TECHNICAL REPORT

IEC TR 61948-2

First edition 2001-02

Nuclear medicine instrumentation - Routine tests -

Part 2:

Scintillation cameras and single photon emission computed tomography imaging

Instrumentation en médecine nucléaire – Essais de routine

Partie 2:

lmagerie par caméras à scintillation et systèmes de tomographie d'émission à photon unique

© IEC 2001 — Copyright - all rights reserved

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Electrotechnical Commission 3, rue de Varembé Geneva, Switzerland Telefax: +41 22 919 0300 e-mail: inmail@iec.ch IEC web site http://www.iec.ch



Commission Electrotechnique Internationale International Electrotechnical Commission Международная Электротехническая Комиссия

PRICE CODE

- - -

CONTENTS

			Page	
FO	REWO	ORD	3	
Clau	ıse			
1	Scope and object			
2	Reference documents			
3	Terminology and definitions5			
4	Test methods			
7				
	4.1	Planar imaging4.1.1 ENERGY WINDOW SETTING	8	
			8	
			8	
		4.1.4 Non-uniformity	a	
		4.1.5 Pixel size	9	
		4.1.6 Resolution/linearity		
	4.2	Tomographic imaging (SPECT)		
		4.2.1 DETECTOR HEAD TILT.		
		4.2.2 CENTRE OF ROTATION (COR)	10	
		4.2.3 Tomographic non-uniformity	10	
	4.3	Wholebody imaging	11	
	4.4	Frequency of ROUTINE TESTS	11	
Anr	nex A	Index of defined terms	13	
	/			

INTERNATIONAL ELECTROTECHNICAL COMMISSION

NUCLEAR MEDICINE INSTRUMENTATION – ROUTINE TESTS –

Part 2: Scintillation cameras and single photon emission computed tomography imaging

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification, IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this technical report may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "State of the art".

IEC 61948-2, 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/256/CDV	62C/266A/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 3.

In this technical report the following print types are used:

- requirements, compliance with which can be tested, and definitions: in roman type;
- notes, explanations, advice, introductions, general statements, exceptions and references: in smaller roman type;
- test specifications: in italic type;
- TERMS DEFINED IN CLAUSE 3 OF THIS TECHNICAL REPORT OR LISTED IN ANNEX A: SMALL CAPITALS.

The requirements are followed by specifications for the relevant tests.

The committee has decided that the contents of this publication will remain unchanged until 2005. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

This document, which is purely informative, is not to be regarded as an International Standard.

NUCLEAR MEDICINE INSTRUMENTATION – ROUTINE TESTS –

Part 2: Scintillation cameras and single photon emission computed tomography imaging

1 Scope and object

This technical report is valid for single photon SCINTILLATION CAMERAS with parallel hole collimators used in planar scintigraphy and tomography. The objective is to specify ROUTINE TESTS for QUALITY CONTROL. Methods for the ACCEPTANCE TEST are described in IEC 60789 and IEC 61675-2.

2 Reference documents

IEC 60788:1984, Medical radiology - Terminology

IEC 60789:1992, Characteristics and test conditions of radionuclide imaging devices – Anger type gamma cameras

IEC 61675-2:1998, Radionuclide imaging devices – Characteristics and test conditions – Part 2: Single photon emission computed tomographs

IEC 61675-3:1998, Radionuclide imaging devices — Characteristics and test conditions — Part 3: Gamma camera based wholebody imaging systems