

Improvements and future challenges in Radiation Protection Dosimetry in the European Partnership Project GuideRadPROS

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Introduction

Dosimetry in Radiation Protection faces two significant challenges in the future: the implementation of the recent update of the ISO 4037 for reference radiation fields in conjunction with the new operational radiation protection quantities of the ICRU report 95. Additionally, new type testing standards need to be developed for new and upcoming technologies to ensure reliable measurements also in future, and existing standards need to be harmonized. The project GuideRadPROS was established to help laboratories in implementing ISO 4037 and to help them and the industry to adopt the new operational quantities and technologies.

Materials and Methods

A consortium of 15 national metrology institutes and designated institutes and one industrial partner launched the European Metrology Partnership Project GuideRadPROS in June 2023. The project will run over three years and has the following objectives:

- to develop and give guidance in a harmonized X-ray spectrometry approach using HPGe and CdTe detectors in accordance with the ISO 4037 standard series. During the course of the project, discrepancies between measured and calculated half value layers of X-ray spectra will be evaluated and data will be produced to update requirements for reference fields.
- to develop and give guidance on validated procedures for harmonized type testing based on IEC standards.
- to investigate new and upcoming technologies with regard to their implementation in type testing standards.
- to provide training and produce guidance and e-learning materials related to ISO 4037 standard, and to assess the impact of the implementation of the new operational quantities of ICRU Report 95 in standards and regulations.
- to assure that the project aligns with the needs of ISO and IEC by collaboration with the relevant standardization groups.

Results and Conclusions

The project aims to promote the implementation of the ISO 4037 standard series in laboratories, to assess the impact of the operational quantities of the ICRU Report 95 on daily measurements in radiation protection and to help manufacturers in implementing these new quantities. Furthermore, the outcome of this project will lead to improved and comparable procedures in calibration and type testing within Europe. Thus, GuideRadPROS will improve the confidence in radiation protection dosimetry.

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