Pixel Cosmic Analysis with CSC Misalign MC

October 18, 2007

- CSC misalign files: generated with nomial geometry, but misreconstructed with csc alignment constants

|	Tx	Ty	Tz	α	β	γ
L1	0.6	1.05	1.15	-0.1	0.25	0.65
L2(0)	-0.5602	-0.0305	0.1996	0.0217	0.9720	0.9629
L2(1)	0.3655	-0.2210	-0.1130	-0.1257	-0.7830	0.9000
L2(2)	0.1112	-0.4412	0.0523	-0.6121	-0.1770	-0.6300

$$\left(\begin{array}{c} x' \\ y' \\ z' \end{array} \right) = \left(\begin{array}{c} T_x \\ T_y \\ T_z \end{array} \right) + \left(\begin{array}{ccc} 1 & -\gamma & \beta \\ \gamma & 1 & -\alpha \\ -\beta & \alpha & 1 \end{array} \right) \times \left(\begin{array}{c} x \\ y \\ z \end{array} \right)$$

- nominal: clx=116.121 cly=-14.7628 clz=492.9
  misalign: clx'=116.754 cly'=-13.539 clz'=494.135

- Apply alignment algorithm to csc mc and compare the alignment vs csc constants.

Chisq and Residuals
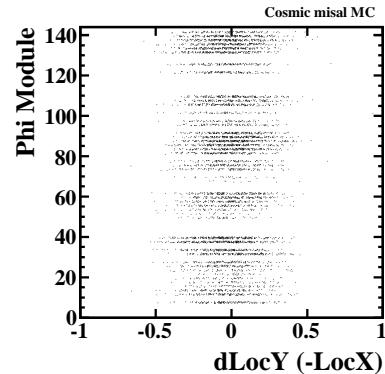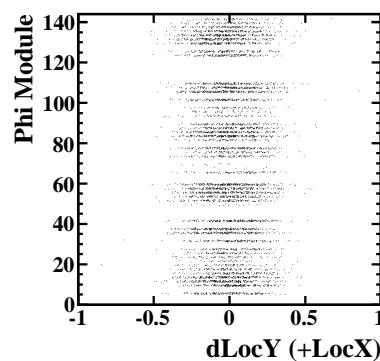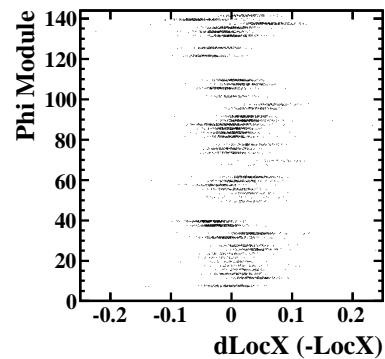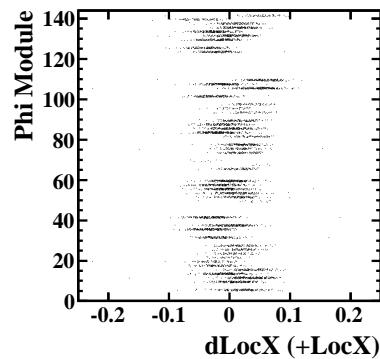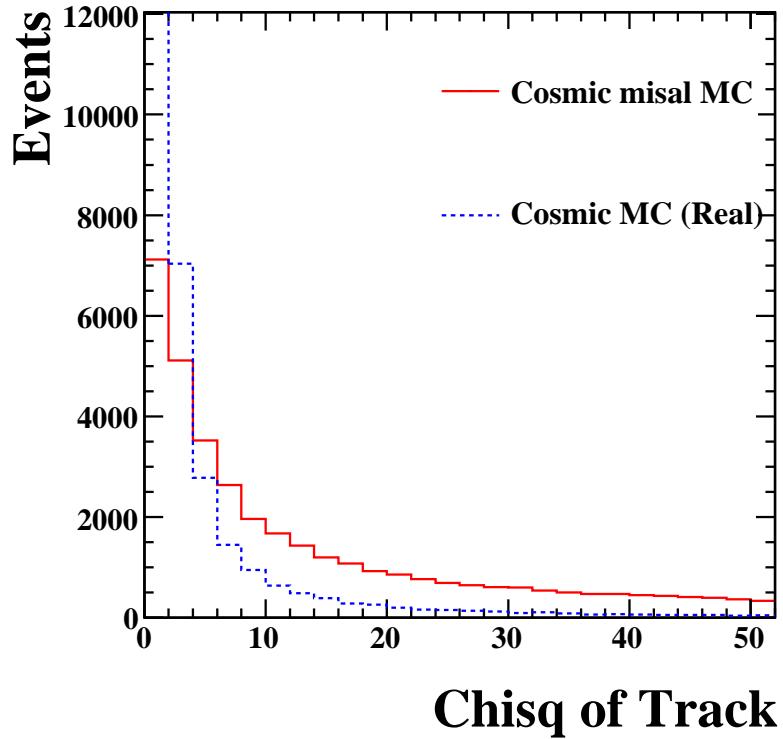
Residuals After Alignment
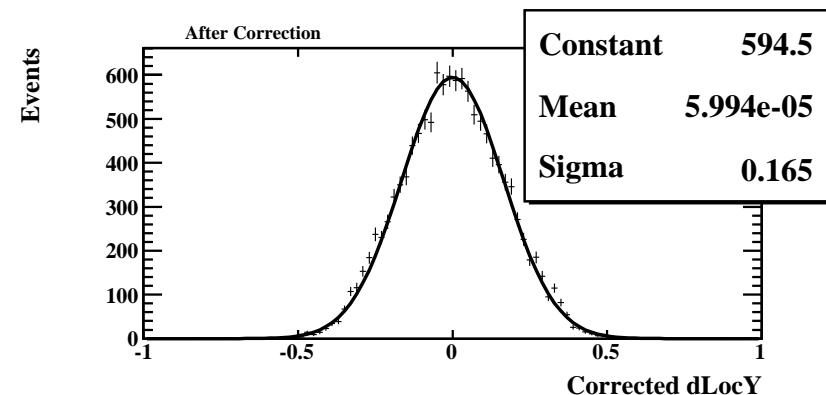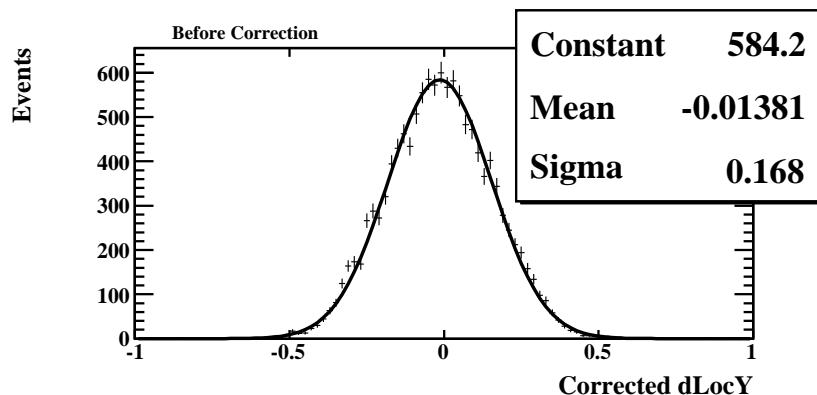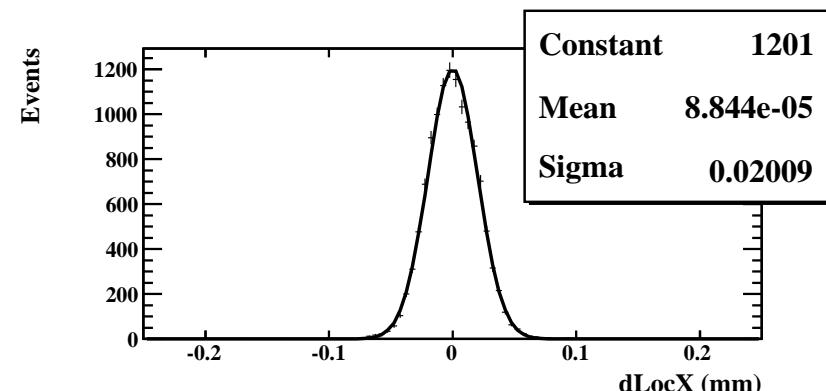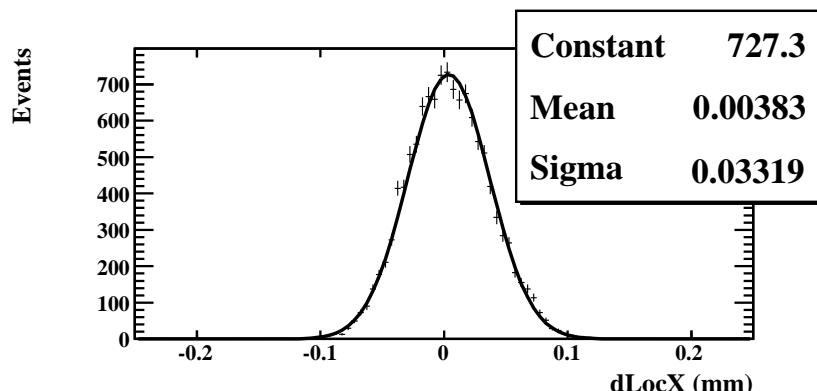
- Consistent with RMS LocX=0.01985 and LocY=0.1634 with prefect geometry

Alignment vs CSC Constants
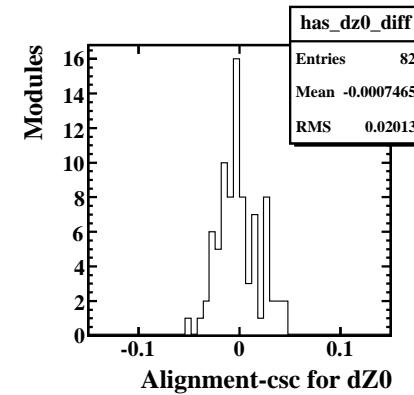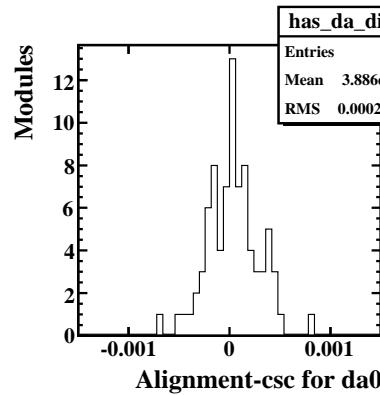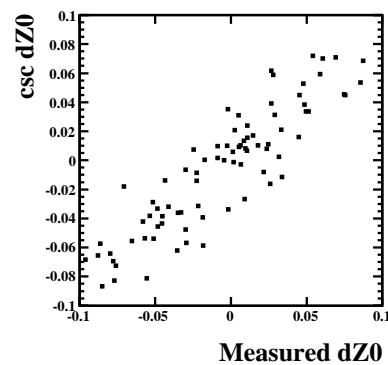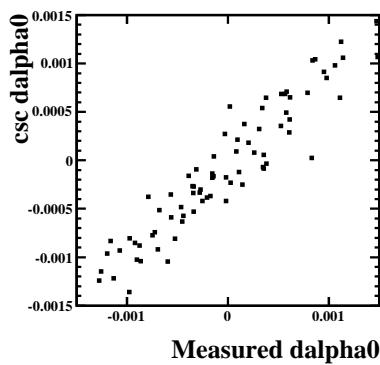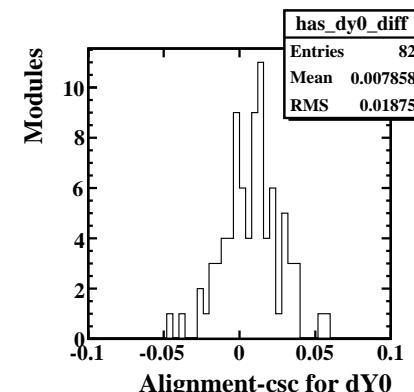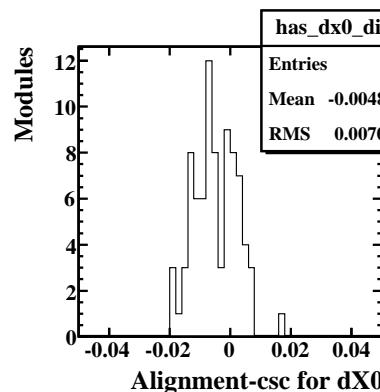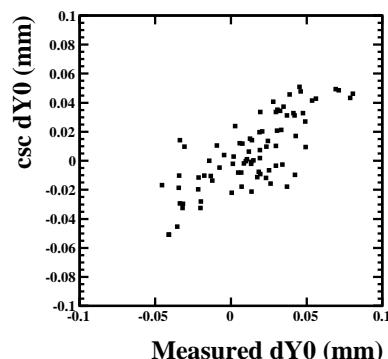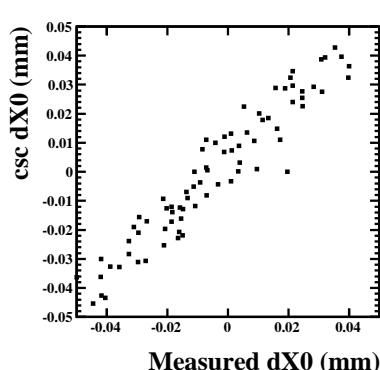
- The central value seems not bad, consistent with csc, but limited by statistics.