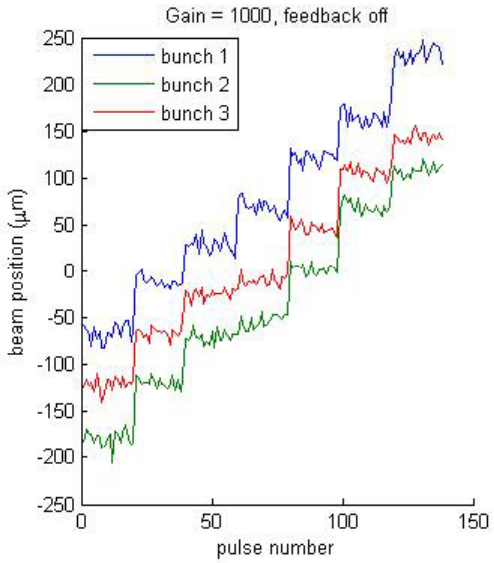
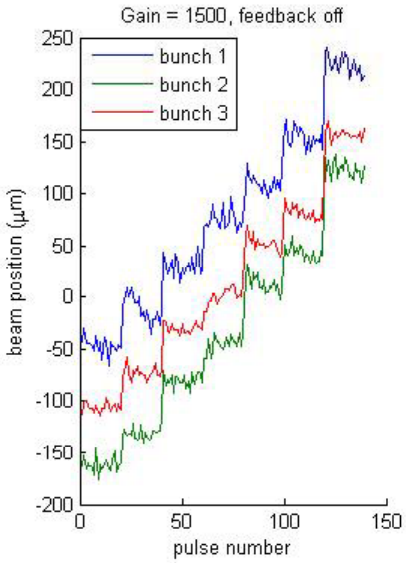
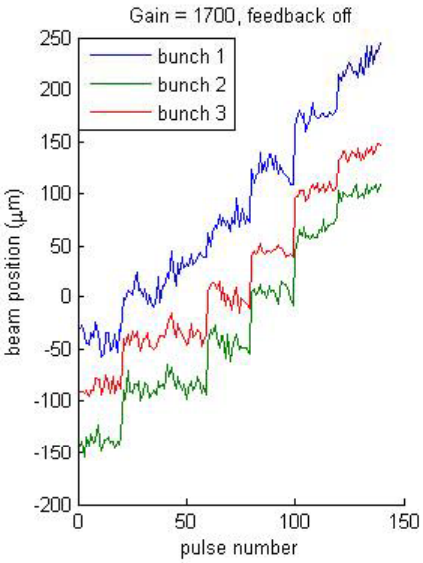
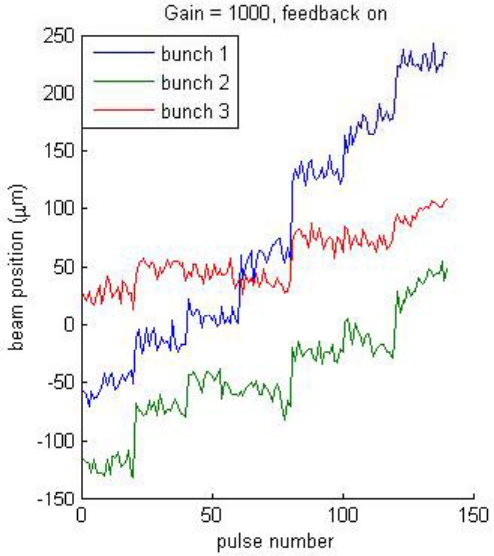
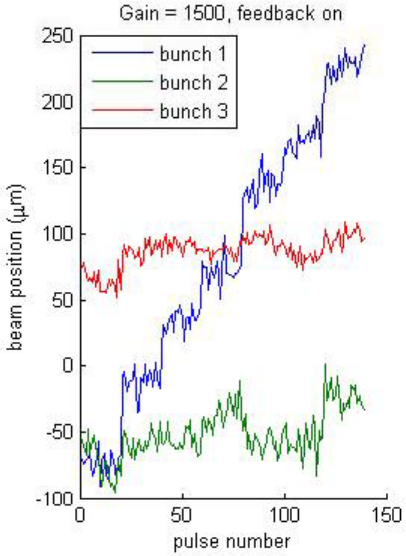
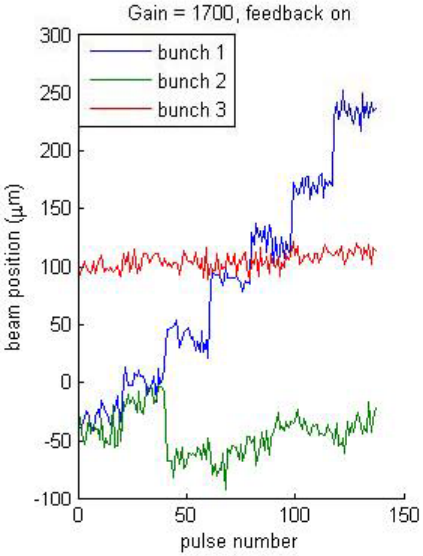

Gain = 1000, feedback off
bunch 1
bunch 2
bunch 3
beam position (μm)
pulse number

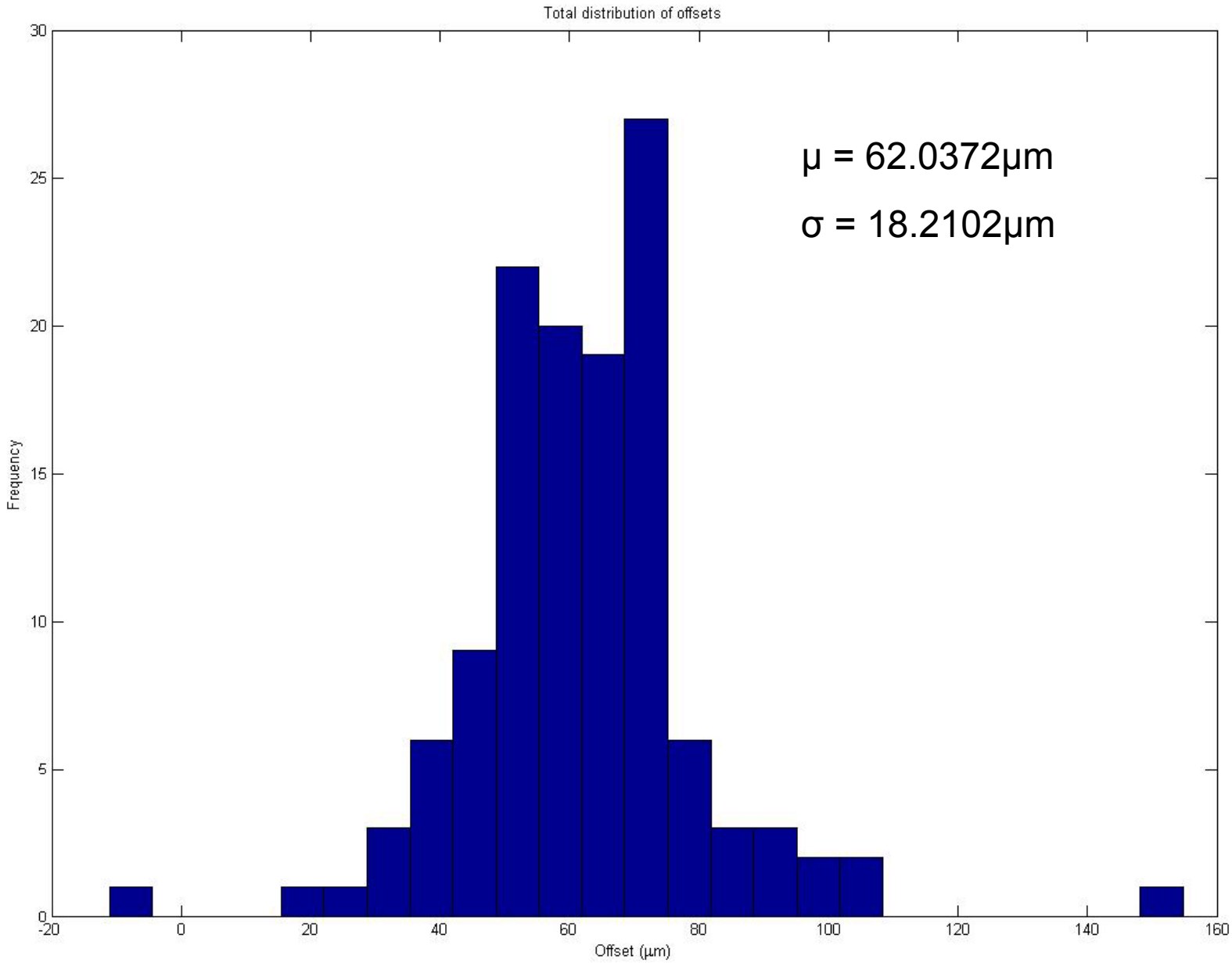

Gain = 1500, feedback off
bunch 1
bunch 2
bunch 3
beam position (μm)
pulse number

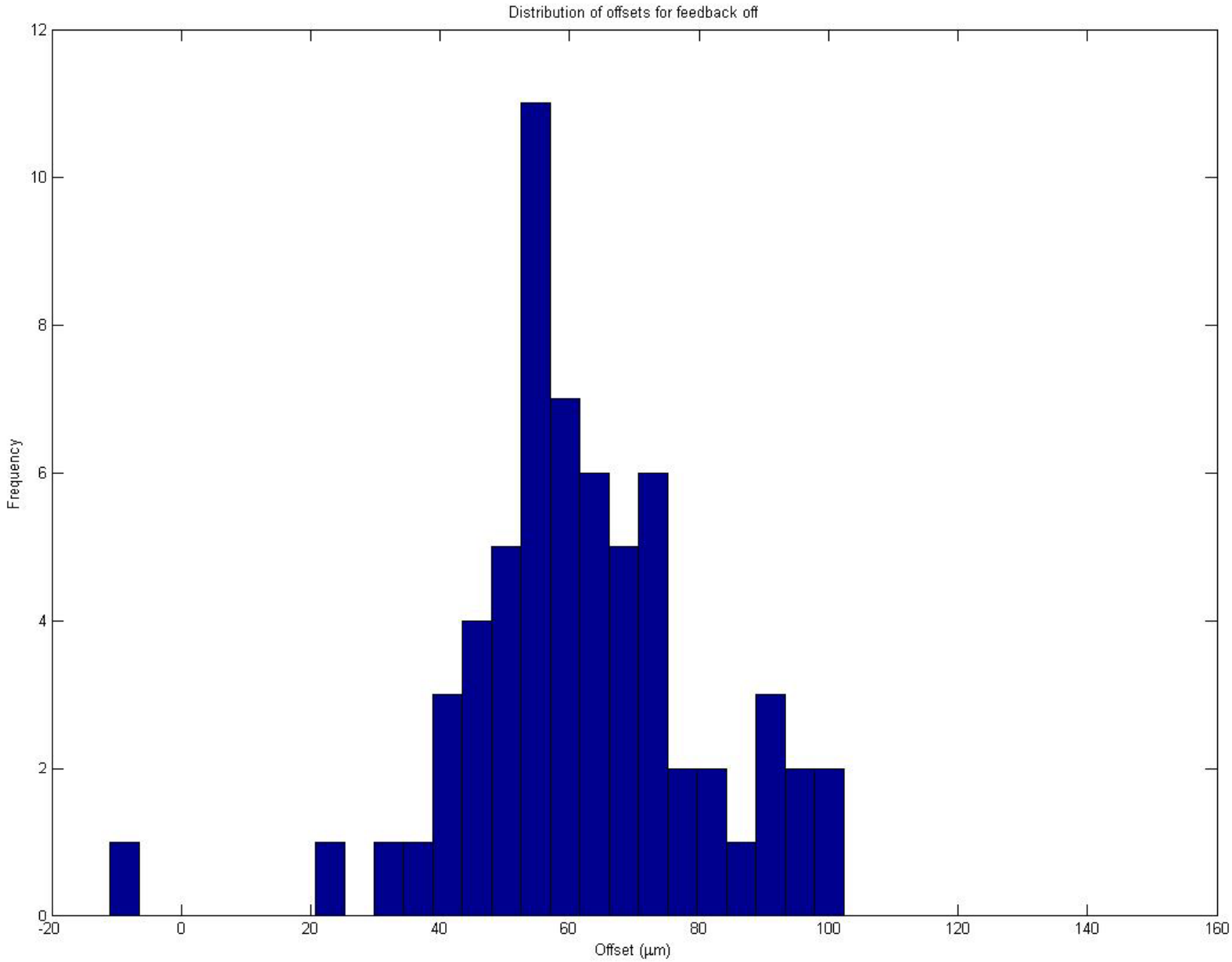

Gain = 1700, feedback off
bunch 1
bunch 2
bunch 3
beam position (μm)
pulse number

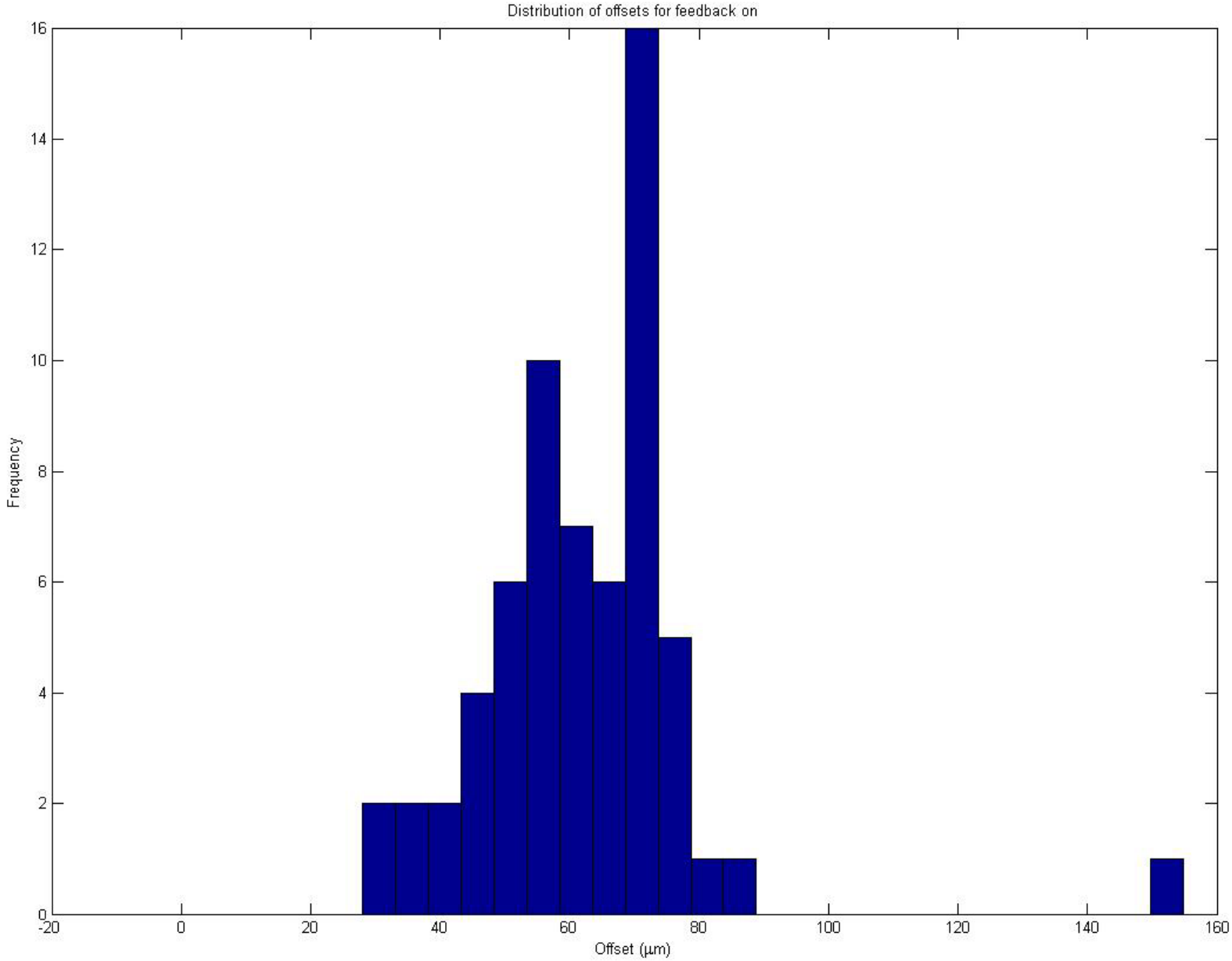

Gain = 1000, feedback on
bunch 1
bunch 2
bunch 3
beam position (μm)
pulse number


Gain = 1500, feedback on
bunch 1
bunch 2
bunch 3
beam position (μm)
pulse number


Gain = 1700, feedback on
bunch 1
bunch 2
bunch 3
beam position (μm)
pulse number

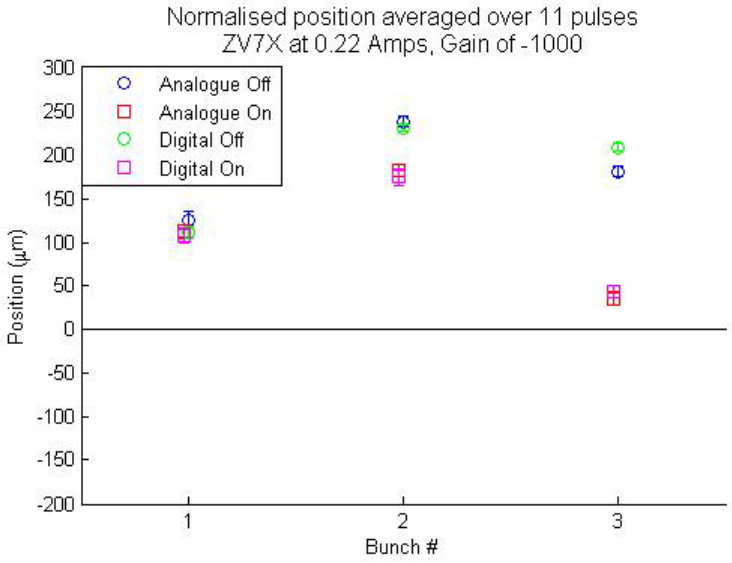

Total distribution of offsets
μ = 62.0372μm
σ = 18.2102μm
Frequency
Offset (μm)
0
5
10
15
20
25
30
-20
0
20
40
60
80
100
120
140
160

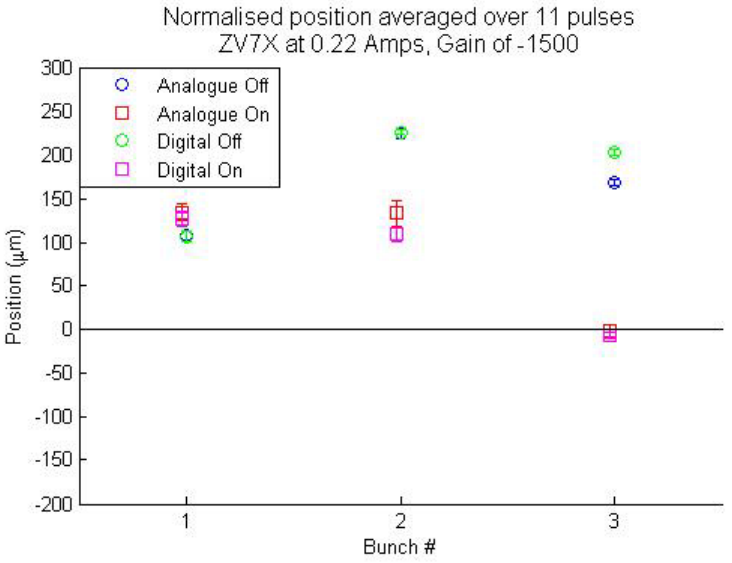

Distribution of offsets for feedback off
Frequency
Offset (μm)
0
2
4
6
8
10
12
-20
0
20
40
60
80
100
120
140
160

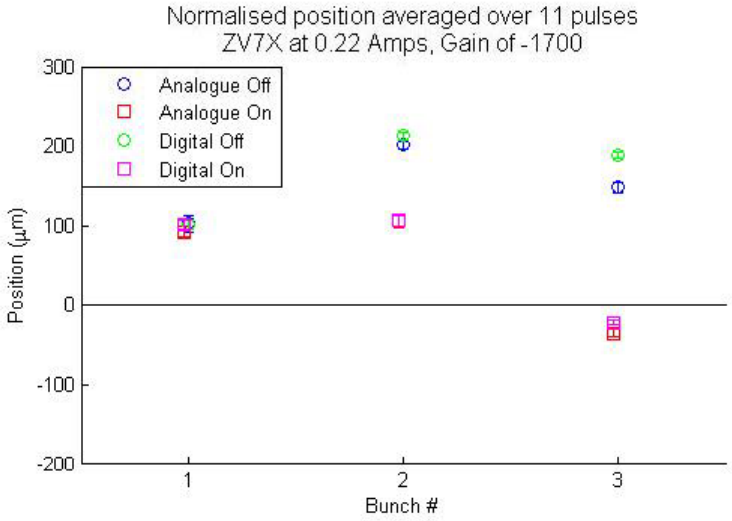

Distribution of offsets for feedback on
Frequency
Offset (μm)
0
2
4
6
8
10
12
14
16
-20
0
20
40
60
80
100
120
140
160

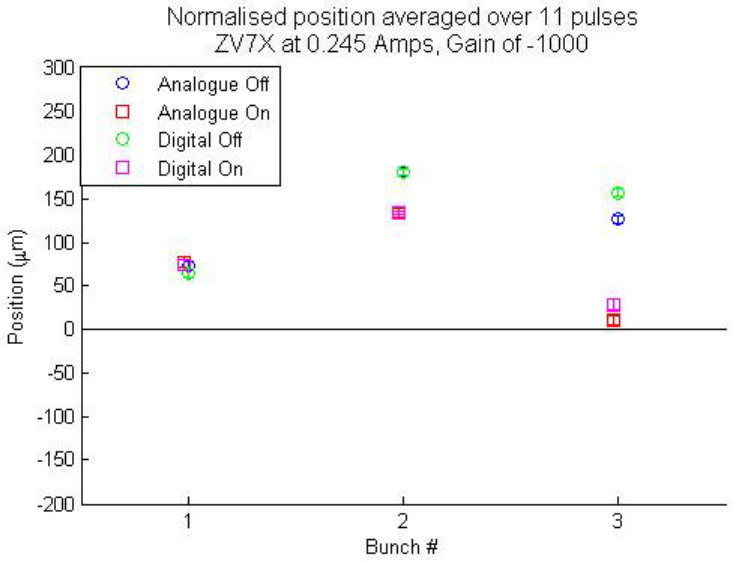
Overlay plots

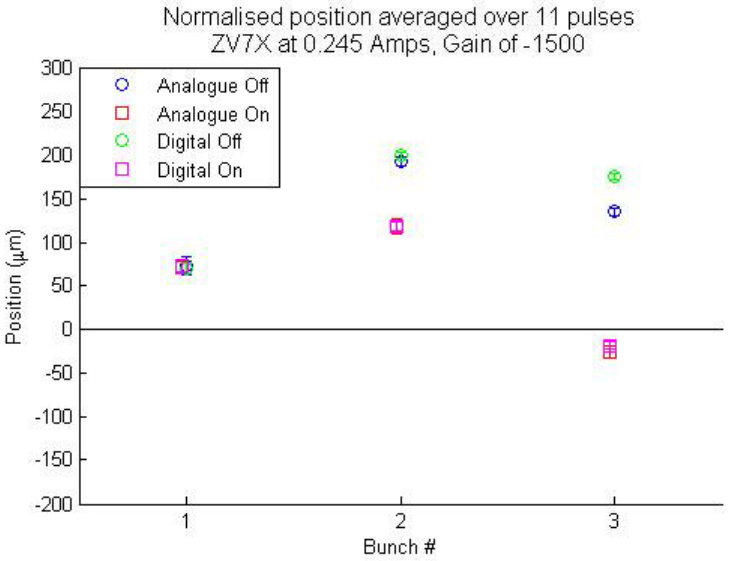
- The positions are calibrated
  - Analogue: 0.004122 per micron
  - Digital: 0.003341 per micron
- The mean offset has been added to the analogue data to remove offset between processors.

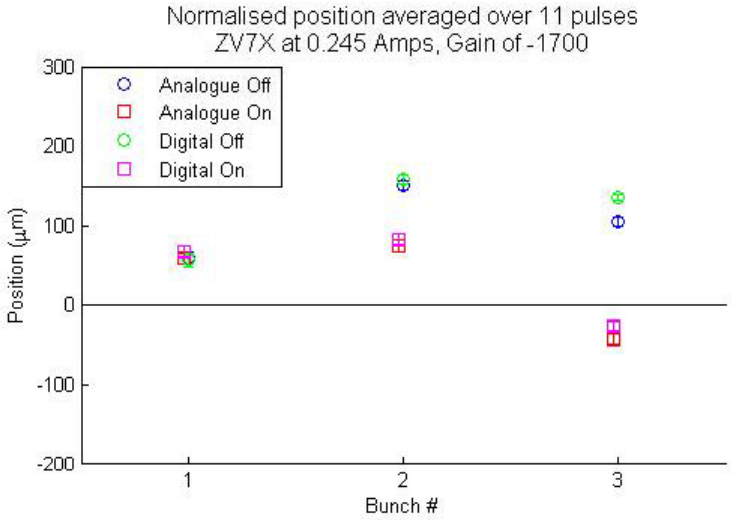

Normalised position averaged over 11 pulses
ZV7X at 0.22 Amps, Gain of -1000
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
250
200
150
100
50
0
-50
-100
-150
-200
1
2
3

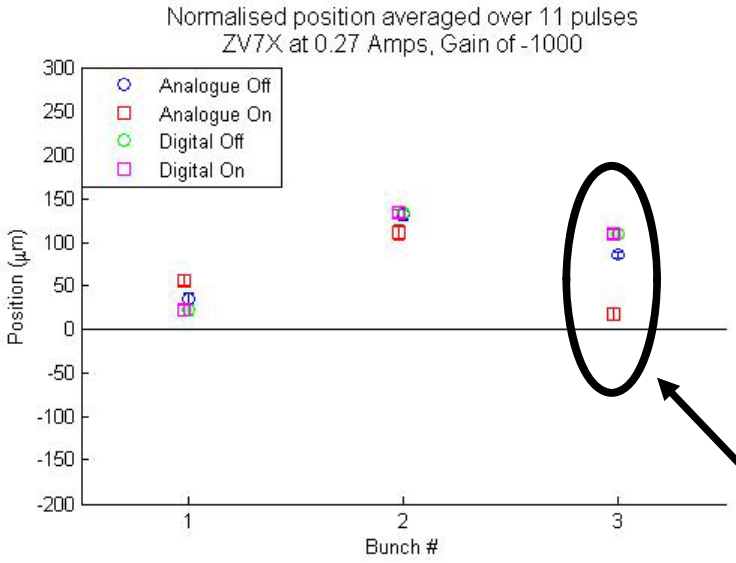

Normalised position averaged over 11 pulses
ZV7X at 0.22 Amps, Gain of -1500
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
250
200
150
100
50
0
-50
-100
-150
-200
1
2
3

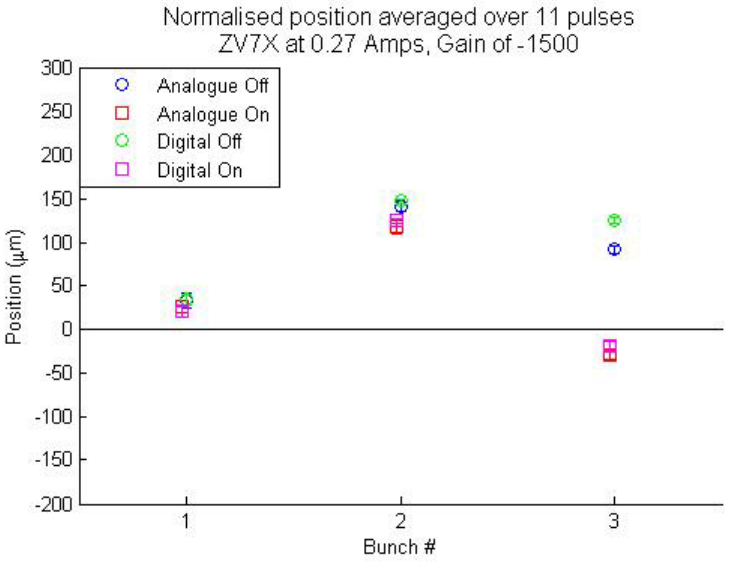

Normalised position averaged over 11 pulses
ZV7X at 0.22 Amps, Gain of -1700
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
200
100
0
-100
-200
1
2
3

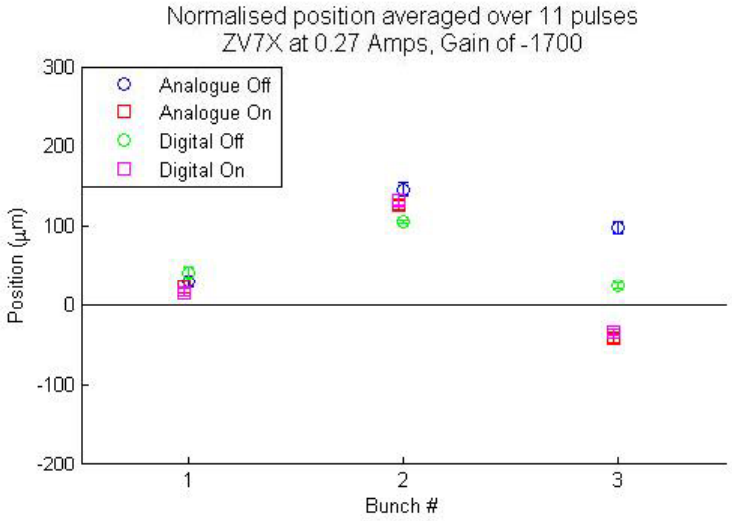

Normalised position averaged over 11 pulses
ZV7X at 0.245 Amps, Gain of -1000
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
250
200
150
100
50
0
-50
-100
-150
-200
1
2
3


Normalised position averaged over 11 pulses
ZV7X at 0.245 Amps, Gain of -1500
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
250
200
150
100
50
0
-50
-100
-150
-200
1
2
3

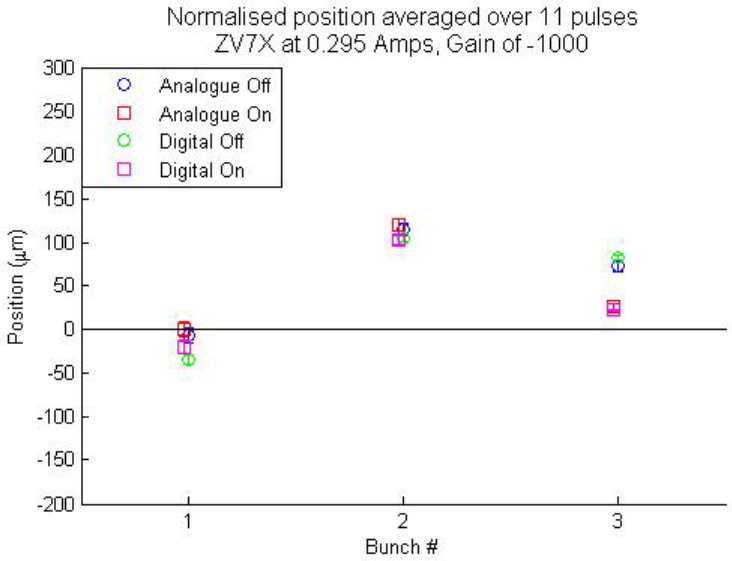

Normalised position averaged over 11 pulses
ZV7X at 0.245 Amps, Gain of -1700
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
200
100
0
-100
-200
1
2
3

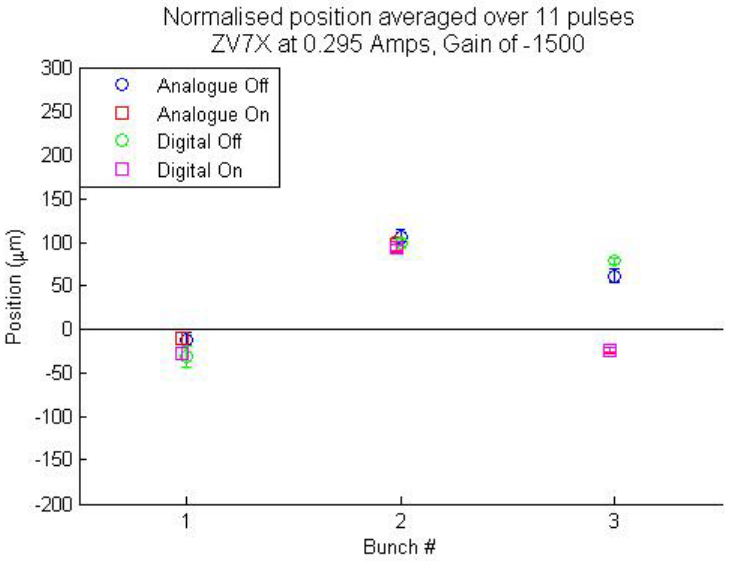


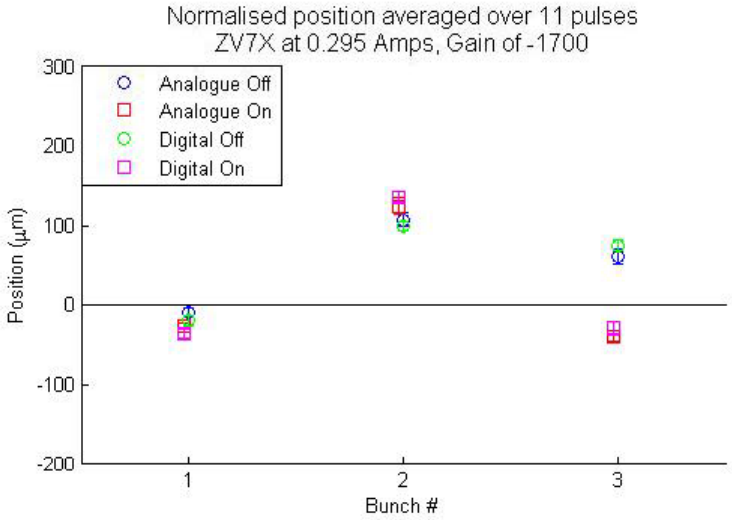


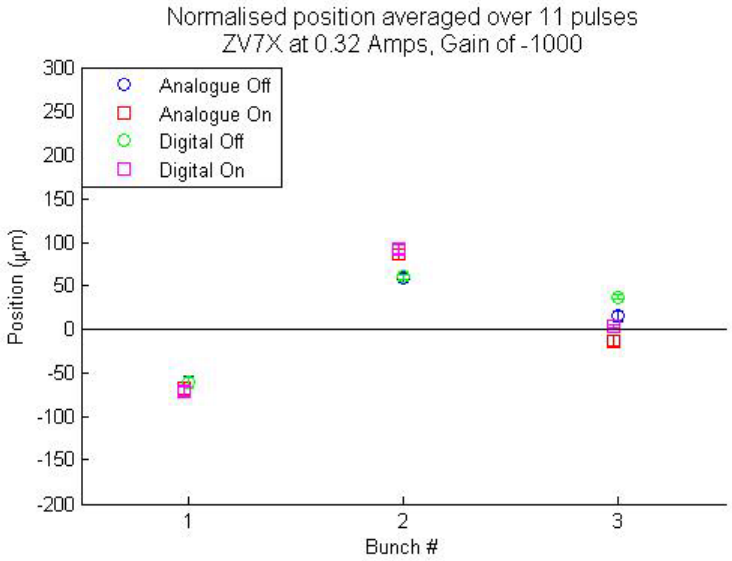


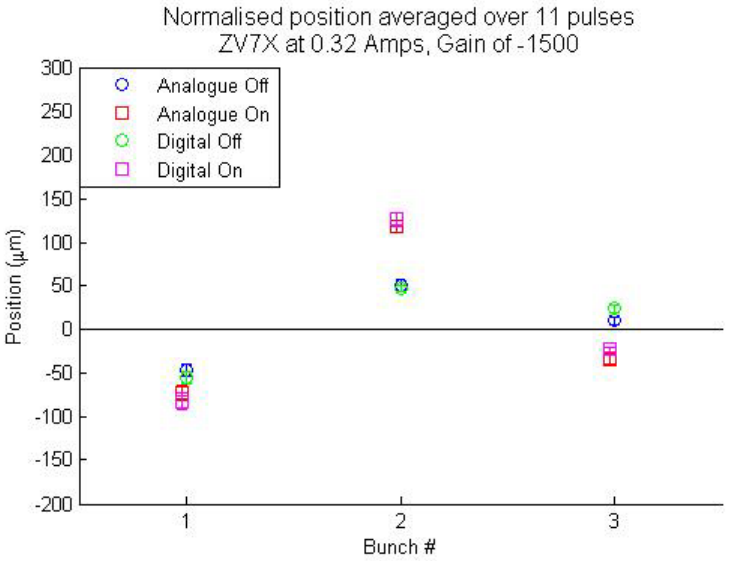
Ben saved over the digital feedback off file, so no physical reason for poor matching

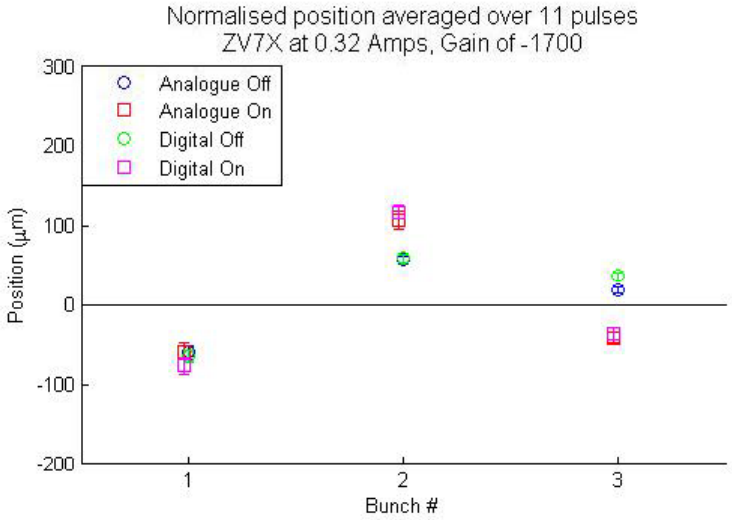

Normalised position averaged over 11 pulses
ZV7X at 0.295 Amps, Gain of -1000
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
250
200
150
100
50
0
-50
-100
-150
-200
1
2
3

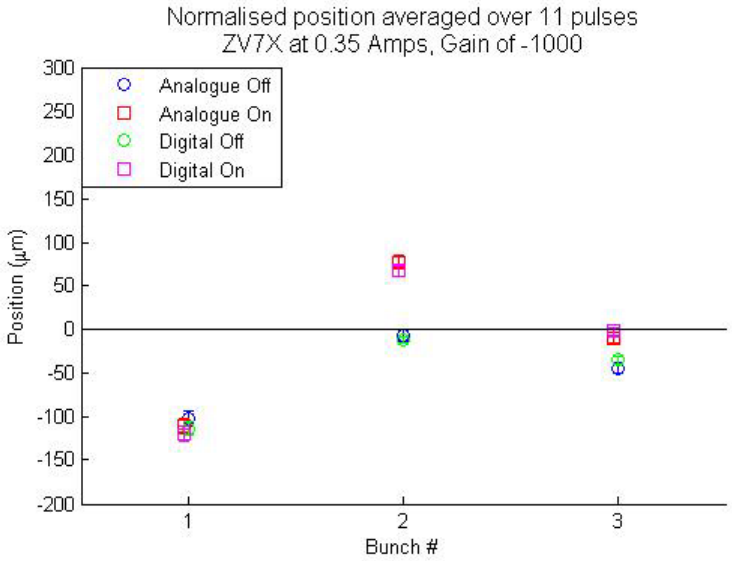

Normalised position averaged over 11 pulses
ZV7X at 0.295 Amps, Gain of -1500
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
250
200
150
100
50
0
-50
-100
-150
-200
1
2
3

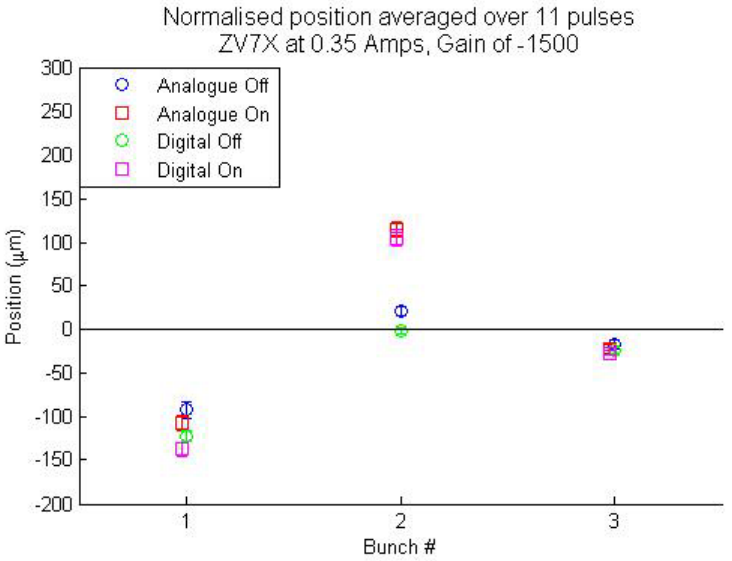

Normalised position averaged over 11 pulses
ZV7X at 0.295 Amps, Gain of -1700
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
200
100
0
-100
-200
1
2
3

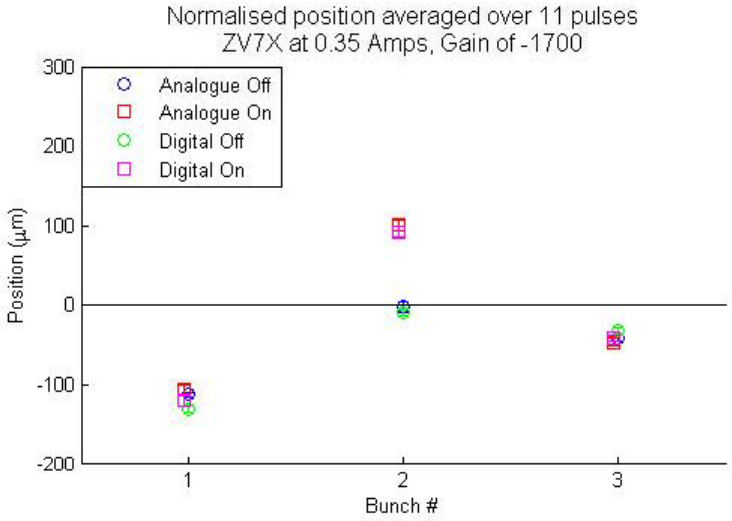

Normalised position averaged over 11 pulses
ZV7X at 0.32 Amps, Gain of -1000
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
250
200
150
100
50
0
-50
-100
-150
-200
1
2
3

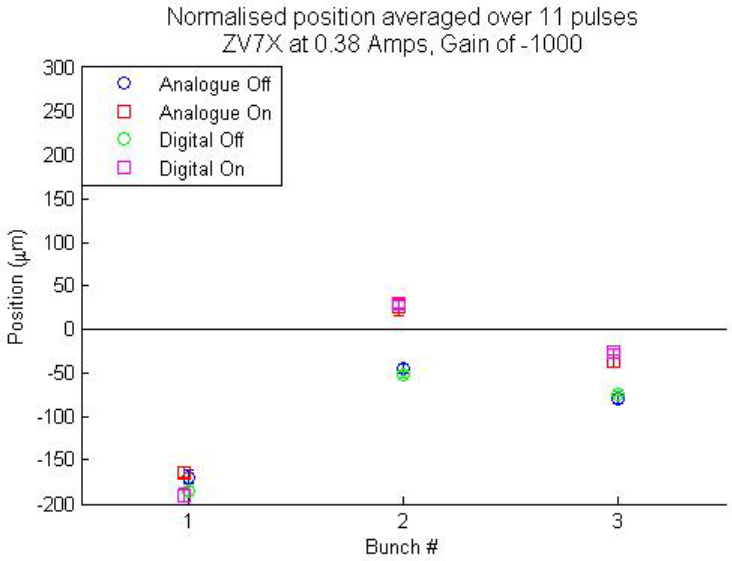

Normalised position averaged over 11 pulses
ZV7X at 0.32 Amps, Gain of -1500
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
250
200
150
100
50
0
-50
-100
-150
-200
1
2
3

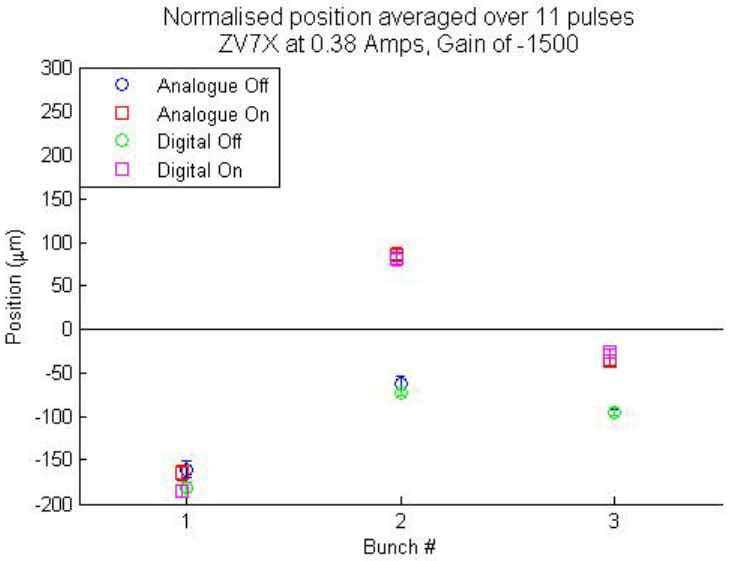

Normalised position averaged over 11 pulses
ZV7X at 0.32 Amps, Gain of -1700
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
200
100
0
-100
-200
1
2
3

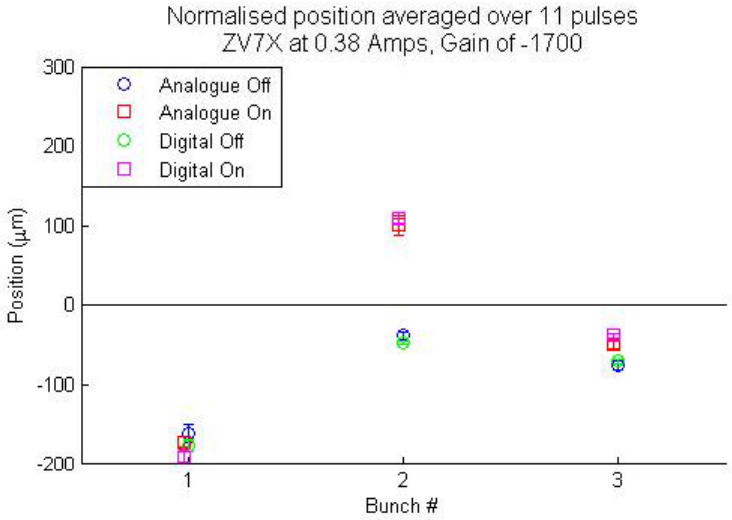

Normalised position averaged over 11 pulses
ZV7X at 0.35 Amps, Gain of -1000
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
250
200
150
100
50
0
-50
-100
-150
-200
1
2
3


Normalised position averaged over 11 pulses
ZV7X at 0.35 Amps, Gain of -1500
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
250
200
150
100
50
0
-50
-100
-150
-200
1
2
3


Normalised position averaged over 11 pulses
ZV7X at 0.35 Amps, Gain of -1700
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
200
100
0
-100
-200
1
2
3


Normalised position averaged over 11 pulses
ZV7X at 0.38 Amps, Gain of -1000
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
250
200
150
100
50
0
-50
-100
-150
-200
1
2
3


Normalised position averaged over 11 pulses
ZV7X at 0.38 Amps, Gain of -1500
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
250
200
150
100
50
0
-50
-100
-150
-200
1
2
3


Normalised position averaged over 11 pulses
ZV7X at 0.38 Amps, Gain of -1700
Analogue Off
Analogue On
Digital Off
Digital On
Position (µm)
Bunch #
300
200
100
0
-100
-200
1
2
3