

Daily QA (Model 1090, Sun Nuclear Corp. Melbourne FL) consists of five 0.6 cc parallel plate ionization chambers. It is designed for daily output, point symmetry and flatness check from Co-60 to 25 MV photons and 5 MeV to 25 MeV electrons. It can handle the maximum average dose rate of 2.5 Gy (250 cGy) per second and the maximum dose per pulse of 0.055 Gy (5.5 cGy). Relative calibration factors of the ion chambers in the Daily QA are determined by a wide field calibration technique which has been proved to be simple and accurate for any type of linear detector array. The calibration factors with different depth, field size, radiation mode, energy and dose per pulse were studied with a Varian 2100C and a Mitsubishi EXL-22 (known for its high and variable dose per pulse) linear accelerators. The results showed the changes were less than 1%. Thus one instrument with one set of calibration factors can be used for quality assurance of photon and electron beams from different machines. Long term operational stability of this device is also evaluated during a period of time. The calibration factors change in this period is less than 1%. Further more, Daily QA can be attached to a tray mount designed by the same company to check the output, point symmetry and flatness with gantry rotation. This demonstrates Daily QA is a reliable and convenient daily quality assurance tool for any type of linear accelerator.