

Australian Standard[®]

**Non-destructive testing—Computerized
radiography**

**Part 2: Testing of metallic materials
using X-rays and gamma rays**



This Australian Standard® was prepared by Committee MT-007, Non-destructive Testing of Metals and Materials. It was approved on behalf of the Council of Standards Australia on 17 June 2009.

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The following are represented on Committee MT-007:

- Australian Aerospace Non-Destructive Testing Committee
 - Australian Industry Group
 - Australian Institute for Non-Destructive Testing
 - Australian Nuclear Science & Technology Organisation
 - Australian Pipeline Industry Association
 - Bureau of Steel Manufacturers of Australia
 - Engineers Australia
 - Metals Trade Industry Association
 - National Association of Testing Authorities, Australia
 - New Zealand Non-Destructive Testing Association
 - NSW WorkCover Authority
 - Victorian WorkCover Authority
 - Welding Technology Institute of Australia
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Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

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PREFACE

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee MT-007, Non-destructive Testing of Metals and Materials. After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this Standard is to ensure that the parameter of computed radiography systems as a progression for the next generation of radiographic methods are achieved.

In the preparation of this Standard cognizance was taken of the following Standards:

EN

- 14784 Non-destructive testing—Industrial computed radiograph with storage phosphor imaging plates
- 14784-1 Part 1: Classification of systems
- 14784-2 Part 2: General principles for testing of metallic materials using X-rays and gamma rays

This Standard is one of a series of Standards covering the range radiography of metals and materials.

AS

- 2168 Non-destructive testing—Computerized radiography
- 2168.1 Part 1: Systems
- 2168.2 Part 2: Testing of metallic materials using X-rays and gamma rays (this Standard)
- 2177 Non-destructive testing—Radiography of welded butt joints in metal
- 2314 Radiography of metals—Image quality indicators (IQI) and recommendations for their use
- 3507 Non-destructive testing
- 3507.1 Part 1: Guide to radiography for ferrous castings
- 3507.2 Part 2: Radiographic determination of quality of ferrous castings
- 3669 Non-destructive testing—Qualification and approval of personnel—Aerospace
- 4749 Non-destructive testing—Terminology of and abbreviations for fusion weld imperfections as revealed by radiography

Statements expressed in mandatory terms in footnotes to tables are deemed to be requirements of this Standard.

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STANDARDS AUSTRALIA**Australian Standard****Non-destructive testing—Computerized radiography****Part 2: Testing of metallic materials using X-rays and gamma rays****1 SCOPE**

This Standard specifies fundamental techniques of computed radiography with the aim of enabling satisfactory and repeatable results to be obtained economically. The techniques are based on the fundamental theory of the subject and test measurements. This Standard specifies the general rules for industrial computed X-ray and gamma radiography for flaw detection purposes, using storage phosphor imaging plates (IP). It is based on the general principles for radiographic examination of metallic materials on the basis of films, (refer to AS 2177.)

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

- | | |
|--------|--|
| 1929 | Non-destructive testing—Glossary of terms |
| 2177 | Non-destructive testing—Radiography of welded butt joints in metals |
| 2314 | Radiography of metals—Image quality indicators (IQI) and recommendations for their use |
| 2168 | Non-destructive testing—Computerized radiography |
| 2168.1 | Part 1: Systems |
| 2243 | Safety in laboratories |
| 2243.4 | Part 4: Ionizing radiations |
| 2452 | Non-destructive testing—Determination of thickness |
| 2452.1 | Part 1: Determination of wall thickness of pipe by the use of radiography |
| 3507 | Non-destructive testing |
| 3507.1 | Part 1: Guide to radiography for ferrous castings |
| 3669 | Non-destructive testing—Qualification and approval of personnel—Aerospace |
| 3998 | Non-destructive testing—Qualification and certification of personnel |

EN

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|-------|---|
| 462 | Non-destructive testing—Image quality of radiographs |
| 462-5 | Part 5: Image quality indicators (duplex wire type), determination of image unsharpness value |

3 DEFINITIONS

For the purposes of this Standard the following definitions and those in AS 1929 apply.

3.1 Computed radiography system (CR system)

Complete system of a storage phosphor imaging plate (IP) and corresponding read out unit (scanner or reader), and system software, which converts the information of the IP into a digital image.