

There is a growing interest in quality assurance of the delivered dose in radiation oncology. Diode detector systems are used in a number of departments for this purpose. The main advantage of diode detectors is that results are immediately available following treatment. This allows a direct check of the treatment accuracy. A commercial diode dosimeter for in vivo dosimetry was recently acquired (IVD Model 1131 from Sun Nuclear Corporation.) This report describes the calibration method adopted and an evaluation of the accuracy and precision of this system. Co60 beams were used in this work.

Extensive phantom measurements were made to determine the influence of physical conditions on the diode response. Parameters investigated included diode linearity, leakage, and measurement reproducibility, as well as their field size, SSD, off-axis, and angular dependence. The practical consequences of these measurements are reported.

Results show that when correctly chosen and handled, diode detector systems can provide acceptable accuracy for quality assurance purposes.