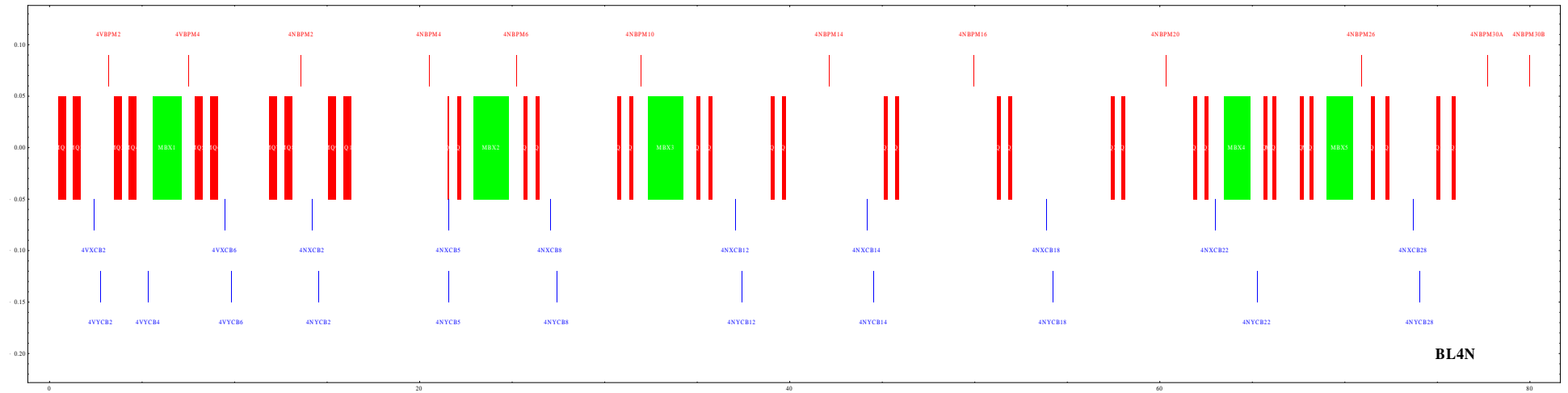
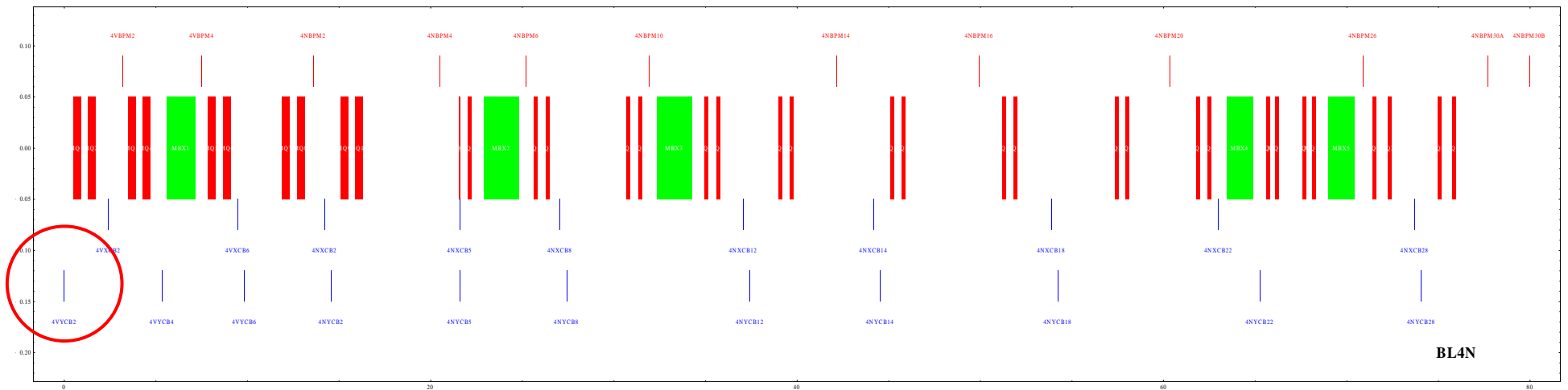


# BL4N Orbit Correction Configuration – After Input R-matrix Fixed

## Original configuration

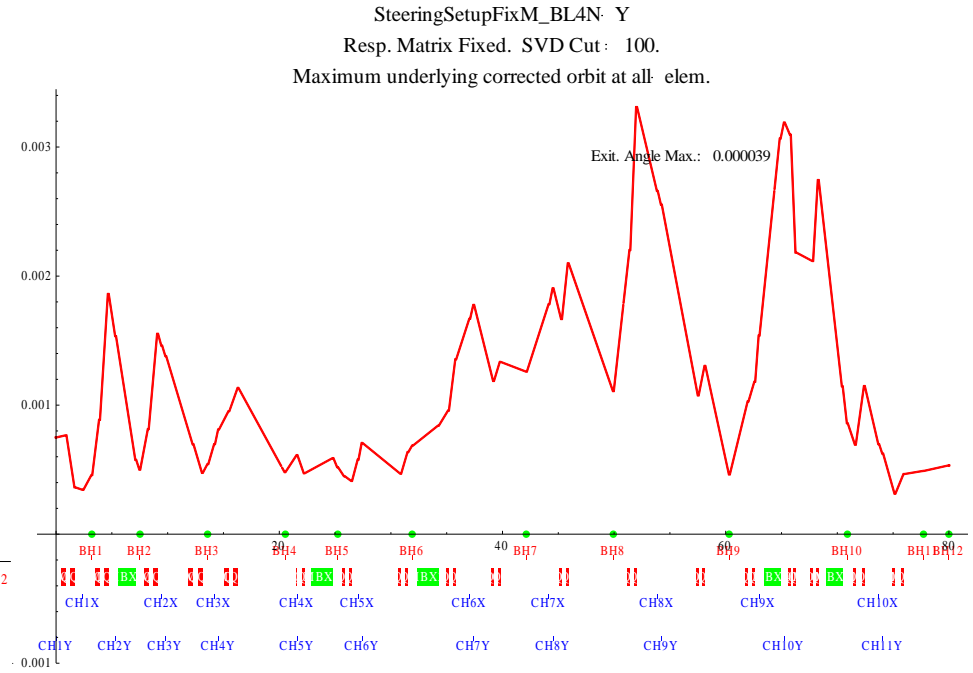
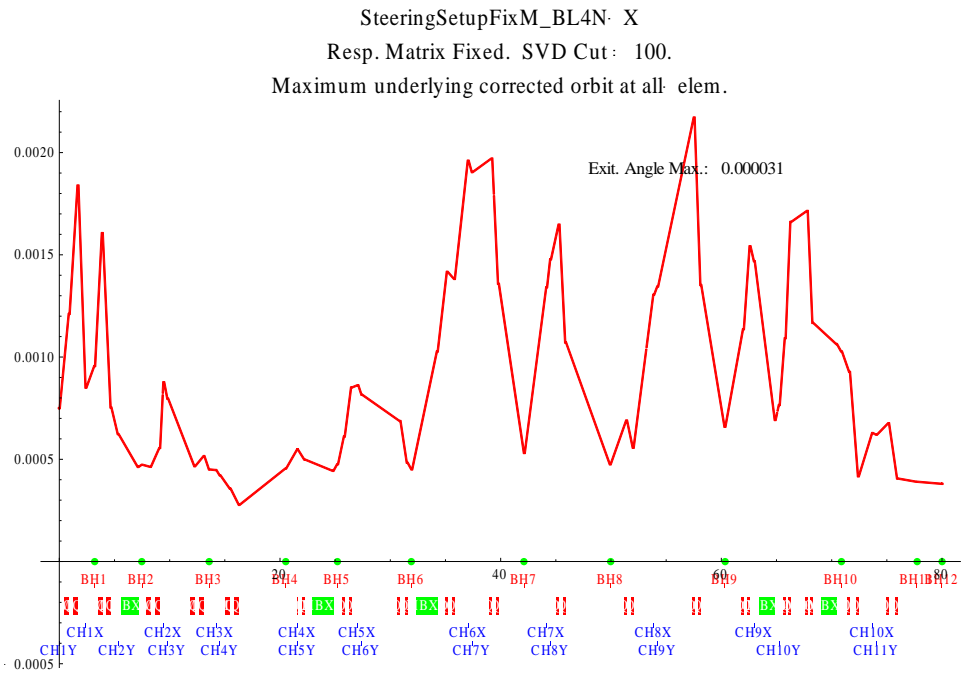


## Moving first Y corr. To beginning of line

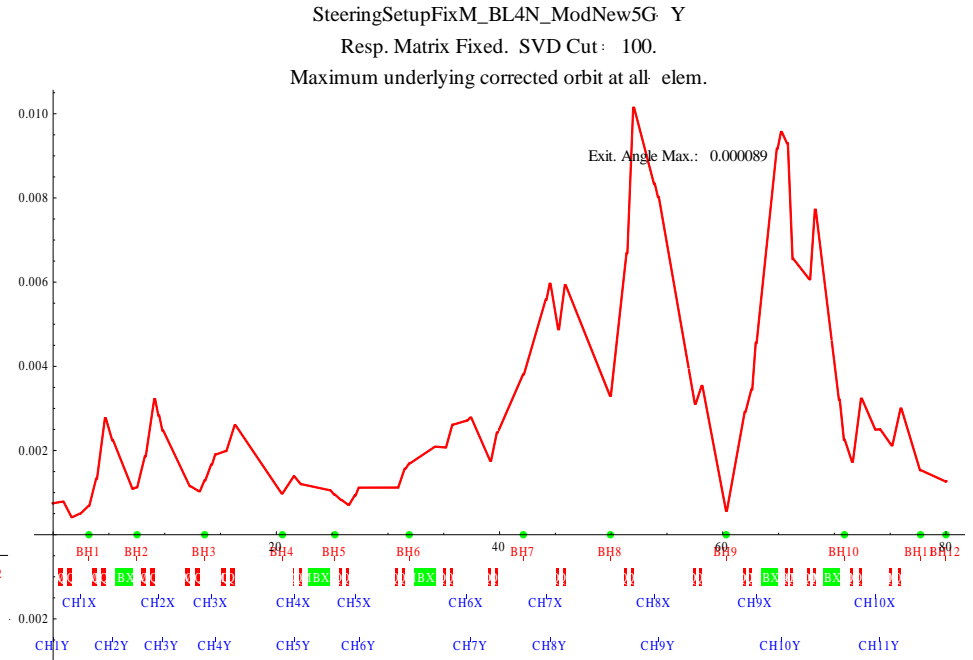
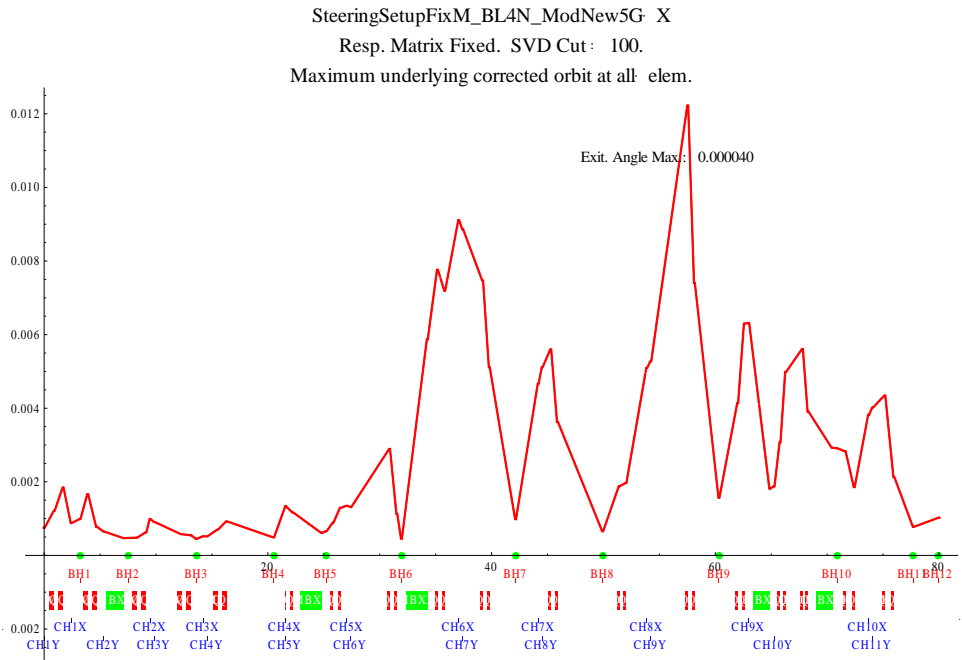


If there exists Y corrector upstream of this line then no worries.

### 3 $\sigma$ corrected orbit envelope in m – No ambient field



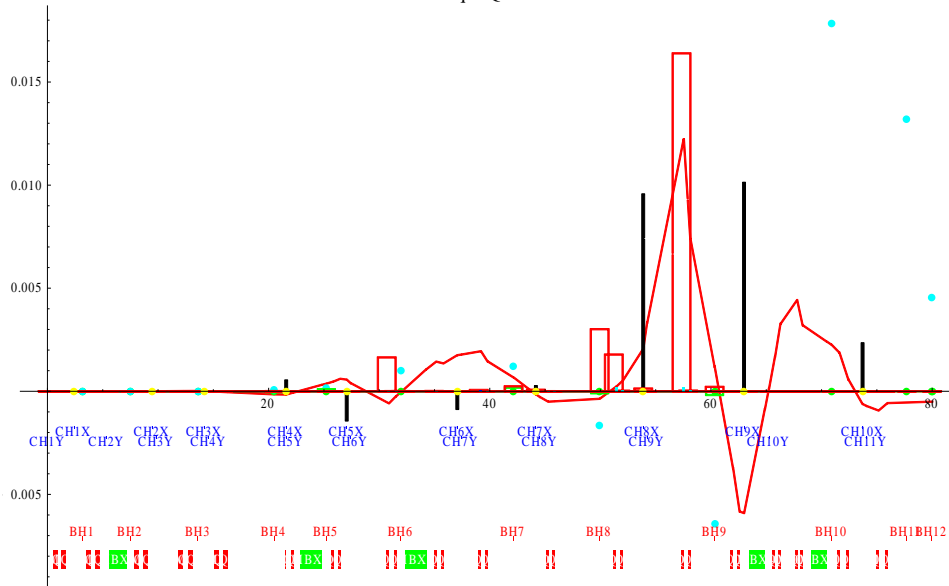
### Ambient field with 5G RMS variation



SteeringSetupFixM\_BL4N\_ModNew5G- X

Resp. Matrix Fixed. SVD Cut: 100.

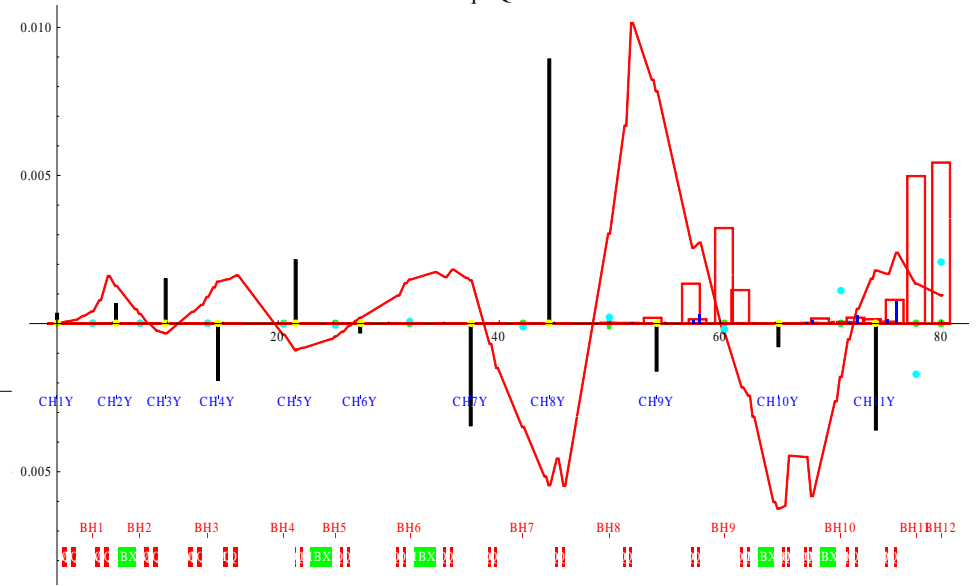
Combined plot with max. error at  
qMQ25



SteeringSetupFixM\_BL4N\_ModNew5G- Y

Resp. Matrix Fixed. SVD Cut: 100.

Combined plot with max. error at  
qMQ24

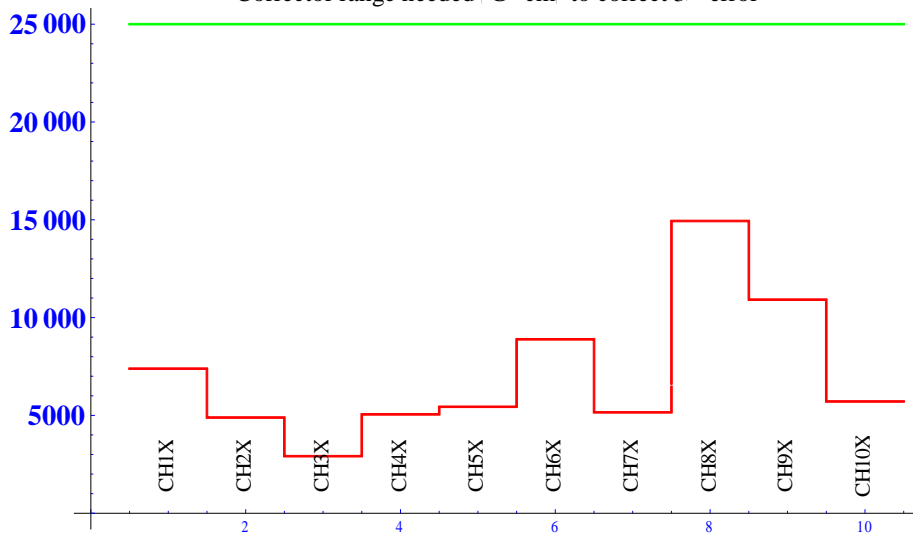


### G-cm needed to correct $3\sigma$ orbit envelope - 5G RMS ambient field

SteeringSetupFixM\_BL4N\_ModNew5G- X

Resp. Matrix Fixed. SVD Cut: 100.

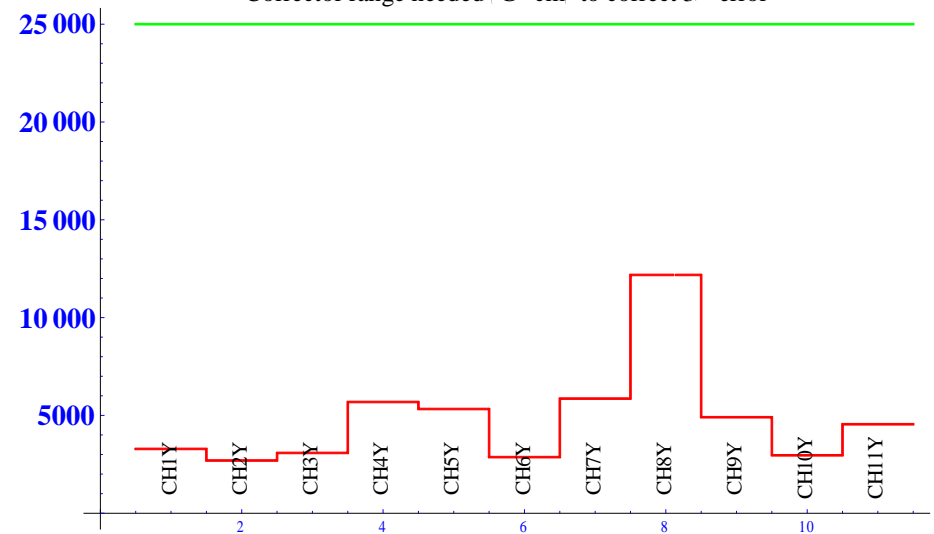
Corrector range needed | G-cm | to correct  $3\sigma$  error



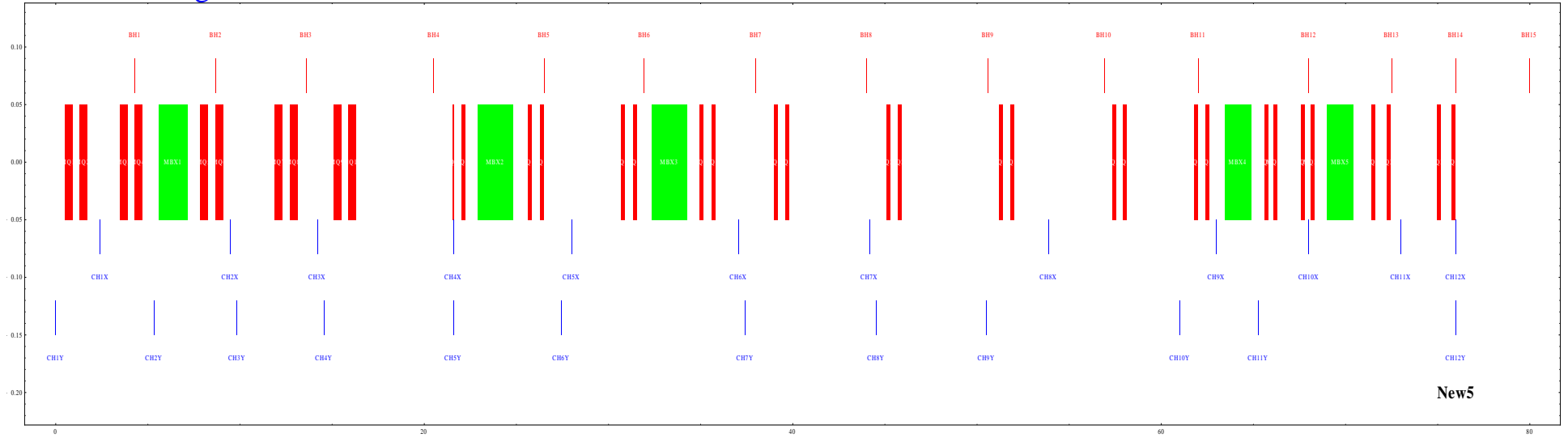
SteeringSetupFixM\_BL4N\_ModNew5G- Y

Resp. Matrix Fixed. SVD Cut: 100.

Corrector range needed | G-cm | to correct  $3\sigma$  error



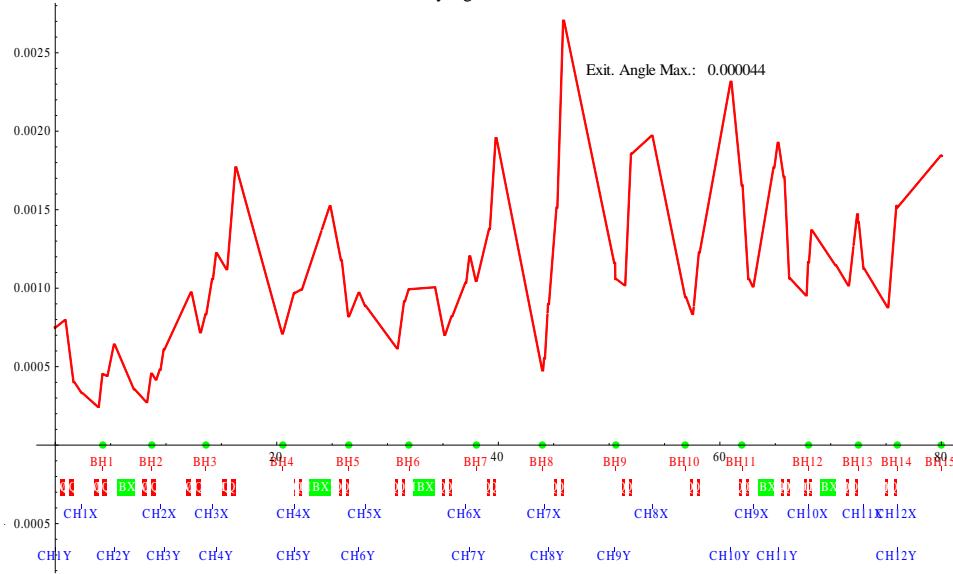
# Modified Configuration



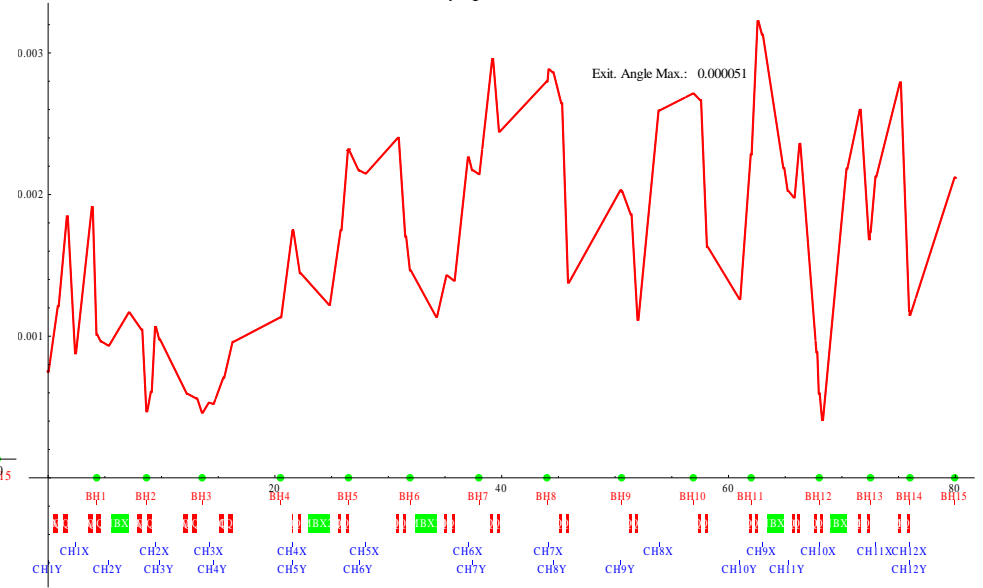
	Original	Fix
X-Corr	10	12
Y-Corr	11	12
BPM	12	15

# Performance under 5G RMS ambient field

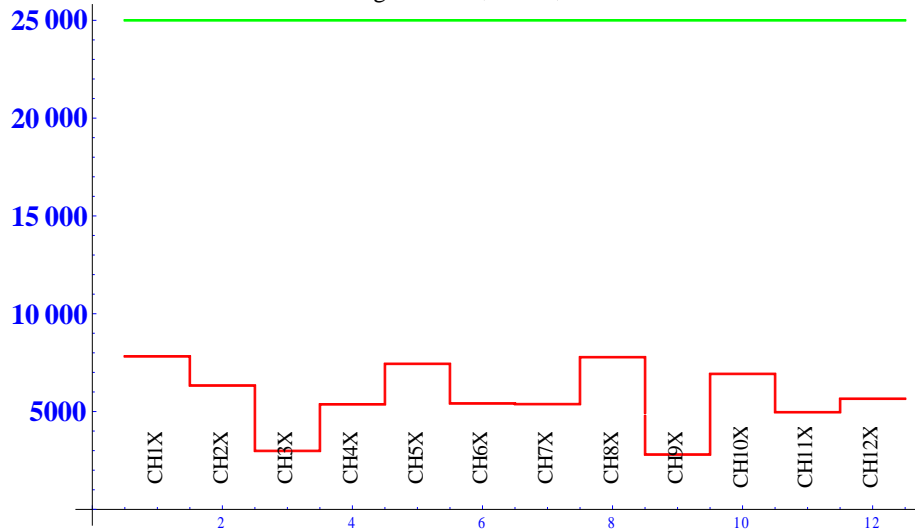
SteeringSetupFixM\_BL4N\_ModNew5- Y  
 Resp. Matrix Fixed. SVD Cut: 100.  
 Maximum underlying corrected orbit at all elem.



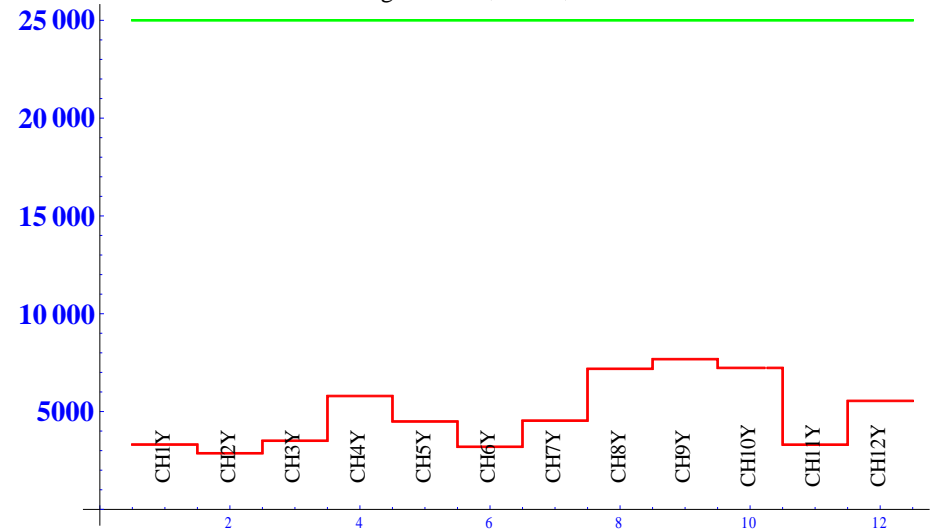
SteeringSetupFixM\_BL4N\_ModNew5- X  
 Resp. Matrix Fixed. SVD Cut: 100.  
 Maximum underlying corrected orbit at all elem.



SteeringSetupFixM\_BL4N\_ModNew5- X  
 Resp. Matrix Fixed. SVD Cut: 100.  
 Corrector range needed |G cm| to correct 3σ error

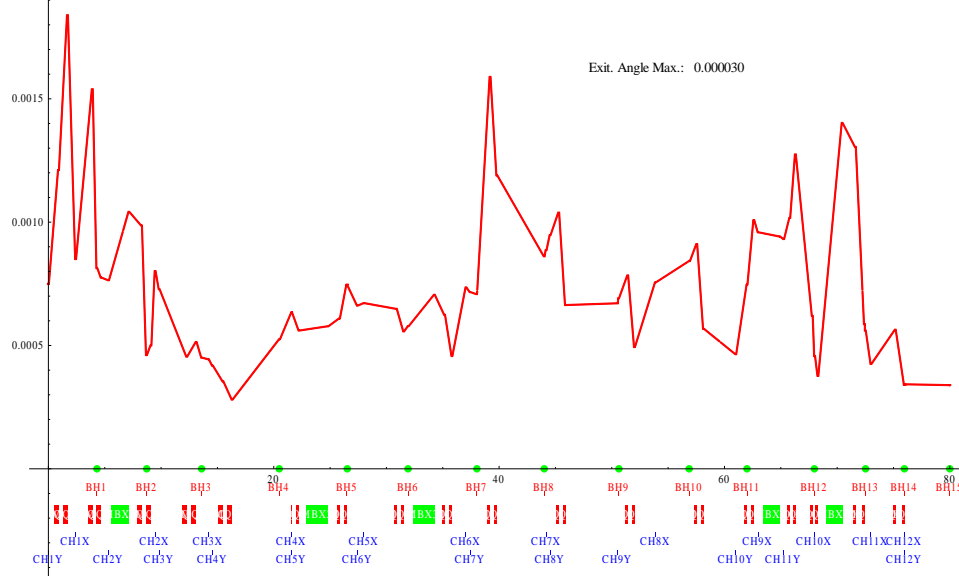


SteeringSetupFixM\_BL4N\_ModNew5- Y  
 Resp. Matrix Fixed. SVD Cut: 100.  
 Corrector range needed |G cm| to correct 3σ error

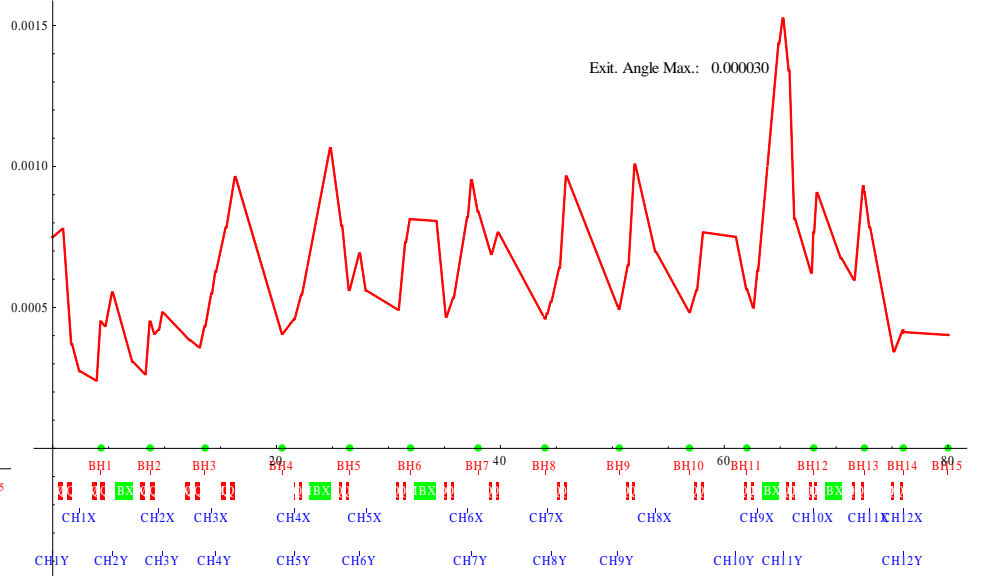


# Performance under no ambient field

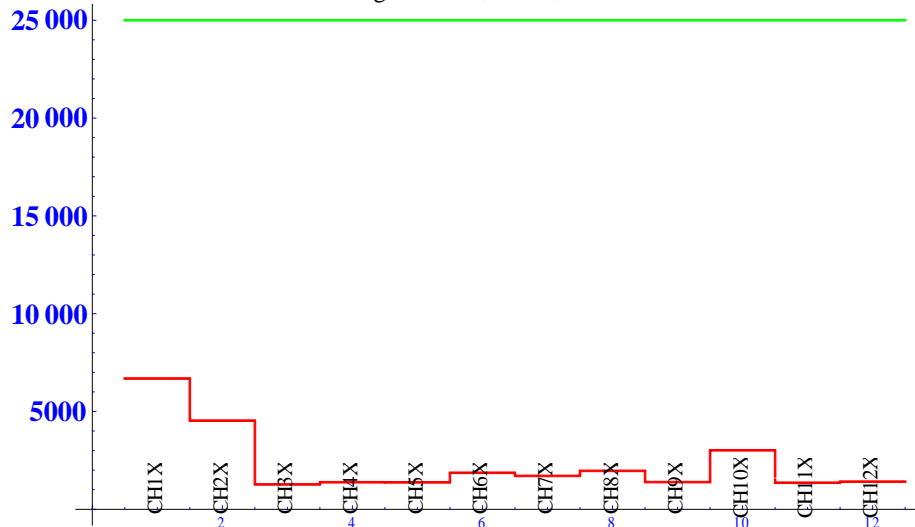
SteeringSetupFixM\_BL4N\_ModNew6\_FldOff: X  
 Resp. Matrix Fixed. SVD Cut: 100.  
 Maximum underlying corrected orbit at all elem.



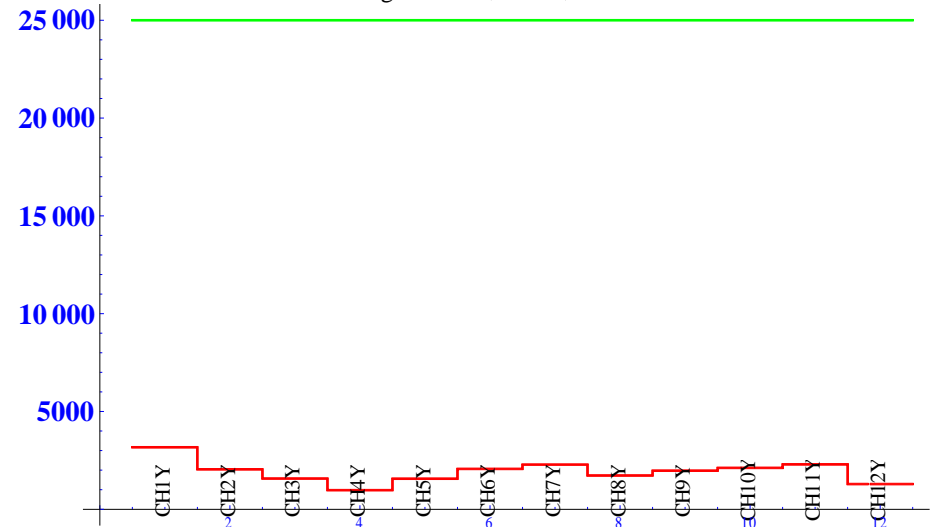
SteeringSetupFixM\_BL4N\_ModNew6\_FldOff: Y  
 Resp. Matrix Fixed. SVD Cut: 100.  
 Maximum underlying corrected orbit at all elem.



SteeringSetupFixM\_BL4N\_ModNew6\_FldOff: X  
 Resp. Matrix Fixed. SVD Cut: 100.  
 Corrector range needed | G·cm | to correct 3 $\sigma$  error



SteeringSetupFixM\_BL4N\_ModNew6\_FldOff: Y  
 Resp. Matrix Fixed. SVD Cut: 100.  
 Corrector range needed | G·cm | to correct 3 $\sigma$  error



	In (m)	Out (m)			In (m)	Out (m)
CH1Y	0.	0.		qMQ19	38.998	39.198
qMQ1	0.48265	0.89375		qMQ20	39.598	39.798
qMQ2	1.2838	1.6907		BH8	44.	44.
CH1X	2.4126	2.4126		CH7X	44.168	44.168
qMQ3	3.4976	3.8948		CH8Y	44.528	44.528
qMQ4	4.2848	4.682		qMQ21	45.088	45.288
BH1	4.3	4.3		qMQ22	45.688	45.888
CH2Y	5.3353	5.3353		CH9Y	50.5	50.5
bMBX1	5.5804	7.1433		BH9	50.6	50.6
qMQ5	7.8558	8.2622		qMQ23	51.213	51.413
qMQ6	8.6922	9.0986		qMQ24	51.813	52.013
BH2	8.7	8.7		CH8X	53.873	53.873
CH2X	9.4686	9.4686		BH10	56.9	56.9
CH3Y	9.8286	9.8286		qMQ25	57.338	57.538
qMQ7	11.869	12.275		qMQ26	57.938	58.138
qMQ8	12.705	13.111		CH10Y	61.	61.
BH3	13.601	13.601		qMQ27	61.801	62.001
CH3X	14.201	14.201		BH11	62.	62.
CH4Y	14.561	14.561		qMQ28	62.401	62.601
qMQ9	15.081	15.488		CH9X	62.991	62.991
qMQ10	15.898	16.304		bMBX4	63.441	64.879
BH4	20.514	20.514		CH11Y	65.252	65.252
qMQ11	21.537	21.587		qMQ29	65.592	65.792
CH4X	21.587	21.587		qMQ30	66.092	66.292
CH5Y	21.587	21.587		qMQ31	67.592	67.792
qMQ12	22.037	22.237		BH12	68.	68.
bMBX2	22.907	24.811		CH10X	68.	68.
qMQ13	25.631	25.831		qMQ32	68.092	68.292
qMQ14	26.281	26.481		bMBX5	69.006	70.444
BH5	26.5	26.5		qMQ33	71.417	71.617
CH6Y	27.421	27.421		qMQ34	72.223	72.423
CH5X	28	28		BH13	72.5	72.5
qMQ15	30.681	30.881		CH11X	73.	73.
qMQ16	31.331	31.531		qMQ35	74.96	75.16
BH6	31.941	31.941		qMQ36	75.766	75.966
bMBX3	32.351	34.255		BH14	76	76
qMQ17	34.96	35.16		CH12X	76.	76.
qMQ18	35.61	35.81		CH12Y	76.	76.
CH6X	37.061	37.061		BH15	79.969	79.969
CH7Y	37.421	37.421				
BH7	38.	38.				