

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Radionuclide imaging devices – Characteristics and test conditions –
Part 2: Gamma cameras for planar, wholebody, and SPECT imaging**

**Dispositifs d'imagerie par radionucléides – Caractéristiques et conditions
d'essai –
Partie 2: Gamma-caméras pour l'imagerie planaire, l'imagerie du corps entier et
l'imagerie SPECT**





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CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references.....	7
3 Terms and definitions.....	7
4 Test methods.....	15
4.1 General.....	15
4.2 Planar imaging.....	16
4.2.1 SYSTEM SENSITIVITY.....	16
4.2.2 SPATIAL RESOLUTION.....	18
4.2.3 SPATIAL NON-LINEARITY.....	24
4.2.4 NON-UNIFORMITY OF RESPONSE.....	25
4.2.5 INTRINSIC ENERGY RESOLUTION.....	28
4.2.6 Intrinsic MULTIPLE WINDOW SPATIAL REGISTRATION.....	29
4.2.7 COUNT RATE performance.....	31
4.2.8 Shield leakage test.....	33
4.3 Wholebody imaging.....	33
4.3.1 Scanning constancy.....	33
4.3.2 SPATIAL RESOLUTION without scatter.....	36
4.4 Tomographic imaging (SPECT).....	37
4.4.1 Test of PROJECTION geometry.....	37
4.4.2 Measurement of SPECT SYSTEM SENSITIVITY.....	41
4.4.3 Scatter measurement.....	44
4.4.4 SPECT SYSTEM SPATIAL RESOLUTION.....	48
4.4.5 Tomographic image quality.....	50
5 Accompanying documents.....	57
5.1 General.....	57
5.2 General parameters for GAMMA CAMERAS.....	58
5.2.1 COLLIMATORS.....	58
5.2.2 Shield leakage values.....	58
5.2.3 Pre-set PULSE AMPLITUDE ANALYSER WINDOWS.....	58
5.2.4 INTRINSIC ENERGY RESOLUTION.....	58
5.2.5 COLLIMATOR dependent quantities.....	58
5.2.6 COUNT RATE CHARACTERISTICS.....	58
5.2.7 Measured COUNT RATE that is 80 % of the corresponding TRUE COUNT RATE.....	58
5.2.8 Dimensions of the DETECTOR FIELD OF VIEW.....	58
5.2.9 Non-uniformity characteristics.....	58
5.2.10 INTRINSIC SPATIAL RESOLUTION (FWHM and EW) of the DETECTOR HEAD without COLLIMATOR.....	58
5.2.11 INTRINSIC SPATIAL NON-LINEARITY.....	58
5.2.12 Intrinsic MULTIPLE WINDOW SPATIAL REGISTRATION.....	59
5.3 GAMMA CAMERA based wholebody imaging system.....	59
5.3.1 Scanning constancy.....	59
5.3.2 SPATIAL RESOLUTION.....	59
5.4 SPECT.....	59

5.4.1	Calibration measurements of COR	59
5.4.2	Measurement of head tilt	59
5.4.3	Measurement of COLLIMATOR hole misalignment	59
5.4.4	TRANSVERSE RESOLUTION (radial and tangential)	59
5.4.5	AXIAL RESOLUTION	59
5.4.6	Axial PIXEL size	59
5.4.7	Transaxial PIXEL size	59
5.4.8	DETECTOR POSITIONING TIME	59
5.4.9	NORMALIZED VOLUME SENSITIVITY	59
5.4.10	SCATTER FRACTIONS SF_i and SF	59
5.4.11	Scan set up and phantom ACTIVITY concentration	59
5.4.12	Image quality	59
5.4.13	Accuracy of ATTENUATION correction and scatter correction	59
5.4.14	Accuracy of SPECT and CT image registration	59
	Index of defined terms	60
	Bibliography	62
	Figure 1 – Geometry of PROJECTIONS	9
	Figure 2 – Cylindrical phantom	14
	Figure 3 – Cuvette	17
	Figure 4 – Slit phantom	19
	Figure 5 – Source arrangement for intrinsic measurements	20
	Figure 6 – Calculation of FWHM	22
	Figure 7 – Evaluation of equivalent width (EW)	23
	Figure 8 – Uniform source	26
	Figure 9 – Small shielded liquid source	29
	Figure 10 – Source positions for scanning constancy for wholebody imaging	35
	Figure 11 – Cylindrical phantom	43
	Figure 12 – Phantom insert with holders for the scatter source	45
	Figure 13 – Evaluation of scatter fraction	47
	Figure 14 – Reporting transverse resolution	49
	Figure 15 – Cross-section of body phantom	51
	Figure 16 – Phantom insert with hollow spheres	52
	Figure 17 – Placement of ROIs in the phantom background	55
	Table 1 – RADIONUCLIDES and ENERGY WINDOWS to be used for performance measurements	16

INTERNATIONAL ELECTROTECHNICAL COMMISSION

RADIONUCLIDE IMAGING DEVICES – CHARACTERISTICS AND TEST CONDITIONS –

Part 2: Gamma cameras for planar, wholebody, and SPECT imaging

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International Standard IEC 61675-2 has been prepared by subcommittee 62C: Equipment for radiotherapy, nuclear medicine and radiation dosimetry, of IEC technical committee 62: Electrical equipment in medical practice.

This second edition of IEC 61675-2 cancels and replaces the first edition published in 1998 and its Amendment 1 published in 2004, as well as IEC 60789:2005, IEC 60789:2005/COR1:2009, and IEC 61675-3:1998. It has been reformatted, updated, and partly aligned with NEMA NU 1-2007. Due to the lack of market share of SPECT-systems operated in coincidence mode all such tests have been removed.

The text of this standard is based on the following documents:

FDIS	Report on voting
62C/616/FDIS	62C/623/RVD

Full information on the voting for the approval of this standard 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 standard, the following print types are used:

- TERMS DEFINED IN CLAUSE 2 OF THIS STANDARD OR LISTED IN THE INDEX OF DEFINED TERMS: SMALL CAPITALS.

The requirements are followed by specifications for the relevant tests.

Annex A is for information only.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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.

INTRODUCTION

The test methods specified in this part of IEC 61675 have been selected to reflect as much as possible the clinical use of GAMMA CAMERAS for planar imaging, PLANAR WHOLEBODY IMAGING EQUIPMENT, and SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY (SPECT). It is intended that the test methods are carried out by manufacturers thereby enabling them to describe the characteristics of the systems on a common basis.

RADIONUCLIDE IMAGING DEVICES – CHARACTERISTICS AND TEST CONDITIONS –

Part 2: Gamma cameras for planar, wholebody, and SPECT imaging

1 Scope

This part of IEC 61675 specifies terminology and test methods for describing the characteristics of GAMMA CAMERAS equipped with PARALLEL HOLE COLLIMATORS for planar imaging. Additional tests are specified for those GAMMA CAMERAS that are capable of planar wholebody imaging (PLANAR WHOLEBODY IMAGING EQUIPMENT) or SINGLE PHOTON EMISSION COMPUTED TOMOGRAPHY (SPECT). These GAMMA CAMERAS consist of a gantry, single or multiple DETECTOR HEADS, and a computer for data acquisition, processing, storage, and display. The DETECTOR HEADS may contain single or multiple scintillation crystals or solid state detectors.

No test has been specified to characterize the uniformity of reconstructed images because all methods known so far will mostly reflect the noise of the image.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 61675-1:2013, *Radionuclide imaging devices – Characteristics and test conditions – Part 1: Positron emission tomographs*

3 Terms and definitions

For the purposes of this document the terms and definitions given in IEC 60788 and IEC 61675-1 (some of which are repeated here for convenience), and the following terms and definitions apply.

3.1

ADDRESS PILE UP

<GAMMA CAMERA> false address calculation of an artificial event which passes the ENERGY WINDOW, but is formed from two or more events by the PILE UP EFFECT

3.2

AXIAL FIELD OF VIEW

dimensions of a slice through the TOMOGRAPHIC VOLUME parallel to and including the SYSTEM AXIS

Note 1 to entry: In practice it is specified only by its axial dimension given by the distance between the centres of the outermost defined IMAGE PLANES plus the average of the measured AXIAL SLICE WIDTH measured as EQUIVALENT WIDTH (EW).