quality requirements. Thus, this work proposes the use of the thermoluminescent (TL) CaSO4:Dy sintered discs, produced at IPEN, widely used in individual, environmental and area monitoring in Brazil, and Al2O3:C optically stimulated luminescence (OSL) 'dot' dosimeters, manufactured by Landauer® Inc., as application as easy-to-use and low cost alternative dosimeters to evaluate the entrance skin doses (ESD) delivered to patients, the half value layer (HVL) and the mean glandular doses (MGD) in a mammographic digital unit, comparing these two techniques with the results obtained using an All-in-one QC meter. The results obtained demonstrated that the TL and OSL dosimetry systems and the CaSO4 and Al2O3 dosimeters used are able to evaluate the entrance skin dose as well as mean glandular doses in a digital mammographic unit accurately within the requirements, and they can be considered a practical, simple, easy-to-use and low cost tools for verification of these items in a Quality Assurance Program.

Application of a Tandem System for HVL evaluation in Computed Tomography

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Computed Tomography (CT) is a method of imaging used for diagnosis and diseases treatment. In CT equipment due to its geometry, the determination of the HVL is a difficult task and is usually determined only by the manufacturer. By definition, the energy of a beam is determined by the value of HVL. When HVL values are not easily determined, as in the case of CT, it is possible to evaluate the effective energy of the beam through a system consisting of the use of different energy dependent dosimeters, where the ratio between the calibration curve responses in Energy can provide the effective energy of the beam (Tandem System). The application of this system was proposed by Kenney and Cameron1 and Gorbics and Attix2 that used thermoluminescent materials to determine energy of gamma and X radiation. In 2004, Maia3 studied the application of a Tandem System obtained through a set formed by an ionization chamber of the Type pencils and cylindrical absorber sleeves made of aluminum, PMMA and copper, as a non-invasive method for the determination of HVL values in computed tomography beams. Although the proposed Tandem System initially consists of two dosimeters with different energetic dependencies, the sets formed by the ionization chamber and the cylindrical absorber layers of different materials can also be considered a Tandem System. Taking as a reference the System built by Maia3, a Tandem System was developed at the Institute of Energy and Nuclear Research

(IPEN), formed by cylindrical absorber layers of aluminum and PMMA. The thickness of the aluminum layers was chosen from the HVL values of the standard RQT beams, implemented in 2010 by Dias4 in IPEN's Instrument Calibration Laboratory (LCI).

Using 6MV photon to evaluate the effect of surface dose under different thickness of bolus with different gaps

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6 MV photons are commonly used for treatment of head and neck cancer due to their physical properties and penetration. Superflab was selected for superficial lesions. This research focused on the results of the surface dose in phantom with different gaps measured by Markus parallel chamber and ISP Gafchromic EBT3 film. The points on the calibration curve of the Gafchromic film are within 1% variation. Three measurements were taken on phantom. The measured mean surface doses between Markus parallel chamber and ISP Gafchromic EBT3 film are within 5% deviation. All ionizations were normalized to the reference point of 10×10 ㎝2. The relative doses of field size 5×5、10×10 and 15×15 were 65.07%、48.85% and 29.27%；94.92%、79.47% and 54.18%；98.6%、91.72% and 75.21%under air gap of 3㎝、5.5㎝ and 9 ㎝, respectively. If Superflab use leads to poor contact with the skin, the results of this suggest that small field sizes would induce more significant decreased magnitude of surface dose.

Dose re-evaluation in personal dosimetry by using PTTL method of LiF:Mg,Cu,Si TLD

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PTTL characteristics of LiF:Mg,Cu,Si which is developed by Korea Atomic Energy Research Institute were presented to provide a simple and reliable method for a dose re-evaluation compatible with routine personal dosimetric service. A diameter of 4.5 mm and thickness of 0.8 mm pellet type TLD was used after a dual step thermal anneal of 300˚C for 10 min followed by 260˚C for 10 min to obtain a thermal stability. For optimal