INTERNATIONAL STANDARD

ISO 19232-4

First edition
2004-07-01

Non-destructive testing — Image quality of radiographs —

Part 4: Experimental evaluation of image quality values and image quality tables

Essais non destructifs — Qualité d'image des radiogrammes — Partie 4: Évaluation expérimentale des indices de qualité d'image et des tables de qualité d'image

Reference number
ISO 19232-4:2004(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

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 2.

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 document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 19232-4 was prepared by CEN (as EN 462-4:1994) and was adopted, under a special “fast-track procedure”, by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 5, *Radiation methods*, in parallel with its approval by the ISO member bodies.

ISO 19232 consists of the following parts, under the general title *Non-destructive testing — Image quality of radiographs*:

— *Part 1: Image quality indicators (wire type) — Determination of image quality value*

— *Part 2: Image quality indicators (step/hole type) — Determination of image quality value*

— *Part 3: Image quality classes for ferrous metals*

— *Part 4: Experimental evaluation of image quality values and image quality tables*

— *Part 5: Image quality indicators (duplex wire type) — Determination of image unsharpness value*

Non-destructive testing — Image quality of radiographs —

Part 4:
Experimental evaluation of image quality values and image quality tables

1 Scope

This part of ISO 19232 gives instructions for the determination of image quality values and image quality tables.

If the IQI requirements from part 3 of this standard cannot be used, because, for example, the absorption coefficients of the IQI material and the inspected material differ by more than 30 %, test exposures are necessary to determine acceptance of image quality values. The image quality values achieved by the test exposures are required for all exposures made under the same radiographic conditions.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 19232-1, *Non-destructive testing — Image quality of radiographs — Part 1: Image quality indicators (wire type) — Determination of image quality value*

ISO 19232-2, *Non-destructive testing — Image quality of radiographs — Part 2: Image quality indicators (step/hole type) — Determination of image quality value*

ISO 19232-3, *Non-destructive testing — Image quality of radiographs — Part 3: Image quality classes for ferrous metals*

3 Definitions

For the purposes of this document, the following definitions apply.

3.1
image quality indicators (IQI)
see ISO 19232-1 and ISO 19232-2

3.2
image quality
see ISO 19232-1 and ISO 19232-2

3.3
mage quality value
see ISO 19232-1 and ISO 19232-2

3.4
image quality table
achieved image quality values versus the penetrated wall thickness (see clause 4)

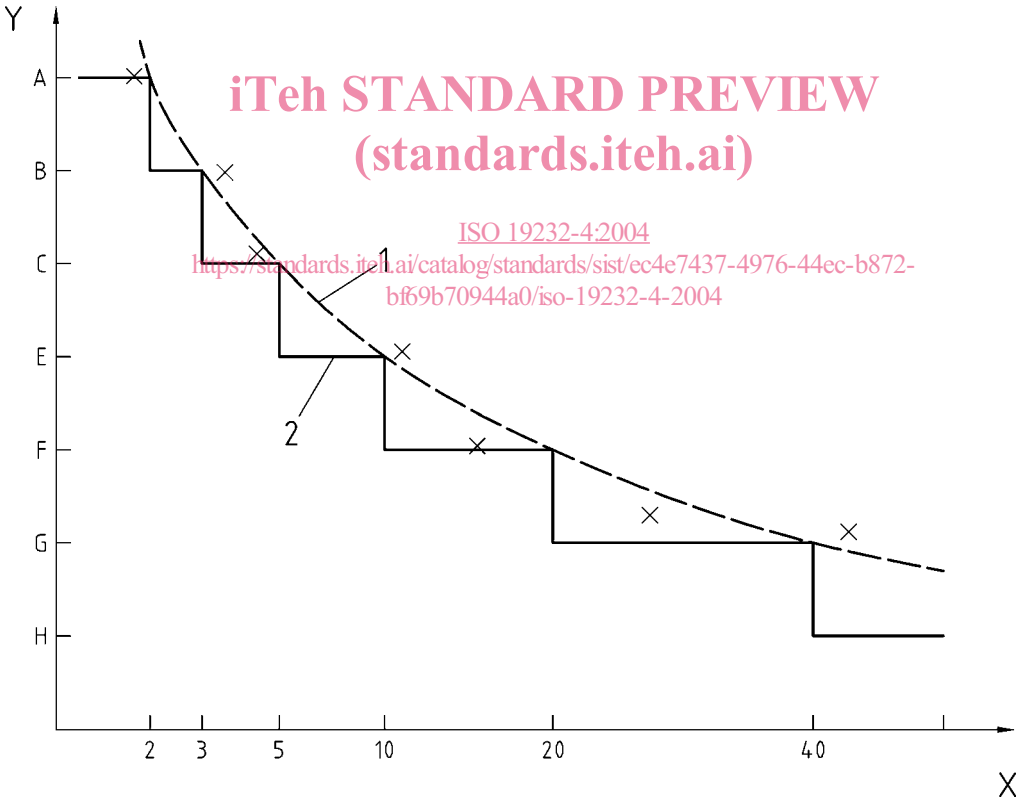
4 Experimental evaluation of image quality values

For the experimental determination of image quality values, the same radiographic conditions and IQI shall be used as specified for the subsequent examination.

Two test exposures shall be made under the specified conditions. If the image quality values read from these two exposures are identical, this value shall be accepted as the required image quality value. If the image quality values from the two test exposures are different, the procedure shall be repeated.

5 Determination of image quality tables

If different wall thicknesses of the same material are radiographed, an image quality table shall be established. An example of the image quality values for different penetrated thicknesses according to clause 4 is shown in Figure 1. The step curve below the experimental values defines the image quality values and penetrated thickness steps of the image quality table, for an example see Table 1.



Key

X penetrated thickness
Y Image quality value
1 experimental curve
2 step curve
× Determined image quality according to clause 4. Material: e.g. steel.

Figure 1 — Example for the determination of an image quality table

Table 1 — Example of an image quality table

Penetrated thickness w mm	image quality value
up to 2	A
above 2 to 3	B
above 3 to 5	C
above 5 to 10	D
above 10 to 20	E
above 20 to 40	F
above 40	G

ICS 19.100

Price based on 3 pages