Purpose: This study examines the optimal angle for a dual-field Stanford technique for TSET at extended SSD (SSD = 1, 2, 3, 4, 5 m) to predict a readily available optimal angle for any SSD.

Methods: The optimal angle at various SSDs is found using detector array. The diode array consists of 9 diodes placed on a vertical board with a measured vertical scale with the origin placed at isocenter. The lateral distance ranges from -100 to +75 cm. A square 36x36 cm$^2$ field is used to deliver dose in HDTSe delivery mode with a dose rate 2500 MU/min from a Varian Clinic 2300IX linac. Several pairs of gantry angles for the dual field are used, with the first gantry being 70°-78° and the second being 110°-102°. These result in a dual field of 90° ± θ (θ = 10°-20°) to build a suitable flatness profile on the vertical axis for treatment. The best group is chosen to determine the optimal angle for each SSD considered. From these optimal angles, an algorithm is determined for any extended SSD treatment.

Results: It is found that the optimal angle for TSET does change as one varies the SSD. These angle groups are specific for each SSD giving definite markers for the algorithm. At an SSD of 5 m it has been shown that an optimal angle of θ = 106° produces the best flatness on the vertical axis. While at SSD of 4 m, θ = 18°.

Conclusions: An algorithm can now be applied for any treatment center considering a dual-field Stanford technique for TSET simplifying the physics commissioning process for the center in consideration.