

1 Tamara's Notes For Test Beam Meeting Minutes November 5, 2004

Tamara has finished some analysis using a beam energy independent weight function using C_1, C_2, C_3 from previous analysis from equation (1).

$$weight = C_1 e^{-C_2 \rho^2} + C_3 \quad (1)$$

Fits were performed to characterize the parameters as of function of beam energy. E_{beam} as a function of E_{event} was also fit by plotting E_{beam}/E_{event} vs E_{event} and fitting it with equation (2).

$$E_{beam}/E_{event} = \alpha_1 e^{-\alpha_2 E_{event}} + \alpha_3 \quad (2)$$

This gives us a way to estimate E_{beam} using E_{event} . We then use this estimate of E_{beam} in the C_1, C_2, C_3 functions (which are functions of beam energy) to calculate the weights independent of knowledge of the beam energy. Now we have functions for the weights which we can use for any event regardless of the beam energy.

We find that the resolution worsens and the response decreases. The reason for this is that the functions C_1, C_2, C_3 are non-linear and the beam energy estimate is not perfect (does have a width). Hence, the weights are skewed toward lower weights, which decrease the response.