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# Foreword

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### Introduction

Proficiency testing (PT) is widely recognized as an essential tool for demonstrating the competence of conformity assessment bodies. PT can provide evidence of competence and it can be an indicator of an underlying or emerging problem. This document has been developed with the objective of promotingis intended to promote confidence in the operations of PT providers. It contains requirements for PT providers to enable them to demonstrate that they operate competently and can generate valid evaluations of participant performance.

PT involves the use of interlaboratory comparisons for the evaluation of laboratory performance. The definition of "interlaboratory comparison" (see <u>3.4</u>) <u>broadens the use of both the terms "laboratories</u>" and "measurements and tests" for the purposes of this document to include all types of conformity assessment bodies and their activities, respectively. The term "method" as used in this document can be considered synonymous with the term "measurement procedure" as defined in ISO/IEC Guide 99.

There are many different purposes for interlaboratory comparisons, which can be addressed by PT schemes, including but not limited to:

- a) evaluation of the performance of laboratories for specific measurements, tests, calibrations, examinations, inspections or sampling;
- b) identification of problems in laboratories that, for example, can be related to measurement or test methods, effectiveness of training and supervision of personnel, or calibration of equipment;
- c) establishment of the effectiveness of measurement or test methods and the comparability of measurement and test results;
- d) provision of additional confidence to users of measurement and test results;
- e) identification of differences in measurement and test results; FO FDIS 17043

f) education of participating laboratories based on the outcomes of such comparisons; b5a-428b-9869-b1ba01ec1cc1/iso-

g) validation of measurement uncertainty claims.

For the following types of interlaboratory comparisons, the term PT does not usually apply because laboratory competence must be established in advance, in order to ensure the validity of measurements or tests as well as the metrological traceability of assigned values:

- evaluation of the performance characteristics of a measurement or test method (often described as collaborative trials);
- i) characterizationassignment of values to reference materials;
- support for statements of the equivalence of measurements of National Metrology Institutes (NMIs], or their Designated Institutes (DIs) through "key and supplementary comparisons", conducted on behalf of the International Bureau of Weights and Measures (BIPM) and associated Regional Metrology Organizations (RMOs).

It is recognized however, that interlaboratory comparisons for purposes h), i) and j) can contribute to independent demonstrations of laboratory competence. The requirements of this document can be applied to many of the technical planning and operational activities for these interlaboratory comparisons.

This document also requires PT providers to plan and implement actions to address risks and opportunities, based on their experience. Addressing both risks and opportunities establishes a basis for

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increasing the effectiveness of the management system, achieving improved results and preventing negative events. The PT provider is responsible for deciding which risks and opportunities to address.

The need for ongoing confidence in laboratory performance is <u>not only</u> essential <u>not only</u> for laboratories and their customers but also for other interested parties, such as regulators, accreditation bodies and other organizations that specify requirements for laboratories. Most of the requirements in this document apply to those evolving areas, especially regarding management, planning and design, personnel, assuring validity of results and performance evaluations, confidentiality and other aspects, as appropriate.

This document has been prepared intended to provide a consistent basis for all interested parties to determine the competence of organizations that provide PT.

In this document, the following verbal forms are used:

- "shall" indicates a requirement;
- "should" indicates a recommendation;
- "may" indicates a permission;
- "can" indicates a possibility or a capability.

Further details can be found in the ISO/IEC Directives, Part 2.

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# Conformity assessment — General requirements for the competence of proficiency testing providers

## 1 <u>1</u>Scope

This document specifies general requirements for the competence and impartiality of proficiency testing (PT) providers and consistent operation of all proficiency testing schemes. This document can be used as a basis for specific technical requirements for particular fields of application.

Users of proficiency testing schemes, regulatory authorities, organizations and schemes using peerassessment, accreditation bodies and others can use these requirements in confirming or recognizing the competence of proficiency testing providers.

### 2 2Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 17000, Conformity assessment — Vocabulary and general principles

ISO/IEC 17025:2017, General requirements for the competence of testing and calibration laboratories

ISO 17034, General requirements for the competence of reference material producers

ISO/IEC Guide 99, International vocabulary of metrology — Basic and general concepts and associated terms (VIM)

## **3 <u>3</u>Terms and definitions**

For the purposes of this document, the terms and definitions given in <u>ISO/IEC\_17000</u> and <u>ISO/IEC\_Guide\_99</u> and the following apply.

- ISO and IEC maintain terminological databases for use in standardization at the following addresses:
- ISO Online browsing platform: available at <u>https://www.iso.org/obp</u>
- IEC Electropedia: available at <u>https://www.electropedia.org/</u>

#### 3.1

assigned value

value attributed to a particular property or characteristic of a proficiency testing item (3.8)

[SOURCE: <u>ISO13528:2022</u>, <u>3.3</u>, modified <u>- Changed "test" to "testing" and \_- The words</u> characteristic" <u>have been</u> added.<u>] and the word "test" has been replaced with "testing".]</u>

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#### 3.2 consens

consensus value	
value derived from a collection of results in an <i>interlaboratory comparison</i> [3.4]	Formatted: Font: Italic
Note 1 to entry: The phrase "consensus value'value" is typically used to describe estimates of location and	Formatted: Font color: Auto
dispersion derived from <i>participant</i> (3.6) results in a round of a <i>proficiency testing scheme</i> ; (3.11), but may also be	
used to refer to values derived from results of a specified subset of such results or, for example, from a number of	<b>Formatted:</b> Note, Tab stops: 19.85 pt, Left + 39.7 pt,
expert laboratories.	Left + 59.55 pt, Left + 79.4 pt, Left + 99.25 pt, Left + 119.05 pt, Left + 138.9 pt, Left + 158.75 pt, Left +
	178.6 pt, Left + 198.45 pt, Left
[SOURCE: JSO 13528:2022, 3.11.]	
3.3	Formatted: Font color: Auto
customer	Formatted: Font color: Auto
client	Formatted: Font: Italic, Font color: Auto
organization or individual for which a <i>proficiency testing scheme</i> (3.11) is provided through a contractual	Formatted: Font color: Auto
arrangement	Formatted: Font color: Auto
Note 1 to entry— The term " <del>client</del> " is an alternative term for "customer" used in parts of this document and these	Formatted: Font: Italic. Font color: Auto
terms are regarded as having the same definition.	Formatted: Font color: Auto
3.4	Formatted: std_publisher
interlaboratory comparison design, performance and evaluation of measurements or tests on the same or similar items by two or	Formatted: std_docNumber
design, performance and evaluation of measurements or tests on the same or similar items by two or more laboratories in accordance with predetermined conditions	Formatted: std_year
more raboratories in accordance with predetermined conditions	Formatted: std section
[ISO 13528:2022, 3.1, modified — Changed "organization" to "design". The Notes to the entry have been	Formatted: Font: Not Bold
added.]	Formatted: Font: Italic
Note 1 to entry:The term "laboratories" is used in this document to cover all organizations that provide	Tormatteat. Font. Raile
information on items based on experimental observation, including measurement, testing, calibration, examination,	
compling and inspection	
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Note 2 to entry:— <u>the The</u> term "measurements or tests" is used throughout this document to apply to any activities	
undertaken by the proficiency testing <i>participants</i> (3.6) that are subject to the <i>proficiency testing</i> , (3.7), whether	Formatted: Font: Italic
quantitative, qualitative or interpretative, unless otherwise qualified.	Formatted: Font: Italic
Note 3 to entry:—Interlaboratory comparisons that involve measurements convey more insight regarding	
performance when measurement uncertainty is considered.	
[SOURCE: ISO 13528:2022, 3.1, modified — The word "organization" has been replaced with "design" and	
the Notes to the entry have been added.]	
3.5	
outlier	
member of a set of values which is inconsistent with other members of that set	
Note 4 to exchange An analytic and exchange from the converted monolation excitation from a difference	

Note 1 to entry:— An outlier can arise by chance from the expected population, originate from a different population, or be the result of an incorrect recording or other gross error.

Note 2 to entry:—\_Many *proficiency testing schemes* (3.11) use the term outlier to designate a result that generates an action signal. However, this This is not the intended use of the term. While outliers will usually generate action signals, it is possible to have action signals from results that are not outliers.

[<u>SOURCE: JSO 13528;2022, 3.12</u>, modified <u>- Changed the \_ The</u> word <u>-"blunder" to "" has been replaced</u> with "gross error<u>-"</u> in Note 1 to entry.] Formatted: Font: Italic

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participant person or organization that undertakes activities related to pro	<i>ficiency testing</i> (3.7) and submits their		Formatted: Font: Italic	
results for performance evaluation by the <i>proficiency testing prov</i>			Formatted: Font: Italic	
3.7		U	Formatted. Fort. Italic	
proficiency testing				
PT		C		
evaluation of <i>participant <u>(3.6)</u> performance against pre-establish comparisons <u>(3.4)</u></i>	ed criteria by means of <i>interlaboratory</i>	<	Formatted: Font: Italic	
		٦	Formatted: Font: Italic	
Note 1 to entry:— Further information regarding the design of vari provided in Annex A.	ous <i>proficiency testing schemes (3.11)</i> is	[	Formatted: Font: Italic	
		(	Formatted: cite_app	
3.8				
proficiency testing item PT item				
sample, product, artefact, reference material, piece of equipment	measurement standard, object, image,			
data set or other information used for <i>proficiency testing</i> [3.7]			Formatted: Font: Italic	
3.9	I			
proficiency testing provider				
<b>PT provider</b> organization which takes responsibility for all activities in the dev	elopment and operation of a <i>proficiency</i>		Formatted: Font: Italic	
testing scheme (3.11)				
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3.10 proficiency testing round				
PT round				
single complete sequence of <i>proficiency testing</i> , (3.7), includ participants'the performance of <i>participants</i> (3.6)	ing the evaluation and reporting of		Formatted: Font: Italic	
https://standards.iteh.ai/catalog/standard	s/sist/5a09ccf3-8b5a-428b-			
3.11				
proficiency testing scheme PT scheme				
proficiency testing (3.7) designed and operated in one or more			Formatted: Font: Italic	
specified area of measurement, testing, calibration, examination,	sampling or inspection		Formatted: Font: Italic	
Note 1 to entry: A proficiency testing scheme can cover a particular typ	be of activity or a number of activity types			
within the same area.				
3.12				
standard deviation for proficiency assessment				
measure of dispersion used in the evaluation of results of <i>proficies</i> information	ncy testing <del>, [3.7],</del> based on the available	(	Formatted: Font: Italic	
mormation				
Note 1 to entry: The standard deviation for proficiency assessment can		(		
deviation of results from a hypothetical population of <i>participants</i> [3. requirements.	performing exactly in accordance with		Formatted: Font: Italic	
Note 2 to entry: The standard deviation for proficiency assessment appl	ies only to ratio and interval scale results.		Formatted: Font: Italic	
Note 3 to entry: Not all <i>proficiency testing schemes (3.11)</i> evaluate perfo	rmance based on the dispersion of results	/ /	Formatted: std_publisher	
[SOURCE: ISO 13528:2022, 3.4, modified <u>- Added", The word</u>	s "hased on the available information"		Formatted: std_docNumber	
Replaced "this" by " The <u>" have been added in the definition; the word</u>	ord "This" has been replaced with "The	$\leftarrow$	Formatted: std_year	
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standard deviation for proficiency assessment <sup></sup> and " <u>the word "</u> laboratories <u>"_ has been replaced</u> with <u>"</u> participants <u>"</u> in Note 1 to entry.]	
4 <u>4</u> General requirements	Formatted: No bullets or numbering
4.1 <u>4.1</u> Impartiality	
4.1.1 PT activities shall be undertaken impartially.	Formatted: Font: Not Bold
<b>4.1.2</b> The PT provider shall be structured and managed so as to safeguard impartiality.	Formatted: Pattern: Clear
<b>4.1.3</b> The PT provider shall be responsible for the impartiality of its PT activities and shall not allow commercial, financial or other pressures to compromise its impartiality.	
<b>4.1.4</b> The PT provider shall monitor its activities and its relationships to identify threats to its impartiality. This monitoring shall include the relationships of its personnel.	
NOTE A relationship can be based on ownership, governance, management, personnel, shared resources, finances, contracts or marketing (including branding). Such relationships do not necessarily present a PT provider with a threat to impartiality.	
<b>4.1.5</b> If a threat to impartiality is identified, its effect shall be eliminated or minimized so that the impartiality is not compromised.	
4.1.6 The PT provider shall have top management commitment to impartiality.	
4.2 <u>4.2</u> Confidentiality	Formatted: No bullets or numbering
4.2.1 The PT provider shall be responsible, through legally enforceable agreements, for the	Formatted: Pattern: Clear
management of all information obtained or created during the performance of PT activities. The PT be provider shall inform the client, in advance, of the information it intends to place in the public domain. Except for information that the client makes publicly available, or when agreed between the PT provider and the client, all other information is considered proprietary information and shall be regarded as confidential.	Formatted: Font: Not Bold
NOTE The terms "proprietary" and "confidential" do not preclude publication for academic and new insights of information purposes, provided that neither clients nor participants can be identified, including by inference.	
<b>4.2.2</b> When the PT provider is required by law or authorized by contractual arrangements to release confidential information, the client concerned shall be notified of the information released, unless prohibited by law.	
<b>4.2.3</b> Information about the participant or customer from a source other than the participant or customer (e.g. complainant or regulator) shall be kept confidential by the PT provider. The identity of the source shall be kept confidential by the PT provider and shall not be shared with the participant or the customer, unless agreed by the source.	
<b>4.2.4</b> Personnel, including any committee members, contractors, personnel of external bodies, or persons acting on the PT provider's behalf, shall keep confidential all information obtained or created during the performance of the PT activities.	
<b>4.2.5</b> The identity of participants in a PT scheme shall be confidential and known only to persons involved in the operation of the PT scheme, unless the participant or the customer waives confidentiality.	
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## **<u>5</u>** Structural requirements

**5.1** The PT provider shall be a legal entity, or a defined part of a legal entity, that is legally responsible for its PT activities.

NOTE For the purposes of this document, a governmental PT provider is deemed to be a legal entity on the basis of its governmental status.

5.2 The PT provider shall identify management that has overall responsibility for the PT activities.

**5.3** The PT provider shall define and document the PT schemes for which it conforms with this document. The PT provider shall only claim conformity with this document for those PT schemes.

**5.4** The PT provider shall carry out PT activities in such a way so as to meet the requirements of this document and address the requirements of participants, customers, regulatory authorities, and organizations providing recognition. –These requirements apply to all PT activities performed in its permanent facilities and any other facility or site.

5.5 The PT provider shall:

- a) define its organization and management structure, its place in any parent organization and the relationships between the management, technical operations and support services;
- b) specify the responsibility, authority and interrelationships of all personnel who manage, perform or verify work affecting the results of its PT activities;
- c) document its procedures to the extent necessary to ensure the consistent application and validity of its PT activities.

**5.6** The PT provider shall have personnel who, irrespective of other responsibilities, have the authority and resources needed to carry out their duties, including:

5

- a) implementation, maintenance and improvement of the management system;
- b) identification of deviations from the management system or from the procedures while performing the PT activities;
- c) initiation of actions to prevent or minimize such deviations;
- d) reporting to its management on the performance of the management system and any need for improvement;
- e) ensuring the effectiveness of the PT activities.
- 5.7 The PT provider management shall ensure that:
- a) communication takes place regarding the effectiveness of the management system and the importance of meeting the requirements of participants, customers, regulatory authorities and organizations providing recognition;
- b) the integrity of the management system is maintained when changes to the management system are planned and implemented.

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