TECHNICAL REPORT

IEC TR 61948-4

First edition
2006-11

Nuclear medicine instrumentation – Routine tests –

Part 4: Radionuclide calibrators

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International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE L

For price, see current catalogue

CONTENTS

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NUCLEAR MEDICINE INSTRUMENTATION – ROUTINE TESTS –

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FOREWORD

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IEC 61948-4, which is a technical report, has been prepared by subcommittee 62C: Equipment for radiotherapy, nuclear medicine and radiation dosimetry, of IEC technical committee 62: Electrical equipment in medical practice.

The text of this technical report is based on the following documents:

Enquiry draft	Report on voting
62C/387/DTR	62C/401/RVC

Full information on the voting for the approval of this technical report 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.

In this technical report the following print types are used:

- requirements, compliance with which can be tested, and definitions: in roman type;
- explanation, advice, introductions, general statements, exceptions and reference: in smaller roman type;
- *test specifications: in italic type*;
- TERMS DEFINED IN CLAUSE 3 OF THIS TECHNICAL REPORT OR LISTED IN THE INDEX OF DEFINED TERMS: SMALL CAPITALS.

A list of all parts of the IEC 61948 series, published under the general title *Nuclear medicine instrumentation – Routine tests,* 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- withdrawn;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.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

This technical report is based on the German Standard DIN 6855-11, *Qualitätsprüfung nuklearmedizinischer Messsysteme – Teil 11: Konstanzprüfung von Aktivimetern*, the English document *Protocol for Establishing and Maintaining the Calibration of Medical Radionuclide Calibrators and their Quality Control*, the Austrian document ÖNORM S 5270, *Aktivimeter – Richtlinien für die Konstanzprüfung am Verwendungsort / Radionuclide calibrators – Guidelines for the constancy testing in the field / Calibrateurs de radionucléides – Directives pour l'essai de constance à l'endroit d'utilisation,* of 1 April 1998, and the Spanish document *Protocolo Nacional del Control de Calidad en la Instrumentación en Medicina Nuclear.*

NUCLEAR MEDICINE INSTRUMENTATION – ROUTINE TESTS –

Part 4: Radionuclide calibrators

1 Scope and object

This technical report covers the routine testing of radionuclide calibrators used in nuclear medicine. Such devices utilise ionization chambers of the well type (directly coupled to an appropriate electronic circuitry (IEC 61145)) and a direct readout in units of ACTIVITY. Requirements and specific methods to determine performance parameters are described in IEC 61303 and IEC 61145. These methods are primarily designed for acceptance testing.

2 Normative references

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

IEC 60788:2004, *Medical electrical equipment – Glossary of defined terms*

IEC 61145:1992, *Calibration and usage of ionization chamber systems for assay of radionuclides*

IEC 61303:1994, *Medical electrical equipment – Radionuclide calibrators – Particular methods for describing performance*

IEC 61948-1:2001, *Nuclear medicine instrumentation – Routine tests – Part 1: Radiation counting systems*