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Paper C11

COMPARISON OF $CaSO_4$:Dy THERMOLUMINESCENCE DOSIMETRY AND IONISATION CHAMBER MEASUREMENTS IN DIAGNOSTIC RADIOLOGY

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Substantial efforts are being put into quality control programs and into radioprotection in diagnostic radiology at most of the Calibration Laboratories. Taking into account the need of control methods for dosemeters used in diagnostic radiology systems, measurements in the therapy level of a low energy X ray system (60 kV), using $CaSO_4$:Dy thermoluminescence dosemeters and an ionisation chamber, were performed in order to determine the radiation qualities for tests in diagnostic radiology for this system, as a part of the procedures of the Calibration Laboratory of São Paulo. The radiation qualities of the German standard DIN 6872, part 1, were established. The properties of the radiation fields were determined in terms of half value layers, mean energies and exposure rates in the range from 30 to 60 kV, using aluminum filtration from 2 to 16 mm. In this range the energy dependence of the monitor chamber was studied and the exposure rates were measured with a secondary standard ionisation chamber calibrated at the National Physical Laboratory (NPL), England. The results were compared with those obtained with thermoluminescence dosemeters.