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ISO 9712:2021, IDT
(ICS 03.100.30; 19.100)

SINGAPORE STANDARD

**Non-destructive testing — Qualification and
certification of NDT personnel**

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National Foreword

This Singapore Standard was prepared by the Working Group on Non-destructive Testing (also known as National Mirror Working Group on ISO/TC 135) set up by the Technical Committee on Workplace Safety and Health under the purview of the Quality and Safety Standards Committee.

This standard is an identical adoption of ISO 9712:2021, “Non-destructive testing — Qualification and certification of NDT personnel” published by the International Organization for Standardization.

NOTE 1 – Where appropriate, the words “International Standard” are read as “Singapore Standard”.

NOTE 2 – Reference to International/Overseas Standards are replaced by applicable Singapore Standards or Technical References.

Attention is drawn to the possibility that some of the elements of this Singapore Standard may be the subject of patent rights. Enterprise Singapore shall not be held responsible for identifying any or all of such patent rights.

NOTE

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2. *An SS or TR is voluntary in nature except when it is made mandatory by a regulatory authority. It can also be cited in contracts making its application a business necessity. Users are advised to assess and determine whether the SS or TR is suitable for their intended use or purpose. If required, they should refer to the relevant professionals or experts for advice on the use of the document. Enterprise Singapore and the Singapore Standards Council shall not be liable for any damages whether directly or indirectly suffered by anyone or any organisation as a result of the use of any SS or TR. Although care has been taken to draft this standard, users are also advised to ensure that they apply the information after due diligence.*
3. *Compliance with a SS or TR does not exempt users from any legal obligations.*

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**Non-destructive testing —
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*Essais non destructifs — Qualification et certification du personnel
END*



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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 7, *Personnel qualification*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 138, *Non-destructive testing*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This fifth edition cancels and replaces the fourth edition (ISO 9712:2012), which has been technically revised.

The main changes compared to the previous edition are as follows:

- clarified responsibilities for the certification body, the authorized qualification body, the examination centre and the employer;
- added and revised definitions;
- defined responsibilities for examiners and referees;
- revised requirements for the duration of training and industrial experience;
- modified requirements for visual acuity testing;
- revised requirements for examinations;
- included an option for the use of a psychometric process at the discretion of the certification body;
- revised requirements for the certification documents;
- revised requirements for the conditions of certification;
- added requirements for candidates for the renewal of certificates;
- revised structured credit system for Level 3 recertification;
- included a new [Annex F](#) for techniques;

- included a new [Annex G](#) for psychometric principles;
- other minor technical and editorial changes.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Since the effectiveness of any application of non-destructive testing (NDT) depends upon the capabilities of the persons who perform or are responsible for the test, a procedure has been developed to provide a means of evaluating and documenting the competence of personnel whose duties require the appropriate theoretical and practical knowledge of the non-destructive tests they perform, specify, supervise, monitor or evaluate. An added incentive stems from the worldwide comparability of a wide range of industrial applications requiring common non-destructive testing approaches.

When certification of NDT personnel is required in product standards, regulations, codes or specifications, it is important to certify the personnel in accordance with this document. When latitude is provided in the criteria within this document, the certification body has the final decision in determining specific requirements.

When there is no requirement in legislation, in standard or in the order for certification of NDT personnel, it is for employers of such personnel to decide how to assure themselves that they are competent to do the work assignments. Thus, they may employ people who are already certified or they may apply their own expertise so as to assure themselves that their employee has the necessary competence. In this last case, prudent employers would no doubt use this document as a reference document.

Non-destructive testing — Qualification and certification of NDT personnel

1 Scope

This document specifies requirements for the qualification and certification of personnel who perform industrial non-destructive testing (NDT) in the following methods.

- a) acoustic emission testing;
- b) eddy current testing;
- c) leak testing (hydraulic pressure tests excluded);
- d) magnetic testing;
- e) penetrant testing;
- f) radiographic testing;
- g) strain gauge testing;
- h) thermographic testing;
- i) ultrasonic testing;
- j) visual testing (direct unaided visual tests and visual tests carried out during the application of another NDT method are excluded).

The system specified in this document is also applicable to other NDT methods or to NDT techniques within an established NDT method, provided a comprehensive scheme of certification exists and the NDT method or NDT technique is covered by international, regional or national standards or the NDT method or the NDT technique has been demonstrated to be effective to the satisfaction of the certification body.

NOTE 1 The term "industrial" implies the exclusion of applications in the field of medicine.

NOTE 2 CEN/TR 14748 provides guidance on the methodology for qualification of non-destructive tests.

NOTE 3 This document specifies requirements for what are, in effect, third party conformity assessment schemes. These requirements do not directly apply to conformity assessment by second or first parties, but relevant parts of this document can be referred to in such arrangements.

NOTE 4 The term "direct unaided visual testing" implies where there is an uninterrupted optical path from the observer's eye to the test area and the observer uses no tools or devices (e.g. mirror, endoscope, fibre optic).

NOTE 5 Calculations of strain based on other NDT methods are excluded.

2 Normative 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 17024:2012, *Conformity assessment — General requirements for bodies operating certification of persons*