



**International
Standard**

ISO 15708-1

**Non-destructive testing —
Radiation methods for computed
tomography —**

**Part 1:
Vocabulary**

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

Partie 1: Vocabulaire

**Third edition
2024-10**

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

[ISO 15708-1:2024](https://standards.itih.ai/catalog/standards/iso/4b314f87-986a-452e-9184-ba17c9d474fd/iso-15708-1-2024)

<https://standards.itih.ai/catalog/standards/iso/4b314f87-986a-452e-9184-ba17c9d474fd/iso-15708-1-2024>

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO 15708-1:2024](https://standards.iteh.ai/catalog/standards/iso/4b314f87-986a-452e-9184-ba17c9d474fd/iso-15708-1-2024)

<https://standards.iteh.ai/catalog/standards/iso/4b314f87-986a-452e-9184-ba17c9d474fd/iso-15708-1-2024>



COPYRIGHT PROTECTED DOCUMENT

© ISO 2024

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword.....	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1

iTeh Standards
(<https://standards.itih.ai>)
Document Preview

[ISO 15708-1:2024](https://standards.itih.ai/catalog/standards/iso/4b314f87-986a-452e-9184-ba17c9d474fd/iso-15708-1-2024)

<https://standards.itih.ai/catalog/standards/iso/4b314f87-986a-452e-9184-ba17c9d474fd/iso-15708-1-2024>

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 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).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

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 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 third edition cancels and replaces the second edition (ISO 15708-1:2017), which has been technically revised.

<https://standards.iteh.ai/catalog/standards/iso/4b314f87-986a-452e-9184-ba17c9d474fd/iso-15708-1-2024>
The main changes are as follows:

— correction of term [3.8](#), [3.9](#), [3.20](#) and [3.27](#).

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.

Non-destructive testing — Radiation methods for computed tomography —

Part 1: Vocabulary

1 Scope

This document defines terms used in the field of computed tomography (CT). It presents vocabulary that is not only CT-specific but which also includes other more generic terms and definitions spanning imaging and radiography. Some of the definitions represent discussion points aimed at refocusing their terms in the specific context of computed tomography.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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/>

3.1

absorption **photoelectric absorption**

mode of interaction between photons and matter whereby a photon is absorbed by an atom which then emits an electron whose kinetic energy is exactly equal to the energy-depleted photon's electron-binding energy

Note 1 to entry: See also *Compton scattering* (3.6).

3.2

angular increment

angular spacing between adjacent *CT projections* (3.12)

3.3

artefact

artificial feature which appears on the *CT image* (3.11) but does not correspond to a physical feature of the object

3.4

beam hardening **spectrum hardening**

spectral change of a polychromatic beam caused by preferential attenuation of low energy photons

Note 1 to entry: See also *cupping effect* (3.17).

3.5

calibration template

phantom

known reference object that is scanned to assess the performance of a *CT system* (3.15)

3.6

Compton scattering

mode of interaction between a photon and an electron, where the photon is scattered with reduced energy, and the difference of energy is transferred to the electron, also known as inelastic scattering or incoherent scattering

Note 1 to entry: See also *photoelectric absorption* (3.1).

3.7

computed tomography

CT

computed axial tomography

radiographic scanning technique that uses a number of *CT projections* (3.12) of an object at different angles in order to allow calculation of a *CT image* (3.11)

3.8

cone beam CT

scanning mode wherein each *CT projection* (3.12) is built from a set of *ray paths* (3.24) emanating from a point source and diverging in two dimensions, thereby forming a cone

3.9

CT data

CT dataset

CT projections (3.12) recorded using a *CT scan* (3.13) or *CT image* (3.11) obtained by *reconstruction* (3.25)

3.10

CT grey value

grey level

numerical value assigned to each *voxel* (3.30) in a *CT image* (3.11)

Note 1 to entry: This value represents the average *linear attenuation coefficient* (3.20) of the object volume for that voxel.

3.11

CT image

tomogram

2D or 3D image of the *CT grey values* (3.10) obtained by *reconstruction* (3.25)

3.12

CT projection

1D or 2D radiographic image

3.13

CT scan

set of relative movements between sample, source and detector, and the acquisition necessary to obtain a set of *CT projections* (3.12) that can be reconstructed into a *CT image* (3.11)

3.14

CT slice

2D *CT image* (3.11) with a finite thickness along a given plane

Note 1 to entry: See also *slice thickness* (3.29).

3.15

CT system

tomograph

equipment used to produce *CT images* (3.11)

3.16

CT volume

3D *CT image* (3.11)