

Hellenic Accreditation System S.A
PT policy

**ESYD POLICY
RELEVANT TO PROFICIENCY TESTING SCHEMES AND
INTERLABORATORY COMPARISONS**

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ESYD PDI

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1. Scope and definitions

- 1.1 This document (ESYD PDI) describes the ESYD policy relevant to Proficiency Testing Schemes and Interlaboratory Comparisons and the participation of testing/calibration laboratories.
- 1.2 In this document the following definitions, according to ELOT ISO/IEC Guide 43-1:1997, are applied:

“Proficiency testing is the determination of laboratory testing performance by means of interlaboratory test comparisons»

“Interlaboratory comparison is the organization, performance and evaluation of tests on the same or similar test items by two or more laboratories in accordance with predetermined conditions»

2. Criteria of acceptance of PT providers by ESYD

- 2.1 ESYD accepts those PT providers which their Proficiency Testing Schemes fulfill the requirements of the ELOT ISO/IEC Guide 43-1 and of the ILAC-G13:2007. The providers of such schemes should implement a Quality Management System which assures the satisfaction of the requirements included in the above mentioned documents.
- 2.2 ESYD accepts the PT providers which are accredited according to Guide ELOT ISO/IEC 43-1 and ILAC-G13:2007.
- 2.3 In the case where the PT Scheme is organized by a non-accredited provider, the participated laboratory should have evaluated it according to the provider;s compliance with the requirements set by the ELOT ISO/IEC Guide 43-1 και ILAC-G13:2007. The compliance of the provider will be demonstrated by provision of appropriate documented information concerning:
- the implemented QM System
 - the confirmed experience in organizing such PT schemes
 - the data for sample designation and handling
 - the analysis of the testing/calibration data and the subsequent determination of laboratory testing performance
 - the establishment of the reference values and the relevant uncertainties from testing/calibration laboratories, able to demonstrate the traceability of their measurements to National or International Standards, in accordance with ELOT EN ISO/IEC 17025 requirements (see §5.1).

The above information will be collected by the participating laboratory and evaluated by ESYD.

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3. Laboratory obligations

- 3.1 The testing/calibration laboratories shall demonstrate their performance through their participation in appropriate PT Schemes by means of interlaboratory test comparisons.
- 3.2 ESYD considers as mandatory the participation of the accredited laboratories and of those which are under assessment, in PT schemes organized by the EA .
- 3.3 The accredited laboratories and those laboratories which are under assessment are obligated to be kept informed about the available PT organized by EA. This information may be provided by the EA website.
- 3.4 The participation of the laboratory, at least, to one (1) PT scheme per «type»¹ of test/calibration, taking into consideration the availability of relevant schemes, is a prerequisite for granting accreditation. For calibration laboratories in particular, multilateral schemes are generally considered to be more suitable and therefore preferred, over corresponding bilateral ones. However participation in a suitable bilateral scheme cannot be excluded under special circumstances, i.e. in the case of absence of a suitable multilateral scheme, etc. The evaluation, by ESYD, of the laboratory performance is described in Clause 4.
- 3.5 The participation of laboratories in Proficiency Testing schemes should be taking place in such frequency that confidence in their technical competence for types of testing and/or calibration will be established-providing that such schemes are available. The assessment of laboratory's participation is conducted as described in Section 4. In the following Tables for "type of testing" and "type of calibration" the required frequency of participation is presented, for each type of testing and/or calibration. For calibrations, if the laboratory, based on the measurement capabilities of its scope, must participate in an interlaboratory comparison of a calibration "type" which covers a large range of instruments/ quantities, then it should plan its participations, so that every four years it participates in a scheme with a different calibration object, i.e. a dimensional measurements laboratory is accredited for calibrating vernier calipers, micrometers and measuring tapes. According to the classification provided in the table with the "types" of calibrations, in conjunction with the information given in the table with the classifications of dimensional measurements, the particular instruments fall into the category "linear dimensions and hand instruments". The laboratory fulfills its obligation for participating in an interlaboratory scheme for the corresponding measuring capability, by selecting a scheme for calibrating vernier calipers in the 1st fourth-year period, micrometers in the 2nd and measuring tapes in the 3rd (order arbitrary). Therefore, participating every four years in schemes with exclusively the same calibration object, e.g vernier caliper, is unacceptable].
- 3.6 In addition, ESYD encourages the accredited laboratories and the laboratories which are under assessment to participate in PT Schemes which are organized by other bodies which fulfill the requirements described in Clause 2 of this document.

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- 3.7 The participation of the laboratory in PT Schemes is more important in those cases where doubts exist about the technical competence of the laboratory (e.g. changes in the personnel, nonadequate validation of the methods used, non-satisfactory results from previous PT participations etc.)
- 3.8 The accredited laboratories and the laboratories which are under assessment are responsible for finding relevant PT schemes.
- 3.9 In the case when there is no available PT Scheme, the laboratories should proceed by own to the establishment of such interlaboratory comparisons between laboratories in the same field.

¹ The term “type” is referred to the different types of testing or calibrations, presented in the following Tables for “type of testing” and “type of calibration”

4. Use of the PT results in the laboratory assessment

- 4.1 Laboratory is sending to the Lead Assessor, before the assessment visit, a filled copy of the Table of Laboratory’s Participation in Proficiency Testing Schemes (Annex A.)

The evaluation of the results from the participation of the laboratory in a PT Scheme is, initially, performed by the ESYD Assessment Team. The Lead Assessor includes in its final report to the Technical Committee (form FAL04) a brief evaluation of the laboratory performance with the relevant results attached. These results are also evaluated by the Technical Committee.

- 4.2 The results of the PT Scheme are taking into account by the Lead Assessor and the Technical Committee in their proposal for granting accreditation. For the evaluation of the results the following rules are applied:

4.2.1 The successful participation of the laboratory in all PT Schemes is considered positively in the final proposal for granting accreditation.

4.2.2 In the case where the laboratory presents a low percentage of unsuccessful results with respect to the total PT Schemes in which participated, the Assessment Team assess the way the laboratory evaluated the unsuccessful results, the implementation of corrective actions and their effectiveness. If the interpretation and the actions of the laboratory are adequate, the proposal for granting accreditation is not affected but the laboratory is asked to participate again in a relevant PT Scheme till the next surveillance.

4.2.3 In the case where the laboratory presents unsuccessful results for the majority of the PT tests, the final proposal for granting accreditation reduces the Scope of Accreditation correspondingly, till the successful participation of the laboratory in relevant PT.

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4.2.4 The results from PT Schemes constitutes not the sole criterion for granting the Accreditation, but are considered together with the other results from the assessment process, in order to formulate an objective judgement about the technical competence of the laboratory.

4.2.5 Regarding calibrations in particular, the laboratory in evaluating its performance in an interlaboratory comparison, assesses the combined expanded uncertainty solely from its contributions (i.e. without considering any uncertainty contribution from the transfer standard), to the corresponding Calibration & Measurement Capability (k=2) of its accreditation scope. The assessors of ESYD compare these two parameters and if the laboratory contribution is significantly higher (over 10%) than the corresponding figure of the accreditation scope, the latter is increased accordingly.

5. Impact of the assessment of the PT Schemes on ESYD functioning

- 5.1 The corresponding Technical Committees assess the way by which the results have been handled and evaluated by the Assessors and especially by the Lead Assessor, in order to assure the correctness and objectiveness in the laboratory assessment. These conclusions are used for formulating proposals for the improvement of this document and also for the evaluation of Assessors.
- 5.2 The implementation of this document is evaluated during the examination of the laboratories files in the initial surveillances / assessment by the relevant Technical Committees.

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Table of "Types" of Testing

A/A	Type of Testing	Frequency of participation in PT's
1	Chemical	At least one per year in order to assure the competence for the total of accredited chemical testing between assessments (4 year period) <i>Exception: for construction materials, leather, paper, textile, fuels testing, participation frequency is one for every accredited test per 4 years</i>
2	Microbiological (except microbiological testing in human samples: clinical laboratories)	At least one per year for every accredited microbiological test in water and for the 75% percentage of the accredited microbiological tests in food
3	Pesticide residues	At least one per year in order to assure the competence for the total of accredited pesticide residues testing between assessments (4 year period)
4	Clinical testing	At least one per year in order to assure the competence for the total of accredited clinical testing between assessments (4 year period)
5	Pharmaceutical Analysis	At least one per year in order to assure the competence for the total of accredited pharmaceutical analysis testing between assessments (4 year period)
6	GMO	At least one per year in order to assure the competence for the total of accredited GMOs testing between assessments (4 year period)
7	Health and Hygiene	At least one per year in order to assure the competence for the total of accredited health testing between assessments (4 year period)
8	Acoustic	One for every accredited test every 4 years
9	Ballistic	-----»-----
10	Corrosion	-----»-----
11	Dimensional	-----»-----
12	Environmental Chambers	-----»-----
13	Fire	-----»-----
14	Geological	-----»-----
15	Mechanical testing in concrete , aggregates and construction materials	-----»-----
16	Mechanical testing in leather, textile and paper	-----»-----
17	Mechanical testing in metals and plastics	-----»-----
18	Physical testing in concrete , aggregates and construction materials	-----»-----
19	Physical testing in leather, textile and paper	-----»-----
20	Physical testing in metals and plastics	-----»-----
21	Non destructive	-----»-----
22	Performance	-----»-----
23	Safety	-----»-----
24	Sampling	-----»-----
25	Electrical	One every 4 years
26	Electromagnetic compatibility	-----»-----
27	ITT (Information and Telecommunication Technology)	-----»-----
28	Other	-----»-----

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Table of "Types" of Calibration

A/A	TYPE OF CALIBRATION	Frequency of participation in PT's
	ELECTRICAL MEASUREMENTS	
	A) DC & LF	
1	<u>Resistance</u>	One every 4 years
2	<u>DC Volt</u>	-----»-----
3	<u>DC Intensity</u>	-----»-----
4	<u>AC Volt</u>	-----»-----
5	<u>AC Intensity</u>	-----»-----
6	<u>AC/DC Transfer</u>	-----»-----
7	<u>Capacitance</u>	-----»-----
8	<u>Energy</u>	-----»-----
9	<u>Inductance</u>	-----»-----
10	<u>Time / frequency</u>	-----»-----
11	<u>Vehicle speed</u>	
12	<u>Others</u>	-----»-----
	B) RF & Microwaves	
13	<u>Power</u>	One every 4 years
14	<u>Attenuation</u>	-----»-----
15	<u>Impedance measurements</u>	-----»-----
16	<u>Radiation patterns</u>	-----»-----
17	<u>Noise</u>	-----»-----
18	<u>Others</u>	-----»-----
	MECHANICAL MEASUREMENTS	
19	<u>Force</u>	One every 4 years
20	<u>Mass (standards)</u>	-----»-----
21	<u>Mass (weighing instruments)</u>	-----»-----
22	<u>Liquid flow</u>	-----»-----
23	<u>Gas flow</u>	-----»-----
24	<u>Liquid volume</u>	-----»-----
25	<u>Pressure</u>	-----»-----
26	<u>Viscosity</u>	-----»-----
27	<u>Liquid density</u>	-----»-----
28	<u>Solid density</u>	-----»-----
29	<u>Hardness (standards / hardness measuring machines)</u>	-----»-----
30	<u>Others</u>	-----»-----
	PHYSICAL MEASUREMENTS	
31	<u>Temperature (measuring instruments)</u>	One every 4 years
32	<u>Temperature (chambers)</u>	-----»-----

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33	<u>Humidity (measuring instruments)</u>	-----»-----
34	<u>Humidity (chambers)</u>	-----»-----
	<u>Dimension</u> ^[2]	
35	<u>Radiations on the mise en Pratique</u>	One every 4 years
36	- <u>Linear dimensions – Length standards and instruments</u>	-----»-----
37	- <u>Linear dimensions and hand instruments</u>	-----»-----
38	- <u>Angle</u>	-----»-----
39	- <u>Form (flatness, roundness, straightness, cylindricity etc)</u>	-----»-----
40	- <u>Complex geometry</u>	-----»-----
41	- <u>Other dimensional measurements</u>	-----»-----
42	<u>Anemometry</u>	-----»-----
43	<u>Acoustics (generation / measuring instruments)</u>	-----»-----
44	<u>Optical measurements</u>	-----»-----
45	<u>Acceleration</u>	-----»-----
46	<u>Others</u>	-----»-----
	<u>CHEMICAL ANALYSIS</u>	
47	<u>Reference materials</u>	One every 4 years
	<u>Measurements pertaining to Technical Inspection of Vehicles</u>	
48	<u>Side slip measurements</u>	One every 4 years
49	<u>Headlight illuminance, % inclination of incident light beam</u>	-----»-----
50	<u>Exhaust gas analysis</u>	-----»-----
51	<u>Noise</u>	-----»-----
52	<u>Brake force, vehicle suspension</u>	-----»-----
53	<u>Other measurements</u>	One every 4 years

[2] Due to the large number of instruments / side quantities, further information on the classification of dimensional calibrations is provided in the pertinent table.

Table with the categorization of dimensional calibrations
(<http://www.euramet.org/index.php?id=tc-l-dimvim>)

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1 Radiations on the Mise en Pratique (a/a 35 of table with “types” of calibration)
1.1 Laser Radiations
- stabilized laser of the mise en pratique/other stabilized laser
1.2 Lamp Radiations
- spectral lamp
2 Linear Dimensions-Length Standards and Instruments (a/a 36 of table with “types” of calibration)
- gauge blocks
- length bar (long gauge blocks)
- [plane, thread] micrometer setting rods
- gauge block comparators
3 Linear Dimensions and hand Instruments (a/a 37 of table with “types” of calibration)
3.1 Length Measuring Instruments
- EDM instruments
- 1-D measuring machines
- height measuring instruments
- 1-D displacement [transducer, actuator] (LVDT, PZT,...)
- dial-indicator testers
3.2 End Standards
- step gauge
- gap gauge
- feeler (thickness) gauge
3.3 Line Standards
- precision line scales
- stage micrometers
- grid plates
- 1-D grating
- 2-D grating
- linewidth standard
- measuring tapes
- surveyor leveling rods
- engineer or machinist scales, steel
3.4 Diameter Standards
- external cylinder (plug, piston, pin, wire)
- internal cylinder (rings)
- sphere (ball)
3.5 Hand Instruments
- external micrometer
- micrometer head.
- depth micrometer
- caliper
- depth gauge
- internal two-point (bore) micrometer
- internal three-point (bore) micrometer
- dial gauge
- snap gauge (internal, external)

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3.6 Instruments/layer measuring standard
- layer measuring instruments
- layer thickness standard
3.7 Index of Refraction
- refractometer for optical materials
4 Angle (a/a 38 of table with “types” of calibration)
4.1 Angle by Circle Dividers
- optical polygons
- index table.
- rotary table, rotary encoder scale.
4.2 Small-Angle Generators
- sine (bar, table).
4.3 Angle Instruments
- autocollimator.
- electronic level
- clinometer
- spirit (bubble) level
- theodolite.
- (bevel) protractor.
- squareness tester
4.4 Angle Artifacts
- angle blocks.
- 90° (steel, granite, try) square.
- 90° cylinder square.
- cone (taper) gauge.
4.5 Angle Prisms
- optical square (pentaprism).
- retroreflection (cube-corner, cat-eye) prism.
5 Form (a/a 39 of table with types of calibrations)
5.1 Flatness Standards
- optical flat.
- optical (parallel, wedge).
- surface plate.
5.2 Roundness Standards
- external cylinder.
- internal cylinder.
- sphere (hemisphere)
- magnification standard (e.g. flick standard).
5.3 Straightness Standards
- straight edge.
- cylindrical straightness standard.
- straightness of guideway.
5.4 Cylindricity Standards
- external cylinder.
- internal cylinder.

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5.5 Optical Standards
- lens, radius standards
6 Complex Geometry (a/a 40 of table with types of calibrations)
6.1 Surface Texture Standards
- (groove) depth (step height) standard (eg., ISO 5436-1 Type A).
- tip-condition standard (eg., ISO 5436-1 Type B).
- spacing standard (eg., ISO 5436-1 Type C).
- roughness standard (eg., ISO 5436-1 Type D).
- profile coordinate standard (eg., ISO 5436-1 Type E).
- soft gauge standard (reference software data set).
6.2 Screw Standards
- thread plug, plain.
- thread plug, tapered.
- thread ring, plain.
- thread ring, tapered.
- internal API screw thread gauge.
- external API screw thread gauge.
6.3 Gear Standards
- spur gear.
- bevel gear.
- gear pitch master
- gear lead master
- gear involute master
6.4 CMM artifact
- ball (hole, bore) plate.
- reference software.
6.5 2-D, 3-D Instruments
- measuring projector.
- measuring microscope.
- CMM.
- laser tracking measuring system.
- motion (translation, angle) stage.
- profile instruments
- (flatness, wavefront) interferometer
- form-measuring machine
6.6 Hardness
- hardness indenter [Rockwell, Vickers]
7 Other dimensional measurements (a/a 41 of table with "types" of calibrations)

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6. Indicative PT Schemes

There is indicative PT Schemes in the site: www.eptis.bam.de

It is noted for calibration laboratories, that Proficiency Testing Providers for calibrations are the National Metrologies Institutes as well. It is suggested that these laboratories are also looking for relative PT schemes in NMIs websites.

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ANNEX A

TABLE OF LABORATORY'S PARTICIPATION IN PROFICIENCY TESTING SCHEMES

N	PROVIDER	Name of the PT Scheme	Other clues of the Scheme	Categorization according to ESYD PDI	Tests/Calibrations	Substrate/Object of testing or calibration	Results	Remarks

Remarks

1. Provider: Name of the Provider, Name of the organization of the Provider (if applicable), Country of the Provider
2. Name of the PT Scheme: Name of the specific scheme that laboratory participates
3. Other clues of the scheme: Code, serial number, period and any other clues , provider by the Provider that identifies the scheme
4. Categorization according to PDI: if applicable: ACC: γία Provider accredited according to ISO 17043, EVAL: laboratory provides evaluation of the provider according par.2.3, ILC: interlaboratory comparison and other notes if any
5. Testing/Calibrations : Specific tests or calibrations, being subject of the participation to the scheme
6. Substrate/Object of testing: Substrate, object of test or calibration, distributed by the Provider, e.g. z-score, satisfied/unsatisfied, detected/non detected etc
7. Results: Performance of the lab participation as given by the Provider
8. Remarks: Other remarks like: a) Investigation and corrective actions in case of non successive results according to the Provider (this remark is obligatory for the the lab in case of non successive results). Investigation and corrective actions shall be referred as reference to the laboratory documentation. b) Remarks, made by the lab concerning the scheme, also referred to the laboratory documentation