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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**

**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**



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CONTENTS

FOREWORD.....	4
1 Scope and object.....	6
2 Normative references	6
3 Terms and definitions	7
4 General characteristics of ambient dose equivalent (rate) meters for emergency purposes	7
4.1 General	7
4.1.1 Indication.....	7
4.1.2 Read-out	7
4.1.3 Dose equivalent (rate) meter labels and markings	7
4.1.4 Dose equivalent and dose equivalent rate range.....	7
4.1.5 Effective range of measurement	7
4.1.6 Minimum range of measurement.....	7
4.1.7 Alarm levels.....	7
4.1.8 Additional indication	7
4.1.9 Failure operation of indication.....	8
4.1.10 Ease of decontamination	8
4.1.11 Portability	8
4.1.12 Protection of switches.....	8
4.1.13 Use of extension probe.....	8
4.2 Classification of the performance characteristics	8
4.3 General test procedures	8
4.4 Contamination probe	8
5 Radiation characteristics – Directional dose equivalent (rate) meters	8
5.1 Relative intrinsic error	8
5.2 Variation of response with beta radiation energy and angle of incidence	8
5.2.1 Requirements	8
5.2.2 Test method	8
5.3 to 5.6.....	9
5.7 Statistical fluctuations	9
5.7.1 Requirements	9
5.7.2 Test method	9
5.8 and 5.9.....	9
6 Radiation characteristics – Ambient dose equivalent (rate) meters	9
6.1 Relative intrinsic error	9
6.2 Variation of response with photon radiation energy and angle of incidence.....	9
6.2.1 General	9
6.2.2 Requirements	9
6.2.3 Test method	9
6.3 to 6.5.....	10
6.6 Statistical fluctuations	10
6.6.1 Requirements	10
6.6.2 Test method	10
6.7 and 6.8.....	10
6.9 Extracameral response.....	11

6.9.1	Requirements	11
6.9.2	Test method	11
6.10	Response of instrument with extended probe	11
6.10.1	Requirements	11
6.10.2	Test method	11
7	Electrical characteristics of ambient dose equivalent (rate) meters	11
7.1 and 7.2		11
7.3	Warm-up time	11
7.3.1	Requirements	11
7.3.2	Test method	11
7.4 and 7.5		11
8	Mechanical characteristics of ambient dose equivalent (rate) meters	12
8.1	Mechanical shock during operation	12
8.2	Orientation of dose equivalent (rate) meter (geotropism)	12
8.3	Drop test	12
8.3.1	Requirements	12
8.3.2	Test method	12
9	Environmental characteristics, performance requirements and tests	12
9.1	Ambient temperature influence	12
9.1.1	Requirements	12
9.1.2	Test method	13
9.2	Relative humidity	13
9.3	Atmospheric pressure	13
9.4	Sealing against moisture	13
9.5	Storage and transport	13
9.6	Electromagnetic compatibility	13
9.7	Vibration and shock during transport and shipping	13
9.8	Temperature shock	13
9.8.1	Requirements	13
9.8.2	Test method	14
10	Summary of characteristics	14
11	Documentation	14
	Bibliography	17
	Table 1 – Limits of the coefficient of variation and of the relative intrinsic error	15
	Table 2 – Radiation characteristics of directional dose equivalent (rate) meters	15
	Table 3 – Radiation characteristics of ambient dose equivalent (rate) meters	15
	Table 4 – Electrical, mechanical and environmental characteristics of directional and ambient dose equivalent (rate) meters	16

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

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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 part of IEC 60846 is to be used in conjunction with IEC 60846:2002.

NOTE IEC 60846:2002 is currently under revision and will be issued as IEC 60846-1 around 2008-2009. This part of IEC 60846 will then be revised with references to the new publication IEC 60846-1.

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

FDIS	Report on voting
45B/542/FDIS	45B/549/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 maintenance result 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 the IEC 60846 series 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 during emergency situations. It applies directly to dose equivalent (rate) meters intended for the determination of the dose equivalent or dose equivalent rate from external beta and/or X and gamma radiation of energies up to 10 MeV during emergency situations.

The object of this part of the IEC 60846 series 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 60846:2002 are applicable for instruments used for emergency purposes.

This part of the IEC 60846 series does not specify which instruments are required nor does it consider the numbers or specific locations of such instruments. This part of the IEC 60846 series 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 part of the IEC 60846 series are contained in IEC 60846:2002. Where such instruments are also to be used for emergency measurements, they shall also meet the requirements of this part of the IEC 60846 series.

Although this part of the IEC 60846 series 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 shall apply to both of the detectors.

2 Normative references

This clause of IEC 60846:2002 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 60846:2002, *Radiation protection instrumentation – Ambient and/or directional dose equivalent (rate) meters and/or monitors for beta, X and gamma radiation*