# AbstractID: 1669 Title: Independent planar dose calculation for IMRT segments using a pencil beam extraction technique from measured square field output factors

Beam output factors for 6MV and 23MV were measured using MapCHECK device at dmax, 5cm, 10cm and 20cm depths for field sizes of 1x1,3x3, 5x5, …21x21cm$^2$. Pencil beam contributions from 1x1cm$^2$ elements were extracted by a subtraction method and off-axis data were generated. The pencil beam off-axis factor was fitted using a power-series equation. Using TMR tables and measured data, TMR for 1x1 cm$^2$ beam was fitted. Software was developed to calculate point doses or planar doses for IMRT segments contained in RTP files generated by CORVUS and ADAC treatment planning systems. Using this method, the accuracy observed for 6MV and 23MV was about 5%. An independent calculation was done to compare relative planar dose distribution using the 3% or 3mm distance criteria. It was found that the results compared better than treatment planning system calculation of planar dose. This could become a valuable tool for IMRT dose verification independent of planning and delivery systems.

†Supported by grant from Siemens Medical Solutions USA Inc.