

Announcement of the EURADOS Intercomparison 2017 for Neutron Dosimeters (IC2017n)

EURADOS was created to be a scientific network of European laboratories involved in research in radiation dosimetry. The objective is to advance the scientific understanding and the technical development of the dosimetry of ionising radiation by stimulating collaboration between European facilities.

Over the last decade EURADOS has coordinated a Working Group on harmonisation of individual monitoring in Europe (WG2) entrusting its members with a variety of tasks. With the aim of improving the harmonisation of individual monitoring and helping individual monitoring services (IMs) to comply with ISO/IEC standard 17025, the Subgroup 2 (WG2-SG2) was assigned the task of setting up a self-sustained programme of personal dosimeter intercomparisons in Europe.

As a result of this work, EURADOS has successfully executed the 2008, 2010, 2012, 2014 and 2016 Intercomparisons for whole-body photon dosimeters, the 2009 and 2015 Intercomparisons for extremity dosimeters and the 2012 Intercomparison for neutron dosimeters. As a next step in the programme, EURADOS now has the pleasure to announce the **2017 EURADOS Intercomparison for neutron dosimeters**.

Scope

This intercomparison concerns the performance of neutron dosimeters intended to measure neutron personal dose equivalent $H_p(10)$ provided by individual monitoring services. The neutron dosimeters may be passive or active, but must be used **routinely** in individual monitoring of exposed workers. No systems under development will be allowed in the intercomparison. In case of active dosimeters, participants can be manufacturers, however, dosimeters will be used in the same way as passive dosimeters, i.e. they will be returned to the participant for reading and no processing of the dosimeter readings will be undertaken by the irradiating laboratories.

The irradiations, which will include exposures to neutrons and mixed fields of neutrons and photons, will be performed in accredited irradiation facilities in terms of $H_p(10)$. The range of energies used in the intercomparison will extend from thermal to several MeV, with different dose values and angles used. Most irradiations will be performed in neutron fields with no additional photon component, over and above that resulting from the neutron-producing process, e.g. the photons from a radionuclide neutron source. However, for some fields, an additional photon component will be included.

Participants are requested to only apply routine procedures as declared in the application form, where they can also declare whether they need additional simplified *a priori* information on the energy distribution of the radiation fields to allow correction of the bare results of neutron personal dosimeters. This information will be provided only to participants who request it. In case this extra information is provided, this will be mentioned on the intercomparison certificate.

Intercomparison procedure

IMs wishing to participate are asked to fill in the application form which can be accessed after registration on the IC2017n on-line platform (IOP; www.ic2017n.org). The Organization Group

will register each application and inform each participating IMS when their application has been accepted before the fixed deadline.

If an IMS wishes to participate with more than one type of dosimeter, a separate application form needs to be completed for each type of dosimeter.

The intercomparison will only take place if at least 30 participants register.

On acceptance of the application, the participant will receive an invoice from EURADOS and instructions on dosimeter labelling and despatch.

The **participation fee is 3200 Euro** per dosimetry system. EURADOS sponsors will pay a reduced fee of 2880 Euro for one system and 3200 Euro for any additional system.

Fees must be transferred in advance to the EURADOS bank account (free of bank transfer costs) after receiving the invoice from EURADOS. Refunding will only be possible in the unlikely event that the intercomparison is cancelled by EURADOS.

The fee was calculated on a non-profit basis and any surplus money will be used primarily for the purpose of harmonisation in individual monitoring and maintaining the expertise in this field within EURADOS.

For this intercomparison, each participating IMS shall provide a total of 40 dosimeters to the coordinator of the Organization Group:

- 28 dosimeters for irradiation,
- 4 transit dosimeters for background control,
- 8 spare dosimeters.

After irradiations have been conducted, the coordinator of the Organization Group will return the dosimeters to the participant for readout. Within one month after receiving the dosimeters, the participant must submit the results in terms of $H_p(10)$ in an online response form provided by the Organization Group.

After the deadline to submit results, the Organization Group will send the participant the irradiation data (reference doses, uncertainties and radiation qualities) and response values. Change to the results after distribution of the irradiation data will only be possible if errors are made by the irradiation lab or Organization Group.

After confirmation of the results, EURADOS will provide the participant with a "Certificate of Participation" including information on the radiation qualities, doses imparted, response values and overall uncertainties for all irradiations.

Intercomparison report

The Organization Group will prepare a report summarizing the results of the intercomparison. The report will mention the names of the IMSs that participated and the type of dosimeter used, but the results will be given anonymously. The final report publication is expected in 2018.

The results of the intercomparison will be presented in a meeting that will be organized to show and discuss the results among the Organization Group and the participants. It is planned to organize this meeting as a satellite event of the EURADOS Annual Meeting 2018. The exact date and place of this meeting will be announced in due course.

Intercomparison results will be considered by EURADOS as confidential data and will only be used for statistical purposes for technical and scientific studies. The Organization Group have

signed a confidentiality agreement and both the identity of the participants and the reference data will be known only to a minimum number of persons within the Organization Group.

Updated Time Schedule

First Announcement	October 2016
Registration of participation	After Annual Meeting AM2017
Deadline for registration	31 March 2017
Confirmation and provision of guidelines to participating IMS Distribution of the invoices	5 April 2017
Deadline for provision of dosimeters by IMS Payment deadline	5 May 2017
Irradiations	June to August 2017
Return of dosimeters for readout and evaluation	1 September 2017
Deadline for reporting results	2 October 2017
Confirmation of IMS results by Organization Group	30 October 2017
Participants' Meeting and issue of Certificates	Annual Meeting 2018

EURADOS Neutron Intercomparison 2017 Organization Group

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