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Calibration Specification of Water Absorbed Dose of Dosimeters with Ionization Chambers as Used in Radiotherapy

放射治疗用电离室剂量计水吸收剂量校准规范

(English Translation)

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Introduction

The water absorption dose calibration of the ionization chamber dosimeter for radiotherapy is to meet the measurement needs in the field of radiotherapy Seeking, compared with the original measurement system, it can reduce the uncertainty of the measurement of the water absorption dose of working measuring instruments, and makes me the radiation dose measurement system in China is consistent with international standards.

This specification mainly refers to IAEATRS398 "Determination of Absorbed Dose of Water for External Radiation Therapy" (Absorbed

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DoseDeterminationinExternalBeamRadiotherapy) requirements for the calibration of the absorbed dose of water in the ionization chamber, and the performance of YY/T 0976 "Ionization Chamber Dosimeter for Radiation Therapy of Medical Electrical Equipment" for the ionization chamber dosimeter Claim.

This specification is the first release.

Calibration specification for water absorbed dose of ionization chamber dosimeter for radiotherapy

1 Scope

This specification applies to ionization chamber dosimeters for radiotherapy for water absorption in 60Co gamma rays and accelerator photon beams Dose calibration, the photon energy range is (1.25 ~ 25) MeV, and the dose rate range is (0.01 ~ 10) Gy/min. school the post-calibration ionization chamber dosimeter can be used to calibrate the water absorption dose of external radiation therapy radiation sources, including MVX-ray beam, Electron beam, proton beam and heavy ion beam.

2 Reference documents this specification refers to the following documents.

YY/T 0976 Medical electrical equipment ionization chamber dosimeter for radiotherapy IAEATRS398 AbsorbedDoseDetermination inExternalBeamRadiotherapy) for dated reference documents, only the dated version applies to this specification; for those without date references the latest version (including all amendments) is applicable to this specification.

3 Terms and units of measurement

3.1 Terminology

3.1.1 Calibration factor the quotient of the reference value divided by the indicated value.

3.1.2 Reference point the point where the ionization chamber coincides with the reference value when calibrating the ionization chamber.

Note: The reference point of the cylindrical finger ionization chamber is on the central axis of the cavity of the ionization chamber, and the reference point of the flat plate ionization chamber is in the front window of the ionization chamber Inner surface.

3.1.3 Leakage current the current generated by the ionization chamber dosimeter on the signal channel is not the current generated by ionization in the sensitive volume.

3.2 Unit of measurement

3.2.1 Water absorbed dose Ionizing radiation grants energy per unit mass of water in Joules per kilogram (J/kg), the proper name for Gy.

3.2.2 Dose rate of water absorption the increment of water absorbed dose per unit time, the

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commonly used unit is Gray per minute (Gy/min).

4 Overview

The ionization chamber dosimeter for radiotherapy is used for the transmission of radiation dosimetry and other application fields such as medical radiotherapy the measurement of the radiation dose is mainly composed of the ionization chamber and the measurement unit. The ionization chamber is a cavity ionization chamber.

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