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**X and gamma reference radiation for
calibrating dosimeters and doserate
meters and for determining their
response as a function of photon
energy**

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Contents

	Page
Introduction	1
1 Scope	1
2 Normative references	2
3 Terms and definitions	2
4 Continuous reference filtered X radiation	7
4.1 Radiation quality	7
4.2 Specifications of continuous reference filtered X radiation	8
4.3 Characteristics and operation of the instruments	12
4.4 Field uniformity and scattered radiation	17
5 Fluorescence reference X radiation	17
5.1 Specifications for radiation and production principle	17
5.2 Fluorescence X-ray installation and operating conditions	18
5.3 Field uniformity and measurement of scattered radiation	21
6 Gamma reference radiation	21
6.1 Gamma radiation emitted by radionuclides	21
6.2 Construction and specification of gamma-ray sources	21
6.3 Irradiation facility	22
6.4 Determination of scattered radiation	23
6.5 Field uniformity	24
7 High-energy gamma reference radiation	24
7.1 Conditions of facilities and specifications for radiation	24
7.2 Field uniformity and scattered radiation	27
7.3 Influence assessment of contamination of photon reference radiation	28
8 Measurement procedure for reference radiation and traceability	29
8.1 General	29
8.2 Determination of air-kerma (rate) of reference radiation	29
8.3 Determination of dose equivalent (rate) of reference radiation	30
8.4 Conditions for standard instruments	30
8.5 Measurement method with the standard instrument	31
8.6 Measurement method applicable to ionization chambers	32
8.7 Measurement method specific to each reference radiations	36
9 Calibration method of a practical meter	40
9.1 General	40
9.2 Conversion coefficient to dose equivalent	41
9.3 Calibration conditions for personal dosimeter	42

9.4	Calibration method in the reference radiation field	44
9.5	Characteristic test method	48
9.6	Calibration method of dose-equivalent meter used for area monitoring	50
9.7	Calibration method of dose-equivalent meter used for individual monitoring	51
9.8	Calibration method of a practical meter for other quantities to be measured	51
10	Records of calibration results	52
11	Uncertainty of calibration factor	52
11.1	General	52
11.2	Calculation method of uncertainty of calibration factor	52
Annex A (normative)	Reference conditions, and standard test conditions	55
Annex B (normative)	Conversion coefficient to dose equivalent	57
Annex C (informative)	Effects associated with secondary electron equilibrium and electron ranges	76
Annex D (normative)	Correction for air density	80
Annex E (informative)	Measurement of pulse height spectra	84
Annex F (informative)	Bibliography	87
Annex JA (informative)	Calibration hierarchy and traceability system	88
Annex JB (normative)	Simplified calibration and functional checks of practical meters	89
Annex JC (informative)	Calibration method of a practical meter at low dose rate	92
Annex JD (informative)	Comparison table between JIS and corresponding International Standards	95

Foreword

This Japanese Industrial Standard has been revised by the Minister of Economy, Trade and Industry through deliberations at the Japanese Industrial Standards Committee as the result of proposal for revision of Japanese Industrial Standard submitted by Japan Electric Measuring Instruments Manufacturers' Association (JEMIMA)/Japanese Standards Association (JSA) with the draft being attached, based on the provision of Article 12 Clause 1 of the Industrial Standardization Law applicable to the case of revision by the provision of Article 14.

Consequently **JIS Z 4511**:2005 is replaced with this Standard.

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X and gamma reference radiation for calibrating dosimeters and doserate meters and for determining their response as a function of photon energy

Introduction

This Japanese Industrial Standard has been prepared based on ISO 4037-1:1996 Edition 1, ISO 4037-2:1997 Edition 1, ISO 4037-3:1999 Edition 1, and ISO 4037-4:2004 Edition 1, according to the status of use in Japan with some modifications of the technical contents.

The vertical lines on both sides and dotted underlines indicate changes from the corresponding International Standards. A list of modifications with the explanations is given in Annex JD. Annex JA to Annex JC are unique to JIS and not given in the corresponding International Standards.

1 Scope

This Standard specifies the calibration method of dose-equivalent (rate) meter used for area monitoring and individual monitoring for radiation protection and used for setting up the air kerma reference field in the photon energy range 8 keV to 9 MeV and at air kerma rates from $10 \mu\text{Gy}\cdot\text{h}^{-1}$ to $10 \text{Gy}\cdot\text{h}^{-1}$. This Standard also specifies the test methods of the response as a function of photon energy and angle of radiation incidence. This Standard is also applicable to an air absorbed dose (rate) meter, an air kerma (rate) meter and an exposure (rate) meter.

NOTE The International Standards corresponding to this Standard and the symbol of degree of correspondence are as follows.

ISO 4037-1:1996 *X and gamma reference radiation for calibrating dosimeters and doserate meters and for determining their response as a function of photon energy—Part 1: Radiation characteristics and production methods*

ISO 4037-2:1997 *X and gamma reference radiation for calibrating dosimeters and doserate meters and for determining their response as a function of photon energy—Part 2: Dosimetry for radiation protection over the energy ranges from 8 keV to 1,3 MeV and 4 MeV to 9 MeV*

ISO 4037-3:1999 *X and gamma reference radiation for calibrating dosimeters and doserate meters and for determining their response as a function of photon energy—Part 3: Calibration of area and personal dosimeters and the measurement of their response as a function of energy and angle of incidence*

ISO 4037-4:2004 *X and gamma reference radiation for calibrating dosimeters and doserate meters and for determining their response as a function of photon energy—Part 4: Calibration of area and personal dosimeters in low energy X reference radiation fields (overall evaluation: MOD)*