Orbit Response MD Plan

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Location of this file:

https://confluence.slac.stanford.edu/display/FACET/Machine+Development+and+Studies

Summary:

The theoretical orbit response matrix (ORM) describes the predicted beam response to beamline devices based on model optics. A measured ORM can be obtained by perturbing correctors and collecting downstream BPM data. The difference between model and measured ORM can be fit to calculate errors such as magnet gradient issues, magnet roll, BPM gains, as well as other optical errors.

Shift goal:

Collect orbit response data for designated correctors. Orbit deviation during scan should be a large as possible without resulting in downstream beam losses. Data to be analyzed afterward for model errors.

Beam time needed:

16 hrs

Shift personnel needed:

Ops

Beam conditions needed:

Nominal 10 GeV beam to dump.

Shift plan:

1. Establish clean beam steered to the dump
    a. Beam should be matched in linac and well steered (flat or to current gold)
2. Open Correlation Plot Matlab App and load config titled FACET-II_all_bpms.mat.
3. Enter corrector to be scanned and range to scan
    a. To find corrector range first move the corrector to a negative and positive value where TMIT loss starts (beam should still make it to the dump. Set the range to be just inside of those corrector strengths.
4. Turn of all energy and transverse feedbacks downstream of the corrector of choice.
5. After the scan completes logbook and annotate the data.
6. Repeat for next correctors.