# Ikke-destruktiv prøvning – Kvalificering af digitale røntgenfilmsystemer – Del 1: Definitioner, kvantitative målinger af billedkvalitetsparametre, standardreferencefilm og kontrol af kvalitet

Non-destructive testing – Qualification of radiographic film digitisation systems – Part 1: Definitions, quantitative measurements of image quality parameters, standard reference film and qualitative control (ISO 14096-1:2005)

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English Version

# Non-destructive testing - Qualification of radiographic film digitisation systems - Part 1: Definitions, quantitative measurements of image quality parameters, standard reference film and qualitative control (ISO 14096-1:2005)

Essais non destructifs - Qualification des systèmes de numérisation des films radiographiques - Partie 1: Définitions, mesures quantitatives des paramètres de qualité d'image, film de référence normalisé et contrôle qualitatif (ISO 14096-1:2005)

Zerstörungsfreie Prüfung - Qualifizierung von Röntgenfilm-Digitalisierungssystemen - Teil 1: Definitionen, quantitative Messung von Bildqualitätsparametern, Standard-Referenzfilm und Qualitätssicherung (ISO 14096-1:2005)

This European Standard was approved by CEN on 6 January 2020.

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# European foreword

The text of ISO 14096-1:2005 has been prepared by Technical Committee ISO/TC 135 "Non-destructive testing" of the International Organization for Standardization (ISO) and has been taken over as EN ISO 14096-1:2020 by Technical Committee CEN/TC 138 "Non-destructive testing" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2020, and conflicting national standards shall be withdrawn at the latest by September 2020.

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

This document supersedes EN 14096-1:2003.

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**Endorsement notice**

The text of ISO 14096-1:2005 has been approved by CEN as EN ISO 14096-1:2020 without any modification.

INTERNATIONAL ISO



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# Non-destructive testing — Qualification of radiographic film digitisation systems —

## Part 1: Definitions, quantitative measurements of image quality parameters, standard reference film and qualitative control

*Essais non destructifs — Qualification des systèmes de numérisation des films radiographiques —*

*Partie 1: Définitions, mesures quantitatives des paramètres de qualité d'image, film de référence normalisé et contrôle qualitatif*

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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 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.

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ISO 14096-1 was prepared by the European Committee for Standardization (CEN) (as EN 14096-1:2003) and was adopted, under a special “fast-track procedure”, by Technical Committee ISO/TC 135, *Non-destructive testing*, Subcommittee SC 5, *Radiation methods* ISO/TC, in parallel with its approval by the ISO member bodies.

ISO 14096 consists of the following parts, under the general title *Non-destructive testing — Qualification of radiographic film digitisation systems:*

— *Part 1: Definitions, quantitative measurements of image quality parameters, standard reference film and qualitative control*

— *Part 2: Minimum requirements*

 

# Introduction

Radiographic film systems are used for industrial inspection by X- and gamma rays. To apply modern means of computer support for analysis, transmission and storage the information stored in the radiographic film should be converted into digital data (digitisation). This European Standard defines minimum requirements to ensure that the relevant information for evaluation of the digital data is preserved during the film digitisation process.

# Non-destructive testing — Qualification of radiographic film digitisation systems —

# Part 1: Definitions, quantitative measurements of image quality parameters, standard reference film and qualitative control

## 1 Scope

This European Standard specifies procedures for the evaluation of basic performance parameters of the radiographic film digitisation process such as spatial resolution and spatial linearity, density range, density contrast sensitivity and characteristic transfer curve. They can be integrated into the system software and together with a standard reference film (as described in clause 5) used for quality control of the digitisation process. This reference film provides a series of test targets for performance evaluation. The test targets are suitable for evaluating a digitisation system with a spatial resolution down to 25 µm, a density contrast sensitivity down to 0,02 optical density, a density range of 0,5 to 4,5 and a film size capacity of (350 × 430) $mm^2$. This standard does not address signal processing and display of the digitised data.

## 2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 584-1, *Non-destructive testing — Industrial radiographic film — Part 1: Classification of film systems for industrial radiography.*

EN 14096-2, *Non-destructive testing — Qualification of radiographic film digitisation systems — Part 2: Minimum requirements.*