

# ***Commissioning Hardware and IP Configuration of ATF2***

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***Toshiyuki Okugi (KEK)***

# Commissioning Hardware for ATF2

*I proposed the following hardware preparation to SLAC at the ATF2 meeting in March 2007.*

## *1) BPM ;*

- I, Q information from each readout electronics (SLAC)*
- Temporal BPM control panel for commissioning (KEK)*

$$(x, y) = A * \text{Sqrt}(I^2 + Q^2) * \text{Sgn}(I \text{ or } Q)$$

*A ; free parameter*

*I, Q ; from SLAC*

*→ First pulse calibration result seems to be good performance .*

*Can we use the BPM information from the beginning of the commissioning?*

*If YES, we don't have to prepare the temporal BPM control panel.*

## *2) Screen, ICT (KEK) and information of **amplitude of reference cavity (SLAC).***

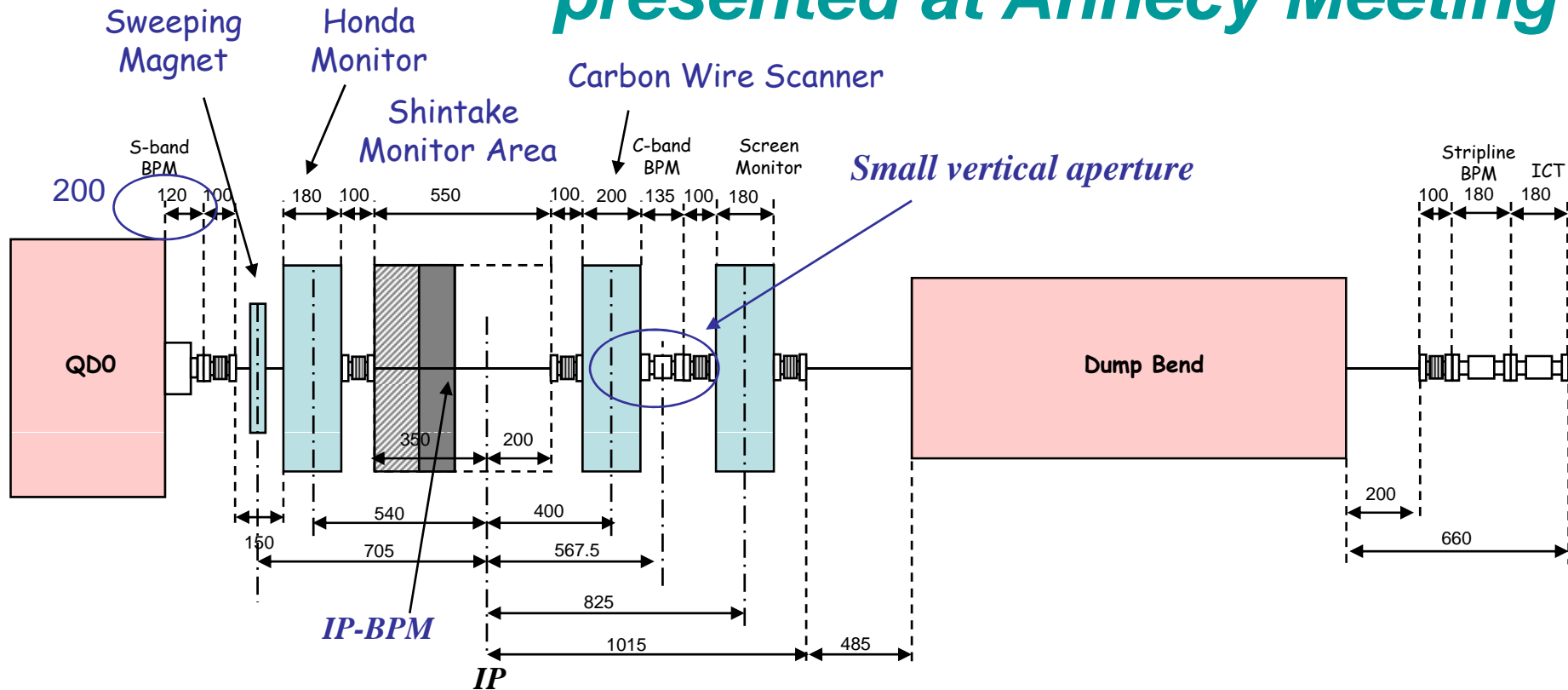
## *3) Quad Movers*

***Calibration and control system** should be ready before commissioning (SLAC).*

*First priority of the ATF commissioning*

*is to transport the beam to the end of ATF2 beam line without beam loss.*

# IP configurations presented at Annecy Meeting

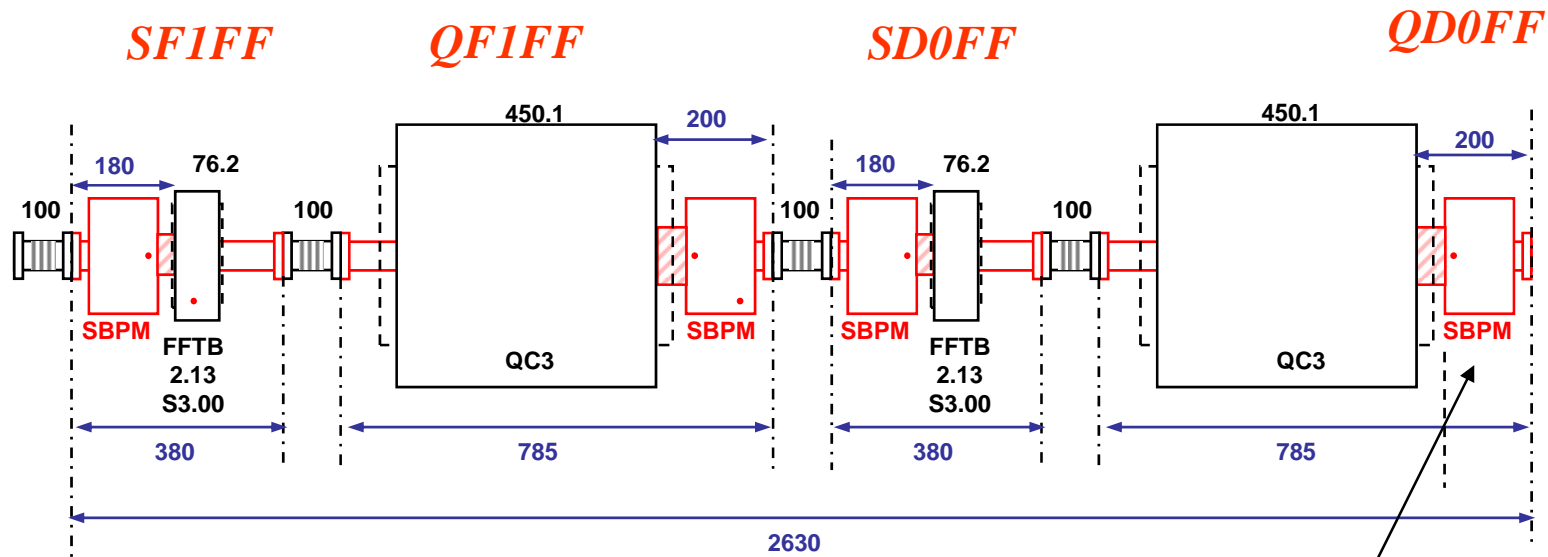


*How to put all of the devices in the limited space ?*

*Is it possible to shorten*

- *the length of the stripline kicker ?*
- *the Shintake monitor support table thickness ?*
- *the thickness of the adopter of S-band BPM ?*
- *the length of Honda monitor ?*

# Final Doublet Table Configuration



*200mm space is necessary for S-band BPM with adopter.*



# Sweeping Magnet



*The old stripline kicker  
will be modified  
for the sweeping magnet.*

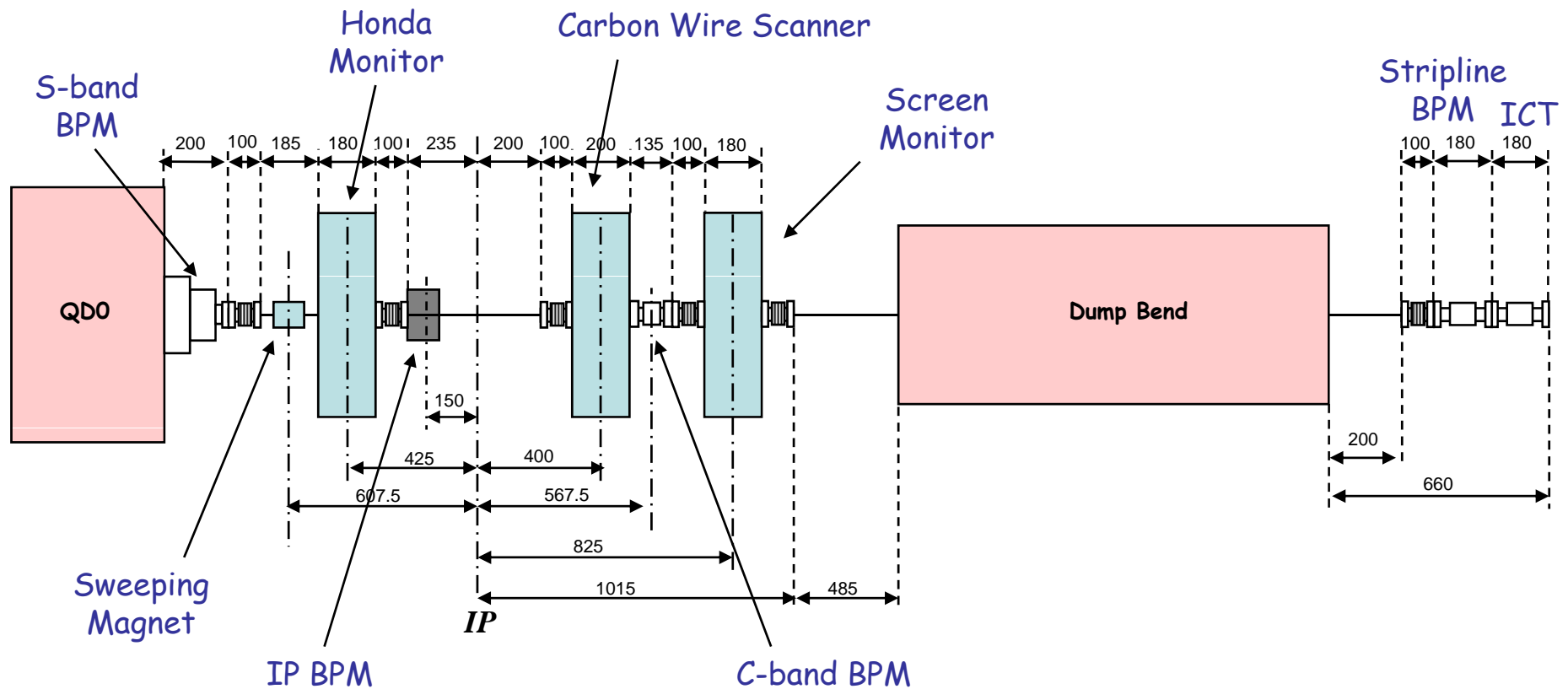
*Flange to Flange Length*      *150 mm*  
*Electrode Length*              *80 mm*  
*Electrode Gap*                  *40 mm*  
*Power Supply Specification*   *DC +/- 100V, double pulse , bipolar*

*Kick Angle*                        *6.1nrad / V*  
*Scan Position at IP*              *3.7nm / V*  
*Dynamic Range*                  *+/- 370nm*

- enough for Shintake monitor, carbon wire and IP FB.*
- However, it is too weak for Honda monitor .*

*For the nominal operation, one side of electrodes should be open, and use DC PS.  
For the first feedback, one side of electrodes should be connect to the load.*

# New IP configurations



## Stripline BPM Device List

Old BPM Name	Electrode Length	Pipe Diameter	Original				Modified				Bellows	
			Magnet Thickness	Pipe Length		Total Length	Magnet Thickness	Pipe Length		Total Length	Original	Modified
				Electrode Side	No Electrode			Electrode Side	No Electrode			
ML1X	40	Narrow	60	155	120	335	60	155	60	275	○	○
ML2X	40	Wide	60	180	120	360	180	155	330	665	×	○
ML3X	40	Wide	60	180	120	360	180	155	60	395	×	○
ML4X	40	Wide	180	120	60	360	180	155	60	395	×	○
ML5X	40	Wide	180	155	60	395	180	155	60	395	○	○
ML6X	40	Wide	180	120	60	360	180	155	60	395	×	○
ML7X	40	Narrow	180	120	60	360	180	155	220	555	×	○
ML8X	120	Narrow	60	270	80	410	180	220	60	460	○	○
ML9X	120	Narrow	180	220	300	700	180	220	60	460	○	○
ML10X	120	Narrow	180	220	300	700	180	220	60	460	○	○
ML11X	120	Narrow	180	220	300	700	180	220	60	460	○	○
ML12X	120	Narrow	180	220	300	700	N/A	220	30	250	○	○
ML13X	40	Narrow	N/A	N/A		170	N/A	N/A		170	×	×
ML14X	40	Narrow	N/A	N/A		375	180	155	60	395	×	○

Blue ; wide beam pipe

Red ; Long Electrode ( High Resolution)



name	old name	function	type	location	comments
ML1X	ML2X	BPM	stripline (L.R.)	d/s end of QF1X (Hitachi 180)	MS1X move by +35mm
ML2X	ML3X	BPM	stripline (L.R.)	d/s end of QD2X (Hitachi 180)	
ML3X	ML4X	BPM	stripline (L.R.)	d/s end of QF3X (Hitachi 180)	
ML4X	ML5X	BPM	stripline (L.R.)	d/s end of QF4X (Hitachi 180)	
ML5X	ML6X	BPM	stripline (L.R.)	u/s end of QD5X (Hitachi 180)	
ML6X	ML7X	BPM	stripline (L.R.)	u/s end of QF6X (Hitachi 180)	
ML7X	ML1X	BPM	stripline (L.R.)	d/s end of QF7X (Hitach 60)	
ML8X	ML14X	BPM	stripline (H.R.)	d/s end of QD8X (Hitachi 180)	
ML9X	ML8X	BPM	stripline (H.R.)	u/s end of QF9X (Hitachi 180)	
ML10X	ML9X	BPM	stripline (H.R.)	d/s end of QF13X (Hitachi 180)	
ML11X	ML10X	BPM	stripline (H.R.)	d/s end of QD14X (Hitachi 180)	
ML12X	ML11X	BPM	stripline (L.R.)	d/s end of QF15X (Hitachi 180)	

QBPM1X		BPM	C-band cavity	d/s end of QD10X (QEA 180)	No mover
QBPM2X		BPM	C-band cavity	d/s end of QF11X (QEA 180)	No mover
QBPM3X		BPM	C-band cavity	d/s end of QD12X (QEA 180)	No mover
QBPM4X		BPM	C-band cavity	d/s end of QD16X (QEA 180)	No mover
QBPM5X		BPM	C-band cavity	d/s end of QF17X (QEA 180)	No mover
QBPM6X		BPM	C-band cavity	d/s end of QD18X (QEA 180)	No mover
QBPM7X		BPM	C-band cavity	d/s end of QF19X (QEA 180)	No mover
QBPM8X		BPM	C-band cavity	u/s end of QD20X (Hitach 60)	C-band BPM with Hitachi
QBPM9X		BPM	C-band cavity	d/s end of QF21X (Hitach 60)	C-band BPM with Hitachi

name	old name	function	type	location	comments
ML1FF	ML12X	BPM	stripline (H.R.)	between QM12FF and QM11FF	pulse-to-pulse feedback
ML2FF	ML13X	BPM	stripline (L.R.)	d/s dump bend	