CHANGES IN A THERMOLUMINESCENT PERSONNEL DOSEMETER FOR PHANTOM QUANTITIES ASSESSMENT.

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Changes in a Brazilian thermoluminescent personnel dosemeter for the assessment of H(0.07) and H(10) - respectively, the slab dose equivalent, superficial, and the slab dose equivalent penetrating, defined in a 30cm x 30 cm x 15cm phantom of soft tissue - were made.

The dosemeter uses CaSO4:Dy thermoluminescent (TL) detectors, produced by the Instituto de Pesquisas Energéticas e Nucleares (IPEN), Brazil, as the sensitive material. It accommodates three TL detectors, respectively, between 1.0 mm copper plus 3.0 mm plastic filters, 1.0 mm copper plus 0.5 mm lead plus 3.0 mm plastic filters and 3.0 mm plastic filters. One more detector is placed in an opened window.

Calibration of the dosemeter was carried out by the Brazilian National Metrology Laboratory for Ionizing Radiation in the energy range of 17 keV to 662 keV. Linear combinations of the response of TL detectors under the windows of plastic, copper and copper plus lead filters allow the evaluation of H(0.07) and H(10) with an uncertainty of less than 40%, for normal radiation incidence.

The same evaluation procedure was also checked for different energy spectra and for some radiation incidence angles, including post-anterior irradiations.

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