IEC 60846-2

Edition 2.0 2015-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Radiation protection instrumentation – Ambient and/or directional dose equivalent (rate) meters and/or monitors for beta, X and gamma radiation – Part 2: High range beta and photon dose and dose rate portable instruments for emergency radiation protection purposes

Instrumentation pour la radioprotection – Instruments pour la mesure et/ou la surveillance de l'équivalent de dose (ou du débit d'équivalent de dose) ambiant et/ou directionnel pour les rayonnements bêta, X et gamma – Partie 2: Instruments portables de grande étendue, pour la mesure de la dose et du débit de dose des rayonnements photoniques et bêta dans des situations d'urgence de radioprotection

IEC 60846-2:2015-12(en-fr)

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RADIATION PROTECTION INSTRUMENTATION – AMBIENT AND/OR DIRECTIONAL DOSE EQUIVALENT (RATE) METERS AND/OR MONITORS FOR BETA, X AND GAMMA RADIATION –

Part 2: High range beta and photon dose and dose rate portable instruments for emergency radiation protection purposes

FOREWORD

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International Standard IEC 60846-2 has been prepared by subcommittee 45B: Radiation protection instrumentation, of IEC technical committee 45: Nuclear instrumentation.

This second edition cancels and replaces the first edition of IEC 60846-2, issued in 2007, as well as IEC 61018, issued in 1991; it constitutes a technical revision.

The main technical change with regard to the previous edition consists of an update to the revised edition of IEC 60846-1:2009.

This International Standard IEC 60846-2 is to be used in conjunction with IEC 60846-1:2009. For the purposes of this standard, clauses/subclauses of IEC 60846-1:2009 apply, without modifications, except when stated. The modified clauses/subclauses are identified by the same number as in IEC 60846-1:2009 or, for new clauses/subclauses, by a higher number not used in IEC 60846-1:2009.

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

FDIS	Report on voting
45B/822/FDIS	45B/834/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.

A list of all parts of the IEC 60846 series, under the general title *Radiation protection instrumentation – Ambient and/or directional dose equivalent (rate) meters and/or monitors for beta, X and gamma radiation*, can be found on the IEC website.

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.

RADIATION PROTECTION INSTRUMENTATION – AMBIENT AND/OR DIRECTIONAL DOSE EQUIVALENT (RATE) METERS AND/OR MONITORS FOR BETA, X AND GAMMA RADIATION –

Part 2: High range beta and photon dose and dose rate portable instruments for emergency radiation protection purposes

1 Scope and object

This part of IEC 60846 applies to portable or transportable dose equivalent (rate) meters and/or monitors for the measurement of ambient and/or directional dose equivalent (rate) from external beta, X and gamma radiation for energies up to 10 MeV during emergency situations.

The object of this International Standard is to specify the design requirements and the performance characteristics of dose equivalent (rate) meters intended for the determination of ambient and/or directional dose equivalent (rate) as defined in ICRU Report 47 under emergency conditions. With the exception of modified or new clauses listed below, all clauses in IEC 60846-1:2009 are applicable for instruments used for emergency purposes.

This International Standard does not specify which instruments are required nor does it consider the numbers or specific locations of such instruments. This International Standard does not identify instrumentation for specific types of accidents. It is essential that the rated ranges of the instruments and the radiological and non-radiological conditions for which the instruments are designed adequately cover the accident and post-accident conditions as determined by accident analysis and/or specified by appropriate regulatory authorities or qualified individuals. It is expected that accidents will involve both dose equivalent (rate) and environmental extremes (e.g. temperature and humidity). Specifications for instruments for measuring dose equivalent rates less than the minimum detectable dose rate level specified in this International Standard are contained in IEC 60846-1:2009. Where such instruments are also used for emergency measurements, the requirements of this International Standard apply.

Although this International Standard specifies the requirements for instruments primarily for emergency use, such instruments may also be used for on-site measurements at other times. If the instrument has a remote detector and if an additional detector is provided in the measuring assembly to measure dose equivalent rate at the location of the operator, the requirements apply to both of the detectors.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

This clause of IEC 60846-1:2009 applies, with the following additional references:

IEC 60325:2002, *Radiation protection instrumentation – Alpha, beta and alpha/beta (beta energy $>$ 60 keV) contamination meters and monitors*

IEC 60846-1:2009, *Radiation protection instrumentation – Ambient and/or directional dose equivalent (rate) meters and/or monitors for beta, X and gamma radiation – Part 1: Portable workplace and environmental meters and monitors*