

TrueBeam Representative Beam Data for Eclipse

TrueBeam Representative Beam Data for Eclipse includes TrueBeam 4 MV-15 MV photon beam data and 6 MeV–22 MeV electron beam data in W2CAD format for use with Eclipse and in Excel spreadsheet format for use in data comparison. The beam data in W2CAD format can be imported into the Eclipse system and calibrated for use, as appropriate.

The configuration of TrueBeam Representative Beam Data for use in Eclipse treatment planning and dose calculation is the sole responsibility of the customer.

Eclipse manuals and training course materials provide instructions as to how to utilize these data with Eclipse treatment planning. In addition, the My Varian web site and Varian TPS Help Desk are available for on line assistance in configuring *TrueBeam Representative Beam Data* in the Eclipse system.

TrueBeam Representative Beam Data for Eclipse were acquired using three TrueBeam linear accelerators at a single institution¹. All of the measurements were acquired using an IBA Dosimetry CC13 compact ionization chamber with a sensitive volume of 0.13cc and inner radius of 0.305 cm. Appropriate corrections for the detectors' effective measurement point were applied: 1.8 mm for the photon beams and 1.5 mm for electron beams.

The Percent Depth Dose (PDD) curves for photon beams were smoothed using a median filter with a 5 mm sliding window and 0.2 mm resolution. All PDD curves were normalized to dose maximum and converted to W2CAD format. The photon data were then resampled to 1 mm resolution and converted to Excel format.

The profiles for photon and electron beams were smoothed using a median filter with a 5 mm sliding window and 0.2 mm resolution. Central axis correction was applied to all open field profiles and wedge longitudinal profiles. All profiles were normalized to central axis and converted to W2CAD format. All data were then resampled to 1 mm resolution and converted to Excel format.

The Percent Depth-Ionization curves for electron beams were smoothed using a median filter with a 5 mm sliding window and 0.2 mm resolution and converted to Percent Depth Dose curves according to TG-51 protocol. All curves (with exception of blocked PDD) were normalized to dose maximum and converted to W2CAD format. The data were then resampled to 1mm resolution and converted to Excel format.

Starting from AAA and AcurosXB v13.6 Eclipse requires a new output factor file format. This package contains two output factor tables for each energy:

- a) When you configure the photon algorithms using the TrueBeam representative data set in Eclipse v13.6 and older, use the output factor files with the following filenames:
example for open beam 6 MV: 06X_00.txt
- b) When you configure the photon algorithms using the TrueBeam representative data set in Eclipse v13.6, use the output factor files with the following filenames:
example for open beam 6 MV: 06X_00_NF.txt.

¹ Zheng Chang, Qiuwen Wu, Justus Adamson, Lei Ren, James Bowsher, Hui Yan, Andrew Thomas, and Fang-Fang Yin, "Commissioning and dosimetric characteristics of TrueBeam system: Composite data of three TrueBeam machines", Med. Phys. 39, 6981–7018 (2012)



CAUTION

Be careful that the measured beam data that is used for the configuration corresponds to the characteristics of the treatment unit. When modifications are made to the treatment unit, make sure that the measured beam data still corresponds to the treatment unit.



CAUTION

To detect possible errors occurring when importing measured beam data, always compare the configured beam data with the measured beam data.



CAUTION

It is the responsibility of the user to ensure the validity and integrity of the input data, and to understand that the quality of the output depends critically on the quality of the input. Any irregularities or uncertainties about input data, units, identification, or quality of any other nature shall be thoroughly investigated before the data are used.