
**Non-destructive testing — Radiation
methods — Computed tomography —**

**Part 2:
Examination practices**

*Essais non destructifs — Moyens utilisant les rayonnements —
Tomographie informatisée —*

Partie 2: Pratiques d'examen



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Contents

Page

Foreword.....	iv
Introduction.....	v
1 Scope	1
2 Normative reference	1
3 Terms and definitions	1
4 Summary	1
5 System configuration.....	2
6 Documentation.....	5
7 System set-up and optimization	8
8 Performance measurement	12
9 CT examination interpretation.....	18
10 Records, reports, and identification of accepted material	18
11 Safety conditions	18
12 Precision and bias	18

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 15708 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 15708-2 was prepared by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 5, *Radiation methods*.

ISO 15708 consists of the following parts, under the general title *Non-destructive testing — Radiation methods — Computed tomography*:

- *Part 1: Principles*
- *Part 2: Examination practices*

Introduction

Computed tomography (CT), as with conventional radiography and radiosopic examination, is broadly applicable to any material or test object through which a beam of penetrating radiation passes, including metals, plastics, ceramics, metallic/non-metallic composite material and assemblies. The principal advantage of CT is that it provides densitometric (i.e., radiological density and geometry) images of thin cross sections — “slices” — through an object. Because of the absence of structural superposition, images are much easier to interpret than conventional radiological images. CT images correspond closely to the way the human mind visualizes 3D structures than conventional projection radiology. Because CT images are digital, the images may be enhanced, analysed, compressed, archived, input as data into performance calculations, and compared with digital data from other non-destructive evaluation (NDE) modalities. CT images can also be transmitted to other locations for remote viewing.

This part of ISO 15708 describes CT procedures that can provide for non-destructive testing and evaluation. Requirements in this part of ISO 15708 are intended to control the reliability and quality of the CT images. This part of ISO 15708 is applicable for the systematic assessment of the internal structure of a material or assembly and may be used to prescribe operating CT procedures. It also provides a basis for the formation of a programme for quality control and its continuation through calibration, standardization, reference samples, inspection plans and procedures.

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Non-destructive testing — Radiation methods — Computed tomography —

Part 2: Examination practices

1 Scope

This part of ISO 15708 gives guidelines for procedures for performing CT examinations. It is intended to address the general use of CT technology and thereby facilitate its use. This part of ISO 15708 implicitly assumes the use of penetrating radiation, specifically X-ray and γ -ray.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this part of ISO 15708. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 15708 are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 15708-1:2002, *Non-destructive testing — Radiation Methods — Computed tomography — Part 1: Principles*

3 Terms and definitions

For the purposes of this part of ISO 15708 the terms and definitions listed in annex A of ISO 15708-1:2002 apply.

4 Summary

This part of ISO 15708 describes CT procedures which can provide for non-destructive testing and evaluation. Requirements in this part of ISO 15708 are intended to control the reliability and quality of the CT images.

CT systems are made up of a number of subsystems; the function served by each subsystem is common in almost all CT scanners. Clause 5 describes the following subsystems:

- a) source of penetrating radiation;
- b) radiation detector or an array of detectors;
- c) mechanical scanning assembly;
- d) computer system including:
 - 1) image reconstruction software/hardware;