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

GB 15208.4-2018

**Micro-dose X-ray security inspection systems - Part 4: Human
body security inspection systems**

微剂量X射线安全检查设备 第4部分：人体安全检查设备

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Foreword

All technical content in this section is mandatory. GB 15208 "Micro Dose X-ray Safety

Inspection Equipment" is divided into the following five parts.

- Part 1. General technical requirements;
- Part 2. Transmissive bag security inspection equipment;
- Part 3. Transmissive cargo safety inspection equipment;
- Part 4. Human body safety inspection equipment;
- Part 5. Backscattering items safety inspection equipment. This part is the fourth part of GB 15208. This part is drafted in accordance with the rules given in GB/T 1.1-2009. This part is proposed and managed by the Ministry of Public Security of the People's Republic of China. This section drafted by: Ministry of Public Security First Institute, Beijing Zhongduan Anmin Analysis Technology Co., Ltd., Tongfang Weishi Technology Co., Ltd. Division, National Security and Alarm System Product Quality Supervision and Inspection Center (Beijing), National Security and Alarm System Product Quality Supervision and Inspection Xin (Shanghai), Shenzhen Institute of Metrology and Quality Inspection, Shenzhen Liming Qingqing Image Technology Co., Ltd. The main drafters of this section. Yang Xiaoyue, Chen Xueliang, Zhao Lei, Xing Yu, Zhao Nai, Lu Peng, Liu Caixia, Zhou Yingchun, Shi Zhibo, Deng Yanli, Tao Lei. Micro-dose X-ray safety inspection equipment Part 4. Human safety inspection equipment

1 Scope

Part 4 of China's mandatory series on micro-dose X-ray security inspection equipment, and the part where the object being scanned is a person. It specifies the classification, the general technical requirements, the test methods, the inspection rules, the packaging and marking, the storage and transport and the accompanying technical documentation of human body security inspection systems. It is applied together with the general requirements of Part 1. Everything about this part follows from the fact that a passenger, unlike a suitcase, receives the dose. The radiation requirements are therefore not a matter of protecting bystanders and operators but of limiting what is delivered to the person standing in the machine, and the standard sets the dose per scan, the way it is measured and the conditions under which the equipment may be operated at all, together with the interlocks and the indications that make it impossible to scan someone unintentionally or twice. Around that sit the imaging requirements, which have to be good enough to justify using ionising radiation on a person in the first place: the detection of the objects the machine is deployed to find, on the body and in clothing, the spatial resolution and contrast, and the behaviour with metallic and non-metallic targets. The rest is the equipment: the enclosure and the walk-through arrangement, the electrical safety, the environmental and electromagnetic requirements, the software, and the handling, storage and access control of the images - a question that on a human body scanner is not only technical, and which the standard addresses as part of the product rather than as a matter of local practice.

Issued on 19 November 2018 and in force since 1 December 2019.

This part of GB 15208 specifies the classification, general technical requirements, test methods, inspection rules, packaging, and marking of human safety inspection equipment. Awareness, storage and transportation, and random technical documentation. This section applies to the design, manufacture, assembly, acceptance and use of various human safety inspection equipment. This section does not apply to X-ray safety inspection equipment for computed tomography (CT).

2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article. Pieces. For undated references, the latest edition (including all amendments) applies to this document.

GB/T 308.1-2013 Rolling ball - Part 1. Steel ball

GB 15208.1-2018 Micro-dose X-ray safety inspection equipment - Part 1. General technical requirements

GB 15208.2-2018 Micro-dose X-ray safety inspection equipment - Part 2

3 Terms and definitions

The following terms and definitions defined in GB 15208.1-2018 and GB 15208.2-2018 apply to this document.

3.1 Human body background material detection force materialdetectiononhumanbody The ability of the device to resolve the thickness of high density polyethylene wafers in the context of high density polyethylene.

Note. Generally, it is expressed by the thickness (mm) of a high-density polyethylene wafer.

3.2 Air background material detection force materialdetectioninair The ability of the device to resolve the thickness of the comb test object in the air background.

Note. Generally, the tooth thickness (mm) of the comb test object is expressed.

3.3 Body line resolution wiredetectiononhumanbody The device resolves the ability of a single solid copper coil wire diameter in the context of high density polyethylene.

Note. Generally indicated by the nominal diameter (mm) of the wire.

3.4 Spatial resolution of the spatial resolutiononhumanbody The ability of the device to resolve the diameter of steel balls in the context of high density polyethylene.

Note. Generally, it is expressed by the diameter (mm) of the steel ball.

3.5 Micro-dose X-ray human body safety inspection equipment

micro-dose X-ray human body security inspection system A micro-dose X-ray safety inspection device for inspecting humans carrying dangerous goods or contraband.

3.6 Transmissive micro-dose X-ray human body safety inspection equipment
transmission micro-dose X-ray human body security inspection system A transmissive micro-dose X-ray safety inspection device for inspecting humans carrying dangerous goods and contraband.

3.7 Backscatter X-ray backscatter X-ray Scattered X-rays greater than 90° with respect to incident X-rays.

3.8 Backscatter micro-dose X-ray human body safety inspection equipment
backscatter micro-dose X-ray human body security inspection system A backscattering micro-dose X-ray human body safety inspection device for inspecting humans carrying dangerous goods and contraband.

3.9 Open micro-dose X-ray human body safety inspection equipment
unshielded micro-dose X-ray human body security inspection system An open micro-dose X-ray safety inspection device for inspecting humans carrying dangerous goods and contraband.

4 Equipment classification

4.1 Micro-dose X-ray human body safety inspection equipment (hereinafter referred to as equipment) is divided into, according to technical characteristics.

- a) transmissive equipment;
- b) backscattering equipment;
- c) Transmissive, backscatter combined equipment.

4.2 Equipment is divided according to material resolution.

- a) single energy spectrum equipment;
- b) Multi-spectral spectrum equipment.

4.3 Equipment is classified according to the type of protection.

- a) open equipment;
- b) Closed equipment.

5.1 Performance Specifications

5.1.1 Human body background material detection force It should be able to distinguish the thickness of the thinnest wafer by 5mm.

5.1.2 Air background material detection force Should be able to distinguish the minimum