

Estimates of Halo Rates on the Electron Detectors

Hall A saw a 10-50 KHz/ μ A rate due to the beam halo on the closest strip when the electron detector was placed 3 mm from the beam center. At 6 mm from beam center the rates dropped to 0.3 KHz/ μ A. In Hall C a halo detector placed 11 mm from beam center and having an acceptance of about 10% of the Hall A electron detector sees a rate of 20Hz/ μ A, which implies a rate of 0.2 KHz/ μ A on the electron detector. The Hall C measurement was done at 700 MeV beam energy.

The Hall C electron detector will be ~ 10 mm from the beam center, thus a 0.2KHz/ μ A rate should be expected. This implies a rate of ~ 40 KHz when running at full 180 μ A current.

Assuming a 1 GeV beam, and 1000 hours of running and 1 mg as the weight of the detector, this would imply a dose of ~ 2.5 MRad.