

ICS 13.280
CCS F 85



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

GB/T 44632-2024

**Reference radiation fields for radiation protection - Definitions
and fundamental concepts**

辐射防护用参考辐射场 定义和基本概念

(English Translation)

Issued on: September 29, 2024

Implemented on: October 1, 2025

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

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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 for standardization documents" Drafting.

This document is equivalent to ISO 29661:2012 "Definitions and basic concepts of reference radiation fields for radiation protection".

The following minimal editorial changes were made to this document.

--- The outer margins of clauses involved in the contents of ISO 29661:2012/Amd.1.2015 are marked with double vertical lines (||) Marked;

--- Corrected the errors in the original text and modified the units of the symbols d , E and $h\Phi$ (see Chapter 4);

---Added personal doses for different types of radiation (photons, beta and neutrons) under different conditions such as measurement, calibration and type testing Description of the reference point for calculation (see 6.6.3).

1 Scope

This document defines terminology related to the calibration of dosimeters and equipment used for dose measurement of external radiation, particularly beta, neutron and photon radiation.

The basic concepts and measurements of radiation protection dosimeters and dose (rate)

meters are clarified. For personal dose monitoring, including torso (whole body) dose for site dose monitoring, it includes portable and fixed dose (rate) meters.

This document specifies the calibration requirements, calibration process, and calibration procedures for dosimeters and dose (rate) meters used for personal and site dose monitoring in reference radiation fields.

The requirements for the reference points and phantom placement of personal dosimeters during the process, as well as the methods for determining the energy response and angular response, are discussed.

This document is intended for reference by calibration laboratories and manufacturers.

2 Normative references

The contents of the following documents constitute essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

GB/T 27025-2019 General requirements for testing and calibration laboratories (ISO/IEC 17025:2017, IDT) ISO/IEC Guide 98-3 Uncertainty of measurement Part 3: Guide to the expression of uncertainty in measurement Note. GB/T 27418-2017 Evaluation and Expression of Uncertainty in Measurement (ISO/IEC Guide 98-3..2008, MOD)

3 Terms and definitions

The following terms and definitions apply to this document.

3.1 General

3.1.1

In the coordinate system of the dose (rate) meter, the angle between the incident direction of radiation in the azimuth field and the reference direction of the dose (rate) meter.

3.1.2

Areadose meter

Area Survey Meter

An instrument used to measure ambient dose equivalent (rate) or directional dose equivalent (rate).

3.1.3

Background indication an indication obtained from a phenomenon, object or substance similar to the one being studied, but in which the quantity of interest is not represented or does not contribute to the result.

3.1.4

Calibration

A set of operations under specified conditions, the first step of which is to determine the relationship between the value provided by the measurement standard and the corresponding indication.