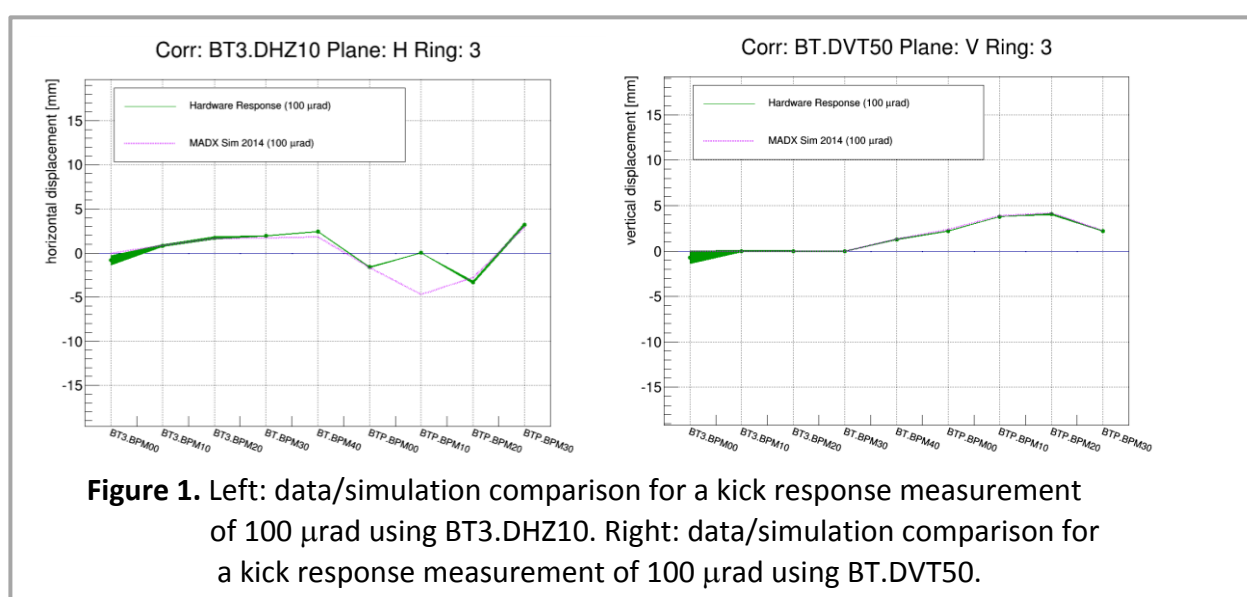


Weekly MD Report – 06 to 10 October 2014 – Gian Piero Di Giovanni

On Monday I manage to get some time to use an EASTA_Clone beam to be sent from ring 3 to the PS and perform some additional kick response measurement.

This work is done in order to validate the MADX model to be used for steering the beam with YASP.

Generally there is good agreement between the data and the model. I confirmed a previous observation that BTP.BPM10 horizontally seems not to be working. When talking to BI folks, they checked the BPM and reported that everything looked fine for them. I will need to follow this up with them as two independent measurements observed a faulty behavior for the aforementioned BPM.



On Tuesday I could not manage to get consistent data as the beam was sparsely available due to problems with power supply, RF and the BT.BHZ10 magnet.

On Wednesday I could take some more kick response measurement in the injection line and confirm that the model work well for most of the line, but clearly fails in the LT line vertically.

After that and using a tool called ALOHA developed from Kajetan Fuchsberger, I found that by changing the quadrupole strength I could get a much better agreement between the data and the simulation. On the other hand, this needs to be followed up carefully as the range of relative strength change can vary from few % (most of the elements) to something of the order of 400% (for LT.QFN30)... A working hypothesis is that the quadrupole are misaligned, but unfortunately the longitudinal misalignment data for the LT line are either old or absent.

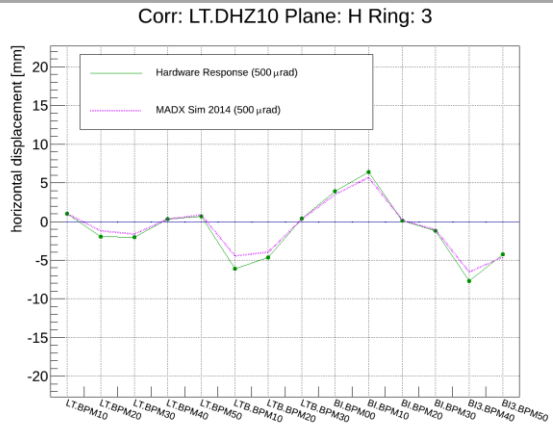
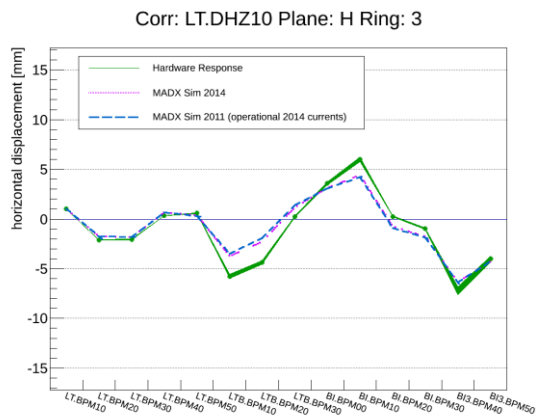


Figure 2: Data/simulation kick response measurements for a kick of 500 μrad in LT.DHZ10. Left: Default MADX model. Right: New model with modified strength as obtained through ALOHA.

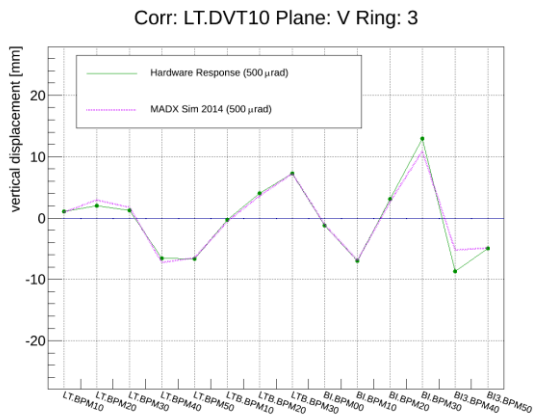
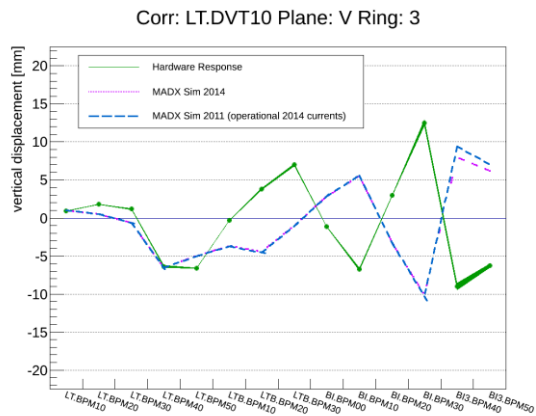


Figure 3: Data/simulation kick response measurements for a kick of 500 μrad in LT.DVT10. Left: Default MADX model. Right: New model with modified strength as obtained through ALOHA.