BPM Calibration Update

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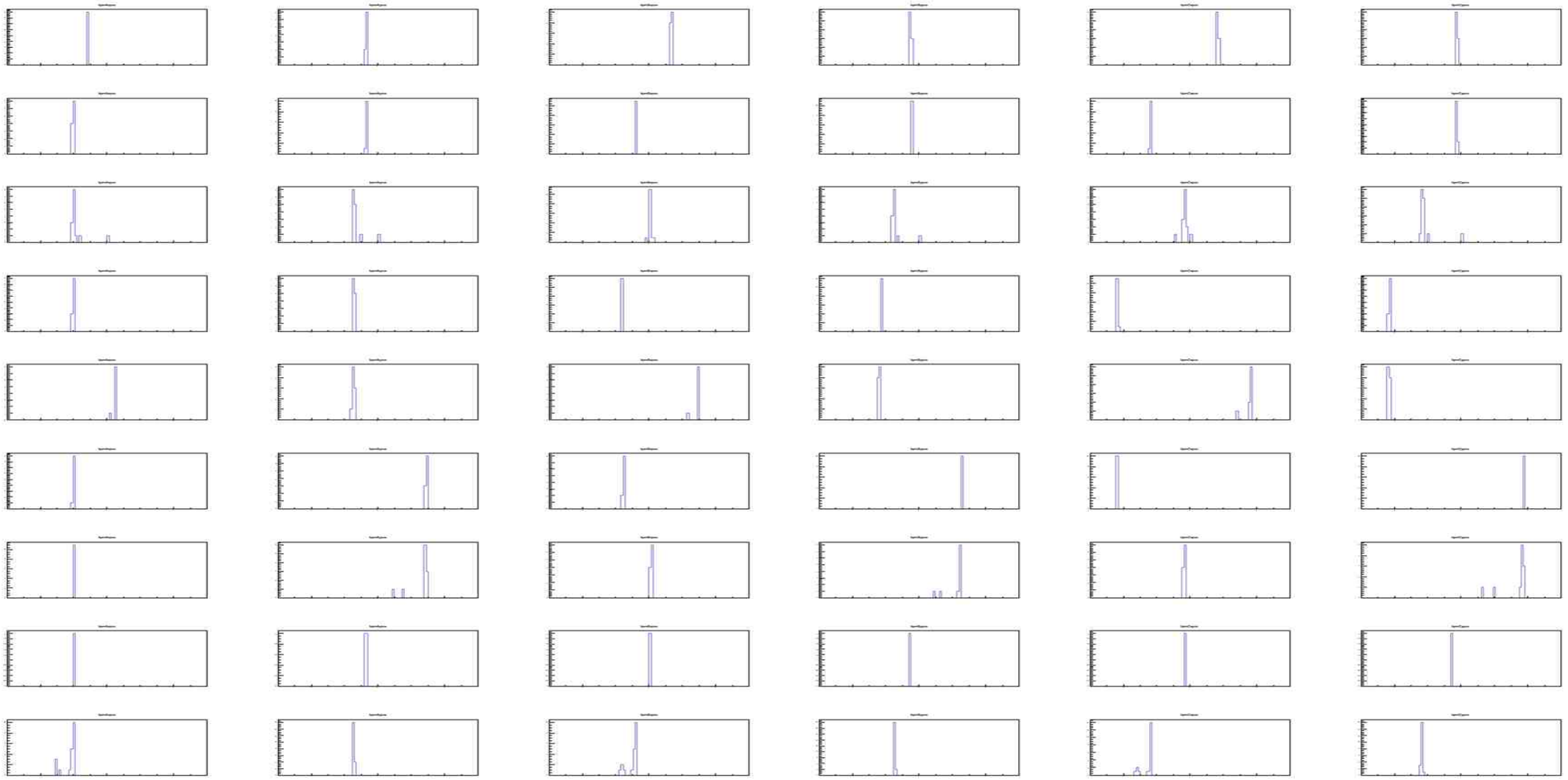
HARP Scans

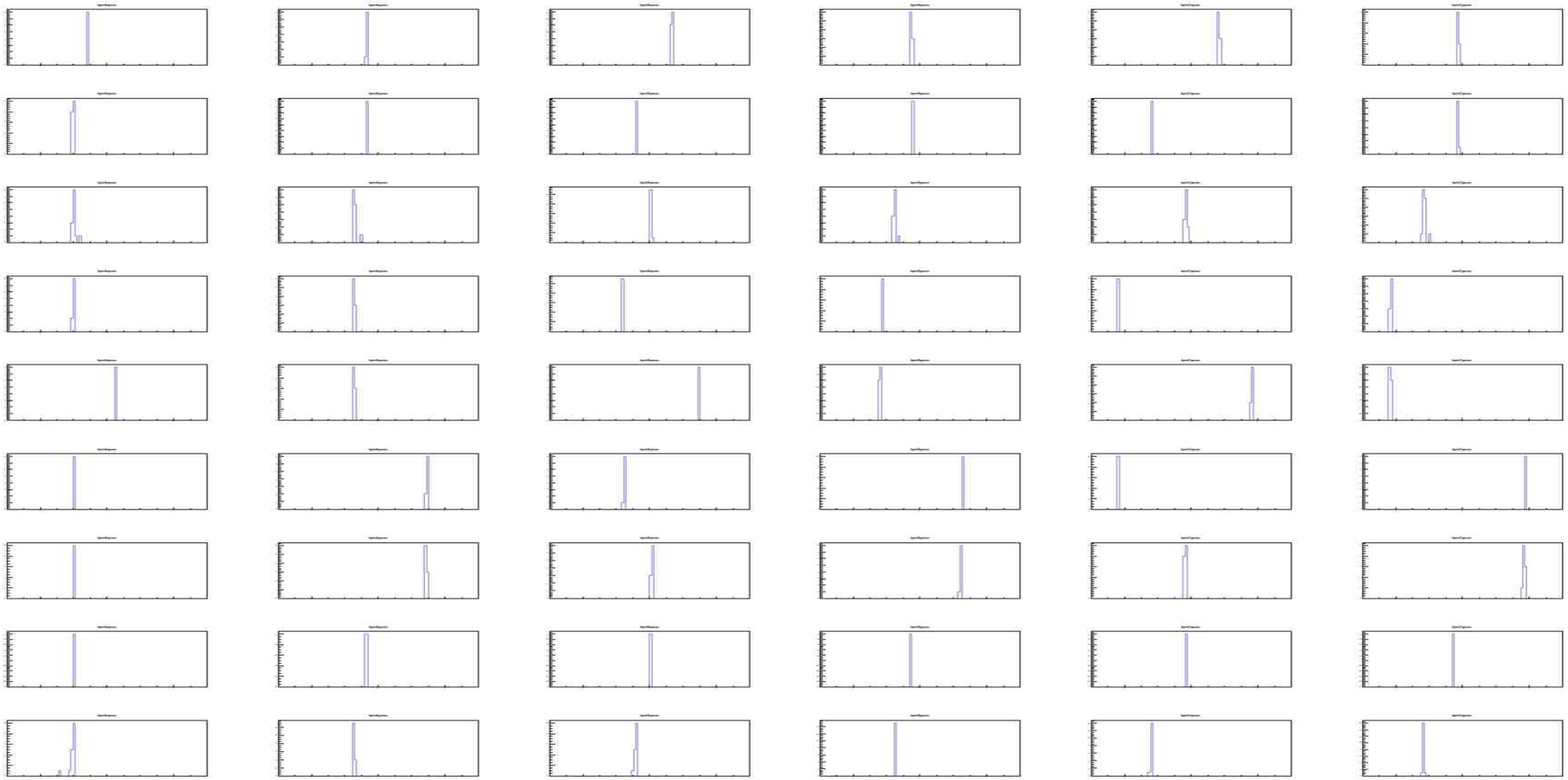
1771	0.194	−0.605	−1.548	0.328	345.528	154.612	−0.56	−0.62	0.67	−0.47	1.0	0.0	0.1
1770	0.838	−0.620	0.155	0.297	345.528	154.612	−0.98	−0.61	−0.35	−0.43	−1.0	0.0	0.1
1769	0.683	−1.079	−0.677	−0.512	345.528	154.612	−0.99	−0.99	0.05	−1.00	0.0	−1.0	0.1
1768	0.956	−1.194	1.033	−1.220	345.528	154.612	−1.00	−0.98	−0.80	−1.32	−2.0	−2.0	0.1
1767	−0.620	−1.153	−2.499	−1.261	345.528	154.612	0.26	−1.00	1.46	−1.42	2.0	2.0	0.1
1765	0.927	1.035	0.992	1.998	345.528	154.612	−1.01	1.17	−0.76	1.05	−2.0	2.0	0.1
1764	0.659	1.080	−0.660	2.034	345.528	154.612	−0.99	1.17	−0.76	1.05	0.0	2.0	0.1
1763	0.691	−0.645	−0.630	0.201	345.528	154.612	−1.00	−0.61	0.02	−0.47	0.0	0.0	0.1
1762	0.825	−1.063	0.221	−0.517	345.528	154.612	−1.00	−0.99	−0.40	−0.96	−1.0	−1.0	0.1

- For each run, BPM average positions (Ax,Ay,Ax,Bx,By,Bx,Cx,Cy,Cy) are from striptool – not used in this analysis
- HARP A and B X/Y average positions are from Accelerator's HARP Fitter tool
- BPM Cx,Cy nominal positions are listed next – again, not used in this analysis – cross check only
- Error in HARP A and B X/Y average positions set at 0.1 mm (suggested by Dave Gaskell)
- Run 1766 rejected from analysis – inconsistency between EPICS data and supposed corresponding HARP scan!!!

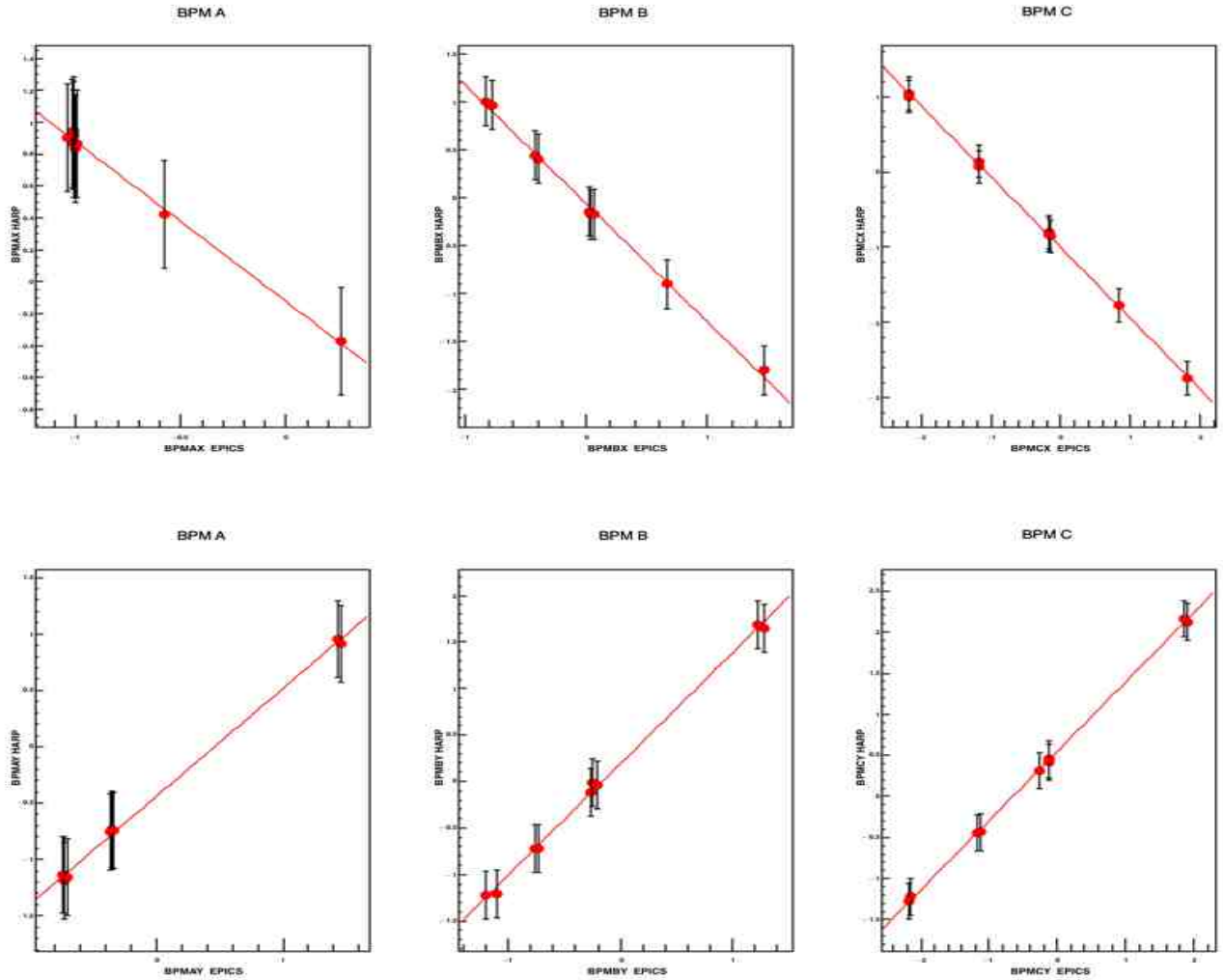
RAW BPM positions from EPICS data



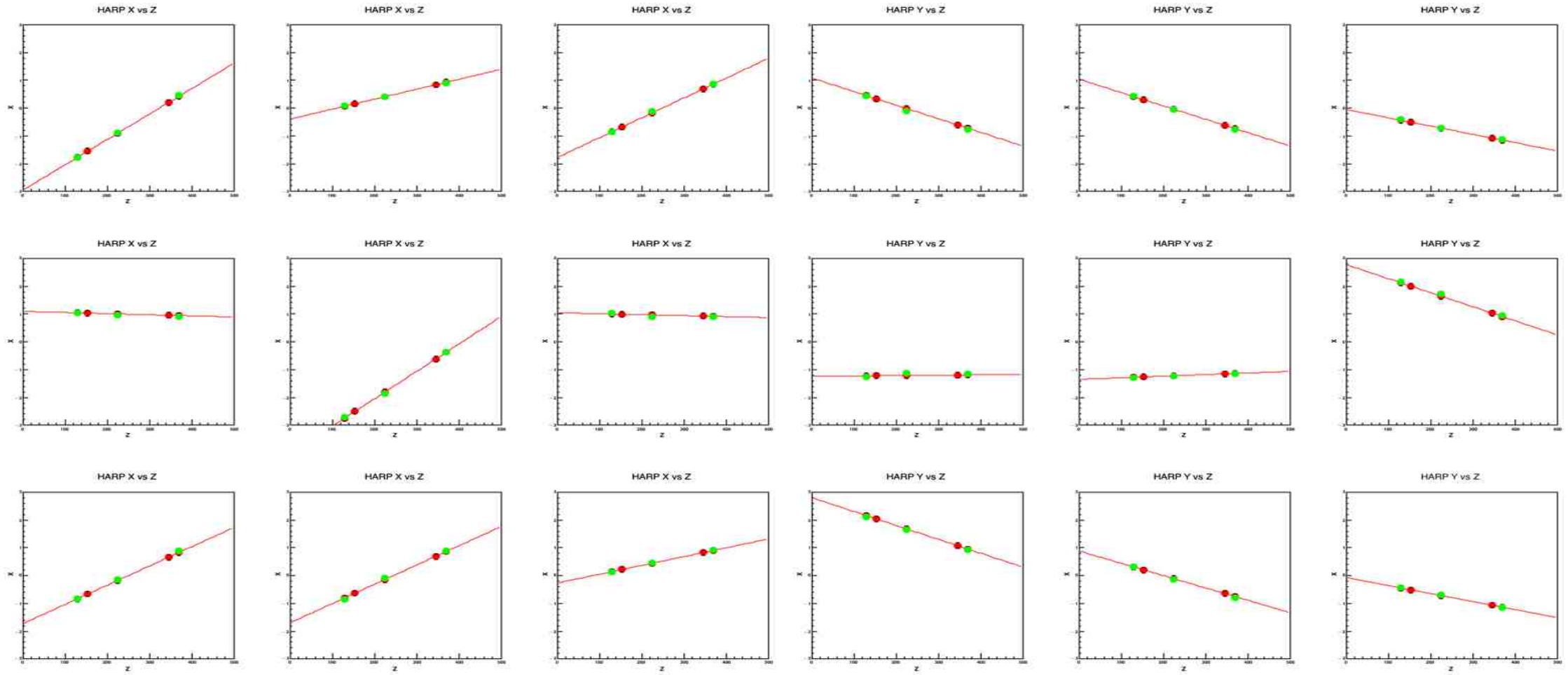
RAW BPM positions after cuts to clean up



HARP vs. BPM Calibrations



Sanity Checks for Internal Consistency



Gains and Offsets

- Projected HARP X/Y Position (Truth) = slope * Raw EPICS BPM X/Y Position + offset

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BPM Ax:  Slope = -1.00111 +/- 0.278043
BPM Ax:  Constant = -0.123099 +/- 0.255359

BPM Bx:  Slope = -1.24023 +/- 0.126607
BPM Bx:  Constant = -0.061674 +/- 0.0863716

BPM Cx:  Slope = -0.940987 +/- 0.058928
BPM Cx:  Constant = -1.00727 +/- 0.0792616

BPM Ay:  Slope = 0.957734 +/- 0.133041
BPM Ay:  Constant = -0.44177 +/- 0.114019

BPM By:  Slope = 1.19394 +/- 0.100589
BPM By:  Constant = 0.190897 +/- 0.0863716

BPM Cy:  Slope = 0.842772 +/- 0.052127
BPM Cy:  Constant = 0.549773 +/- 0.076011
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