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AS 2314—2006

Australian Standard™

Radiography of metals—Image quality indicators (IQI) and recommendations for their use

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 19 April 2006.
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The following are represented on Committee MT-007:

Australian Railway Association
Australian Aerospace Non-Destructive Testing Committee
Australian Industry Group
Australian Institute for Non-Destructive Testing
Australian Nuclear Science & Technology Organisation
Australian Pipeline Industry Association
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STANDARDS AUSTRALIA

RECONFIRMATION

OF
AS 2314—2006
Radiography of metals—Image quality indicators (IQI) and recommendations for their use

RECONFIRMATION NOTICE

Technical Committee MT-007 has reviewed the content of this publication and, in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

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National Association of Testing Authorities Australia
New Zealand Non-Destructive Testing Association
TestSafe Australia
Welding Technology Institute of Australia
WorkSafe Victoria

NOTES

Australian Standard™

Radiography of metals—Image quality indicators (IQI) and recommendations for their use

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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.

This Standard supersedes AS 2177.2—1982, *Radiography of welded butt joints in metal*, Part 2: *Image quality indicators (IQI) and recommendations for their use*.

The objective of this Standard is to specify the procedure for determining the image quality indicators for X-ray or gamma-ray radiography of metals.

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

EN	
462	Non-destructive testing—Image quality of radiographs
462-1	Part 1: Image quality indicators (wire type), determination of image quality value
462-2	Part 2: Image quality indicators (step/hole type), determination of image quality value

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

Page

FOREWORD 4

SECTION 1 SCOPE AND GENERAL
1.1 SCOPE 5
1.2 REFERENCED DOCUMENTS 5
1.3 DEFINITIONS 6

SECTION 2 IQI CHARACTERISTICS
2.1 WIRE IQI (W) 7
2.2 STEP/HOLE IQI (SH) 9
2.3 PLAQUE/HOLE IQI (PH) 11

SECTION 3 IMAGE QUALITY INDICATORS AND THEIR USE
3.1 SELECTION OF IQI 14
3.2 LOCATION OF IQI 14
3.3 ASSESSMENT OF IQI PERCENT SENSITIVITY 14
3.4 EQUIVALENT SENSITIVITY 15

APPENDICES
A WIRE IQI SENSITIVITIES FOR STEEL 19
B MATERIALS OF CONSTRUCTION OF IMAGE QUALITY INDICATORS 25
C NOMOGRAPH FOR DETERMINING IQI SENSITIVITY FOR PLAQUE/HOLE OR STEP HOLE METHODS 27
D WIRE IQI MATERIALS 29
E STEP/HOLE IQI MATERIALS 30

FOREWORD

The elements, wires or holes, of image quality indicators (IQI) are used to indicate the sensitivity of the radiographic process. The image quality is characterized by the smallest element of a series of wires, or by the smallest of a series of holes in plates of different thicknesses, the image of which can be discerned visually when a film is placed on an illuminated screen of the required brightness as specified in AS 2177.

In this Standard the following parameters are considered when using IQIs:

(a) The number value of the IQI is dependent on the material thickness.

(b) IQI sensitivity required is influenced by the radiographic test method used.

(c) The percentage sensitivity will not be the same for different metal thickness.

(d) The elements of the visibility of an IQI is subjective and it depends upon the following factors:

  (i) Visual acuity.

  (ii) Viewing conditions.

  (iii) Experience and ability in assessing IQI images.

  (iv) Radiographic contrast.

Other factors which can influence IQI are:

(A) Tube voltage or type of radiography

(B) Source-to-film and object-to-film distances

(C) Film type and screen material and thickness.

(D) Film density and processing.

(E) Location of IQI.

STANDARDS AUSTRALIA

Australian Standard

Radiography of metals—Image quality indicators (IQI) and recommendations for their use

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard specifies requirements for the following three types of image quality indicators (IQI) used in X-ray or gamma-ray radiographic examination of metals and includes recommendations for their use:

(a) Wire IQI (W).

(b) Step/hole IQI (SH).

(c) Plaque/hole IQI (PH).

NOTES:

1 Advice and recommendations on wire IQI sensitivities are contained in Appendix A.

2 Guidance and general information on materials of construction of IQIs, which should assist the users of this Standard, is contained in Appendix B.

1.2 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 metal
3507	Non-destructive testing
3507.1	Part 1: Guide to radiography for ferrous castings
ISO	
17	Guide to the use of preferred numbers and of series of preferred numbers
497	Guide to the choice of series of preferred numbers and of series containing more rounded values of preferred numbers
EN	
462	Non-destructive testing—Image quality of radiographs
462-1	Part 1: Image quality indicators (wire type). Determination of image quality value
462-2	Part 2: Image quality indicators (step/hole type). Determination of image quality value
ASTM	
B139	Standard specification for phosphor bronze rod, bar and shapes
B150	Standard specification for aluminium bronze rod, bar and shapes
B151	Standard specification for copper-nickel-zinc alloy (nickel silver) and copper-nickel rod and bar
B164	Standard specification for nickel-copper alloy rod, bar, and wire

