

17RPT01 DOSEtrace

***Research capabilities for radiation protection
dosimeters (DOSEtrace)***

IEC Meeting

April 2019 in Paris, France

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Project start date and duration:		01 June 2018, 36 months
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Project website address:		
Internal Funded Partners:	External Funded Partners:	Unfunded Partners:
1 IMBiH, Bosnia and Herzegovina 2 GUM, Poland 3 IRB, Croatia 4 IST, Portugal 5 PTB, Germany 6 SCK•CEN, Belgium 7 SMU, Slovakia 8 TAEK, Turkey 9 VINS, Serbia	10 EEAE, Greece 11 INM, Republic of Moldova 12 NSC-IM, Ukraine 13 USC, Spain	

- Timeline 01.06.2018 till 31.05.2021

Website: <http://dosetrace-empir.eu/>

The overall objective of this project is to improve SI traceable measurements of operational radiation protection quantities in the participating NMIs from emerging countries.

- Establish and harmonise the procedures for the calibration of radiation protection dosimeters (achieving a measurement uncertainty of 5 % ($k=2$) or less)
- Adequate equipment and procedures for measuring and assessing human exposure and radioactive contamination of the environment
- Research on operational quantities for external radiation exposure
- Research on secondary standards for eye lens dosimetry
- Preparation of individual strategies for radiation protection metrology development

1. To **develop traceable measurement capabilities** for operational radiation protection quantities, including the full characterisation of a measurement setup conversion procedure from air kerma to ($H_p(0.07)$, $H_p(3)$, $H_p(10)$, $H'(0.07)$, $H'(3)$, $H^*(10)$) operational quantities with an uncertainty of 5 % ($k=2$) or less. The applicable photon energy range and dose rate range are 5 keV to 7000 keV and 0.05 $\mu\text{Sv/h}$ to 100 Sv/h, respectively.
2. To **validate the developed measurement capabilities** for operational radiation protection quantities, to ensure that within an applicable energy range, from 5 keV to 7 MeV and dose rates, 0.05 $\mu\text{Sv/h}$ to 100 Sv/h, the accuracy of the dose measurement under well-defined calibration conditions has to be at least 5 % ($k=2$), by **organising and undertaking a intercomparison in dosimetry**, including activities related to travelling standards, technical protocols, logistical provisions, and the evaluation of intercomparison results.

3. To develop and **submit draft CMCs** for the traceable calibration of dosimeters, thus proving the international equivalence of their measurement standards and the calibration and certificates that they issue.
4. For each partner, to develop an **individual strategy for the long term operation of the capacity developed**, including possible regulatory support, research collaborations, quality control, the quality management system and accreditation. They should also develop a strategy for offering calibration services from the established facilities to their own country and neighbouring countries. The individual strategies should be discussed within the consortium and with other EURAMET NMIs/DIs, to ensure that a coordinated and optimised approach to the development of traceability in this field is developed for Europe as a whole.

WP1: Improving skills and measurement capabilities for radiation protection dosimeters

(PTB, GUM, IST, IMBiH, INM, IRB, NSC IM, TAEK, SCK•CEN, SMU, VINS, EEAE, USC)

- Task 1.1: Identification of the calibration services needed by the stakeholders and their training needs
- Task 1.2: Training Course for knowledge transfer
- Task 1.3: Hands on training in the laboratory at PTB

- Questionnaire to identify training needs -> only few but very diverted replies
- TC on Theory in Lisbon 09/2018
- TC Hands-on at PTB's Laboratory (3 runs a 2 days with about 10 persons) 03/2019
- Open: Development of a future Training Strategy

WP2: Validation of measurement capabilities for radiation protection operational quantities

(VINS, IST, IMBiH, INM, IRB, PTB, TAEK, EEAE, SMU, GUM, NSC IM, SCK•CEN, USC)

- Task 2.1: **Organisation of an intercomparison** of the calibration factors that are obtained by calibrating a transfer chamber
- Task 2.2: **Evaluation** of the intercomparison results

- Intercomparison started in 03/2019
- Comparison in $H^*(10)$ with HS01 Secondary Standard Ionisation chamber

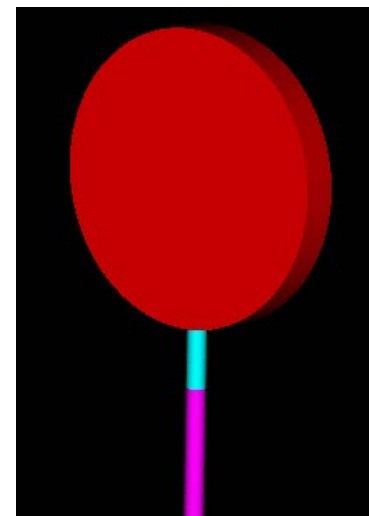


WP3: Research on measurement capabilities for operational Radiation Protection (RP) quantities

(SCK•CEN, EEAE, GUM, INM, IRB, IST, PTB, USC, VINS)

- Task 3.1: **Development of a transfer standard (ionization chamber) for a new personal dose response ($H_p(3)$)**
- Task 3.2: Verification of an initial version of an $H_p(3)$ secondary standard ionization chamber

- Development of three $H_p(3)$ chambers with different designs
- Monte Carlo simulations of chambers in progress



WP4: Traceability dissemination and strategy

(EEAE, SMU, GUM, IST, IMBiH, INM, IRB, NSC IM, TAEK, SCK•CEN, VINS, USC)

- Task 4.1: Preparation for the submission of **new or revised CMCs** for the traceable calibration of dosimeters
- Task 4.2: Preparation of individual strategies for long term operation of the capacities
- Task 4.3: Preparation of a draft radiation protection dosimetry strategy report responding to future challenges

WP5: Creating impact

(IRB, IMBiH, GUM, IST, PTB, SCK•CEN, SMU, TAEK, VINS, EEAE, INM, NSC IM, USC)

Task 5.1: Knowledge transfer

Task 5.2: Training

Task 5.3: Uptake and exploitation

WP6: Management and coordination

(IMBiH, GUM, IRB, IST, PTB, SCK•CEN, SMU, TAEK, VINS, EEAE, INM, NSC IM, USC)

Task 6.1: Project management

Task 6.2: Project meetings

Task 6.3: Project reporting

***DOSE**trace*



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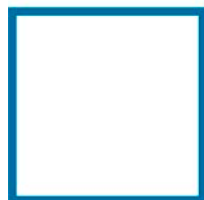
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The EMPIR initiative is co-funded by the European Union's Horizon 2020 research and innovation programme and the EMPIR Participating States