6.3 Shaping Constants for Delta-GEM

Although less extensive, the computations made and graphs plotted to establish Mode-5 shaping constants for Delta parallel those described in Section 6.2 for Atlas IIAS. The approach may be summarized as follows:

(1) Calculate impact points from 10,000 simulated random-attitude turns made at 10-second intervals from programming time at 6 seconds until staging at 270 seconds (260,000 simulations total). The impact points from these turns, which produce impact results similar to slow turns, are assumed to be representative of the totality of Mode-5 impacts.

(2) Determine the percentages of impacts in 5° sectors from 0° to 180°.

(3) For assumed values of A and B, compute the percentages of impacts in the same 5° sectors from the theoretical Mode-5 impact-density function.

(4) By trial and error, find values of A and B that provide a best fit between the simulated and theoretical impact data.