IEC 61526

Edition 3.0 2010-07

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Radiation protection instrumentation – Measurement of personal dose equivalents $H_p(10)$ and $H_p(0,07)$ for X, gamma, neutron and beta radiations – Direct reading personal dose equivalent meters

Instrumentation pour la radioprotection – Mesure des équivalents de dose individuels $H_p(10)$ et $H_p(0,07)$ pour les rayonnements X, gamma, neutron et bêta – Appareils de mesure à lecture directe de l'équivalent de dose individuel

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RADIATION PROTECTION INSTRUMENTATION – MEASUREMENT OF PERSONAL DOSE EQUIVALENTS $H_p(10)$ AND $H_p(0,07)$ for X, GAMMA, NEUTRON AND BETA RADIATIONS – DIRECT READING PERSONAL DOSE EQUIVALENT METERS

FOREWORD

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International Standard IEC 61526 has been prepared by subcommittee 45B: Radiation protection instrumentation, of IEC technical committee 45: Nuclear instrumentation.

This third edition cancels and replaces the second edition published in 2005. This edition constitutes a technical revision. This edition includes the following significant technical changes with regard to the previous edition:

– Inclusion of terms and definitions from ISO/IEC Guide 99:2007 (VIM:2008).
– Full consistency with IEC/TR 62461:2006 "*Radiation protection instrumentation – Determination of uncertainty in measurement*".
– Improved determination of constancy of the dose response and statistical fluctuations.
– Abolition of classes of personal dose equivalent meters in relation to retention of stored information.
– Inclusion of usage categories of personal dosemeters in Annex C.

The text of this standard is based on the following documents:

FDIS	Report on voting
45B/648/FDIS	45B/666/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

INTRODUCTION

This International Standard applies to active, direct reading personal dose equivalent meters and monitors used for measuring the personal dose equivalents $H_p(10)$ and $H_p(0,07)$ for X, gamma, neutron and beta radiations.

For the personal dose equivalent $H_p(10)$ or the personal dose equivalent rate $\dot{H}_p(10)$ and for X and gamma radiations, two minimum rated ranges for the photon energy are given. The first from 20 keV to 150 keV is for workplaces where low energy X-rays are used, e.g., in medical diagnostic, the second from 80 keV to 1,5 MeV is for workplaces where high energy X-rays and/or gamma sources are used, e.g., in industry. For neutron radiation the minimum rated range of neutron energy is from 0,025 eV (thermal neutrons) to 5 MeV. The rated ranges can be extended to all energies covered by the respective standards for reference radiation fields.

For the personal dose equivalent $H_p(0,07)$ and for X and gamma radiations, a minimum rated range for the photon energy from 20 keV to 150 keV is given and for beta radiation, the minimal rated range is from 0,2 MeV to 0,8 MeV. The rated ranges can be extended to all energies covered by the respective standards for reference radiation fields.

Examples of extended rated ranges are given in Annex C.

In some applications, for example, at a nuclear reactor installation where 6 MeV photon radiation is present, measurement of personal dose equivalent (rate) $H_p(10)$ for photon energies up to 10 MeV should be required. In some other applications, measurement of $H_p(10)$ down to 10 keV should be required.

For personal dose equivalent meters, requirements for measuring the dose quantities $H_p(10)$ and $H_p(0,07)$ and for monitoring of the dose rate quantities $\dot{H}_p(10)$ and $\dot{H}_p(0,07)$ are given. The measurement of these dose rate quantities is an option for personal dose equivalent meters.

Establishments in some countries may wish to use this type of personal dose equivalent meter as the dosemeter to provide the dose of record by an approved dosimetry service.