National Standards Authority of Ireland

IRISH STANDARD

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# EQUIPMENT FOR CONTINUOUS MONITORING RADIOACTIVITY IN GASEOUS EFFLUENTS PART 1: GENERAL REQUIREMENTS (IEC 60761-1:2002, MODIFIED)

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EUROPEAN STANDARD **EN 60761-1**

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English version

# Equipment for continuous monitoring radioactivity in gaseous effluents Part 1: General requirements

(IEC 60761-1:2002, modified)

Equipements de surveillance en continu de la radioactivité dans les effluents gazeux Partie 1: Exigences générales (CEI 60761-1:2002, modifiée)

Einrichtungen zur kontinuierlichen Überwachung von Radioaktivität in gasförmigen Ableitungen Teil 1: Allgemeine Anforderungen (IEC 60761-1:2002, modifiziert)

This European Standard was approved by CENELEC on 2004-11-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Ref. No. EN 60761-1:2004 E

## Foreword

The text of the International Standard IEC 60761-1:2002, prepared by SC 45B, Radiation protection instrumentation, of IEC TC 45, Nuclear instrumentation, together with the common modifications prepared by the CENELEC BTTF 111-3 Instrumentation for ionizing radiation measurement and protection, was submitted to the formal vote and was approved by CENELEC as EN 60761-1 on 2004-11-01.

The following dates were fixed:

| | | |
|---|---|---|
| – latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2005-11-01 |
| – latest date by which the national standards conflicting with the EN have to be withdrawn | (dow) | 2007-11-01 |

Subclauses, notes and annexes that are additional to those in the IEC standard are prefixed with the letter Z.

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 60761-1:2002 was approved by CENELEC as a European Standard with agreed common modifications as given below.

COMMON MODIFICATIONS

### 2 Normative references

**Delete** 'IEC 60068 (all parts)'.

**Replace** 'IEC 61000 (all parts)' by the standards referenced to in 28.6:

IEC 61000-4-2, *Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test*

IEC 61000-4-3, *Electromagnetic compatibility (EMC) - Part 4-3: Testing and measurement techniques - Radiated, radio-frequency, electromagnetic field immunity test*

IEC 61000-4-4, *Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical fast transient/burst immunity test*

IEC 61000-4-5, *Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test*

IEC 61000-4-12, *Electromagnetic compatibility (EMC) - Part 4-12: Testing and measurement techniques - Oscillatory waves immunity test*

### 9 Measurement and indication characteristics

### 9.2 Measurement characteristics

**Add** the following note:

NOTE Requirements on detection limits and effective ranges of measurement may be found by referring to legal requirements or other national provisions.

### 11 Flow-rate characteristics of a fractional sample of effluent stream

### 11.3 Flow-rate measurement

**Replace** the last sentence by:

Corrections shall be made for the actual conditions of the effluent where appropriate.

### 11.4 Pressure control

**Replace** as follows:

#### 11.4 Pressure control

If the measurement technique is sensitive to the pressure inside the measuring cell, a pressure measuring device shall be provided, with pressure alarm to warn of any excessive variation of the pressure in the measuring cell.

## 12 Alarms

### 12.1 Types of alarm

**Replace** the second paragraph by:

High level alarms and fault alarms shall give a separate local visual indication on the monitor. Facilities should be available for external alarms. Audible alarms may be provided in addition.

## 20 Electromagnetic interference

In the second paragraph **replace** “(IEC 61000)” by “(standards of IEC 61000 series)” as indicated in 28.6.

## 22 General test procedures

**Add** the following as the last paragraph:

Each test result shall be given with its uncertainty. This should be calculated using the ISO Guide to the Expression of Uncertainty in Measurement (GUM).

## 27 Electrical and mechanical characteristics

### 27.2 Warm-up time – Detection and measurement assembly

#### 27.2.1 Requirements

**Delete** "(see Table 3)".

**Add** the following note:

NOTE When the level of activity being measured is extremely low, less than 10 times the decision threshold, the equipment may not give the indication required within the warm-up time. This is due to the statistical variations in the very low count rates being measured.

**Add** the following subclause after 27.8:

### 27.Z1 Voltage interruption

Any voltage interruption shall be indicated and automatic restart should occur after voltage interruption. In the case of automatic restart the duration of the interruption should be recorded.