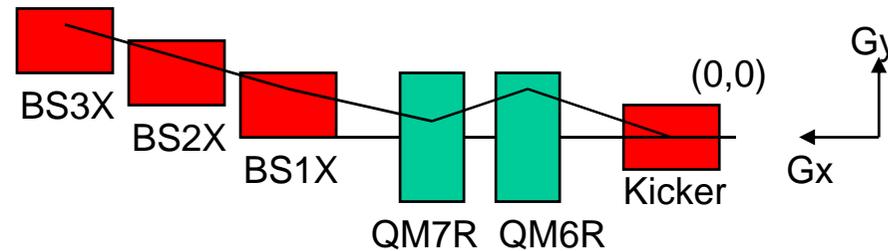


Alignment of Septum Region for ATF2



		Present		Ideal(ATF2)		Difference		
		Gx[m]	Gy[m]	Gx[m]	Gy[m]	DGx[m]	DGy[m]	D[m]
BS1X	in	3.399985	2.27e-2	3.4	0.022685	-1.5e-5	2.055e-5	2.5442e-5
	out	3.999896	3.18e-2	3.999918	0.031364	-2.2e-5	0.0004354	4.3595e-4
BS2X	in	4.199811	3.76e-2	4.199836	0.037059	-2.5e-5	0.0005746	5.7516e-4
	out	4.997867	9.07e-2	4.997929	0.089533	-6.2e-5	0.0011271	1.1288e-3
BS3X	in	5.196797	0.111327	5.196873	0.110062	-7.6e-5	0.001265	1.2673e-3
	out	6.170225	0.330057	6.170452	0.328118	-0.000227	0.001939	1.9522e-3

Incident angle to BS1X: 1.140mrad(ext11), 0.4472mrad(ideal)

In Table, 'Present' means ext11 which is thought to be used in present alignment, while 'Ideal' is the

results of calculation using present setting of DR Qs and correct Kicker path length.

Is it possible to align as 'Ideal'? Is it possible to move the septum magnet by 2mm at maximum?

Need to change the ATF2 deck according to the answer.

Correction by Septum Fine Tuning

In the Case of Present Alignment

Fit $DX=DPX=0$ at Exit of BS3X

Variables: K0 of Septum Magnets(Originally 0)

BEND BS1X =(L =.3 ANGLE =-.0140178327098 K0 =9.839498985778E-5)

BS2X =(L =.4 ANGLE =-.0371716830661 K0 =-1.78262582903E-4)

BS3X =(L =.5 ANGLE =-.1175110129077 K0 =8.107427306212E-5)

Need current change $K0/ANGLE=7.03e-3$ (BS1X)

4.78e-3(BS2X)

6.88e-4(BS3X)

Twiss parameter change at Exit of BS3X

AX=1.65

AX=1.65

BX=8.29[m] → BX=8.30[m]

AY=-1.46

AY=-1.46

BY=4.47[m]

BY=4.47[m]

Calculation uses the initial values in the EXT deck, which need to be confirmed/measured
Anyway the changes in the optical functions are small enough to be absorbed downstream

This could be a realistic solution since re-alignment of septum magnets needs much work. ?