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**NATIONAL STANDARD OF THE  
PEOPLE'S REPUBLIC OF CHINA**

**GB/Z 41399-2022**

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**Non-destructive testing instruments - Industrial digital X-ray  
imaging system**

无损检测仪器 工业X射线数字成像系统

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### Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part

1. Structure and Drafting Rules of Standardization Documents" drafted. Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents. This document is proposed by China Machinery Industry Federation. This document is under the jurisdiction of the National Standardization Technical Committee of Testing Machines (SAC/TC122). This document is drafted by: Liaoning Instrument Research Institute Co., Ltd., Liaoning Advanced Equipment Manufacturing Base Construction Engineering Center, Changsha Dicastal Technology Co., Ltd., Institute of Applied Electronics, China Academy of Engineering Physics, China Testing and Certification Group Co., Ltd., Jining Lu Branch Testing Equipment Co., Ltd. The main drafters of this document. Yu Zhijun, Xu Haigeng, Wang Yuqiang, Li Junlin, Chen Hao, Huang Qing, Ma Jun, Liu Qinshuang, Liu Jun, Wang Lin. Nondestructive testing instruments Industrial X-ray Digital Imaging System

### 1 Scope

GB/Z 41399-2022 is the Chinese national standard on non-destructive testing instruments - industrial digital x-ray imaging system, in the field of testing. The /Z suffix marks it as a guiding technical document: it does not prescribe requirements that can be certified against, but sets out the technique, the method or the state of the art that the standards bodies recommend following. It was issued on 15 April 2022 by the State Administration for Market Regulation; Standardization Administration of China. As a guiding technical document it carries no separate date of entry into force: it applies from publication. Classification: ICS 19.100, CCS N78. This page is published from the official record of the standard held by the Chinese standards administration: the identification, the dates, the classification and the issuing body are taken from there. The clause text, the tables and the numeric limits are in the document itself, which is delivered complete in English translation.

This document specifies the principles, technical requirements, test methods and signs of

industrial X-ray digital imaging systems. This document applies to the production, use and debugging of industrial X-ray digital imaging systems (hereinafter referred to as systems).

## 2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to this document.

GB/T 12604.2 Nondestructive Testing Terminology Radiographic Testing

GB/T 17618 Information Technology Equipment Immunity Limits and Measurement Methods

GB 18871-2002 Basic standard for ionizing radiation protection and radiation source safety

GB/T 36015-2018 Performance and inspection rules of industrial X-ray digital imaging devices for non-destructive testing instruments

JB/T 5453-2011 Nondestructive Testing Instrument Industrial X-ray Image Intensifier Imaging System

JB/T 7902 General Specification for Nondestructive Testing Linear Image Quality Meters

## 3 Terms and Definitions

The terms and definitions defined in GB/T 12604.2 and GB/T 36015-2018 and the following terms and definitions apply to this document.

3.1 X-ray digital detector X-raydigitaldetector A device that receives X-rays and converts them into digital signals that can be processed by a computer.

## 4 Principles

The X-ray machine emits X-rays, penetrates the detected workpiece, and is received by the image detector system, and the image information is input through the acquisition and processing. After that, use computer software for image processing to improve the contrast and clarity of the image, and display the processed image. on the display. The schematic diagram is shown in Figure 1.

Note. The image detector system includes X-ray digital detectors, image intensifiers and other components.