

LINAC COMMISSIONING FORM

21-sep-2001

Major Category: SCL

Sub-Category: Beam Sub-category

Sub-System : Steering

Objective: Guide the beam through the center of the SRF linac (horizontal and vertical directions), to the linac dump

Requested by: J. Galambos

Date Proposed:

Estimated Time to Complete: 2 shifts

Estimated Manpower to Complete: 4 man-shifts

Priority/Order: high/1

Basic Equipment Needs (e.g. which diagnostics): BPMs, and dipole correctors

Special Equipment Needs: None

Software/Application needs: Steering algorithm

Input Beam Requirements: Short pulse beam (100 μ sec), > 20 mA, 10 Hz

Other prerequisites: None

Correlations Sought: None

Procedure: Vary each corrector in the SRF region (to the linac dump) independently and observe the effect on the positions of each BPM . Using this response matrix, find the combination of dipole corrections that minimizes the average beam offset between the orbit and BPM center, subject to dipole corrector constraints. Note that there also BLMs: a similar variant of this procedure could be to use BLM signals instead of BPM positions.

Supporting Computations: None

Problems Expected: None

Comments: If the beam based quad alignment has been done, then appropriate corrections to the BPM centers should be included in the procedure. Note: this procedure

will likely have to be repeated a few times during commissioning of cavities, as the active cavities may cause some transverse focusing and displacement of off axis beam.

Date Completed LANL:

Date Completed ORNL:

Results:

Problems Encountered: