The Enhanced Dynamic Wedge (EDW) presents many advantages over the physical wedge. However, in order to calculate MUs necessary to delivery a certain dose at a certain point, EDW factors (EDWFs) need to be determined. The measured EDWF is the ratio of the EDW field output to open field output for the same field dimension at the geometric center of the field. EDWFs are strongly dependent on wedged field dimension (the initial distance between the fixed and moving Y jaw) and the wedge angle, and also dependent on the off-axis distance in wedged direction for asymmetric fields.

The key part of the EDW modality is the Golden STT (GSTT). In this work, based on analysis of the GSTT for Varian machines, an analytic formula has been developed to calculate EDW factors for symmetric and asymmetric photon fields. This formalism is an extension of the MU fraction model. However in comparison with previous studies\(^1\), this formula is much simpler, and easier to be used. It is applicable to EDW fields of different energies and different wedge angles. For 6 and 18MV photon beams from Varian 21EX accelerator with 7 EDW angles, more than 250 measured EDWFs for symmetric and asymmetric fields with different off-axis distances were compared with model calculations. Results show that 80% and 98% of calculated EDWFs match corresponding measured values to within 0.5% and 1.0% respectively, the maximum deviation being 1.3%.