

As sources of new designs are developed and marketed for application in permanent prostate implant, it is paramount that their dosimetric characteristics are carefully determined, in order to maintain the accuracy of patient treatment. This report presents the results of experimental measurements of dosimetric parameters performed for a newly available I-125 seed source. The measurements were performed in a large scanning water phantom, using a diode detector. Positioning of the source and detector was achieved by a computer-controlled positioning mechanism in the scanning water phantom. The dose rate constant in water for the new I-125 source was measured in comparison with an existing I-125 source of similar design, and verified using TLD measurement. The radial dose function values were measured using the diode detector. The measurement results are comparable with the dose distribution parameters for the I-125 sources discussed in the AAPM TG43 report. It is recommended that a value of 0.950 cGy/U-hr be used for the dose rate constant in water of the new source, based on the NIST 1985 air-kerma strength calibration standard, or 1.060 cGy/U-hr based on the NIST 1999 air-kerma strength standard. It is further recommended that the radial dose function values for the model 6702 I-125 source, as recommended by the AAPM TG43 report, be adopted for the new source as well. *This work is partially supported by North American Scientific, Inc.*