

Minutes, 4/26/04 Tevatron BPM Upgrade Meeting
Stephen Wolbers

This set of minutes, and all future minutes, are or will be deposited in the Beams Document Database as document number 792.

The agenda as announced consisted of:

1. Calibration Plan: Jim Steimel
2. AOB

1. Calibration Plan: Jim Steimel

A document with the calibration plan is being prepared and will be placed in the AD doc DB in the near future. The presentation and discussion, and these minutes, are a summary and paraphrase of the final document and it should be consulted for details.

Jim described the general philosophy and detailed formulae for the things that go into producing calibrations that are used to provide the coordinate measurement from each BPM. That coordinate is given with respect to the center of the quadrupole.

The position (in mm) is given by:

$$P = g * ((\text{abs}(A) - \text{abs}(B))/P(\text{intensity})) + E(\text{offset}) + Q(\text{offset})$$

The quantities are :

g : scale factor (26)

A : corrected proton signal from A plate

B: corrected proton signal from B plate

P(intensity) : corrected intensity from A and B plates

E(offset) : electrical offset

Q(offset) : quadrupole offset

Jim went through the various terms and how they can be computed, measured, or taken from other data. This includes measuring the directionality of the plates as a function of position.

Jim's final slide showed which quantities he proposes need to be time-dependent and therefore part of the calibration and which quantities can be taken from some other source. (Please see the soon to be released note for the detailed table -- this may not be 100% complete and accurate.)

g : not calibrated
k (needed to calculate P(intensity) : will be calibrated.
M (needed for A and B) : will be calibrated
E(offset) : needs to be calibrated
Q(offset) : no calibration needed

Issues that were brought up include a question of exactly what data will need to be saved and in what form to accomplish the above. This has not been specified yet. The front-end will use these parameters to compute the position. The front-end will not calculate the correction factors.

A question of what to do if a diagnostic board or an Echotek board is replaced. Will there be reliable information about each physical board to allow us to avoid recalibration or should there be a full recalibration when a board is replaced. The consensus is that a full recalibration should be part of a board replacement.

2. AOB

The Wednesday weekly meeting (April 28) is cancelled.