

GuideRadPROS: Updating the basis of radiation protection dosimetry by harmonization, update and implementation of standards

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Purpose

The recent update of the ISO 4037, in conjunction with the new radiation protection quantities introduced in ICRU Report 95, present significant challenges to calibration laboratories and industry. Furthermore, there is a need to address gaps and conflicts between standards that set requirements for photon dosimeters, and to incorporate upcoming and new technologies into standardization.

Materials and Methods

The European Partnership Project 23NRM07 GuideRadPROS started in June 2023 and will address these issues in the next three years. The objectives are:

- to develop harmonized X-ray spectrometry in accordance with the ISO 4037 standard series, evaluate discrepancies between measured and calculated half value layer of X-ray spectra, and produce data to update requirements for reference X-ray fields.
- to develop guidance for the calibration of dosimeters.
- to produce guidance on validated procedures for harmonized type testing based on IEC standards.
- to assess future standardization needs and to produce a guidance document for the implementation of the new operational quantities of ICRU Report 95 into standards and regulations.
- to collaborate with ISO and IEC and users of their dosimetry standards to ensure that project outputs align with their needs.

Results

The outcome of this project will lead to improved and comparable procedures in calibration and type testing within Europe. Furthermore, the evaluation of the impact of the ICRU Report 95 quantities will allow for an informed realization of calibration fields.

Conclusions

GuideRadPROS will improve the confidence in radiation protection dosimetry, both via the promotion of the implementation of the ISO 4037 standard series, and via the assessment of the impact of the ICRU Report 95 operational quantities on daily measurements in radiation protection.

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