

1 **Protocol for a CCRI(II) Pilot Comparison of Data**
2 **Processing Algorithms used in Radionuclide**
3 **Metrology**

4 Acronym: BIPM.RI(II)-P1.DPA

5 **Eric Macedo¹, Romain Coulon¹**

6 ¹ Bureau International des Poids et Mesures, Pavillon de Breteuil, F-92312 Sèvres
7 Cedex, France.

8 E-mail: eric.macedo@bipm.org

9 **1. General Information**

10 *1.1. Pilot institute*

11 Bureau International des Poids et Mesures (BIPM) - International
12 Organization

13 *1.2. Participants*

14 Laboratory details are given in Table ??.

Table 1: Details of the participants in the BIPM.RI(II)-P1.DPA.

NMI or laboratory	Previous acronyms or other institutes	Full name	Country	Regional Metrology Organization (RMO)
NIST	NBS	National Institute of Standards and Technology	United States	SIM
POLATOM	IBJ, RC	National Centre for Nuclear Research Radioisotope Centre POLATOM	Poland	EURAMET
PTB	-	Physikalisch-Technische Bundesanstalt	Germany	EURAMET

15 *1.3. Measurand*

16 The measurand for this exercise is activity per mass.

1.4. *Schedule*

Publication

- Protocol publication: **28th March 2025**

Registration

- Registering information: **28th March to 1st April 2025**

Dataset Distribution

- Dataset available on NuCodeComp/Comparison Info and sent by email: **28th March 2025**
- Dataset send by email: **28th March 2025**

Result Submission

- Opening date: **1st April 2025**
- Closing date: **10th June 2025**

Draft Review Process

- Draft A sent to participants: **1st May 2025**
- Draft A acceptance deadline: **1st May 2025**
- Draft B sent to participants: **1st May 2025**
- Draft B acceptance deadline: **1st May 2025**

1.5. *Registering*

For the registration step, the participant shall send to BIPM via email (*digital.ri@bipm.org*) the following information:

Acronym* [Ex.: BIPM]

Name* [Ex.: Bureau International des Poids et Mesures]

RMO* [Ex.: BIPM]

ROR identifier [Ex.: <https://ror.org/055vkyj43>]

Website [Ex.: <https://www.bipm.org/en/home>]

Responsible*

- **NAME*** [Ex.: Romain Coulon]
- **Email*** [Ex.: abc@bipm.org]
- **ORCID identifier** [Ex.: <https://orcid.org/0000-0002-6787-7486>]

Contributor (if different from Responsible)

- **NAME*** [Ex.: Romain Coulon]
- **Email*** [Ex.: abc@bipm.org]
- **ORCID identifier** [Ex.: <https://orcid.org/0000-0002-6787-7486>]

*For mandatory information

NOTE: If the institute/responsible/contributor is already registered, this information doesn't need to be delivered, unless the previous information has to be updated.

The institute shall register its software on the NuCodeComp/Laboratory Info (as can be seen on ??, item A.5), or by sending the following information via email (*digital.ri@bipm.org*):

Counting Software*

- **NAME*** [Ex.: Software A]
- **Version*** [Ex.: v1.0]
- **DOI** [Ex.: <https://doi.org/0000-0002-6787-7486>]

Activity Estimation Software* (if different from the Counting one)

- **NAME*** [Ex.: Software B]
- **Version*** [Ex.: v1.0]
- **DOI** [Ex.: <https://doi.org/0000-0002-6787-7486>]

*For mandatory information

NOTE: If the software is already registered/updated, this information doesn't need to be delivered.

1.6. Overall info

The BIPM shall be responsible for maintaining up-to-date the pilot comparison status reports to the Executive Secretary of CCRI(II) and leaving them available at the NuCodeComp/Comparison Info page for participants.

The software comparison brings no costs associated with preparing, calibrating, shipping, or other steps.

All results, method of standardisation, associated uncertainties, and any additional requested information shall be uploaded on NuCodeComp/Upload Comparison Data page. Alternatively, this information can be sent via email (*digital.ri@bipm.org*). The BIPM will have a “Participant level” (BIPM_Part) account to input its results, and another with “Pilot level” of access (BIPM_Pilot).

The comparison results are composed of the main results, related to the traditional activity estimation data, and the subset results, related to individual measurements that will provide some key metadata to be part of the comparison analysis. Some inputs are mandatory (*), and some are optional.

Participants shall provide (uploading as Attachment) a list containing the principal components of the uncertainty budget based on the Guide to the Expression of Uncertainty in Measurement, published by ISO. Uncertainties are evaluated at a level of one standard uncertainty, and information can be given on the number of effective degrees of freedom required for a proper estimate of the level of confidence, where this is appropriate.

The participating institute shall check the dataset information for any possible discrepancies or errors and report this to the BIPM.

2. Comparison report

The BIPM is responsible for preparing the comparison report. This report goes through several stages before publication, referred to here as Draft A and Draft B.

During the comparison, as results are received via the NuCodeComp digital platform or Microsoft Forms, they are kept confidential by the BIPM_Pilot until all participants have completed their measurements and all results have been received, or until the deadline for result submission has passed.

NOTE: The user tutorial for NuCodeComp can be accessed through the following link: [Down-](#)

[load the NuCodeComp User Tutorial](#)

A participant's result is not considered complete without an associated uncertainty and will not be included in the draft report unless it is accompanied by a full uncertainty budget. Uncertainties must be provided in accordance with the guidance outlined in the Technical Protocol.

If, upon reviewing the complete set of results, the BIPM identifies any that appear anomalous, the corresponding institutes are invited to check their data for numerical errors, without being informed of the magnitude or direction of the suspected anomaly. If no error is found, the result remains unchanged and the complete set of results is then circulated to all participants.

The Draft A report is prepared once all participant results have been received. It includes the results, associated uncertainties, standardisation methods, and experimental details provided by the participants, identified by name.

Once the Draft A report has been prepared, the comparison results will be made available to participants via the NuCodeComp Dashboard and through the regular reporting mechanism at this stage.