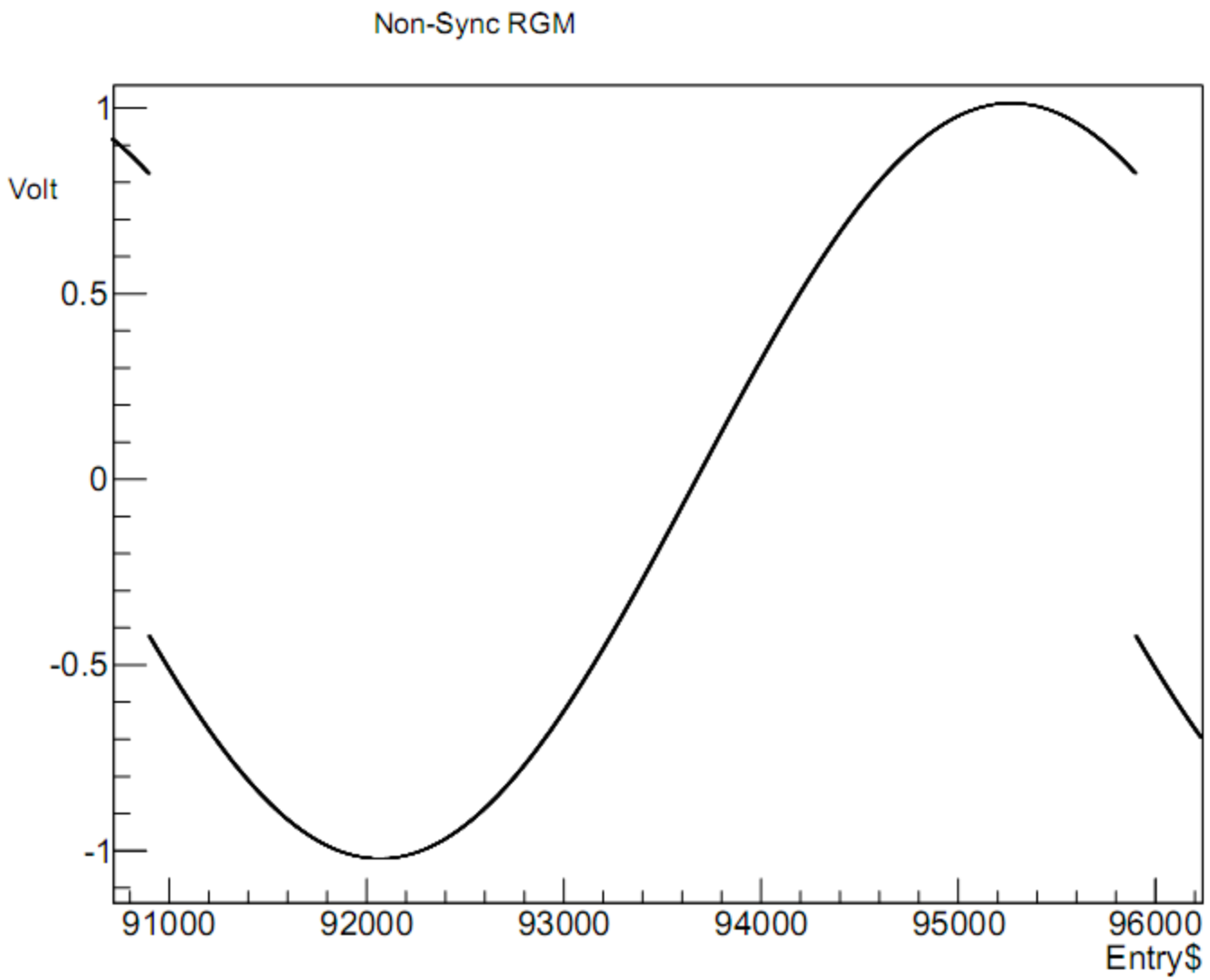

Sync RGM
Volt
3
2.5
2
1.5
1
0.5
0
-0.5
0
20
40
60
80
100
120
140
160
×10^3
Entry$

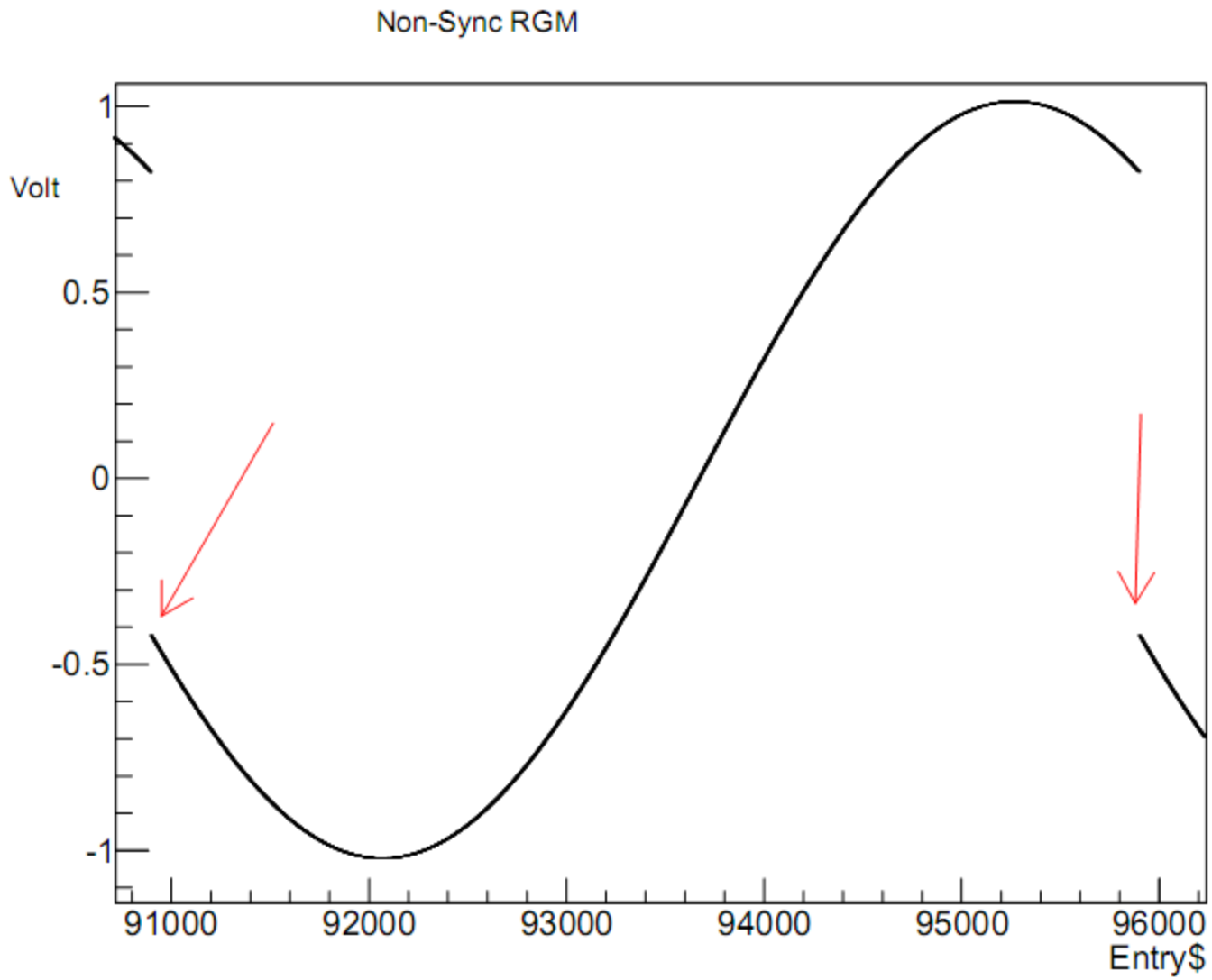

Sync RGM
Volt
3
2.5
2
1.5
1
0.5
0
-0.5
0
10000
20000
30000
40000
50000
Entry$


Sync RGM
Volt
3
2.5
2
1.5
1
0.5
0
-0.5
0
100
200
300
400
500
600
700
800
900
Entry$


Non Sync RGM
Volt
1.2
1
0.8
0.6
0.4
0.2
0
-0.2
-0.4
0
5000
10000
15000
20000
25000
30000
35000
40000
Entry$


Sync RGM
Volt
1
0.5
0
-0.5
-1
150
151
152
153
154
155
×10^3
Entry$


Non-Sync RGM
Volt
1
0.5
0
-0.5
-1
91000
92000
93000
94000
95000
96000
Entry$


Non-Sync RGM
Volt
1
0.5
0
-0.5
-1
91000
92000
93000
94000
95000
96000
Entry$