



National Standards Authority of Ireland

STANDARD

**I.S. CEN/TR 14715:2004**

ICS 13.220.10

**SAFETY OF MACHINERY - IONIZING  
RADIATION EMITED BY MACHINERY -  
GUIDANCE FOR THE APPLICATION OF  
TECHNICAL STANDARDS IN THE DESIGN OF  
MACHINERY IN ORDER TO COMPLY WITH  
LEGISLATIVE REQUIREMENTS**

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TECHNICAL REPORT  
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June 2004

ICS 13.220.10

English version

**Safety of machinery - Ionizing radiation emitted by machinery -  
Guidance for the application of technical standards in the design  
of machinery in order to comply with legislative requirements**

Sécurité des machines - Rayonnements ionisants émis par  
les machines - Guide pour l'application des normes  
techniques dans la conception des machines afin de  
satisfaire aux exigences réglementaires

Sicherheit von Maschinen - Von Maschinen emittierte  
ionisierende Strahlung - Leitfaden zur Anwendung von  
technischen Normen bei der Konstruktion von Maschinen  
um den gesetzlichen Anforderungen zu entsprechen

This Technical Report was approved by CEN on 3 November 2003. It has been drawn up by the Technical Committee CEN/TC 114.

CEN members are the national standards bodies 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.



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

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## **Foreword**

This document CEN/TR 14715:2004 has been prepared by Technical Committee CEN/TC 114 "Safety of machinery", the secretariat of which is held by DIN.

Annexes A and B are informative.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce this Technical Report: 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

## Introduction

Machines may emit ionizing radiation either from incorporated radioactive sources or high voltage accelerators (e.g. X-ray machines). Exposure of people to ionizing radiation staying close to the machinery may present a risk to health. To control these health risks, requirements are specified in European and National legislation. The legislation that regulates the design, manufacture and supply of machines is the European Machinery Directive, (98/37/EC). Systems for the protection of workers against the effects of ionizing radiation are specified in a EURATOM Directive (96/29/EURATOM). Detailed technical features are set out in international, European and national standards.

### 1 Scope

The purpose of this report is to give guidance on:

- a) how to comply with the relevant legislative requirements, and
- b) how to take into account the technical recommendations specified in International, European and National Standards

when machines emitting ionizing radiation are designed and built.

### 2 Relevant legislation

#### 2.1 European Directives

##### 2.1.1 Machinery Directive 98/37/EC (Currently under revision)

One of the purposes of this Directive is to provide a uniform approach to maintaining or improving the level of safety design of machinery. The Annex 1 to the Machinery Directive lists all the essential health and safety requirements (ESRs) relating to the design and construction of machinery. Of these, ESR 1.5.10 for 'Radiation' states:

*"Machinery must be so designed and constructed that any emission of (Proposed amendment specifies both ionizing and non-ionizing, Revision COM (2000) 899 final 2001-01-26) radiation is limited to the extent necessary for its operation and that the effects on exposed persons are non-existent or reduced to non-dangerous proportions."*

This document gives guidance on how to comply with ESR 1.5.10 or, if it is not possible during the design or building stage to reduce the emission levels to non-dangerous proportions, how to proceed in order to fulfil the Machinery Directive.

When considering ionizing radiation emissions, there can be no impediment to supply of the machines within the European Union if the requirements of the ESR 1.5.10 [ESR 1.6.11 in proposed Amendment, Revision COM (2000) 899 final 2001-01-26] have been achieved.

##### 2.1.2 Directive 96/29/EURATOM on Basic Safety Standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation

The requirements for the health protection of the general public and workers against the dangers of ionizing radiation are laid down in Council Directive 96/29/EURATOM. This Directive is based on the principles put forward by the International Commission for Radiation Protection (ICRP) in their Publication N° 60.

EURATOM Directive contains among others requirements such as:

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