

5th ATF2 Project Meeting at KEK 19 - 21 December 2007

Installation and alignment of ATF2 magnets

R. Sugahara (KEK)



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[Saubi] M. Takano, [Esu-Kei Service] S. Kato, T. Matsui,
[Asist Engineering] K. Nakamura, H. Edagawa

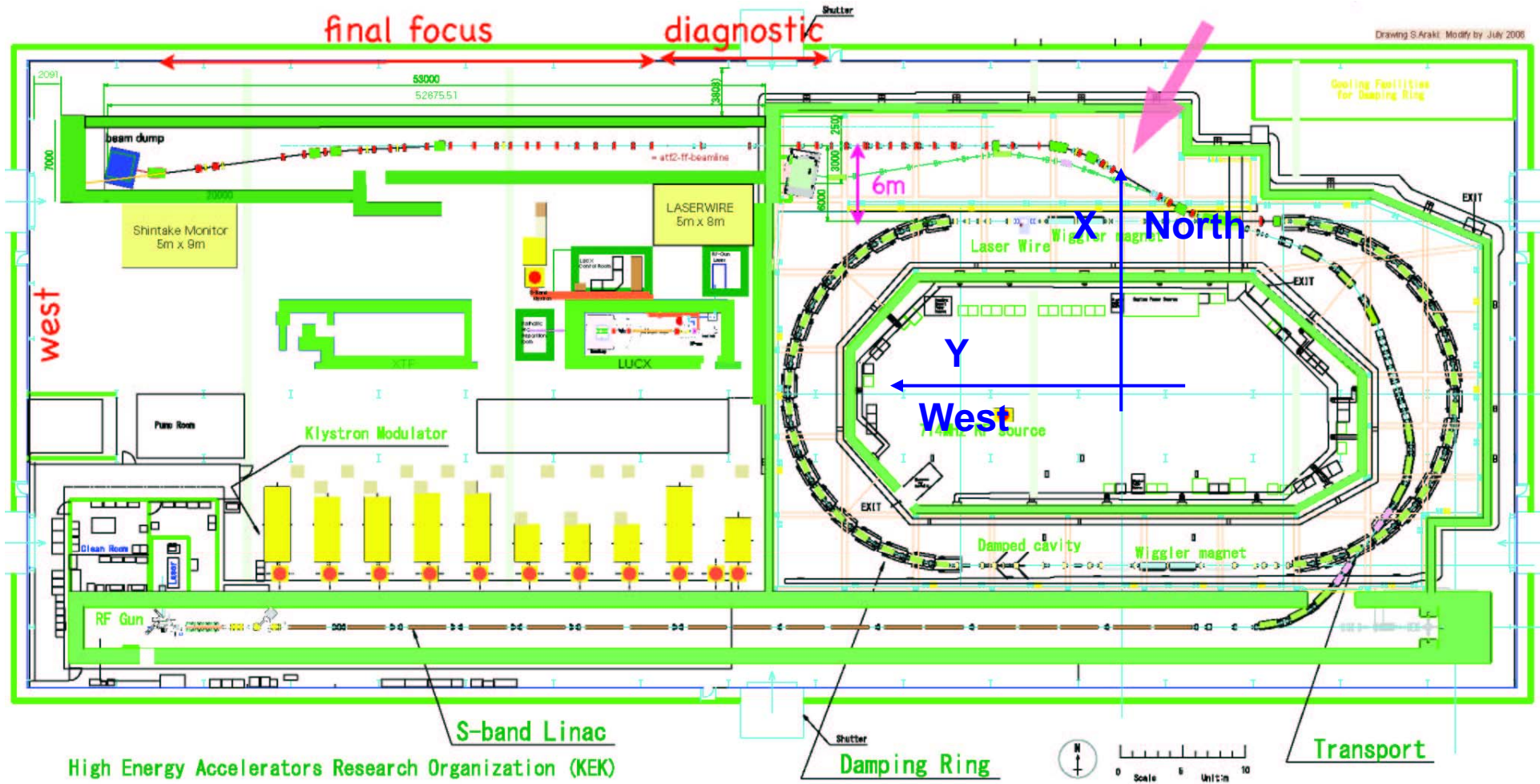
Survey of ATF Ring and present Extraction Line

16-19 Oct., 2007

and

Drawing of ATF2 Beam Line

29 Oct. – 1 Nov., 2007

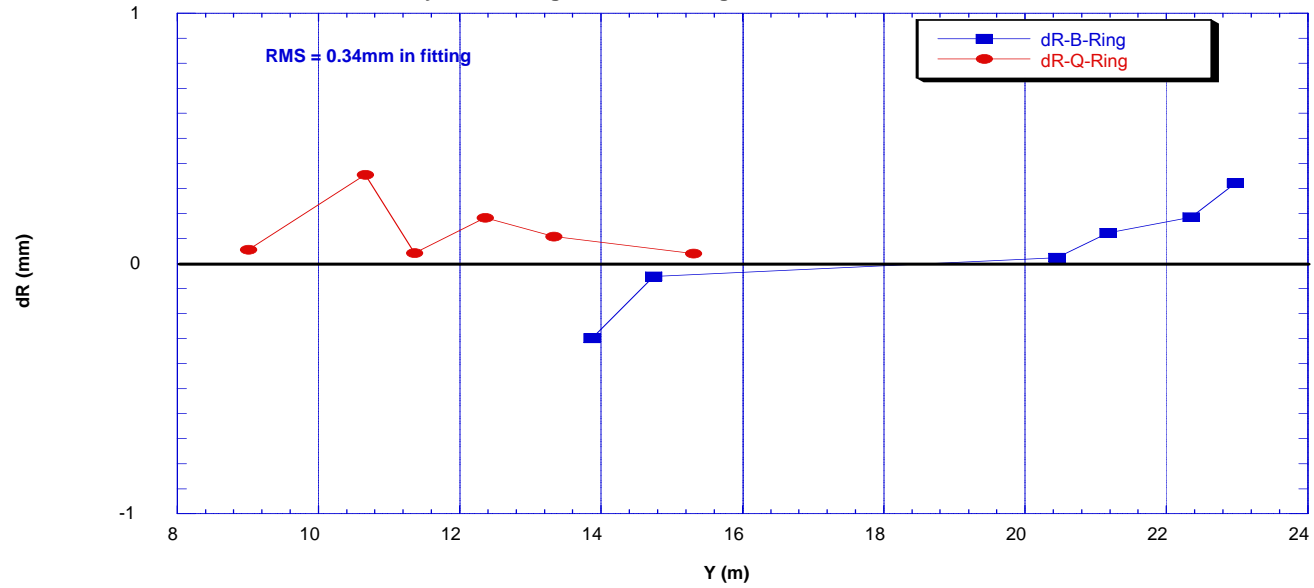


High Energy Accelerators Research Organization (KEK)

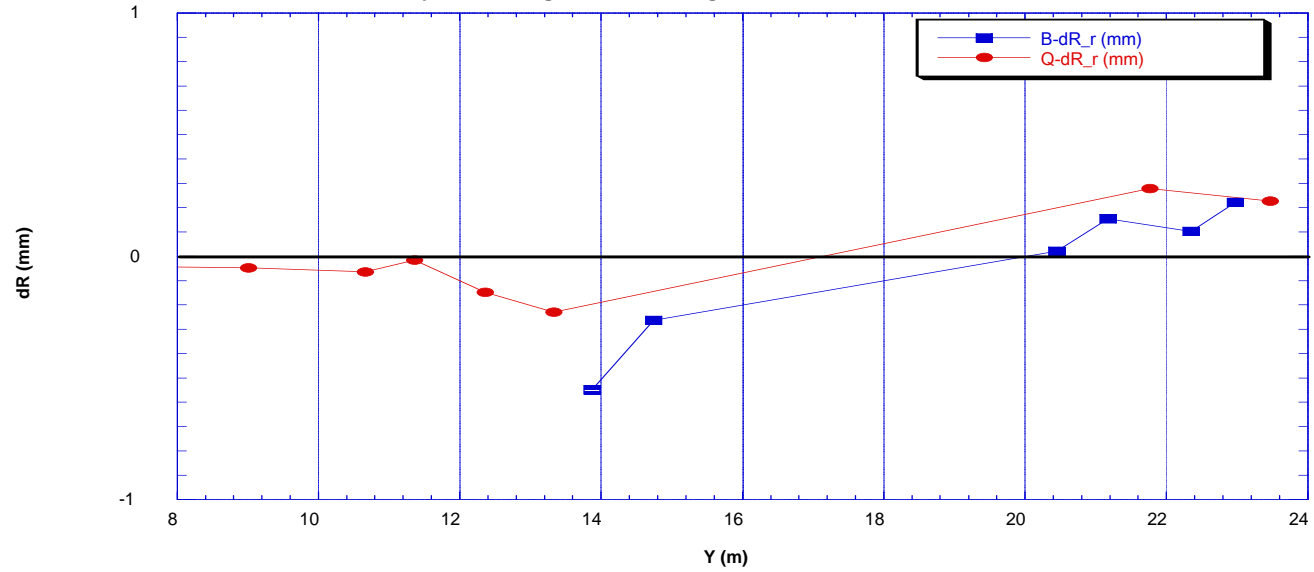
To be installed this time (outside of ATF Ring):

B-mag (DEA-D38L575) with CB Type-5	3
Q-mag (QEA-D32L18) with CB Type-3 and Type-4	20
Sx-mag with CB Type-3	3

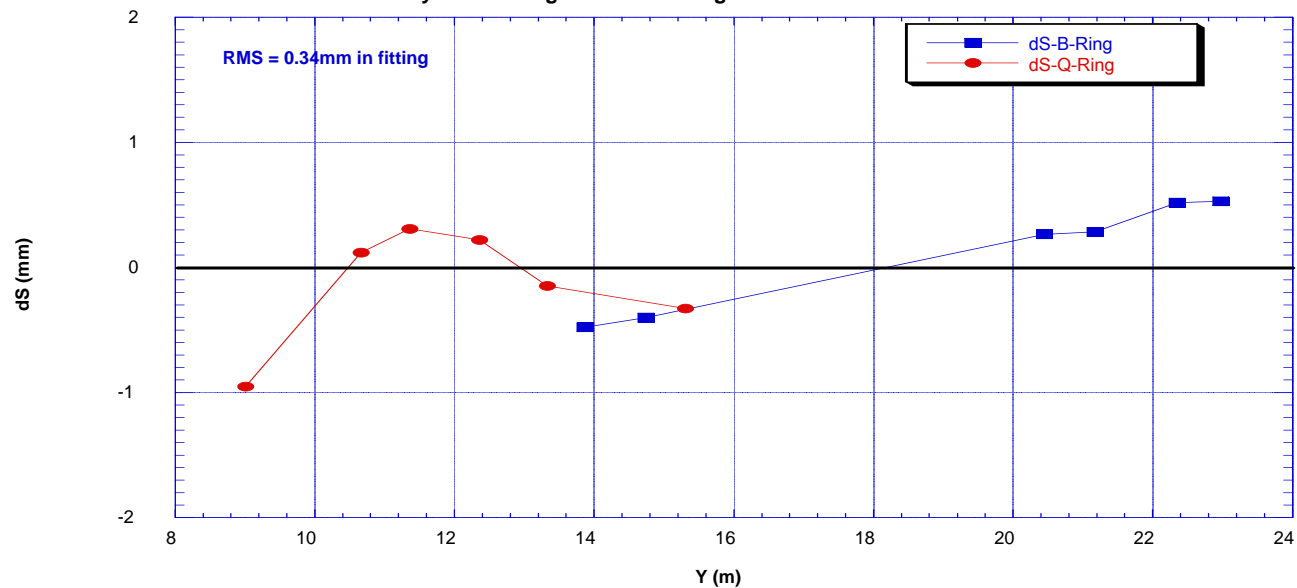
Survey in Oct. 16, 2007
Radial Deviation from Lattice
 Lattice only for the Ring is used in fitting



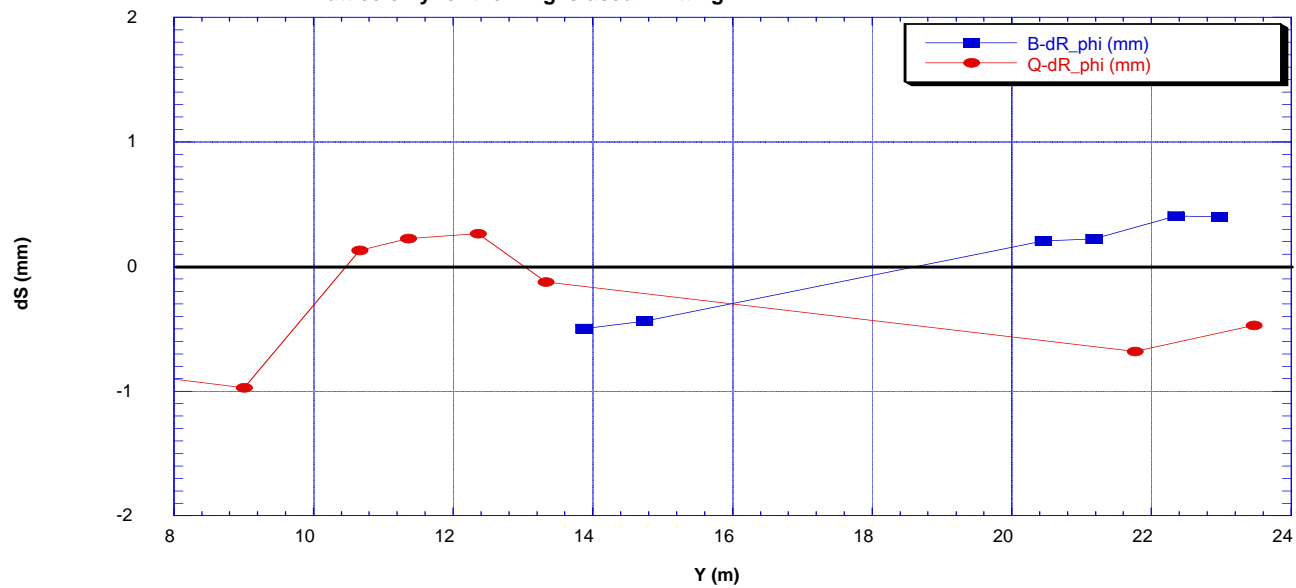
Survey in Feb. 2007
Radial Deviation from Lattice
 Lattice only for the Ring is used in fitting



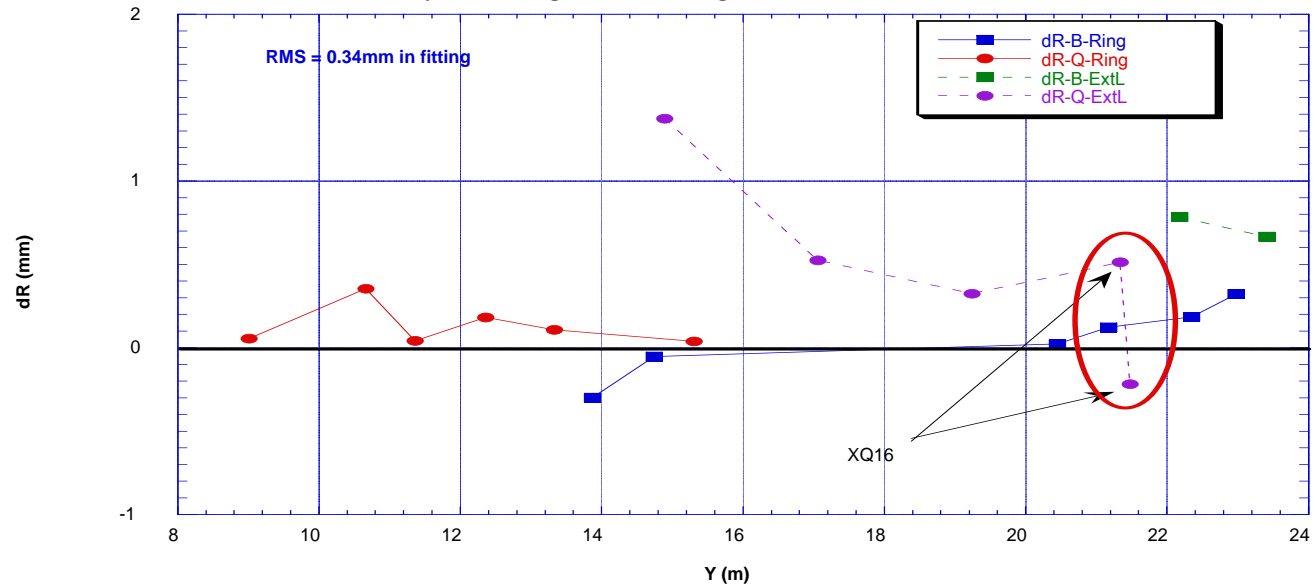
Survey in Oct. 16, 2007
 Longitudinal Deviation from Lattice
 Lattice only for the Ring is used in fitting



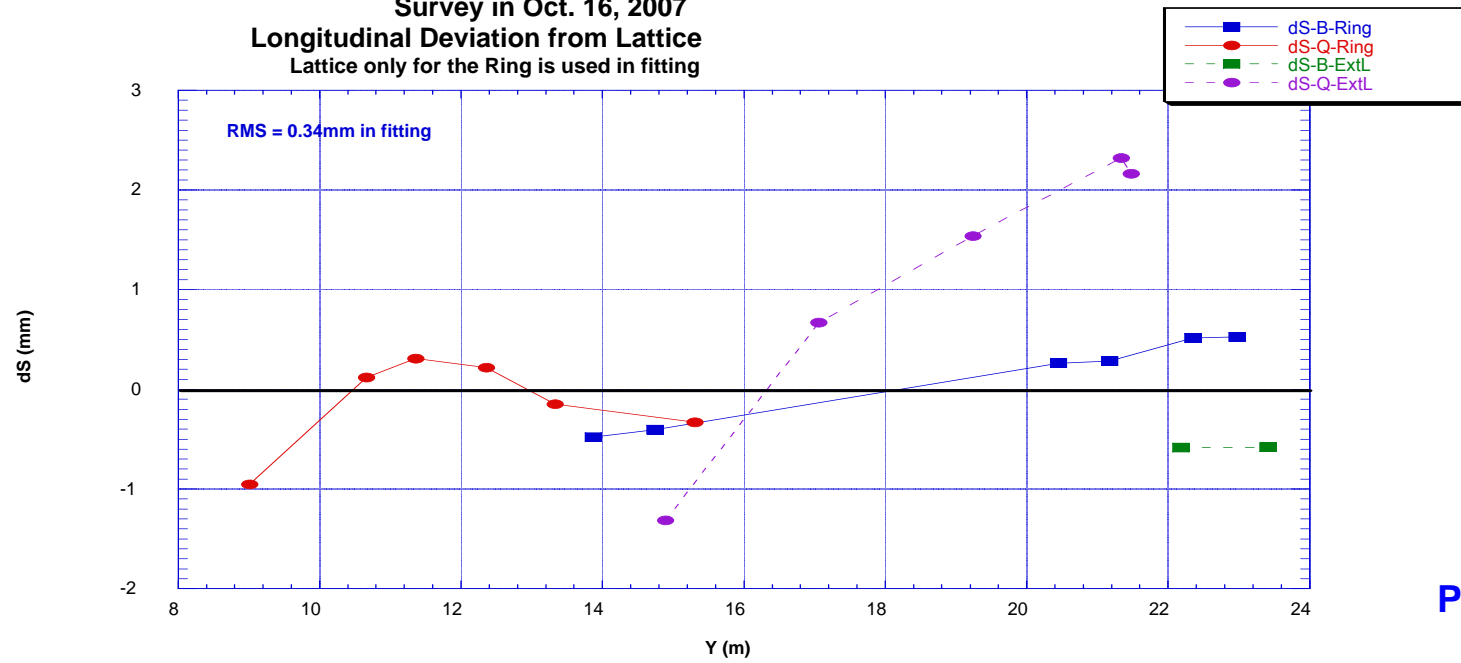
Survey in Feb. 2007
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Survey in Oct. 16, 2007
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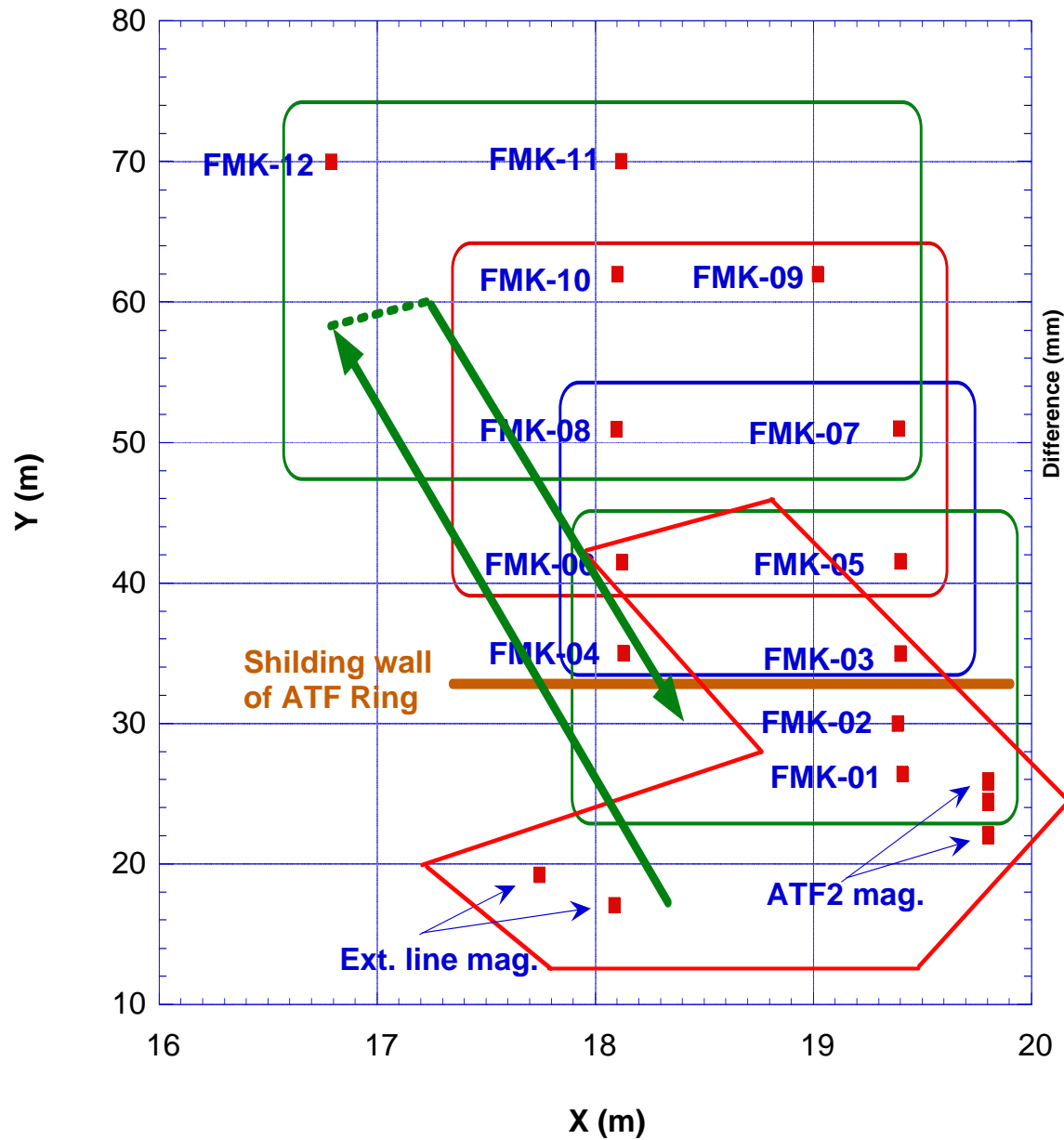
Survey in Oct. 16, 2007
Longitudinal Deviation from Lattice
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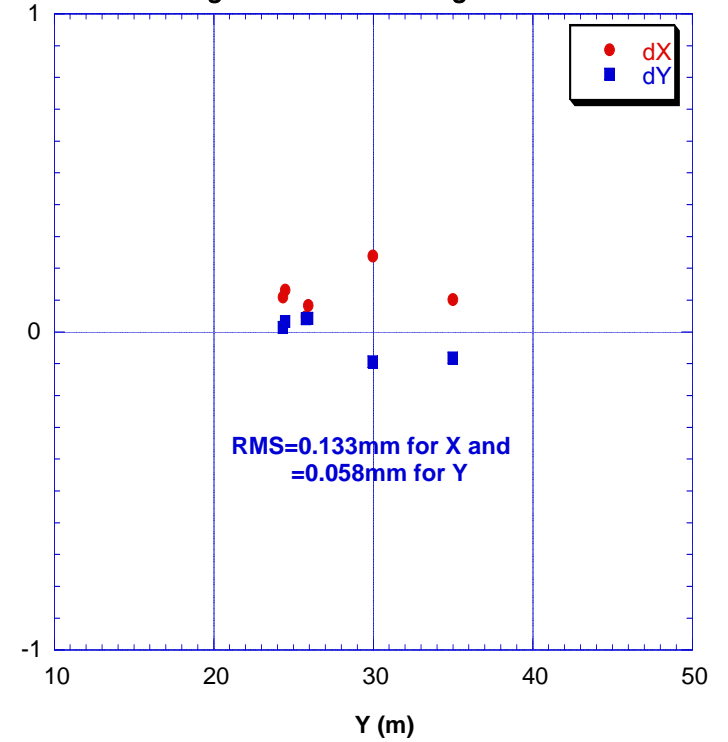
Monyuments for horizontal positioning



Layout of Floor Markers



RMS for differences between Ending Points and Starting Points



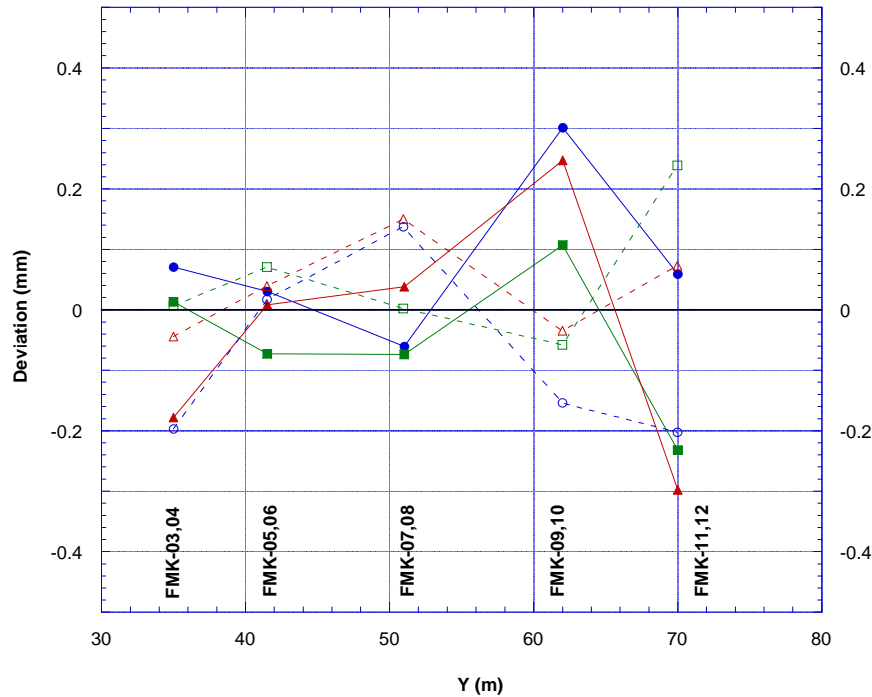
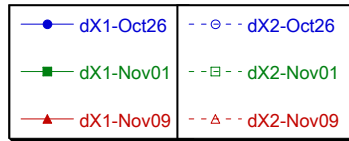
Horizontal Variation of Monument Position

Oct.19 - Oct.26 - Nov.01 - Nov.09

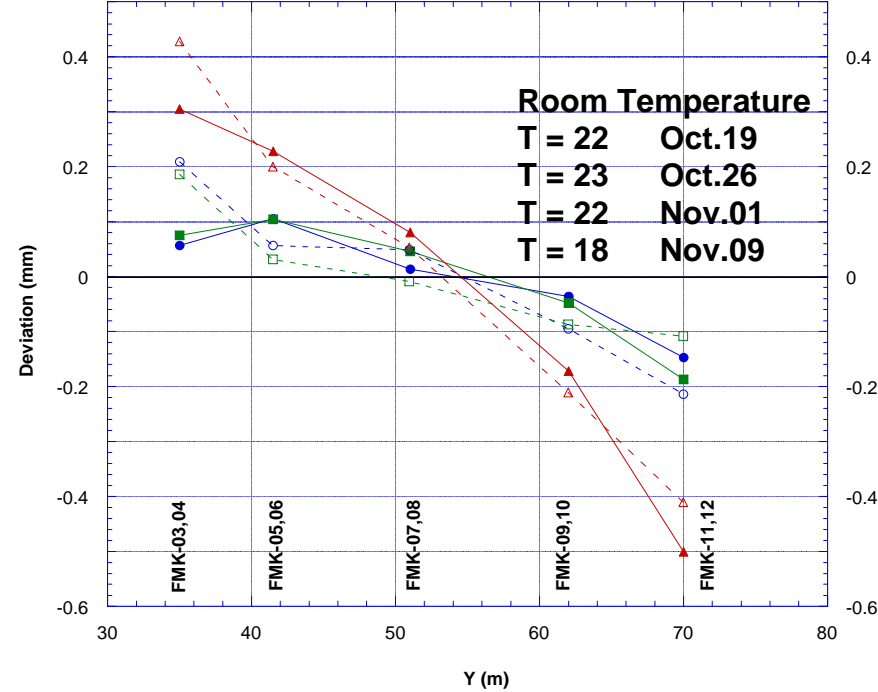
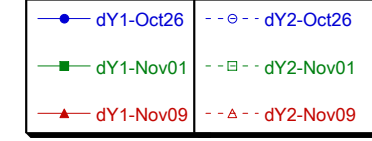
in X direction

in Y direction

Variation of Floor Marker Position
in X Direction
Oct19 - Oct26 - Nov01 - Nov09
* Reference is a measurement on Oct.19



Variation of Floor Marker Position
in Y Direction
Oct19 - Oct26 - Nov01 - Nov09
* Reference is a measurement on Oct.19



Room Temperature
 T = 22 Oct.19
 T = 23 Oct.26
 T = 22 Nov.01
 T = 18 Nov.09

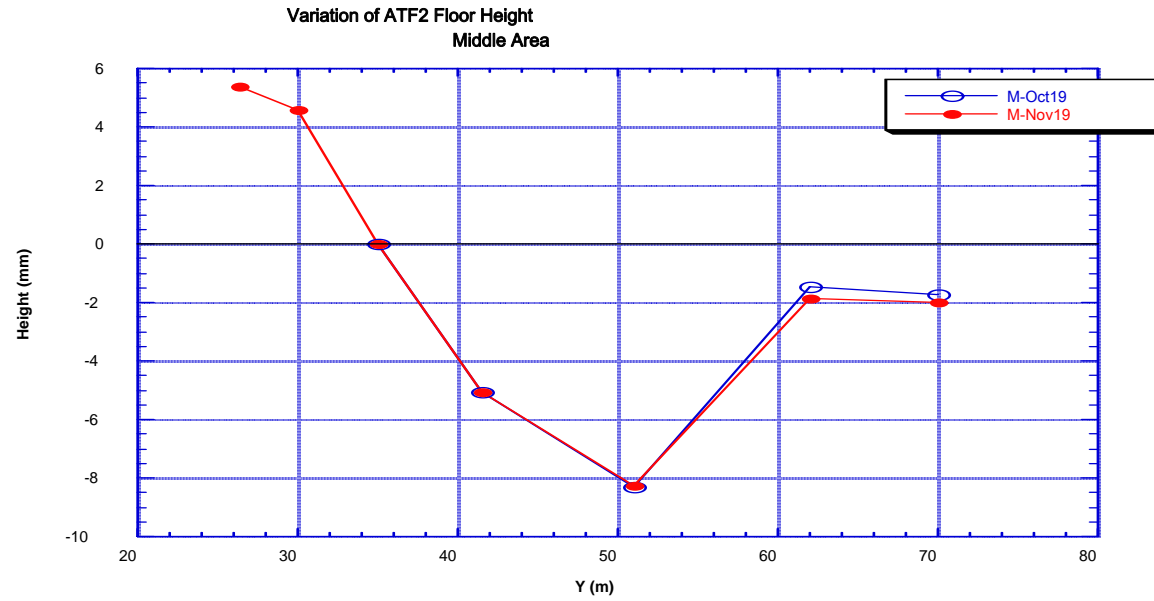
X1 (Y1) : north monu. (solid line), and X2 (Y2) : south monu. (dotted line)
 Ref : 19 Oct., blue : 26 Oct., green : 01 Nov., red : 09 Nov. P9

Measurement of floor level

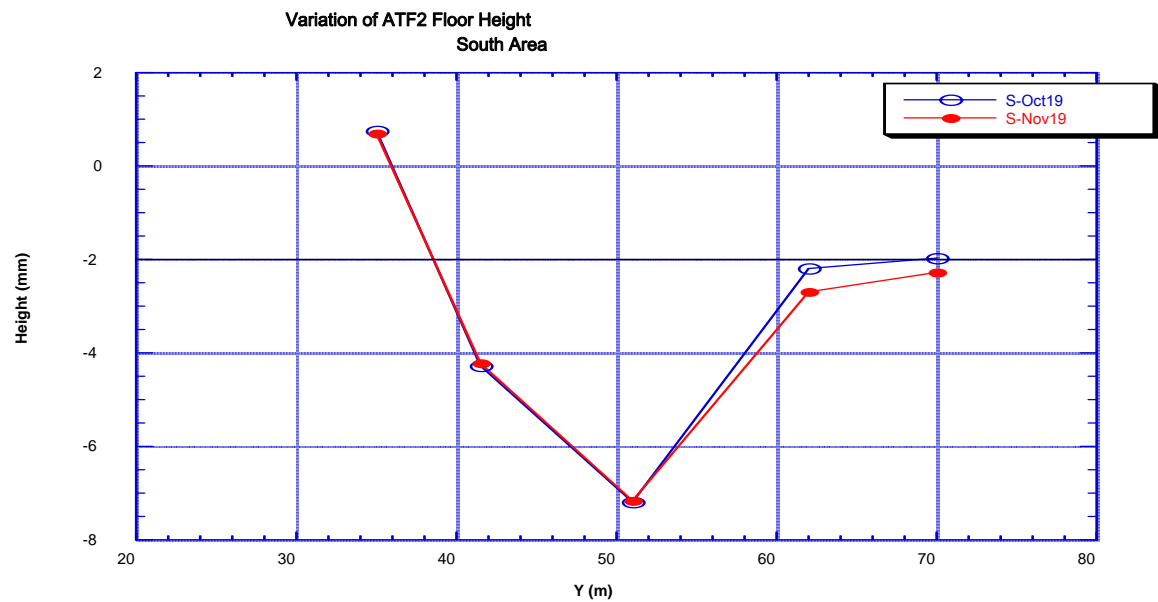


Variation of Floor Level

(a) Middle area



(b) South area



Installation of magnets

Installation of concrete base blocks
has just started

Schedule

10 - 21 Dec. 2007

Installation of concrete base blocks

07 - 18 Jan. 2008

Installation of movers and magnets

To be installed

Concrete base blocks:

Type 3 for Q+Sx+Q 3

Type 4 for Q-mag 14

Type 5 for B-mag 3

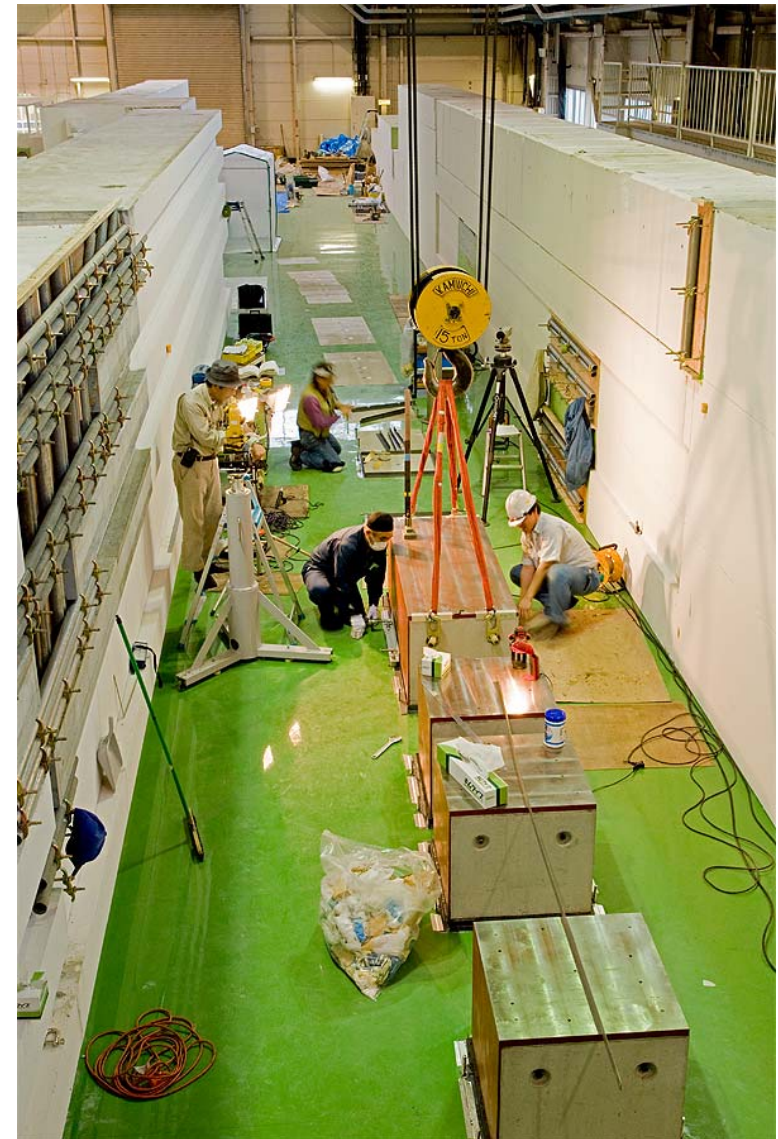
Magnets:

B-mag (DEA-D38L575) 3

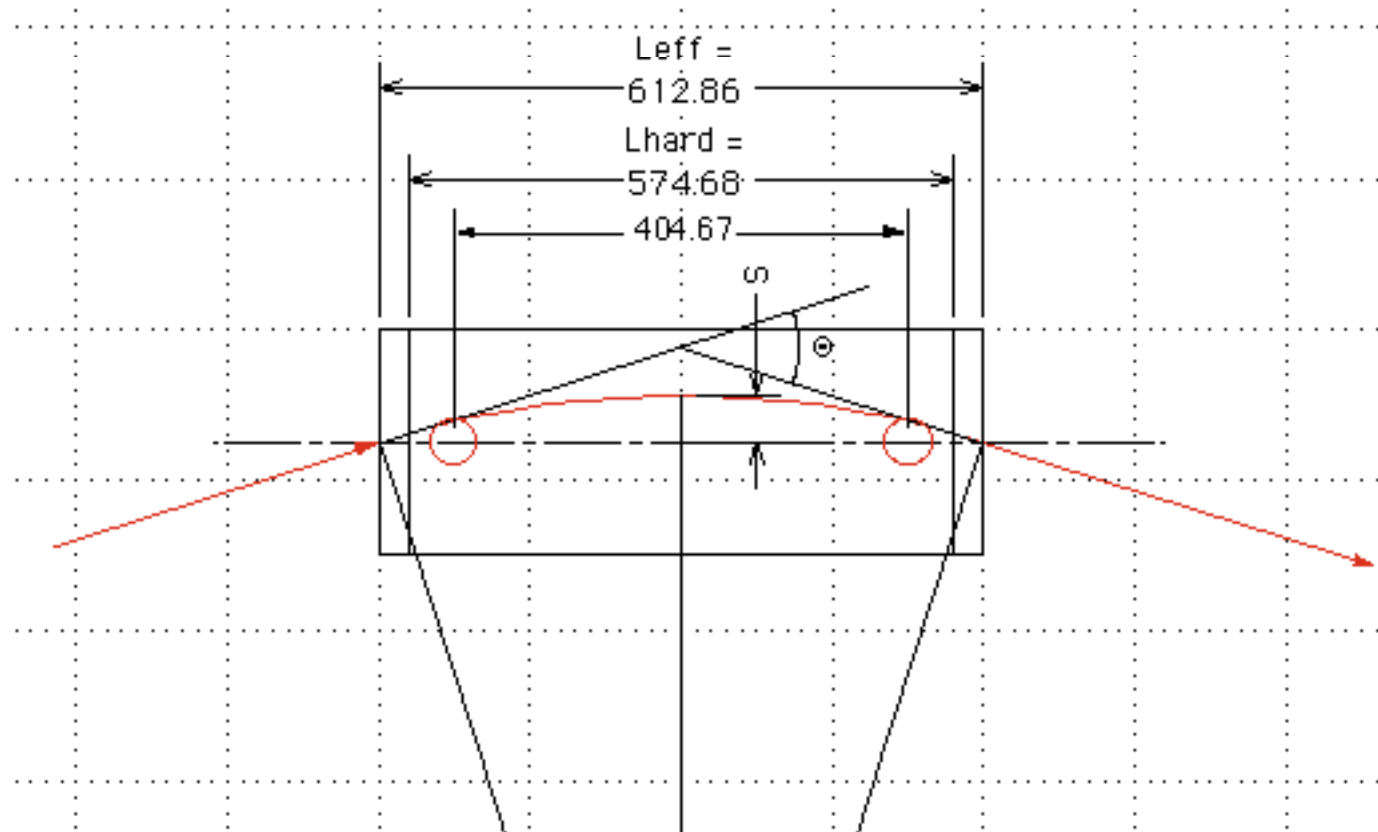
Q-mag (QEA-D32L18) 20

Sx-mag 3

Movers for Q- and Sx-mag 23?

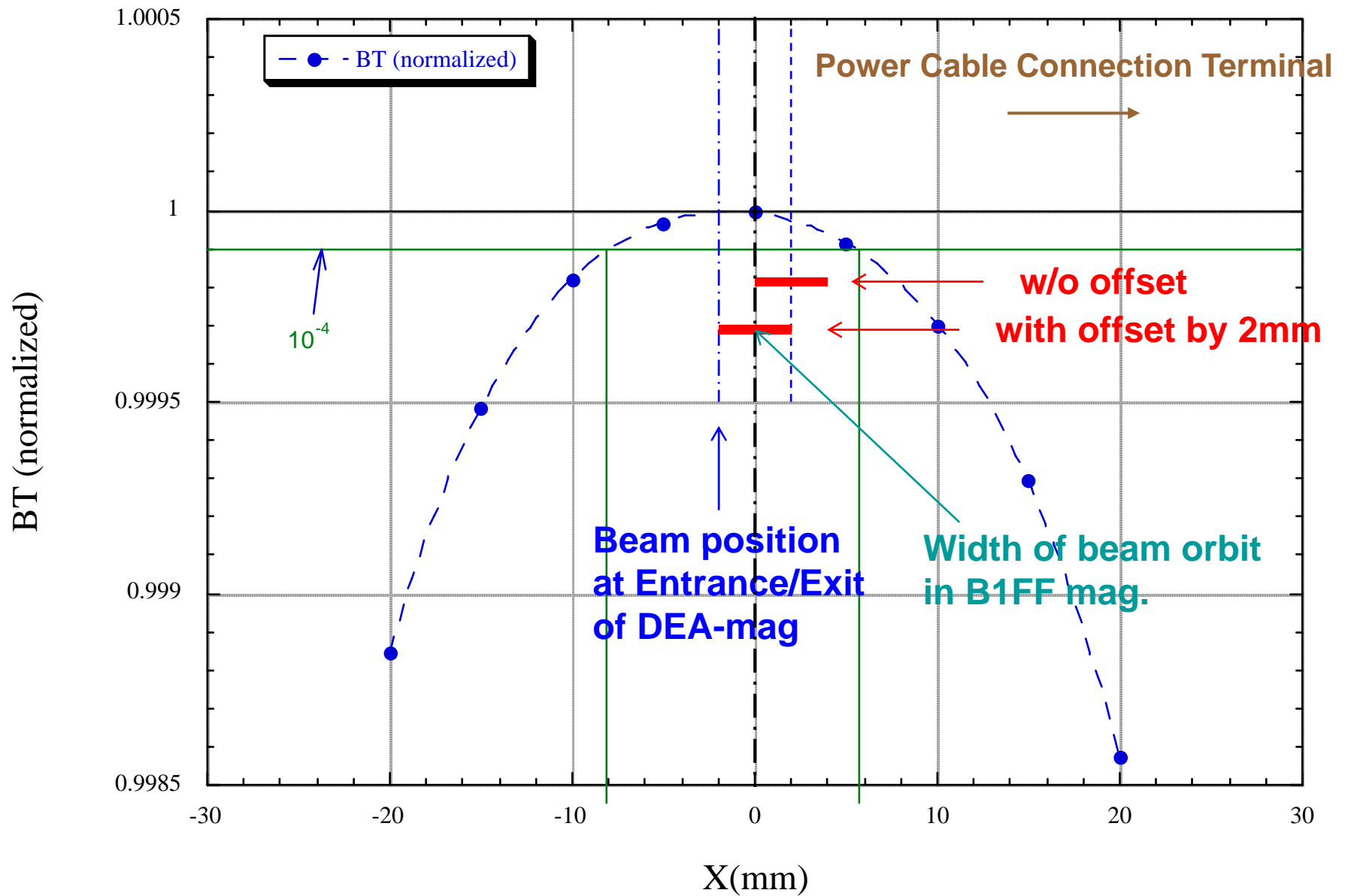


**How to place dipoles
With offset or w/o offset?
What is the good field region?**



$\Theta = 49.90$ mrad
30.18
53.80

$S = 3.822$ for B5FF
2.312 for B2FF
4.122 for B1FF



Alignment

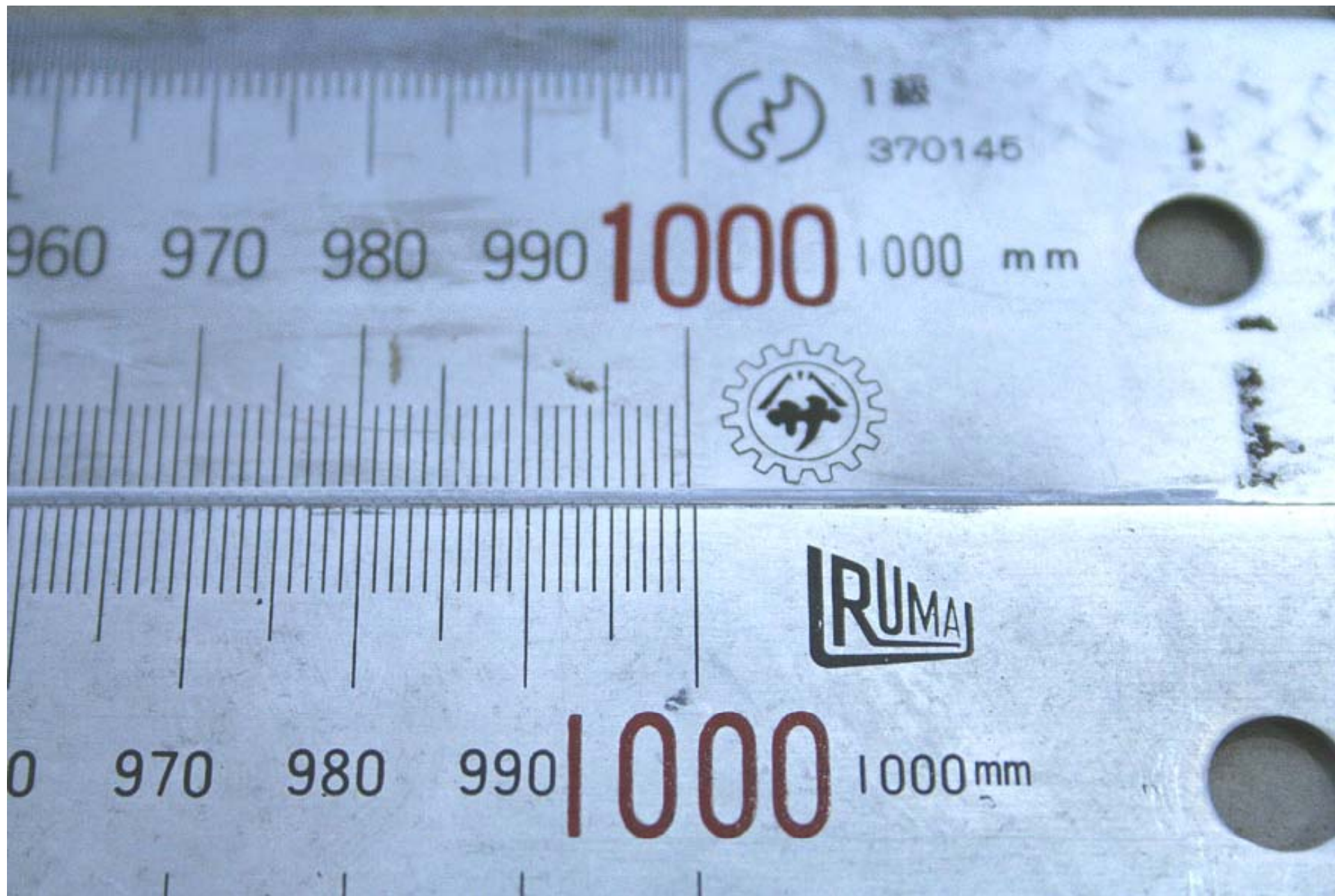
Alignment of magnets has to be done after

- 1. Room temperature is controlled with air conditioners because of the thermal expansion of floor**
- 2. Movers are controlled electrically because movers have not stoppers without electrical control and those cannot keep arbitrary position, and it is difficult to find middle position and make them level manually**

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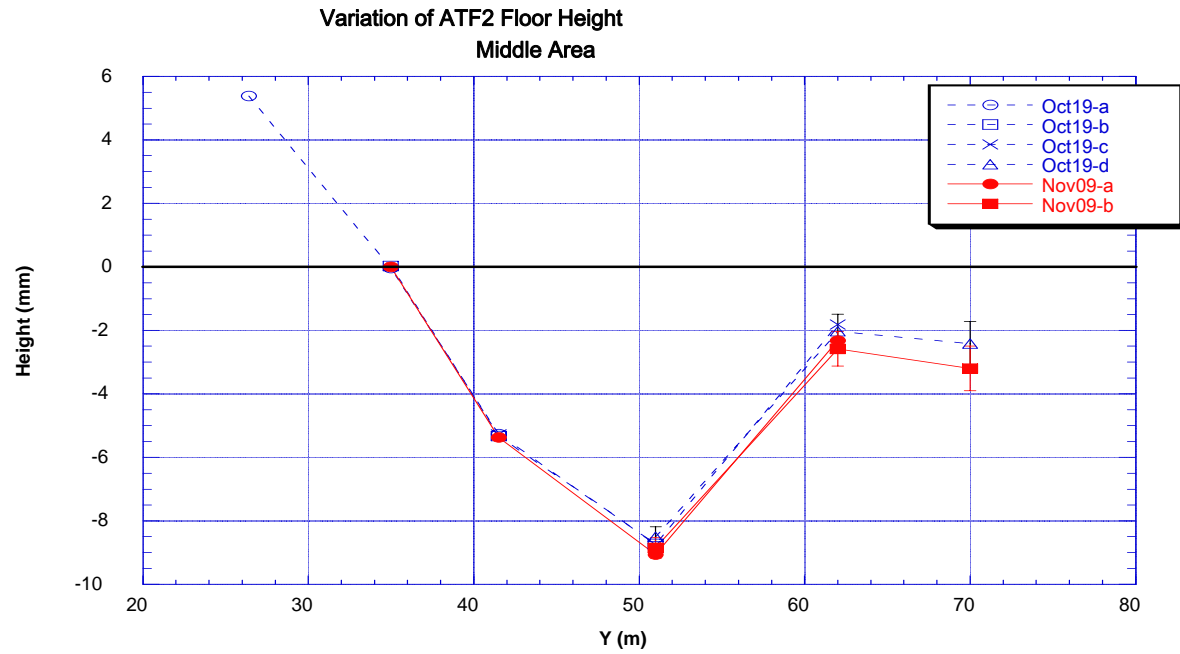
垂直位置基準座



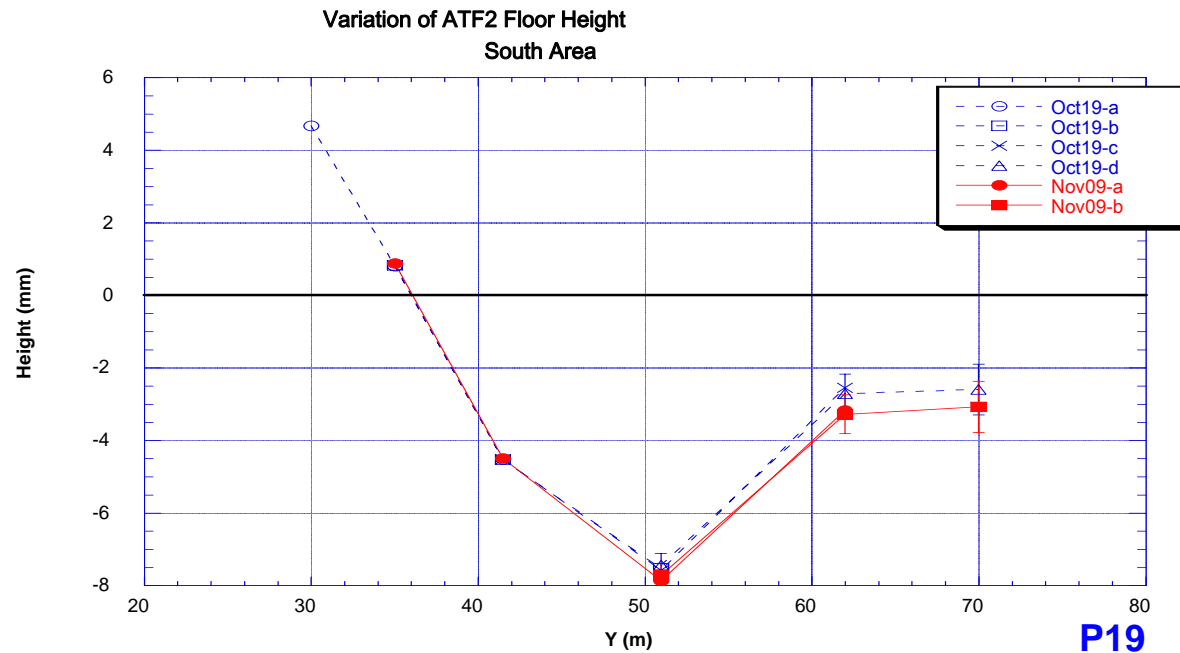


Vertical Variation Oct.19 - Nov.09

(a) Middle area



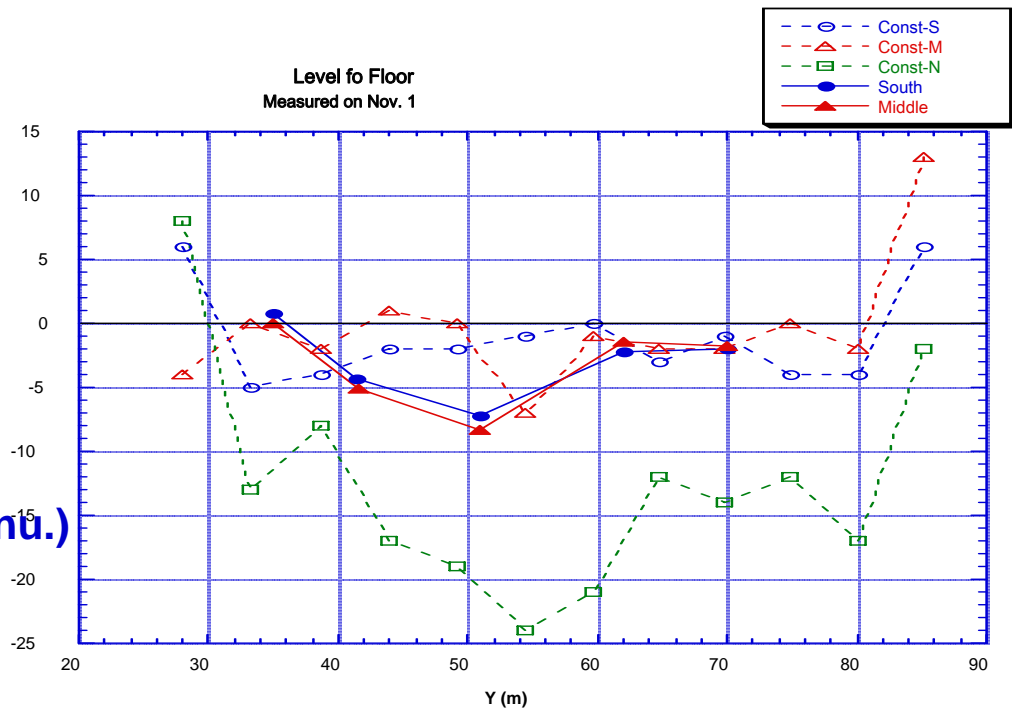
(b) South area



* From tracker data

Vertical Variation

(a) At the time of construction (dotted line) and after construction (solid line) (red: middle monu, blue: south monu.)



(b) From measurement with a tracker

