GuideRadPROS

EUROPEAN PARTNERSHIP

Co-funded by the European Union

METROLOGY PARTNERSHIP

EURAMET

22NRM07 GuideRadPROS

Harmonisation, update and implementation of standards related to radiation protection dosimeters for photon radiation

stuk RADIATION AND NUCLEAR SAFETY AUTHORITY

INMRI ENEA

CMI CZECH METROLOGY INSTITUTE

PTB Physikalisch-Technische Bundesanstalt National Metrology Institute

Ciemat Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas

Central Office of Measures

IST TÉCNICO LISBOA

IRB

TENMAK NÜKEN

EEAE ΕΛΛΗΝΙΚΗ ΕΠΙΤΡΟΠΗ ΑΤΟΜΙΚΗΣ ΕΝΕΡΓΕΙΑΣ GREEK ATOMIC ENERGY COMMISSION

Institutul Național de Metrologie

sck cen

QST

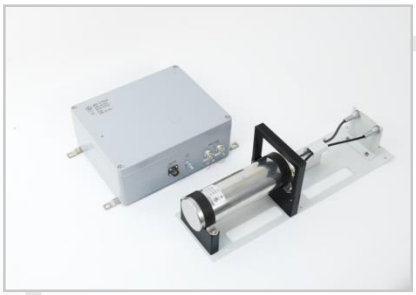
MIRION TECHNOLOGIES

cea

IMBIH

IPQ

22NRM07 GuideRadPROS

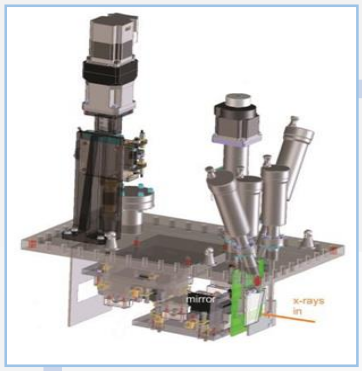


The recent update of the basic standard for photon reference radiation fields in radiation protection, ISO 4037, in conjunction with the new radiation protection quantities introduced in ICRU Report 95, present significant challenges to calibration laboratories and industry. Serious deficiencies that need to be solved became apparent during the initial implementation.

This project will provide guidance and protocols to metrology institutes, standardization bodies and regulators for a consistent and harmonized approach to radiation protection measurements and calibrations following ISO 4037. Proposals to update ISO 4037 and future needs for type testing and implementation of new quantities will be provided.

OBJECTIVES

1. To develop a harmonized approach to X-ray dosimetry, to evaluate the discrepancies in the determination of HVL and to produce data to update requirements for reference X-ray fields.
2. To develop a cost effective procedures and guidance for the calibration of dosimeters and determination of their response as a function of photon energy.
3. To produce guidance on validated procedures for harmonized type testing.
4. To assess future standardization needs and to produce a guidance document for the implementation of the new operational quantities of ICRU 95 into standards and
5. To collaborate with ISO and IEC and the users of their dosimetry.



OUTCOMES

What change do you expect to see after successful dissemination and exploitation of project results to the target group(s)?

Improved knowledge on limitations to current requirements in International Standards including uncertainties involved.

Harmonization of spectrometry techniques between NMIs to establish characterized reference fields for traceable calibrations in radiation protection.

IMPACT

What are the expected wider scientific, economic and societal effects of the project contributing to the expected impacts outlined in the work programme and call scope?

Scientific: A structured methodology for photon fluence spectrometry, recommendations on existing unfolding methods, determination of conversion coefficients and estimates of the uncertainty involved.

Economic/Technological: Improved quality, new CMC lines to be developed for customers.

Societal: Increase the use of spectrometric techniques at metrology institutes to characterise reference fields for traceable calibration of photon dosimeters in radiation protection.

PROGRESS BEYOND STATE OF THE ART

- ❑ Harmonized approach to X-ray spectrometry and implementation of ISO 4037.
- ❑ Training on requirements of ISO 4037 and calibration in reference fields.
- ❑ Validated procedures for harmonized type testing standards.
- ❑ Assess future standardization needs and produce guidance to implement new quantities into the standards.

The project (22NRM07 GuideRadPROS) has received funding from the European Partnership on Metrology, co-financed from the European Union's Horizon Europe Research and Innovation Programme and by the Participating States.

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or EURAMET. Neither the European Union nor the granting authority can be held responsible for them.

http://projects.ciemat.es/web/guideradpros-euramet