

Layout for FF optics

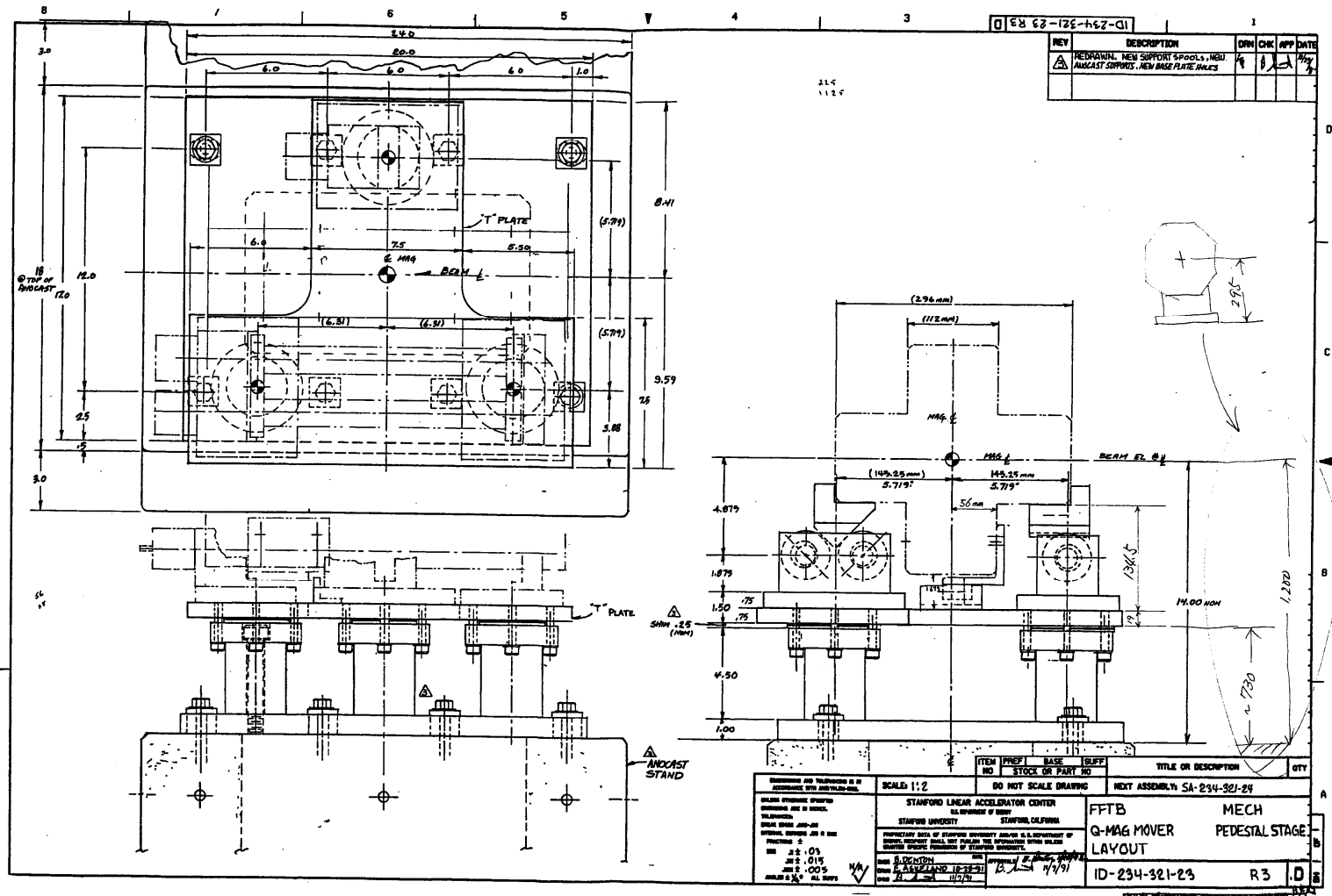
2nd ATF2 Project Meeting

KEK, Tsukuba, Japan

5/ 30/ 2006

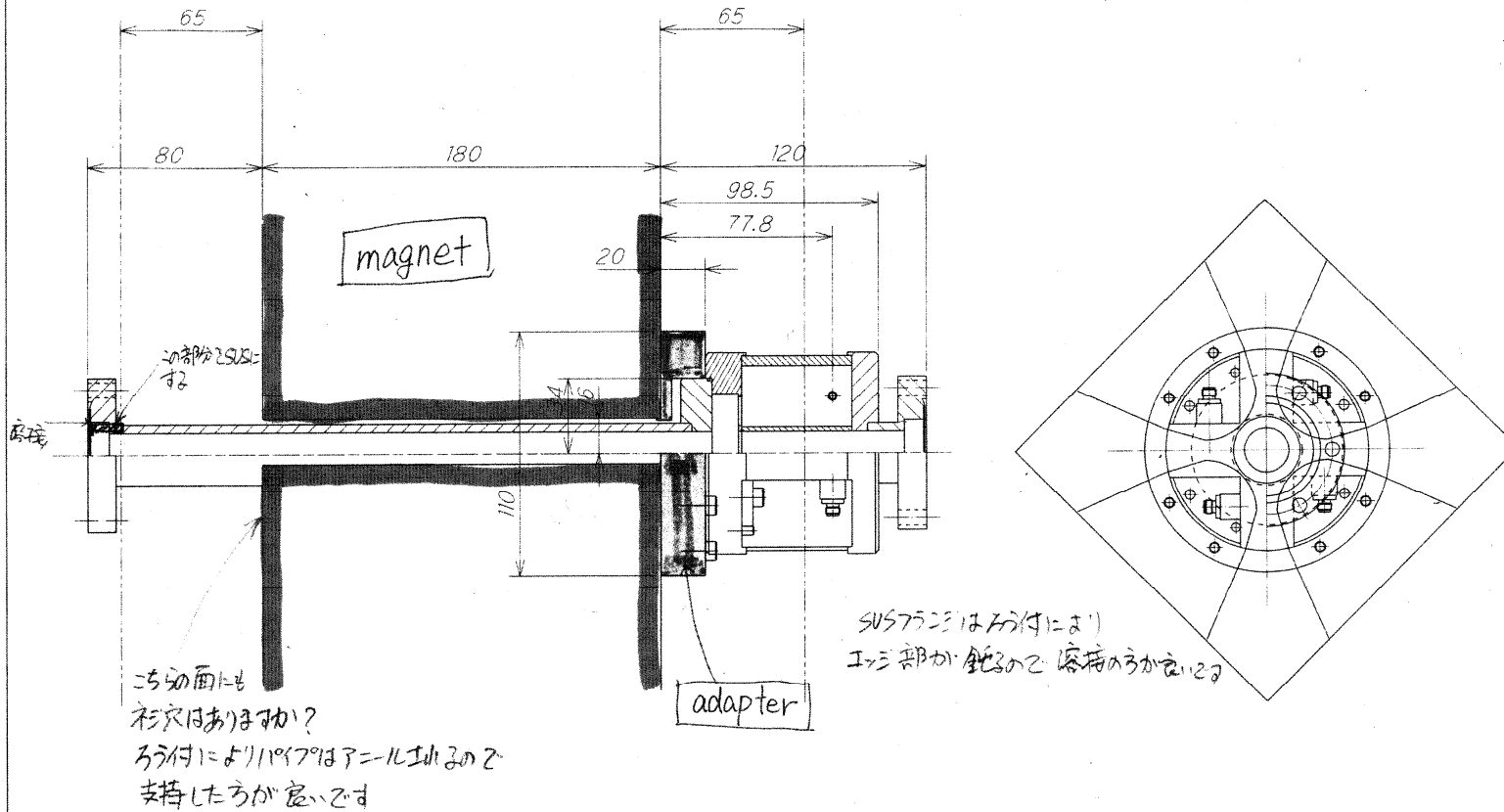
T.Okugi (KEK)

Drawing for FFTB movers



Length of FFTB mover is 54cm, which was measured with the sample in KEK. In order to use the FFTB mover, the magnet separation should be 60cm.

Drawing for Cavity BPM



Length of cavity BPM is the magnet length plus 20cm.

Furthermore, when we use the 10cm bellows between the cavity BPM, the magnet separation should be the magnet length plus 30cm.

Magnet Separations of Old FF Optics

QD10	QD6	QD2B
0.900	2.000	0.850
QD10A	QF5	B1
1.300	0.450	0.850
QF9	SF5	QF3
0.450	0.450	1.700
SF6	QF5A	QD2A
0.450	1.300	4.875
QF9A	QD4	SF1
2.000	0.450	0.450
QD8	SD4	QF1
1.700	0.450	0.550
QF7	QD4A	SD0
0.850	1.950	0.450
B5	B2	QD0
0.850	0.850	

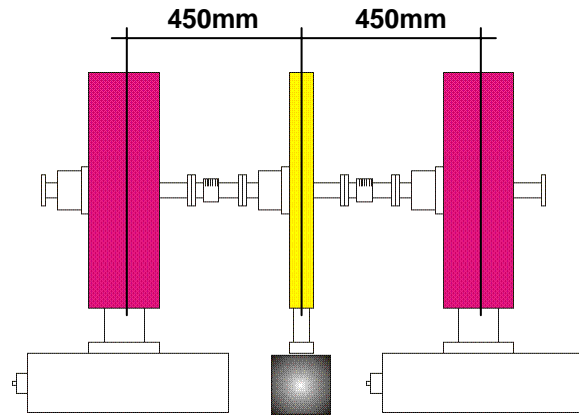
Red characters must be changed
the magnet separation.

From Mover Requirement, Δs (Q&Q) \sim 0.64m, Δs (Q&B) \sim 0.79m

From QBPM Requirement, Δs (Q&Q) $>$ 0.48m, Δs (B&Q) $>$ 0.81m, Δs (B&Q) $>$ 0.75m

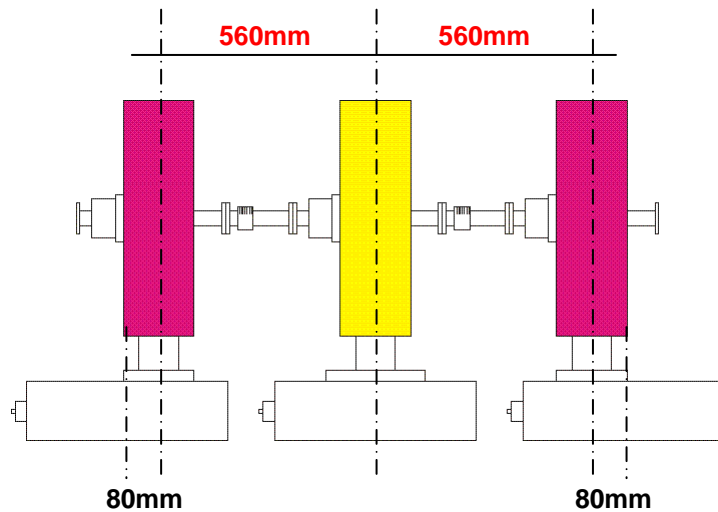
Δs (SF1&QF1) $>$ 0.59m, Δs (QF1&SD0) $>$ 0.59m, Δs (SD0&QD0) $>$ 0.64m

SF6, SF5 and SD4



Original Design

We don't have enough space to put FFTB movers for the sextupoles.

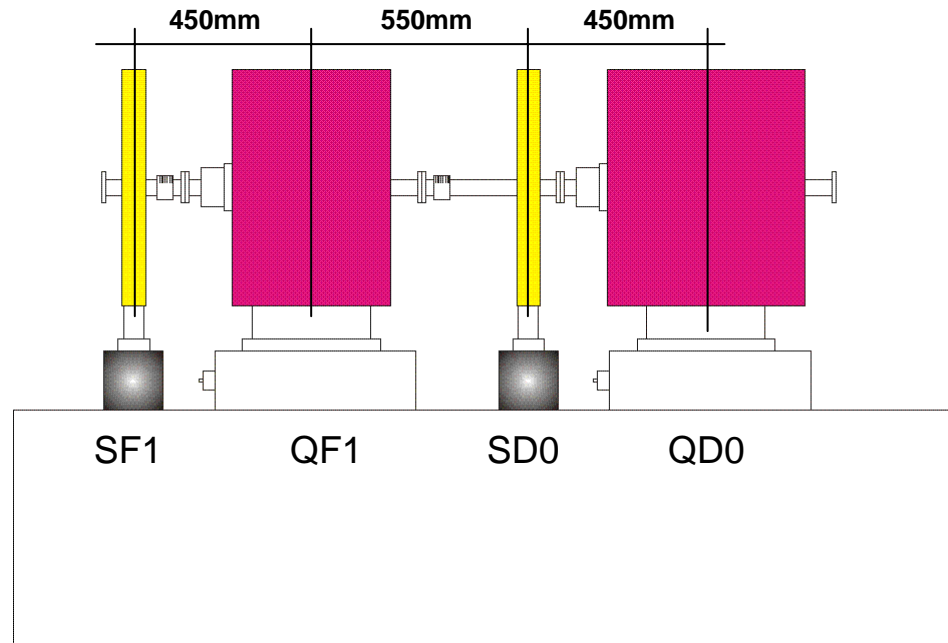


Modifications

Distance between movers are set to be 10cm (Requirement from Doug).

Distance between centers of movers and magnets are shorter than 8cm.

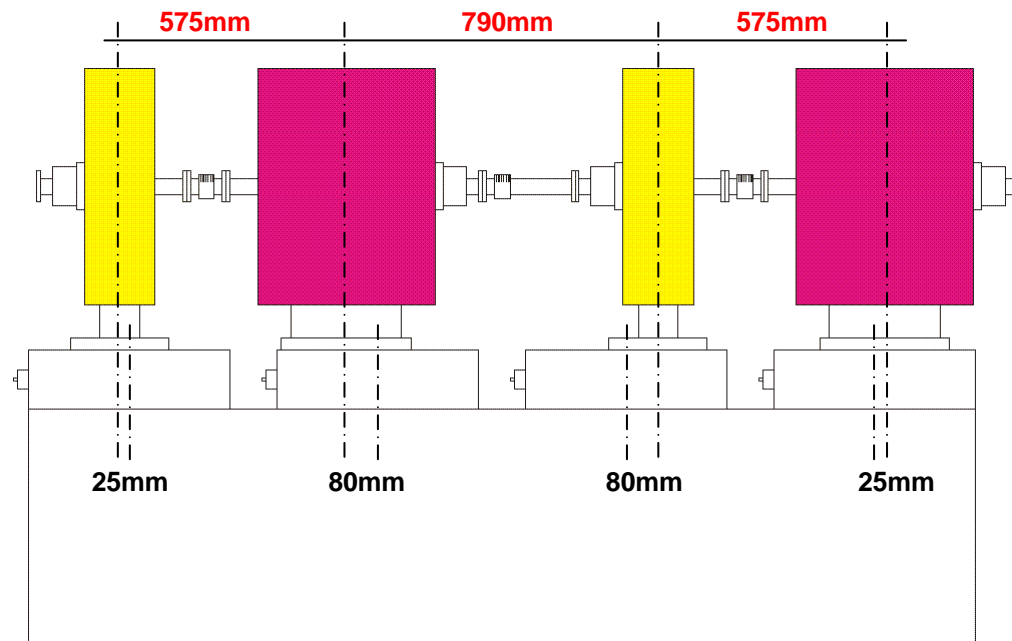
Final Doublet



Original Design

We don't have enough space to put FFTB movers for the sextupoles.

We don't have enough space to put cavity BPMs for sextupoles.

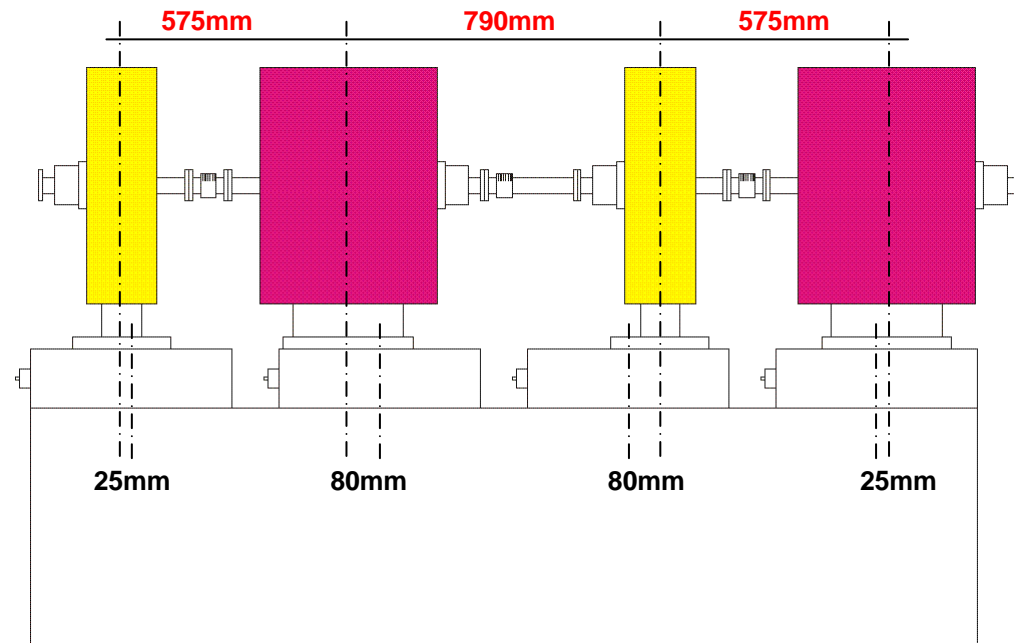


Modifications

Distance between movers are fixed to be **9cm** in order to put all the movers on the table.

Distance between centers of movers and magnets are shorter than 8cm.

Space of cavity BPMs are need to be 12cm for one side, and 8cm for another side, 10cm of bellows are put between the cavity BPMs.



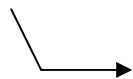
Comments:

When we use the S-band cavity BPMs in final doublet, the distance between magnets will be wider than the normal case.

However, we have enough space to put the S-band cavity BPMs in this layout.

In this layout, we assumed the thickness of quadrupoles to be 45cm (QC3).

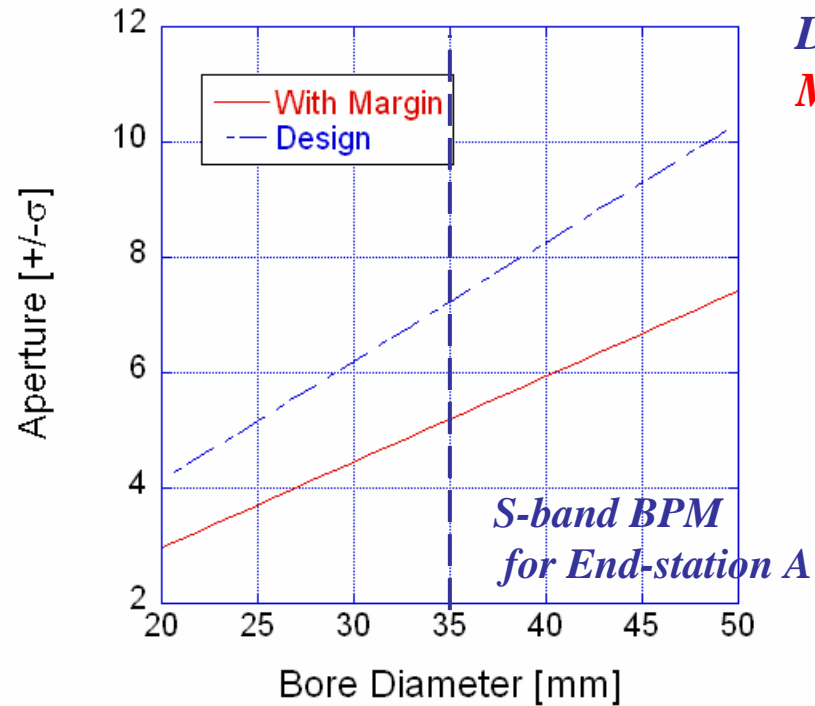
Will we use the S-band cavity BPMs (Same type of E-station A exp.) ?



Affect to the bore diameter of QC3

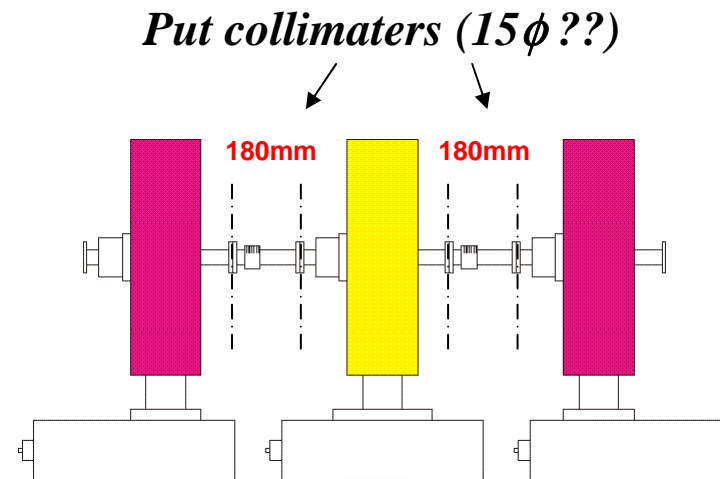
Affect to the collimators for Shintake monitor detector

Aperture of Final Doublet



Design; $\epsilon = 2nm$

*Margin; $\epsilon = 3nm, \beta^*1.3$*

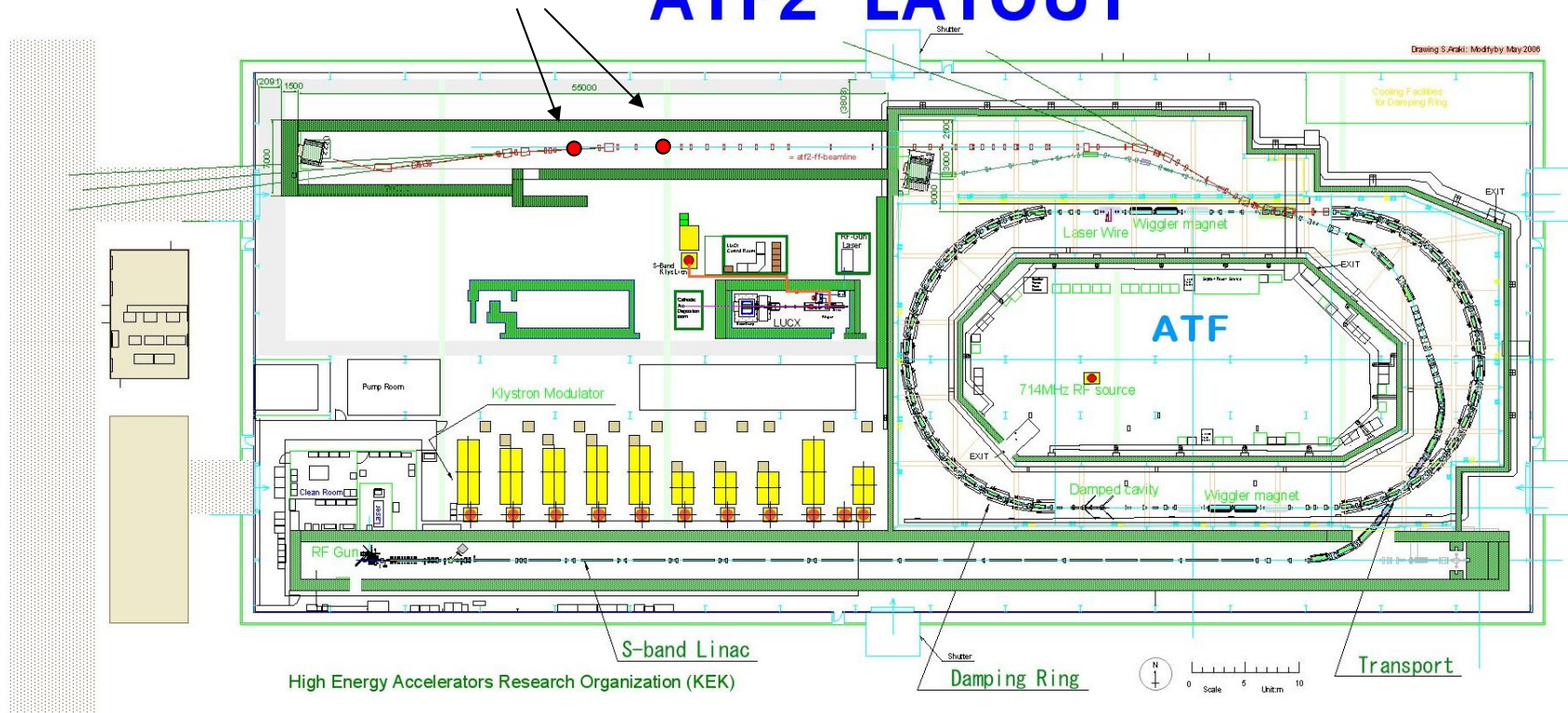


The collimator should be put around SF6 and SF5 for the requirement from the Shintake monitor detector background.

The apertures should be smaller than the half of the QF1 aperture.

Collimator Positions

ATF2 LAYOUT



Rough Configuration of post - IP

*The Detector of Shintake Monitor
will be put the behind of the beam dump*

