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NATIONAL METROLOGY TECHNICAL SPECIFICATION OF THE

PEOPLE'S REPUBLIC OF CHINA

JJF 1928-2021

Calibration Specification for Beam Quality Inspection Instruments of Radiation Therapy

放射治疗射束质量检查仪 校准规范

(English Translation)

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9 Recalibration interval(4)

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Introduction

JJF 1071-2010 "Rules for the Compilation of National Metrology Calibration Standards", JJF 1001-2011 "General Metrology Terms and Definition" and JJF 1059.1-2012 "Measurement Uncertainty Evaluation and Representation" together constitute support for the formulation of this specification the basic series of specifications. In the formulation of this specification, reference is made to JJG589-2008 "Medical Electron Accelerator Radiation Sources", JJG912-2010 "Therapeutic Level Ionization Chamber Dosimeter",

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JJG2044-2019 "Gamma-ray air kerma measurement Apparatus Verification System Table", GB 15213-2016 "Medical Electron Accelerator Performance and Test Methods", Basic requirements and methods for documents such as IEC 60976:2007 Performance of Medical Electron Accelerators for Medical Electrical Equipment.

This specification is published for the first time.

Radiotherapy beam quality checker Calibration specification

1 Scope

This specification applies to the beam quality inspection of 60Co gamma rays, accelerator X-rays and electron rays used in radiotherapy it is not suitable for 2D and 3D dosimetry systems for verification of radiation treatment plans.

2 Reference documents this specification references the following documents.

JJG589 Medical electron accelerator radiation source JJG912 Therapeutic level ionization chamber dosimeter JJF 1035 Ionizing Radiation Measurement Terms and Definitions GB 15213 Medical Electron Accelerator Performance and Test Methods GB/T 19046 Procedures for acceptance test and periodic inspection of medical electron accelerators for dated references, only the dated version applies to this specification; for undated references the latest version (including all amendments) applies to this specification.

3 Terminology and units of measurement

3.1 Terminology

The terms and definitions defined in JJF 1001, JJF 1035, GB 15213 and the following apply to this specification.

Along the ray axis, the distance from the radiation source surface to the irradiated surface, also known as the source skin distance.

3.1.2 Irradiation field fieldofbeam the irradiation surface of a radiation beam in a plane perpendicular to its axis.

For X-radiation, it is the distance measured from the front surface of the target along the axis of the radiation beam to the isocenter; for non-isocentric equipment, then is the distance to the specified plane.

Electron beam radiation is the distance measured from the electron radiation window along the beam axis to the end of the beam limiter or to a specified plane.

3.2 Units of measurement Absorbed dose unit name. Gray [Ray]; Symbol. Gy.

4 Overview

Radiotherapy beam quality checker (hereinafter referred to as checker), mainly composed of ionizing radiation detector, signal processing Unit, data acquisition unit, data analysis

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software, etc., used for electron linear accelerator or cobalt therapy machine in the development of

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