PROFICIENCY TESTING SCHEME PROTOCOL

Determination of the PM_{10} or $PM_{2.5}$ mass concentration of suspended particulate matter in ambient air

(PT PM-2025)

PT provider: JRC-ERLAP

CONTENTS

1 INTRODUCTION

JRC-ERLAP (European Reference Laboratory for Air Pollution –site of Ispra (IT)) has been organising ILCs amongst National Air Quality Reference Laboratories (NRLs) since the early '90s. JRC-ERLAP has implemented a quality system accredited ISO/IEC 17043 [6].

The Joint Research Centre of the European Commission (EC DG JRC) is responsible to organize quality assurance programmes in the EU. National Reference Laboratories (NRLs) take part to them as stated in the European Air Quality Directive[2].

The World Health Organization Collaborating Centre for Air Quality Management and Air Pollution Control (WHO CC) has been conducting similar activities since 1994 to collect consistent air quality data for health-related studies. Their program operates within the WHO EURO region, collaborating with public health institutes and other national institutes, particularly from Central Eastern Europe, the Caucasus, and countries in Central Asia.

Since 2004, there has been a decision to combine the efforts of both the JRC-ERLAP and WHO CC and to coordinate activities as much as possible to optimize resources and enhance international harmonization. This Inter-Laboratory Comparison exercise (ILC), as part of the EU quality assurance programmes, has the aim of assessing the comparability of $PM_{2.5}$ and PM_{10} measurements required by the European Air Quality Directive (2008/50/EC)[2] as well. The testing process is conducted by the Member States, according to EN 12341.

This document describes the proficiency testing scheme for the measurement of PM_{10} and $PM_{2.5}$ deposited on filters accepted by the EN 12341.

2 SCOPE OF THE PROFICIENCY TESTING SCHEME

The overall scope of this inter-laboratory exercise (ILC) is to enhance the comparability and accuracy of PM atmospheric concentration data produced within and beyond the current EU borders, and to assert or improve the technical capabilities of the participating laboratories.

Measurands of this ILC scheme are PM_{10} and $PM_{2.5}$ mass concentrations (in unit format $\mu g/m^3$), in the concentration range for the applicability of the EN 12341 [2] standard.

The primary goal is to assess participants' performance (i.e. proficiency testing, PT) in determining the PM concentrations, and to evaluate the accuracy of sampling and gravimentric analyses.

The reproducibility standard deviation is also determined for informative purposes only.

By taking part in the exercise, participants can detect possible problems in their analytical chain and take remedial actions (if necessary), or else prove the reliability of their analyses. Participants should follow their usual analytical procedure to maximize their involvement.

This document was drafted according to the principles of ISO/IEC 17043 [6].

This protocol refers also to the document N37 [4], produced and approved within the AQUILA network.

3 PT PROVIDER

The European Reference Laboratory for Air Pollution of the EC DG JRC (JRC-ERLAP) (via E. Fermi 2749, I-21027 Ispra (VA)) takes the legal responsibility for all activities of the proficiency testing.

JRC-ERLAP does not make use of any externally provided products and/or services for any of the operations involved in the PT.

JRC-ERLAP has the competence and impartiality to run ILCs (according to ISO/IEC 17043 [6]), and the expertise and experience to perform measurement of ambient particulate matter collected on filters and it apply procedures in compliance to the requirements of ISO/IEC 17025-[3]).

Personnel involved in the organization and measurement:

- Jean Philippe Putaud (PT coordinator) jean.putaud@ec.europa.eu;
- Claudia Tarricone (testing technician and statistical analysis) claudia.tarricone@ec.europa.eu;
- Annette Borowiak (testing technician and logistic) annette.borowiak@ec.europa.eu
- Maurizio Barbiere (testing technician and logistic) maurizio-giuseppe.barbiere@ec.europa.eu

All official communication is managed through a functional mailbox: **JRC-ERLAP@ec.europa.eu**

4 CRITERIA FOR PARTICIPATION

The number of expected participants is around 30.

Participation in the PT scheme round will be granted in priority to:

1- National Reference Laboratories, as key stakeholders in the implementation of the European Air Quality Directives. (one instrument for $PM_{2.5}$ and one for PM_{10})
2- Other Laboratories, if places are available
3- Additional instruments can only be installed with prior authorization from the PT organizer.

After a possible selection process, applicants receive an automatic message stating either the acceptance or rejection of their application.

5 TYPE, FREQUENCY AND DURATION

The absence of certified reference materials and the difficulty of creating a traceable $PM_{2.5}$ and PM_{10} aerosol atmosphere in the lab mean that ILCs for the gravimetric measurements of particulate matter are carried out through field tests during which the EN reference method [2] is implemented by National Reference Laboratory (NRL) and/or other participating organizations.

Organizing such ILCs is logistically complex and incurs significant costs for the participants, which is why they are typically arranged at a suitable outdoor location. An ILC sampling period generally spans 6-8 weeks, and additional

time must be accounted for to set up the equipment, allow for its stabilization ('warming up'), and to dismantle it post-testing.

The PT is normally organised every three years starting, typically, in January.

6 INVITATION

To allow every laboratory to participate in any ILC proposed, the announcement will be sent, at least 3 months in advance, to the AQUILA group and WHO CC representatives. The JRC will invite the NRLs and other potentially interested laboratories via an invitation letter and the WHO CC will invite public health institutes and other national institutes of its network.

7 PT ORGANIZATION

Facilities and environmental conditions

The sampling area has a surface of 800 m^2 (Figure 1). There are no major sources of error (for example contamination sources) involved in the area, as verified in the previous PT.

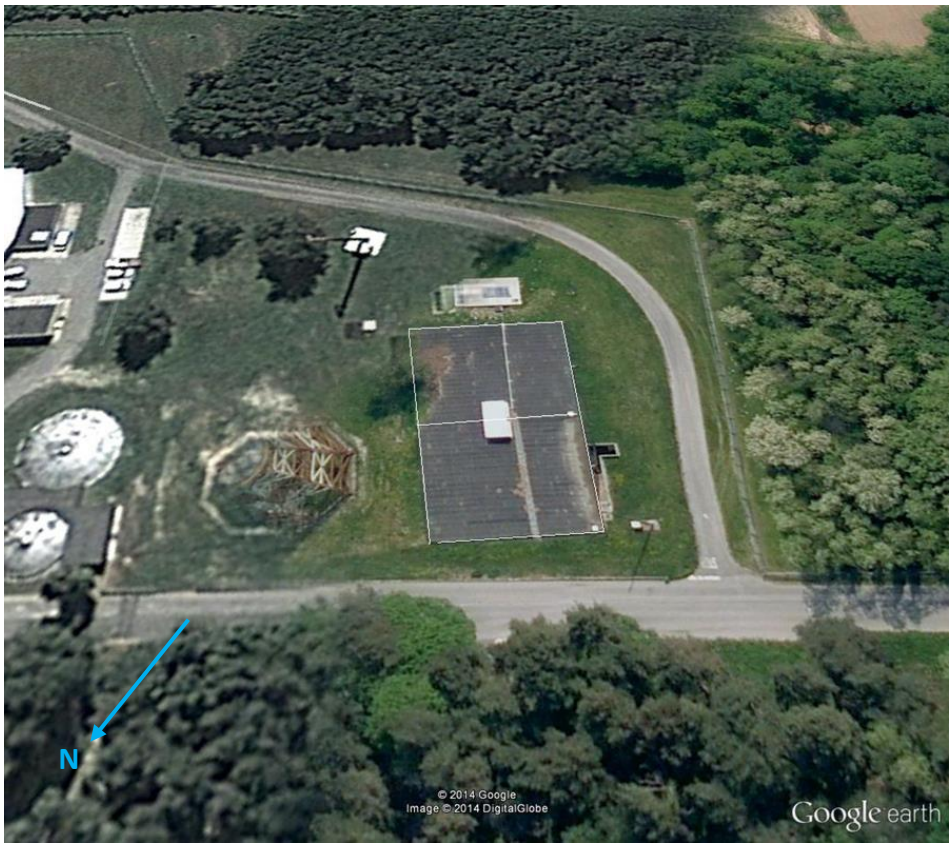


Figure 1: ILC sampling area.

Sampling has to be carried out by the participating laboratories for 24h with sequential samplers. Participants shall bring their own filter samplers for PM_{10} and for $PM_{2,5}$ sampling, equipment and consumables for all phases of verifications checks (flow, temperature, pressure,…). Equipment will be installed by the participants in the sampling area selected by the organizer.

Laboratories are invited to bring additionally automated PM monitor system (AMS). They need to be installed in their proper housing, as JRC-ERLAP does not provide any container for installation and no mobile laboratories are allowed. Data from non-reference instruments will be reported in annexes.

JRC-ERLAP will carry out the sampling with a minimum of two sequential samplers Leckel SEQ 47/50 for $PM_{2.5}$ and two for PM_{10}. The filter material used by JRC-ERLAP will be Quartz fibre. All filters shall be conditioned and weighed by participants at their own facilities before and after sampling according to EN12341.

Each participant has to have one 20 m electrical cable and a multi socket (at least two outlets) adaptor 16A (Figure 2) IP55 (International Protection Code 55 or better) to connect their samplers to the JRC power supply system. The JRC power supply will be composed of female 16A P+N+E 230V CEE plugs, so the participants have to bring a male connection (Figure 2).

Figure 2- Adapter/plug (on the left) needed by participants to connect their cable & multi socket adaptor (on the right) to the JRC power supply.

In order to protect the surface of the roof all participants have to bring a **suitable platform for each sampler**, for example a 100 x 100 cm wooden panel (Thickness 1-2 cm) as a basis for each sampler. Alternatively a EURO-Palette (80 x 120 cm) can be brought for each sampler, provided that the sampler can be mounted in a stable way onto it. Please note that JRC cannot provide panels and **no sampler will be admitted without** them on the sampling platform.

JRC-ERLAP staff will generally not perform filter changes for other participants during the ILC. In exceptional cases, JRC staff can change already prepared filter-holders (e.g. for Digitel samplers) and/or ready-to-use-cartridges with 14 (or more) unloaded filters. In such a case the used equipment must be labelled accordingly and a written procedure describing the action needed is to be delivered by the participant to JRC-ERLAP staff.

In order to limit the presence of people at the sampling site, the installation of the instruments will be split into different days. JRC-ERLAP staff will support the installation by participants as much as possible. JRC-ERLAP staff will be available to perform visual checks of the functioning of the sampling instrumentation.

A “Standard Operating Procedure” for such a visual check that participants would like JRC-ERLAP staff to apply must be handed over to JRC-ERLAP during the installation. In case of malfunctioning instruments, JRC-ERLAP staff will contact the concerned laboratory and agree on how to solve the problem.

Participants can use the JRC-ERLAP laboratory in building 100 as a meeting point during the time of their visits in Ispra and for filter changing or instrument maintenance. Information about ambient meteorological data will be registered during the ILC. On request, the meteo data recorded during the ILC will be made available to participants.

8 TIMELINE

A summary of the timeline of this PT scheme is following:

15 September 2024

- Application: opened at least three months before PT starts and one month after;

15 October 2024

- Acceptance/rejection of participation: within one week from the application period closure;

20-22 January 2025

- Installation

23 January 2025

- Start sampling: @00:01 h UTC

5 March 2025

- End of sampling period @24:00 UTC

10-12 March 2025

- Dismantling

4 April 2025

- Closing result submission period

18 April 2025

- Prior to the use of any statistical test to identify outliers, the PT provider performs a visual review of the results to spot obvious blunders (due to e.g., incorrect units, decimal points errors, or switched results from different PT items) and inform interested participants.

30 April 2025

- Within 2 weeks after notification, contacted participants shall return explanation and any potential corrected results;

31 July 2025

- The report is distributed to participants for comments (on formal aspects only) within 2 weeks (the statistical evaluation cannot be modified).

30 September 2025

- The final report is made available to participants and interested stakeholders. Due to PT's publication procedures, delays are possible. Participants will be informed in case of delay.

Participants shall provide the PT provider with feedback regarding all aspects of the PT scheme round using the form in Annex 1.

Participants may use the form in Annex 1 to communicate complaints and appeal to the PT provider.

9 WEB APPLICATION

EU Login is the European Commission's user authentication service.

It allows authenticated users to access a wide range of European Commission applications using a single username (i.e. email address) and password-, among which the JRC-ERLAP platform for proficiency testing scheme and data acquisition (PT-DAP).

Authentication: EU login

- open https://erlap-intercomparison.jrc.ec.europa.eu Proficiency Test Data Acquisition Platform (PT-DAP) and click “subscribe”;
- if you are a new user and do not have an EU Login account yet, create a new EU login account;
- fill in all mandatory fields (i.e., First name, Last Name, email, confirm email and e-mail language) and acknowledge the privacy statement, then click on "Create an account";
- you can now be authenticated using your e-mail and password.

Authorisation: Subscription to the JRC-ERLAP PT-DAP:

- fill in the subscription form, accept the privacy statement, enter the verification code and click “send”;
- you receive an e-mail with a validation link. Click on the link to confirm your e-mail and access the JRC-ERLAP PT-DAP;

Application to the PM PT scheme round:date,

- duly fill in the application form (participant and laboratory details, information about sampling and analytical instruments, power consumption, network membership, accreditation, etc.);
- accept all procedures, terms and conditions as described in the PT plan.
- you receive a notification of successful application;
- either when your laboratory is accepted or rejectd to participate to the round you will receive a notification from our staff before the PT scheme is open to data submission (with a maximum of one month time from your request to partecipate).

Submission of results:

- access the PT-DAP, select PT scheme and click “result submission”;
- upload your results (values can be modified until the submission deadline):
  - from the drop down list, select one measurand at a time;
  - Fill in the instrument brand and the an unique code for the selected instrument (serial number)
  - Click the check box if you have a cooling system
  - Filter: type (drop down list), brand, code
  - Blank value (µg/m^3) associated to filter batch (date from/to)
  - fill in and upload the .csv file with date, concentration results, combined and expanded uncertainty (µg/m^3)(details are reported on the PT-DAP web page);
  - repeat it for each measurand/instrument.
- when your data are submitted and correctly uploaded your results are displayed on the web page and a notification of successful submission is sent by email. If not received, contact PT coordinator (Par.3);
- you may modify your results any time before the “result submission”period closure by accessing your account.

Report, feedback, complaints and appeal

- participants receive a notification when the report (including the statistical evaluation, together with indicators of their laboratory performance) is available for comments and the final document is published;
- participants may communicate to the PT provider feedback, complaints and appeal, using the form in Annex 1.

The web application and the database are hosted and maintained by the JRC-ERLAP in Ispra (IT). The use of the web application and database is regulated by the European Commission Legal Notice and JRC Privacy Statement.

10 IMPARTIALITY

The reputation of the JRC as Science and Knowledge Service of the European Commission is built on the quality of its research and on the intellectual rigour with which it prepares and presents scientific evidence. Independence, objectivity and transparency are crucial for the trustworthiness of the JRC's research work. Proper conduct of research requires high standards of integrity based upon principles and professional responsibilities among staff.

Our Responsibilities:

- Integrity: We pursue our activities in an honest and transparent manner with the obligation of giving scientific support and trustworthy advice.

- Independence and impartiality: We do not seek or take instructions from EU institutions or any other body regarding our scientific methods and the presentation of results.

- Ethical considerations: We adhere to the JRC Code of Conduct, the Commission's rules regarding Ethics and Integrity, the principles reflected in the charter of Fundamental Rights of the EU and the ethical rules and principles of the countries in which we operate.

11 CONFIDENTIALITY

For the purpose of discussion and mutual assistance (e.g. to improve participant performance), results and performance are reported together with the identity of participants.
Instead, personal data (e.g. address, e-mail address, telephone number) are confidential and cannot be disclosed to third parties, according to the European Commission Legal Notice and JRC Privacy Statement.
By expressing its own interest in participation, each applicant agrees on the above privacy and confidentiality policies.
To provide permanent and public access to PT results, a digital object identifier (DOI) is associated to the report.

12 COLLUSION AND RESULTS FALSIFICATION

Collusion between participants and falsification of results are contrary to professional ethics. Such conduct annuls the benefit of PT schemes for the participants and provider. It defeats the objective of taking part in PT schemes if participants are not returning genuine results.

The PT provider conducts its program in the belief that participants perform the analysis and report results with scientific rigor. By expressing its own interest of participation, each applicant commits himself/herself not to falsify the results which were obtained and refrains from any collusion with other participants.

In case a suspected event of falsification of results and/or collusion among participants can be demonstrated, the participants involved will be excluded from the PT data evaluation.

13 FEES AND COST

No fees are charged to participants. Transport and accommodation will be at your own cost.

14 CERTIFICATE

No certificate will be issued for the participation to the PT.

15 TESTING METHOD

The testing process (sampling, handling, storing and transporting condition, testing) has to be conducted by the participants according to EN 12341.

Each laboratory should sample with the filter types normally used in their usual routine measurement process, eventually suitable for the sampling site (e.g. at the Ispra site during winter high PM concentrations up to 50-100

µg/m^3 can occur, as well as meteorological conditions with fog) of the ILC and the EN method. The 24 h sampling periods start at 0:00 UTC.

16 PERFORMANCE ASSESSMENT

The ILC assessment is based on assigned value and performance indicators.

Other evaluations, based on ILC data, could include interferences effects and/or reproducibility calculation of standardised measurement methods, according to ISO 5725-2 [4]. The reproducibility could be used as an indicator of the trend of the quality of measurements from one ILC to other ones (ISO 13528 § 8.7.2) [5] or longer time series [6]. The reporting of results of these tests is only informative.

At an early stage of the evaluation of the PT scheme results and prior to use of any statistical procedure, the PT-provider conducts a review of the entire dataset to identify obvious blunders (e.g. reporting results in incorrect units, switching results from different PT items, transcription/typing errors). If blunders are identified, the PT providers asks relevant participants for clarification and possible corrections.

16.1 Homogeneity and Stability

Homogenity of the sampling area is obtained through an appropriate deployment of instruments at the corners of the field. The averaged residual between the daily measurements of the instruments at the opposite corners is used as an estimate for the uncertainty contribution of inhomogeneity (u_{inhom}) of the sampling field. If the u_{inhom} is lower than $(u_{bs})_{max}$ =2µg/m^3, as provided in the EN12341[2], the field is considered homogenous, otherwise the u_{inhom} will be added to the uncertainty budget of the assigned value .

The stability of filters could be attributed to the volatilization of semi-volatile components. This is already accounted for in the uncertainty budget contribution as outlined in EN 12341 [2], paragraph 9.3.2.4. When the constraints specified in the EN standard are adhered to, the impact of this loss can be considered negligible. The stability of the mass measurements is further confirmed through two separate weighing sessions for blank and loaded filters, respectively.

16.2 Assigned values

The assigned values x_{pt} are obtained from JRC-ERLAP's data.
As the European Reference Laboratory for Air Quality, JRC-ERLAP, in agreement with the members of AQUILA (potential PT participants), has decided that its results are the reference values for evaluating the performance of NRLs.
The uncertainty of the assigned value will be calculated by JRC-ERLAP as described by the EN 12341 [2] method.

$$u(x_{pt}) = \left(\frac{u_{m\_ref}^2}{(m_l - m_u)^2} + u_{f\_ref}^2 + \frac{u_{bs\_ref}^2}{C^2}\right)^{1/2} * C \qquad \text{Equation 1}$$

Where:
$u(x_{pt})$= uncertainty of reference value
u_{m_ref} = mass uncertainty of Erlap
(m_l-m_u) = mass loaded – mass unloaded, calculated at the level of L
u_{f_ref} = flow uncertainty of ERLAP (%)
u_{bs_ref} = between sampler uncertainty of ERLAP
C= actual PM concentration (daily average)

u_{bs_ref} is calculated based on the values obtained by the two instruments deployed at the opposite corners of the sampling field. u_{bs_ref} also includes the contribution of inhomogeneity.
The Expanded Uncertainty of the Assigned Value $U(x_{pt})$ is calculated according to equation 2 using the constant k=2 as coverage factor:

$$U(x_{pt}) = 2 * u(x_{pt}) \qquad \text{Equation 2}$$

where:

$U(x_{pt})$ = Expanded Uncertainty of the Assigned Value
$u(x_{pt})$ combined Uncertainty of the Assigned Value

The assigned values x_{pt} will be confirmed by comparison to robust averages x^* (ISO 13528 § 7.8) [5] using the following equation.

$abs(x^*-x_{pt}) > 2*((u^2(x^*)+u^2(x_{pt})))^{1/2}$ Equation 3

If JRC-ERLAP's measurements fail to pass this confirmation test (Equation 3), the reason will be investigated.
In case of systematic bias that involved more than 10% of the results, the assigned values will be calculated as the consensus values (robust averages) from participant's results (ISO 13528 § 7.7 [5])
When the assigned value is calculated as consensus from the participant values according to ISO 13528 (§ 7.7 [5]), then the uncertainty of the assigned value will be calculated with the equation 4 (ISO 13528 § 7.7.7[5])

$$u(x_{pt}) = 1.25 * \frac{s^*}{\sqrt{p}}$$ Equation 4

Where:
$u(x_{pt})$ = standard uncertainty of the assigned value
s^*= Robust Standard Deviation
p = number of participants

17 STANDARD DEVIATION FOR PROFICIENCY ASSESSMENT

As σ_{pt} of the ILC, the measurement uncertainty of the method as described in EN 12341 [2] is taken. This provides an independent criterion from the participants' performance and permits a trend evaluation of NRLs performance. σ_{pt} is calculated for each concentration level with:

$$\sigma_{pt} = \left(\frac{u_m^2}{(m_l-m_u)^2} + u_f^2 + \frac{u_{bs}^2}{C^2}\right)^{1/2} * C$$ Equation 5

Where:
σ_{pt}= Standard deviation for proficiency assessment
u_m = mass uncertainty (47µg/m^3)
(m_l-m_u) = mass loaded – mass unloaded, calculated at the level of L
u_f = flow uncertainty (1.3%)
u_{bs} = between sampler uncertainty
C= actual PM concentration (daily average)

18 PERFORMANCE INDICATOR

The proficiency of the participants is assessed by calculating the z or z'-score as performance indicator. The z or z'-score checks whether the difference between the participants measured value and the reference value remains within the limits of a common criterion.

NRLs overall satisfactory results of z or z' score evaluation for PM_{10} and $PM_{2.5}$ shall be more than 80% of satisfactory results (z or z' score ≤ 2) for each variables and data coverage more than 90%. In case of unsatisfactory results, JRC-ERLAP will agree with the laboratory the remediation measures to apply before repeating participation for this parameter at the next ILC.

In addition, the En score is evaluated. The En score can be useful to evaluate participants' ability to have results close to the assigned value within their claimed expanded uncertainty. Incorporating information on uncertainty

into the result of PT can be useful in improving participants' understanding of measurement uncertainty and its evaluation.

Other indicators may be used in addition to evaluate the laboratory's performances (D%, PAi, etc.) as described in ISO13528[2]

18.1 z-score and z'-score

The evaluation of the ILC results will be carried out according to the ISO/IEC 17043 [6] and ISO 13528 [5].
Proficiency of participants will be evaluated with at least two performance indicators:
The *z-score* or *z'-score* method [6] will be used to demonstrate the capacity of NRLs to perform measurements in accordance with the EN standard. When there is concern about the uncertainty of the assigned value ($u(x_{pt})$) for example. $u(x_{pt}) > 0.3\sigma_{pt}$, then *z' score* is applied.

The *z-score* will be calculated as described in ISO:13528 (§ 9.4 [5])

$$z_i = \frac{(xi - x_{pt})}{\sqrt{\sigma_{pt}^2}} \qquad \text{Equation 6}$$

The z'-score will be calculated as described in ISO:13528 (§ 9.5 [5])

$$z_i' = \frac{(x_i - x_{pt})}{\sqrt{\sigma_{pt}^2 + u^2(x_{pt})}} \qquad \text{Equation 7}$$

Where:

- z_i = z-score
- z_i' = z'-score
- x_i = participant average value
- x_{pt} = assigned value
- $u(x_{pt})$ = uncertainty of the assigned value
- σ_{pt} = Standard deviation for proficiency assessment

When a participant reports an entry that produces a bias greater than +3 z or less than -3 z (i.e. deviating from the assigned value for more than 3 standard deviations), this entry is considered to give an "action signal". Likewise, a participant bias above +2 z or below -2 z (i.e. deviating from the assigned value for more than 2 but less than 3 standard deviations) is considered to give a "warning signal". A participant bias between -2 z and +2 z indicates a satisfactory participant performance with respect to the standard deviation for proficiency assessment.

Participants showing large (|z-scores|> 2) and/or systematic biases shall carefully examine their measurement procedure and identify appropriate corrective actions that are likely to prevent the recurrence of such results in the future.

18.2 E_n score

The $E_n$score method will be used, as second performance indicator, to demonstrate that the difference between the participants' results and the assigned values remains within the participants' claimed uncertainties and the uncertainty of assigned values. The En-scores are calculated for all participants reporting measurement uncertainties, the latter being mandatory for NRLs.

$$E_n = \frac{x_i - x_{pt}}{\sqrt{U^2(x_i) + U^2(x_{pt})}} \qquad \text{Equation 8}$$

Where:
E_n = E_n score
x_i = participant average values

x_{pt} = assigned value
$U(x_i)$ = expanded uncertainty of the individual participants
$U(x_{pt})$ = expanded uncertainty of the assigned value

19 RELEVANT REFERENCES:

1) Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on ambient air quality and cleaner air for Europe, L 152, 11.06.2008 and Directive 2015/1480/EC, 28.08.2015.
2) EN 12341:2023, Ambient air - Standard gravimetric measurement method for the determination of the PM_{10} or $PM_{2,5}$ mass concentration of suspended particulate matter.
3) ISO/IEC 17025:2017, General requirements for the competence of testing and calibration laboratories.
4) ISO 5725-2:2019, Accuracy (trueness and precision) of measurement methods and results – Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method.
5) ISO 13528: 2022, Statistical Methods for use in Proficiency Testing by Inter-Laboratory Comparisons.
6) ISO/IEC 17043 [6], Conformity assessment - General requirements for the competence of proficiency testing providers.

20 LOGISTIC

Registration, accommodation and transport

All participants must register their presence at the JRC. The meeting will be inserted into our JRC event registration system and it will be possible to access it via https://web.jrc.ec.europa.eu/remjrc/screen/meetings .

Create a user account (if the visitor does not have one from a previous event to the JRC site) and then register for the meeting called "PM INTERLABORATORY COMPARISON EXERCISE".

The opening and deadline for the registration will be defined on the web page.

Each participant's laboratory (max. 2 per laboratory at the same time) has to register on the website for the first visit when the installation of the sampler takes place.

Transport to/from airport of the participants (not of goods) and entrance permits will be provided based on the data submitted via the website.

Visitors with non EU passport that never entered at the JRC before, should send a passport copy to Annette Borowiak at least one month before the first entrance. For every further visit to the JRC, a new permit request has to be submitted to Annette Borowiak ten working days before.

The entrance permit for the participants will be prepared by Annette Borowiak on the basis of the passport details that were given during registration on the web. The entrance permit allows visitors to stay in the JRC from 8.30 am till 18:30 pm for all activities of installation/dismantling and filter changing.

JRC will not reimburse any travel expenses for participants or shipment costs for equipment.

The online registration will allow JRC to:

- Arrange transportation if necessary, e.g. pickup shuttle service from Milan Malpensa Airport or train station in Milan and transport from the JRC to the hotel.
- Make the hotel booking for you if necessary to facilitate the local transport.
- Ensure that you are registered with our security office to actually have access to the site for the meeting days.

All the participants will be informed about safety and security in the site and it will be discussed how to behave in case of emergency alarm (see chapter 5).

21 HOW TO REACH ISPRA

The closest and more convenient airport to Ispra is Milan Malpensa (MXP). By car the closest motorway exits are Sesto Calende or Castelletto Ticino and then follow direction for Ispra-Euratom.

22 ACCOMODATION

Due to limited hotel resources in the area, JRC usually pre-books the hotel. When registering the participation through the JRC event registration system, it is important to select the 'accommodation' check box, fill in the details and JRC will handle the booking (the ILC participant has to pay for the accommodation at the hotel).

In case the ILC participants prefer to have a different accommodation it can be organized personally but it is kindly requested to fill in the online registration form accordingly. For a self-booking, JRC organization cannot provide the transport management.

23 CUSTOM OFFICE

All the equipment used during the ILC has to go through the custom office of the JRC.
Shipment: equipment must be labelled with the address of the proficiency provider (see par. 3). When the equipment arrives at the custom office in Ispra, a delivery note (list of goods) and a pro-forma invoice (value of goods) must be provided with the equipment and a note "MATERIAL FOR TEST" must be included in all documents.

When the equipment is shipped, please inform the reference persons of the ILC in Ispra (Claudia Tarricone, Maurizio Barbiere and Annette Borowiak). The last day before leaving, the equipment must be packed with the appropriate labels indicating destination and reference name, further the delivery from our Customs Office has to be booked by the participant.

Private transport: the first day you have to go through the Customs entrance of the JRC (opening hours Mon-Thu: 08:30 - 11:45 and 13:30 - 17:00, Fri: 08:30 – 11:45 and 13:30 –15:45), which is about 500 m to the West of the main JRC entrance.

For both (Shipment and Private transport) a list of your equipment and an estimated value (proforma invoice) for the customs should be prepared in advance. All non EU participants should use an ATA Carnet for goods transport.

Example of proforma invoice list:
-1 Leckel analyzer
-1 Derenda analyzer
-1 computer
-1 tool box
Estimated value: for example, 50.000 Euro

From the customs you may drive directly to the sampling area at building 35 (see annex 4). **Keep safe the papers (proforma invoice) received from the customs office** because they are requested for taking the equipment out of the JRC on the last day!

24 SAFETY

JRC Ispra Site has one emergency number: +39 0332 78 9999. We strongly recommend you to memorize the number on your mobile at the very beginning of the list, in order to have it when needed. It is for both medical and non-medical emergencies.

We would invite you not to walk around if you are not accompanied by JRC staff. It is forbidden.

At JRC Ispra premises, Italian legislation for Safety at Work (D.lgs. 81/2008) is implemented.

Be sure you wear adequate work safety equipment, like work gloves and safety shoes.

Pay attention to signs:

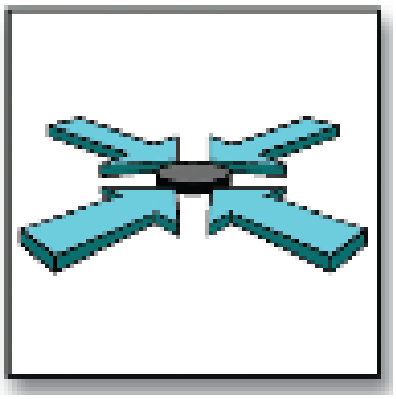
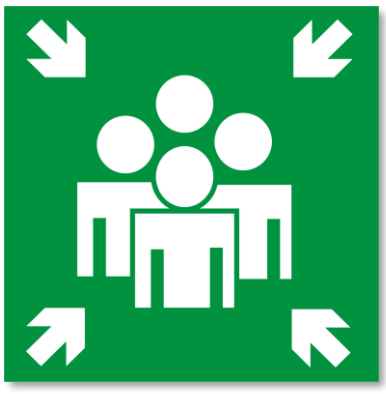
- any circular plate, with a red diameter, indicates a forbidden action

- any plate with blue background indicates a recommendation.

A fire extinguisher is placed at the entrance of the ILC area.

We would invite you to respect JRC colleague's indications regarding safety and installation timing, to avoid too many people on place.

Below are shown the two meeting points (Figure 4) in case of emergency. **For nuclear emergency** a **double siren tone** will be heard and everybody must go to the internal assembly point (inside building 64 – see map in annex 4). In case of **non-nuclear emergency** the alarm will be **a single tone** sound and everybody is requested to go outside of building 64 and stay close to the external assembly point.

 Posto di Raduno Internal assembly point in case of nuclear emergency (double tone siren)	 Punto di Raccolta External assembly point in case of non-nuclear emergency (single tone siren)

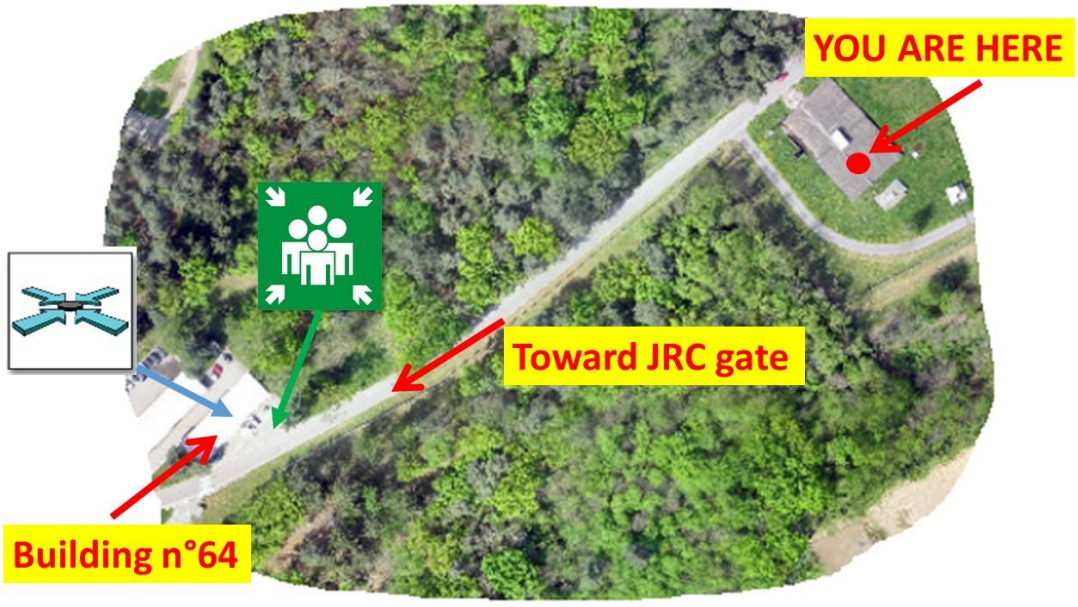


Figure 3 emergency symbols and meeting points

ANNEX 1: FEEDBACK/APPEAL/COMPLAINT FORM

During a PT scheme round, any concerns, suggestions or suspected errors should be reported to the PT provider. This form should be addressed to the PT provider team.
Errors made by the participants in data entry cannot be corrected after the report is issued and these errors are not grounds for appeal.

Laboratory and participant name:

PT scheme: PM YYYY-n

General Feedback:

Timelines	Below expectations	Met expectations	Above expectations	N/A
Respect of timeline	☐	☐	☐	☐
Deliverable	Below expectations	Met expectations	Above expectations	N/A
Respect of requirements	☐	☐	☐	☐
Form	☐	☐	☐	☐
Content	☐	☐	☐	☐
Overall Quality	☐	☐	☐	☐
Information/ Communication	Below expectations	Met expectations	Above expectations	N/A
Interaction with PT provider team	☐	☐	☐	☐
Comments				
Any additional general comment (especially for explaining the reasons for “below expectations")				

If you would like to file an appeal/complaint, please use the box below:

Description of Appeal/Complaint:

Date: Name and Function: Signature: