

**National Accreditation
Agency of Ukraine**

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**Conception
of evaluation of competence of testing laboratories
on the basis of participation results in inter-laboratory comparisons**

*(Approved and recommended for application by
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Conception of evaluation of competence of testing laboratories on the basis of participation results in inter-laboratory comparisons

General provisions

This conception discloses general approach to the requirements which are set by the National Accreditation Agency of Ukraine (hereinafter - NAAU) for participation of testing laboratories (hereinafter - TL) in inter-laboratory comparisons. This conception takes into account world experience and permanent practice of accreditation of foreign accreditation bodies. It is aimed at realization of requirements of normative documents, including international ones, in relation to inter-laboratory comparisons.

One of the principal criteria for evaluation of laboratory competence during accreditation is participation results in inter-laboratory comparisons.

According to definition of ISO/IEC DIS 17043:2010, inter-laboratory comparisons of measurement results (hereinafter - ILCs) - organization, performance organization, performance and evaluation of tests on the same or similar test items by two or more laboratories in accordance with predetermined conditions. Assessment of laboratory test performance quality is definition of capacity of this laboratory to perform tests.

Metrological traceability can be provided in different ways, however not all of them are equivalent from the point of view of not only metrological theory and practice, practices of laboratories work, but also from other points of view, in particular, from economic, logistic and others. In general the types of measurements (tests) can be divided for convenience into two main classes: the first class - types of measurements (tests), when metrological traceability can be provided by calibration of equipment and vertical hierarchical metrological chart (for verification - by a «state verification chart») and the second class - types of measurements (tests), when applying the first approach is impossible and metrological traceability is provided through the system of standard simples («reference-materials») and methods, and continuous chain of comparisons to international standards.

For the first class of tests there are typical points - insignificant influencing of uncertainty on the test results, calculated after a type B, and insignificant or generally missing stage of preparation of standard and, consequently, equipment brings a most deposit into the budget uncertainty, as other components are missing. For the second type of tests there are inherent points - considerable influencing of uncertainty on the results of tests, calculated after a type A, and substantial influencing of simple preparation stage at the small influencing of uncertainty of measuring instruments. This conditional division of classes of test (measurements)

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can be laid down in the basis of division of laboratory types for grounding of possibility of participation of ILCs.

NAAU policy in relation to participation of testing laboratories in the programs of ILCs, harmonized with the requirements of standards ISO/IEC 17025:2005 and ISO/IEC 17011:2004, EA-2/10 (cancelled in 2011), EA-3/04:2001, EA-4/18:2010, ILAC-P9:2011 and ILAC-G22:2004 recommendations, aimed at laboratories participation in ILCs. It is marked that industries, where inter-laboratory comparisons are not used, are identified. For such cases other methods of competence confirmation are used. Minimum frequency of participation in ILCs is defined.

Because of world experience, in particular, experience of Cooperation of accreditation bodies in Asia-Pacific region (APLAC), and information about availability and activity of inter-laboratory comparisons programs (ILCPs), placed on the web-site of the European informative system on ILCPs (EPTIS), it is possible to state that predominant part of the ILCPs have those classes, when standard simples are applied for conducting ILCPs. It makes content of the ILCPs which correspond to the first class of tests, which more frequently belong to chemical, physical and chemical, microbiological and other related and kindred methods. Such ILCPs is counted more than 90% among all resulted ones on EPTIS. The ILCPs in relation to determination of properties of substances and materials without using of standard simples are less part. ILCPs for the test of product standards as separate wares (artifacts), but no properties of matters and materials, are extremely small or they are single or generally missing after some directions. A railway or motor-car transport can be examples.

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Principal part

1. Principal disciplines

Principal discipline can be divided to three sub-disciplines: principal sub-discipline, when ILCP participation is obligatory; principal sub-discipline, when ILCP participation is desirable; principal sub-discipline, when ILCP participation is not obligatory.

Principal sub-discipline, when ILCP participation is obligatory

- Chemical (mineral analyses*)
- Chemical (others**)
- Biological
- Construction (testing of content and properties of building materials)
- Mechanical
- Electrical
- Non-destructive testing
- Light industry

* tests of mineral products (ore, coal and others); tests of metals and alloys; tests of petroleum products

** tests of food products, agricultural raw materials, forages; tests of pharmacological medicines; tests of veterinary preparations; ecological tests (air, water, soils, depositions, drains, wastes)

Principal sub-discipline, when ILCP participation is desirable

- Means for safety keeping (safes, installations and others)
- Building materials
- Cable and cable products

Principal sub-discipline, when ILCP participation is not obligatory

- Information technologies
- Technical guards
- Wheeled vehicles
- Railway transport
- Industrial security (vessels under pressure, boilers and others)
- Personal protection equipment
- Building constructions

2. Participation frequency for principal sub-discipline

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Participation frequency is defined by the NAAU Policy on participation of testing laboratories in ILCPs.

3. Developing of plans of participation in ILC programs by laboratories and submitting them to NAAU

Laboratories must define levels, that is, sub-disciplines for participation in ILCPs according to their accreditation scopes. Laboratories must develop plans of participation in ILCPs taking into account sub-disciplines and necessary frequency of participation in ILCPs, and to give advantage to the ILCPs with coordinators (providers) which have the definite degree of recognition or appointment: acknowledged by national metrological institutes in the structure of Central Executive Body on metrology, and also by NAAU. Laboratories must submit information to NAAU about planning of participation in ILCPs.

During development of plans laboratories must perform analysis of risks and take into account other measures on providing of test results quality.

4. Results of participation in inter-laboratory comparisons between two or more laboratories without coordinator of ILCs

From the point of view of accreditation process, participation in inter-laboratory comparisons between two or more laboratories without a coordinator (provider) as a proof of competence of laboratories has a far less value. NAAU can take into account the results of participation of two or more laboratories in inter-laboratory comparisons without a coordinator (provider) under the condition of using of attesting (certificated) standard samples and properly designed document with reporting about results.

NAAU reserves the right to take into account in the last turn or take not into account the results of participation two or more laboratories in inter-laboratory comparisons without a coordinator (provider), if samples for these comparisons were unknown origin, not attesting (not certificated). In addition, than laboratories must submit materials with certificates of homogeneity and stability of standards, proofs of absence of plot and certificate of making comparisons according to the requirements of ISO/IEC DIS 17043:2010 and (or) ILAC-G13:2010.

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5. Reports about participation in ILCPs

Laboratories must regularly submit a report about participation in ILCPs according to the definite form – Form 12 of Passport of testing laboratory. Regularity is twice a year (March and September).

6. Reports about negative participation in ILCPs and corrective actions

In the case of negative participation in addition to a short report about participation in ILCPs laboratory must submit information about analysis of nonconformities, planning and conducting of corrective actions.

Terms of document validity: unlimited.

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