



National Standards Authority of Ireland

IRISH STANDARD

**I.S. EN 62022:2007**

ICS 13.280

**INSTALLED MONITORS FOR THE  
CONTROL AND DETECTION OF GAMMA  
RADIATIONS CONTAINED IN RECYCLABLE  
OR NON-RECYCLABLE MATERIALS  
TRANSPORTED BY VEHICLES (IEC  
62022:2004 (MOD))**

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EUROPEAN STANDARD

**EN 62022**

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 2007

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ICS 13.280

English version

**Installed monitors for the control and detection of gamma radiations  
contained in recyclable or non-recyclable materials  
transported by vehicles  
(IEC 62022:2004, modified)**

Moniteurs fixes de contrôle et de détection  
d'émetteurs de rayonnements gamma  
contenus dans des matériaux recyclables  
ou non recyclables, transportés  
dans des véhicules  
(CEI 62022:2004, modifiée)

Fest installierte Monitore  
für die Überwachung und den Nachweis  
von Gammastrahlen-Emittern  
in von Fahrzeugen transportierten,  
wiederverwertbaren  
oder nicht wiederverwertbaren Materialien  
(IEC 62022:2004, modifiziert)

This European Standard was approved by CENELEC on 2007-07-01. 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, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

**CENELEC**

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

**Central Secretariat: rue de Stassart 35, B - 1050 Brussels**

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## Foreword

The text of the International Standard IEC 62022:2004, prepared by SC 45B, Radiation protection instrumentation, of IEC TC 45, Nuclear instrumentation, together with the common modifications prepared by CENELEC BTTF 111-3, Nuclear instrumentation and radiation protection instrumentation, was submitted to the formal vote and was approved by CENELEC as EN 62022 on 2007-07-01.

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) 2008-07-01
- latest date by which the national standards conflicting  
with the EN have to be withdrawn (dow) 2010-07-01

Clauses, subclauses, notes, tables and figures which are additional to those in IEC 62022:2004 are prefixed “Z”.

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 62022:2004 was approved by CENELEC as a European Standard with agreed common modifications as given below.

### COMMON MODIFICATIONS

**Replace** “operational setting” with “operating setting” all over the document.

## 2 Normative references

**Replace** the references to IEC 61000-4 series with their latest editions.

## 4 Design requirements

### 4.1 General characteristics

**Add** at the end of the first paragraph: “... threshold. The alarm threshold is not a fixed value, but an expected value depending on the measuring conditions, e.g. the material and energy ranges expected.”

**Replace** the last paragraph with:

In the case of the dynamic mode (the vehicle passing the equipment) alarm occurs when there is a statistically significant increase in the detected fluence rate of gamma photons when the vehicle is passing the detection system. This fluence may however be less than that due to normal background.

**Add** a new paragraph below the current text, reading:

In the case of the static mode (vehicle stationary within the equipment) an alarm occurs when the fluence rate of gamma photons detected is greater than a pre-established level.

### 4.2 Configuration

**Replace** the first paragraph with:

The equipment is composed of one or several radiation detection assemblies adjacent to the vehicle in the static mode and close to the vehicle whilst it passes in the dynamic mode, and an information treatment assembly, linked to an alarm assembly.

**Replace** the fifteenth paragraph with:

Sensors should indicate the approach of the vehicle to inhibit any further storage of background information. Further sensors should indicate the vehicle is in the monitoring position or passing through the monitoring area.

**Replace** the last paragraph with:

Equipment shall be provided with appropriate facilities for indicating faults, for example loss of detector voltage or failure of electronics. The number and type of faults to be indicated shall be by agreement between the manufacturer and purchaser.

### 4.3 Indication facilities

**Begin** the penultimate paragraph with “It should be possible to transfer these data to an additional ...”

## **5 Test procedures**

### **5.1 General test conditions**

#### **5.1.1 Nature of tests**

In the last two bullets, **replace** “reference load” with “reference load (see 5.1.6)”.

#### **5.1.3 Tests performed under standard test conditions**

**Replace** the first sentence with “Tests which are performed under standard test conditions are listed in Table 2, the table indicates, for each characteristic under test ...”

#### **5.1.6 Test vehicle**

**Replace** the fifth paragraph with:

Recommended vehicles and reference loads are given in Annex A.

In the last paragraph, **replace** “wood” with “wood (wood for non-metal applications only)”.

### **5.2 Radiation characteristics**

#### **5.2.2 Reference radioactive sources**

In item a), **change** the order of second and third paragraphs.

In item b), **add** a further paragraph, reading:

These reference radioactive sources shall be used when the equipment is tested with a test vehicle.

#### **5.2.4 Sensitivity of the radiation detection assembly for radioactive sources placed in free air**

##### **5.2.4.2 Testing method**

In the second paragraph, **replace** “1 m” with “2 m”.

### **5.4 Electrical characteristics**

#### **5.4.1 Requirements for power supplies**

In the last sentence, **replace** “indications of the quantities” with “indicated count rate” and “10 %” with “ $\pm 5$  %”.

#### **5.4.2 Method of test**

In the last sentence of the third paragraph and in items a) and b), **replace** “10 %” with “ $\pm 5$  %”.

### **5.5 Mechanical characteristics**

#### **5.5.1 Mechanical shocks**

**Add** a further paragraph below the current text, reading:

The detection assemblies should be protected by physical barriers.

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