AS 2168.1—2009

Australian Standard®

Non-destructive testing—Computerized radiography

Part 1: Systems

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 29 May 2009.
This Standard was published on 30 June 2009.

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

This Standard was issued in draft form for comment as DR 06542.

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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Part 1: Systems

First published as AS 2168.1—2009.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 9177 8

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 parameters of computed radiography systems are achieved.

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

EN	
14784	Non-destructive testing—Industrial computed radiography 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 as follows:

AS	
2168	Non-destructive testing—Computerized radiography
2168.1	Part 1: Systems (this Standard)
2168.2	Part 2: Testing of metallic materials using X-rays and gamma rays
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: Radiography determination of quality of ferrous castings
4749	Non-destructive testing—Terminology of and abbreviations for fusion weld imperfections as revealed by radiography

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is only for information and guidance.

CONTENTS

STANDARDS AUSTRALIA

Australian Standard
Non-destructive testing—Computerized radiography

Part 1: Systems

1 SCOPE

This Standard specifies the performance of computed radiography (CR) systems and the measurement of the parameters for the system scanner and storage phosphor imaging plate (IP). It describes the classification of these systems in combination with specified metal screens for industrial radiography to ensure that the quality of images (as far as this is influenced by the scanner-IP system) is in conformity with the requirements of AS 2168.2.

Manufacturers tests are described, which allow the determination of exact system parameters. Simpler user tests are also described, which are designed for a fast test of the quality of CR systems and long term stability.

The classifications can be determined accurately by the manufacturer tests as described in this Standard. Individual test targets, which are recommended for practical user tests, are described for quality assurance. These tests can be carried out either separately or by the use of a CR Phantom (see Appendix B).

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
1929	Non-destructive testing—Glossary of terms
2168	Non-destructive testing—Computerized radiography
2168.2	Part 2: testing of metallic materials using X-rays and gamma rays
2177	Non-destructive testing—Radiography of welded butt joints in metal
3669	Non-destructive testing—Qualification and approval of personnel—Aerospace
3998	Non-destructive testing—Qualification and certification of personnel
ASTM	
E1647	Standard practice for determining contrast sensitivity in radioscopy
EN	
462	Non-destructive testing—Image quality of radiographs
462-5	Part 5: Image quality indicators (duplex wire type), determination of image unsharpness value
584	Non-destructive testing—Industrial radiography film
584-1	Part 1: Classification of film systems for industrial radiography

3 DEFINITIONS

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

3.1 Aliasing

Pre-sampled high spatial frequency signals beyond the Nyquist frequency (given by the pixel distance) reflected back into the image at lower spatial frequencies.

