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Uncertainty estimation in Individual Monitoring – Part II

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For an individual monitoring service is really important to provide accurate reports of the dose and to what extent the reported value is a good estimate of the true one. The process of determined the uncertainty which produces the best estimate of the quantity to be measured and may differ from the same quantity given by the instrument is an important one. This process can improve the result of the measurement by using different information beyond the indication of the instrument. The work reported here is focused to estimate the absolute standard uncertainty arises for the non-linearity, radiation energy and direction of radiation incidence and for measured value in order to achieve a good estimation of the overall uncertainty for better determination of the equivalent dose for occupational exposure workers from the whole body dosimeter. In this study the thermoluminescence dosimeters are used and measured with Harshaw4500 Reader at Personal Dosimetry Laboratory in the Institute of Applied Nuclear Physics and irradiated in Secondary Standard Dosimetry Laboratory (SSDL) in the Dosimetry Department of Greek Atomic Energy Commission. The method used in this study is based on Guide to the Expression of Uncertainty in Measurement and ISO TR 62461 standard. The absolute standard uncertainty estimation from the non-linearity is found to be 0.069, from the radiation energy and direction of radiation incidence is 0.0838 and from the measured value is 2.5473nC.

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