

ICS 13.310
CCS A 91

GA

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

GA 926-2011

**General technical requirement for micro-dose X-ray
transmission body scanners**

微剂量透射式X射线人体安全检查设备通用技术要求
(English Translation)

Issued on: March 25, 2011

Implemented on: July 1, 2011

Issued by: Ministry of Public Security

Table of Contents

Foreword
1 Scope
2 Normative references
3 Terms and Definitions
4 Products
4.1 Classification by detection principle
4.2 Classification according to structure
5 General technical requirements
5.1 Performance Requirements
5.2 Radiation and environmental safety requirements
5.3 Operating environment requirements
5.4 Safety Requirements
5.5 Mechanical structure
5.6 Electromagnetic compatibility requirements
5.7 Electrical Safety
5.8 Environmental Adaptability
6 Test methods
6.1 Environmental conditions
6.3 Detection mechanical structure
6.4 Performance Requirements Test
6.5 Radiation and Environmental Indicators test
6.6 Security Functional Test
6.7 Scope of supply test
6.8 Environmental Adaptability Test
6.9 Electrical safety requirements, test
6.10 Electromagnetic compatibility test
6.11 Mechanical environmental testing machine
7 Evaluation test image
7.1 Evaluation Principles
7.2 Evaluation Record
7.3 Evaluation Conclusion
8 Packaging, labeling, storage and transport

9 Random technical documents

9.1 Overview

9.2 User's Guide

Foreword

5.1,5.2,5.4,5.7 this standard is mandatory, the rest are recommended.

This standard was drafted in accordance with GB/T 1.1-2009 given rules.

The standard proposed by First Research Institute of Ministry of Public Security.

This standard by the National Security Alarm System Standardization Technical Committee (SAC/TC100) centralized.

This standard was drafted. First Research Institute of Ministry of Public Security, Beijing Technology Co., Ltd. in the shield Min analysis, Nuctech technology Company Limited Secretary, Ministry of Public Security the third Institute.

1 Scope

This standard specifies the transmission of micro-dose X-ray security inspection equipment body (hereinafter referred to as the device) technical requirements, test methods, is Design, manufacture, assembly, acceptance and use of such equipment and the fundamental basis for development of product standards.

This standard applies to all types of micro-dose X-ray transmission of human security inspection equipment.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

GB/T 2423.1 Environmental testing for electric and electronic products Part 2. Test methods Test A. Cold GB/T 2423.2 Environmental testing for electric and electronic products Part 2. Test methods Test B. Dry heat GB/T 2423.3 Environmental testing for electric and electronic products Part 2. Test methods - Test Cab. Damp heat test GB/T 2423.5 Environmental testing for electric and electronic products Part 2. Test methods Test Ea and guidance. Shock GB/T 2423.10 Environmental testing for electric and electronic products Part 2. Test methods Test Fc. Vibration (sinusoidal) GB 15208.1-2005 micro-dose X-ray security inspection equipment - Part 1. General technical requirements GB/T 15208.2-2006 micro-dose X-ray security inspection equipment - Part 2. Test Body

3 Terms and Definitions

GB 15208.1-2005 define the following terms and definitions apply to this document.

Micro-dose X-ray transmission of human security inspection equipment
micro-doseX-raytransmissionbodyscanner Check inside and outside the human body for carrying contraband, a single dose of less than $4\mu\text{Gy}$ check transmissive X-ray security inspection body.

Unshielded transmission X-ray micro-dose human safety inspection equipment
unshieldedmicro-doseX-raytransmission bodyscanner Detecting device does not install special guards, radiation protection needs to designate zones or in micro doses meet the health protection requirements through the engine room X-ray beam human security inspection equipment.

Shielded transmission X-ray micro-dose human safety inspection equipment
shieldedmicro-doseX-raytransmissionbodyscanner Radiation detection equipment guards, leaving the device in any case at 5cm, and the leakage radiation dose rate is less than $3\mu\text{Gy/h}$ micro-agents the amount of transmitted X-ray security inspection body.

Contrast sensitivity the minimum prescribed thickness has placed under Plexiglas satisfies a predetermined dose of a single inspection, the inspection system can be displayed after the absorber Than the thickness of the machine and the thickness of the glass sheet plexiglass absorption.

Moving parts movingassembly for carrying the subject or the mechanical structure of the X-ray inspection apparatus.

Single check time timeperinspection Moving parts start moving to the image display completion time.

Detection height scanningheight the maximum height of the body can be detected.

4.1 Classification by detection principle

Classification by detection principle, the transmission of micro-dose X-ray security screening equipment can be divided into the body.

- a) non-energy-resolved type;
- b) energy resolution type.

4.2 Classification according to structure

According to the structure in the form of classification, transmitted micro-dose X-ray security screening equipment can be divided into the body.

- a) unshielded;

b) shielded.

5.1.1 Contrast sensitivity

Contrast sensitivity of the device should be less than equal to 1.0%.

5.1.2 Line Resolution

Equipment should be able to distinguish between the nominal diameter of 0.127mm single solid core copper wire.

5.1.3 Spatial resolution

It should be able to distinguish between a diameter of 1.3mm wire pair.

5.1.4 Organics resolution (energy resolution type device)

Equipment should be able to distinguish a thickness of 1mm ~ 120mm poly methyl methacrylate, and give different saturation of orange.

5.1.5 The mixture was resolved (energy resolution type device) Equipment should be able to distinguish a thickness of 1mm ~ 60mm aluminum, and give different saturation green.

5.1.6 Inorganic resolution (energy resolution type device)

It should be able to distinguish between a thickness of 0.2mm ~ 14mm of steel, and give different saturation of blue.

5.1.7 Single check time

Single inspection time should be less than 15s.

5.1.8 Detection height

Detect height should be not less than 2m.

5.2.1 Single dose inspection

Check the dose of a single device should be less than or equal to 4μGy.

5.2.2 Closed micro-dose X-ray transmission of human security inspection equipment leaks radiation dose rate in the outer surface of the device from anywhere 5cm (including equipment inlet, at the outlet), X-ray leakage dose rate should be less than 3μGy/h.

5.2.3 Non-enclosed micro-dose X-ray transmission body ray security inspection equipment protection requirements the use of such equipment, if an X-ray machine room, computer room on each side of the wall thickness of 1mm should be protective lead equivalent. No room should be delineated Radiation protection areas, radiation protection anywhere