International Standard

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Non-destructive testing — Radiation methods for computed tomography —

Part 4: Qualification

Essais non destructifs — Méthodes par rayonnements pour la tomographie informatisée —

Partie 4: Qualification

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Foreword

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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 document 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).

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This document was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 5, *Radiographic testing,* 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 second edition cancels and replaces the first edition (ISO 15708-4:2017), which has been technically revised.

The main changes are as follows:

— addition of ISO 15708-1 and ISO 15708-3 as normative references in Clause 2;

— correction of title in Figure 1;

— correction of density values d_R of each insert and CT grey values N_i in 6.4.4;

— deletion of the bibliography;

— editorial changes.

A list of all parts in the ISO 15708 series can be found on the ISO website.

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.

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Non-destructive testing — Radiation methods for computed tomography —

Part 4: Qualification

1 Scope

This document gives guidance on the qualification of the performance of a computed tomography (CT) system with respect to various testing tasks.

This document is applicable only to industrial imaging (i.e. non-medical applications) and provides a consistent set of definitions of CT performance parameters, including the relationship between these performance parameters and CT system specifications.

This document is applicable to industrial computed tomography.

This document does not apply to other techniques of tomography such as translational tomography and tomosynthesis.

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 15708-1, *Non-destructive testing — Radiation methods for computed tomography — Part 1: Vocabulary*

ISO 15708-3:2025, *Non-destructive testing — Radiation methods for computed tomography — Part 3: Operation and interpretation*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 15708-1 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

4 Qualification of the testing

4.1 General

CT is used in industry both for defect testing and analysis as well as dimensional testing and measurement. Since CT does not provide a direct measurement of the desired quantities such as e.g. pore size or wall thickness, these quantities shall be derived from the X-ray linear attenuation data represented by the CT grey values. The detectability of features and the degree of accuracy required depend on the testing task, the specification of the available test equipment and the analysis and evaluation methods used. If the determination of such quantities is required, a special task-specific qualification procedure of the applied CT

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