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JIS Z 8724 : 1997

Methods of colour measurement —  
Light-source colour

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**ICS** 17.180.20

**Descriptors** : lighting systems, colour, colorimetry, standard light source, optical measurement

**Reference number** : JIS Z 8724 : 1997 (E)

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This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

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In the event of any doubts arising as to the contents,  
the original JIS is to be the final authority.

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## Methods of colour measurement— Light-source colour

**1 Scope** This Japanese Industrial Standard specifies the methods of measurement for general light source colour by the XYZ colorimetric system based on 2 degree field of view<sup>(1)</sup>, hereafter referred to as “XYZ colorimetric system”, and the  $X_{10}Y_{10}Z_{10}$  colorimetric system based on 10 degree field of view<sup>(2)</sup>, hereafter referred to as “ $X_{10}Y_{10}Z_{10}$  colorimetric system”, and the methods of measurement for the relative spectral energy distribution of the illuminating light used in calculating the tristimulus values of object colours. This Standard applies to the case of measuring the emission colour of the light source other than general illumination (for example, emission display).

Lighting methods of various kinds of light source used for measurement are specified in the Annex.

Notes <sup>(1)</sup> The colorimetric system recommended by the Commission Internationale de l'Éclairage, abbreviated to CIE (International Commission on Illumination), in 1931. It is also called 1931 colorimetric system.

<sup>(2)</sup> The colorimetric system recommended by CIE in 1964. It is also called 1964 colorimetric system.

Remarks 1 The XYZ colorimetric system and  $X_{10}Y_{10}Z_{10}$  colorimetric system applies when it is intended to get a good correlation with the visual colour matching where the angle subtended at the observer's eye by the luminous plane is 1° to 4° and where it exceeds 4°, respectively.

2 The following standards are cited in this Standard.

JIS B 7113 *Photographic sharp-cut glass filters*

JIS C 7601 *Fluorescent lamps for general lighting service*

JIS C 7604 *High pressure mercury vapour lamps*

JIS R 6001 *Abrasive grain sizes*

JIS Z 8103 *Glossary of terms used in instrumentation*

JIS Z 8105 *Glossary of colour terms*

JIS Z 8113 *Glossary of lighting terms*

JIS Z 8120 *Glossary of optical terms*

JIS Z 8701 *Colour specification – The CIE 1931 standard colorimetric system and the CIE 1964 supplementary standard colorimetric system*

JIS Z 8725 *Methods for determining distribution temperature and colour temperature or correlated colour temperature of light sources*

3 The users of this Standard have to pay regard to the actual circumstance that the method of calculation for relative spectral distribution specified in this Standard (4.2.6) is being taken, as of March 1996, as an object of application for patent which has been opened as shown below:

Name of invention: Spectrometry

Applicant: Matsushita Electric

Application for patent: Toku-Shutsu-Hei-3 No. 150038 (date of application: June 21, 1991)

Open of application for patent: Toku-Kai-Hei-4 No. 252924 (date of opening: September 8, 1992)

The matters described in this Standard have not any influence on the right and effect based on the Patent Law. In the case where this application for patent is registered as the patent, the act of violation of or conflict with the patent right resulted from the use of this Standard is the responsibility to be taken by the users of the Standard.

In this connection, the relevant Minister, Japanese Industrial Standards Committee, and draft making body and draft preparing committee members have not any responsibility.

The users of this Standard have to examine the trend of the application for patent (e.g. whether the registration of patent is decided or not).

The applicant above-mentioned guarantees the Japanese Industrial Standards Committee to be ready for concluding the contract with the users of this Standard about the setting up of licence right for applied patent after patent registration or practicing before patent registration.

Connect to the following about the setting up of the practice of the applied patent above-mentioned.

1006, Oaza-Kadoma, Kadoma City, Osaka Prefecture  
Matsushita Electric, Right of Intellectual Property Center

**2 Definitions** For the purpose of this Standard, the definitions given in **JIS Z 8103**, **JIS Z 8105**, **JIS Z 8113** and **JIS Z 8120** and the following definitions apply:

- (1) **centroidal wavelength** The wavelength representing the selective response in a photometric system indicating a selective response to a specific wavelength band. The centroidal wavelength shall be calculated in general from the following equation:

$$\lambda_g = \frac{\int_0^{\infty} \lambda \cdot R(\lambda) d\lambda}{\int_0^{\infty} R(\lambda) d\lambda} \dots\dots\dots (1)$$

where,  $\lambda_g$ : centroidal wavelength (nm)

$\lambda$ : wavelength (nm)

$R(\lambda)$ : response of photometer to monochromatic light with a wavelength of  $\lambda$  and of constant radiant flux

- (2) **polychromator** An apparatus which detects in parallel the spectral composition of radiation by putting light-intercepting element in a state of array on the surface of image formation of the spectrum dispersed by diffraction grating and the like.