

# **Personal Dosimetry Service of TECNATOM: Measurement System and Methodology of Calibration**

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## **Abstract**

The implementation of a new integrated and practical working tool called ALEDIN within the Personal Dosimetry Service (PDS) of Tecnatom, have harmonized the methodology for the counting acquisition, detector calibration and data analysis using a friendly Windows® environment. The knowledge of this methodology, due to the fact that is the final product of a R&D project, will help the users and the Regulatory Body for a better understanding of the internal activity measurement in individuals, allowing a more precise error identification and correction, and improving the whole process of the internal dosimetry.

The development and implementation of a new calibration system of the whole body counters using NaI (TI) detectors and the utilization of a new humanoid anthropometric phantom, BOMAB type, with a uniform radioactive source distributions, allow a better energy and activity calibration for different counting geometries covering a wide range of gamma spectra from low energies, less than 100 keV to about 2000 keV for the high energies spectra

This new calibration methodology implied the development of an improved system for the determination of the isotopic activity. This new system has been integrated in a Windows® environment, applicable for counting acquisition and data analysis in the whole body counters WBC in cross connection with the INDAC software, which allow the interpretation of the measured activity as committed effective dose following all the new ICRP recommendations and dosimetric models for internal dose and bioassay measurements.