

IR bump scan

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APEX meeting

IR bumps with blue beam

Blue Orbit Display [Help]

File Acquire Orbit Correction

Scale Control:
Region: Ring Orbit scale [mm]: 0.5

Orbit list:

S	D	Name	Comment	Src	Clr
+	4	Sun Jan 25 06:32:28 2015		Measured	
+	5	Sun Jan 25 06:32:29 2015		Measured	
+	6	Sun Jan 25 06:32:30 2015		Measured	
+	7	Sun Jan 25 06:32:31 2015		Measured	
+	8	Sun Jan 25 06:32:32 2015		Measured	
+	9	Sun Jan 25 06:32:33 2015		Measured	
+	10	Sun Jan 25 06:32:34 2015		Measured	
+	1	Sun Jan 25 06:32:35 2015		Measured	
+	2	Sun Jan 25 06:32:36 2015		Measured	
#	3	Sun Jan 25 06:32:37 2015		Measured	

500

Turn: 500 Increment: 1

Data Delete Trigger Avg Trigger TBT

Orbit Statistics:

	mean	rms	ImaxI	Nbpms
X:	0	0	0	0
Y:	0	0	0	0

Displayed Region
Arcs

Betatron tunes: $\nu_x = 28.695$, $\nu_y = 29.692$
 Acquisition mode set to STOP.
 Acquisition mode set to Closed Orbit.
 Orbit manager for Blue ring created successfully.

The screenshot displays the 'Blue Orbit Display' interface. The top-left plot shows the X orbit in mm over 4000 meters, with several peaks reaching approximately 10 mm. The bottom-left plot shows the Y orbit in mm, with a prominent peak at 3000 meters reaching about 15 mm. The middle section shows a lattice diagram for the 'Blue' beam, with a legend for magnets, hsteer, vsteer, hbpms, and vbpm. The right-hand side contains an orbit list table, a turn control panel set to 500, and orbit statistics for X and Y coordinates, all showing zero values. A status bar at the bottom provides betatron tunes and acquisition mode information.

IR bumps with yellow beam

- 12 mm horizontal IP bumps in one direction, 200%/h loss.
- 14 mm horizontal IP bumps in opposite direction, no increase of beam loss; 15 mm bumps, significant loss.

Individual IR bump

- To study the aperture for individual IR, we scan one IR bump in one direction at a time with one bunch until beam completely lost.
- Beam loss started with ~ 3 mm positive bump, while with ~ 10 mm negative bump. The asymmetry should come from tune change.
- For future, the scan should be done with 6 bunches, so tune feedback can be turned on, also x-mean and orbit feedback.

Interesting observation

Yellow Orbit Display

File Acquire Orbit Correction Help

Scale Control:
Region: Ring Orbit scale [mm]: 0.5

Orbit list:

S	D	Name	Comment	Src	Clr
-		7	Fri_Feb__6_04:19:48_2015.sdds	Logged	Yellow
-		8	Fri_Feb__6_04:19:20_2015.sdds	Logged	Cyan
-		9	Fri_Feb__6_04:19:20_2015.sdds	Logged	Magenta
-		10	Fri_Feb__6_04:19:19_2015.sdds	Logged	Grey
-		1	Fri_Feb__6_04:19:18_2015.sdds	Logged	Black
-		2	Fri_Feb__6_04:19:17_2015.sdds	Logged	Red
-		3	Fri_Feb__6_04:19:18_2015.sdds	Logged	Blue
-		4	Fri_Feb__6_04:19:17_2015.sdds	Logged	Brown
-		5	Fri_Feb__6_04:19:16_2015.sdds	Logged	Light Green
#	+	6	Fri_Feb__6_04:19:12_2015.sdds	Logged	Magenta

1

Turn: 1 Increment: 1

Data Delete Trigger Avg Trigger TBT

Orbit Statistics:

	mean	rms	max	Nbpms
X:	0	0	0	0
Y:	0	0	0	0

◇ Displayed Region
◇ Arcs

Starting connection to orbit manager... please wait...
Orbit manager for Yellow ring created successfully. Problem loading data files.

X orbit

Ring

Y orbit

Legend: magnets, hsteer, vsteer, hbpm, vbpm

The plan

- With 6 bunches, scan horizontal and vertical bumps individually for all IRs.
- Test beam offset at D0 for all IRs.
- Prepare for Au beam in Yellow, the week of 02/23.