Pro•Project®

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Accurate Diagnostics for Busy Healthcare

Nuclear Medicine

UNMATCHED SOLUTIONS FOR QUALITY CONTROL

ISO 9001 ISO 13485 ISO 14001 ISO 45001 ISO 27001

Nuclear Medicine

Quality Control kits

Powered by:

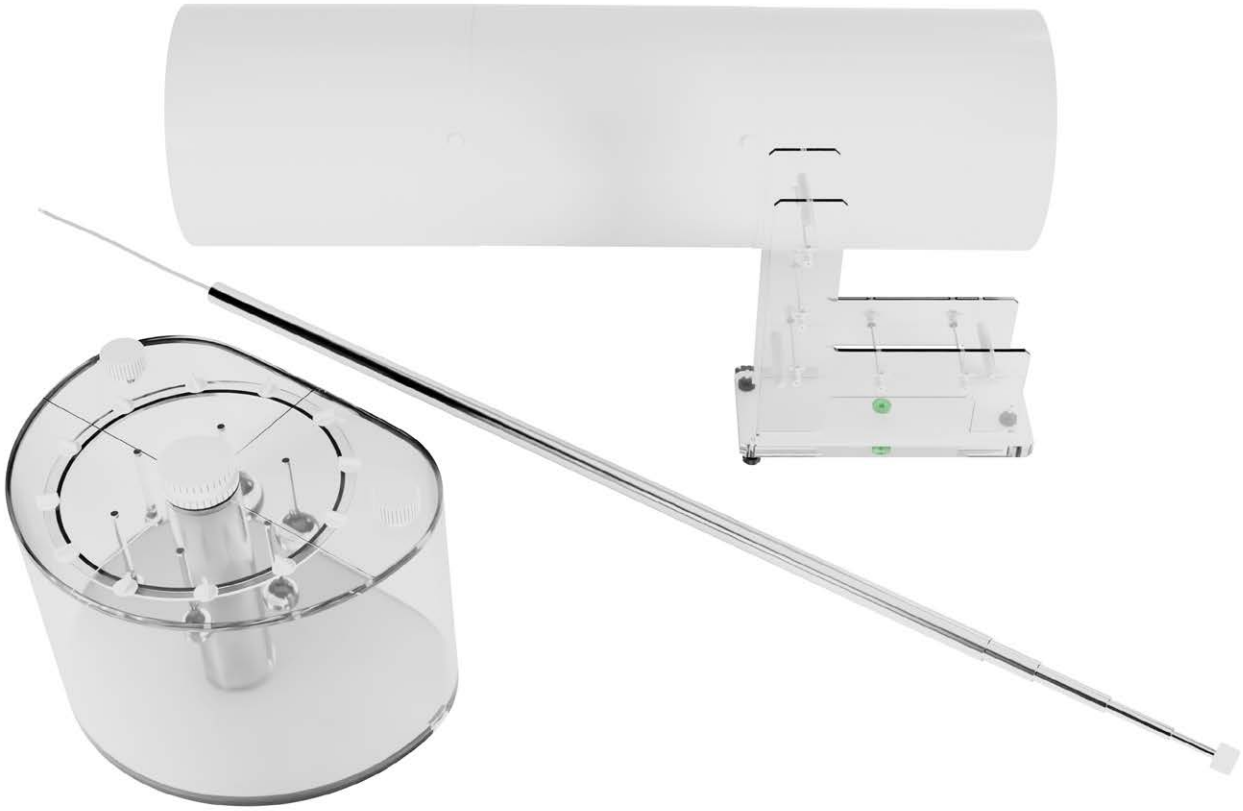
DIAGNOMATIC

We have prepared several QA / QC kits consisting of must-have phantoms, accessories and software that you can use in different situations depending on your requirements.
These can be your go-to selections when you are not sure what to choose for tests of a given modality.
We have introduced gradation of kits depending on the purpose and level of sophistication required:

BASIC: these sets are meant for constancy level testing purposes - tests that can be done practically by everyone who can use a diagnostic device
PRO: sets meant for acceptance and specialized testing - performed by specialized personnel, for example a medical physicist

Pro-NM PET BASIC Kit

08-002



This kit is a versatile set of phantoms and software for carrying out tests accoring to NEMA NU 2 standard on PET devices. Recommended for use in the evaluation of reconstructed image quality in whole body PET imaging. It can be used to measure the effects of dead-time and the effects of random events generated at different levels of activity of the line source, characterize the widths of the reconstructed image point spread functions (PSF) of compact radioactive sources.

Standard kit configuration:

- Pro-NM NEMA Nu 2 (08-105)
- Pro-NM NEMA NU 2 Resolution (08-109)
- Pro-NM PETscatter (08-802)
- Pro-NM PETsensi (08-801)
- Diagnomatic PRO annual subscription
- carrying cases

Product features:

- Complies with:
  - NEMA Standard (NU 2-2007)
  - NEMA 2012 Standard
- CE certified
- the Manual provides detailed guidelines for carrying out each test, results assessment and registration

Pro-NM SPECT BASIC kit

08-001

This kit is a versatile set of phantoms and software for carrying out tests accoring to NEMA standard on SPECT devices.

Standard kit configuration:

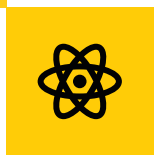
- Pro-NM Performance (08-101)
- Pro-NM Linear Source Module (08-201)
- Pro-NM Resolution (08-301)
- Pro-NM AutoFlood (08-410) with a trolley
- Diagnomatic PRO annual subscription
- carrying cases

It can be used to evaluate, for example:

- center-of-rotation error
- non-uniformity artifacts
- changes of radius-of-rotation on spatial resolution
- reconstruction filters on spatial resolution
- attenuation and scatter compensation
- evaluate changes of radius-of rotation on spatial resolution
- spatial resolution measurement in air and in water
- quantitative evaluation of reconstruction filters and scatter compensation method
- determination of camera intrinsic resolution
- collimator spatial resolution
- field size and linearity
- uniformity of response

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - AAPM Report No. 9 - Computer Aided Scintillation Camera Acceptance Testing
  - AAPM Report No. 22 - Rotating Scintillation Camera SPECT Acceptance Testing and Quality Control
  - ACR–SNM (Res. 5 – 2011) technical standard for diagnostic procedures using radiopharmaceuticals
- CE certified
- the Manual provides detailed guidelines for carrying out each test, results assessment and registration



Nuclear Medicine

Phantoms

Pro-NM Performance

08-101 - standard version
08-103 - version with the PET Lid

The phantom for NM and PET systems performance evaluation (collimator, artifacts, calibration, reconstruction parameters). It can be used to evaluate, for example: center-of-rotation error, non-uniformity artifacts, changes of radius-of-rotation on spatial resolution, reconstruction filters on spatial resolution, attenuation and scatter compensation.

Technical data (can be modified to customer specifications):

- main cylinder:
  - inside cylinder diameter: 206 mm
  - inside cylinder height: 186 mm
  - cylinder wall thickness: 7 mm
- cold rods insert:
  - rod diameters: 4.8, 6.4, 7.9, 9.5, 11.1 and 12.7 mm
  - height of rods: 88 mm
- cold spheres:
  - solid sphere diameters: 9.5, 12.7, 15.9, 19.1, 25.4 and 31.8 mm
  - height of the center of the spheres from the base plate: 127 mm
- optional PET Lid with cylindrical samples (08-102):
  - refillable thin-walled cylinders, diameters: 8, 12, 16 and 25 mm
  - water filled cylinder diameter: 25 mm
  - air filled cylinder diameter: 25 mm
  - PTFE solid cylinder diameter: 25 mm
  - cylinder height: 38 mm
- optional heavy duty carrying case (08-110)

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - AAPM Report No. 9 - Computer Aided Scintillation Camera Acceptance Testing
  - AAPM Report No. 22 - Rotating Scintillation Camera SPECT Acceptance Testing and Quality Control
  - ACR–SNM (Res. 5 – 2011) technical standard for diagnostic procedures using radiopharmaceuticals
- CE certified
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Pro-NM Performance HD

08-106 - standard version
08-107 - version with the PET Lid

The phantom for high resolution NM and PET systems performance evaluation (collimator, artifacts, calibration, reconstruction parameters).

Among other things, it can be used to evaluate: center-of-rotation error, non-uniformity artifacts, changes of radius-of-rotation on spatial resolution, reconstruction filters on spatial resolution, attenuation and scatter compensation.

Technical data (can be modified to customer specifications):

- main cylinder:
  - inside cylinder diameter: 206 mm
  - inside cylinder height: 186 mm
  - cylinder wall thickness: 7 mm
- cold rods insert:
  - rod diameters: 3.2, 4.8, 6.4, 7.9, 9.5 and 11.1 mm
  - height of rods: 88 mm
- cold spheres:
  - solid sphere diameters: 9.5, 12.7, 15.9, 19.1, 25.4 and 31.8 mm
  - height of the center of the spheres from the base plate: 127 mm
- optional PET Lid with cylindrical samples:
  - refillable thin-walled cylinders, diameters: 8, 12, 16 and 25 mm
  - water filled cylinder diameter: 25 mm
  - air filled cylinder diameter: 25 mm
  - PTFE solid cylinder diameter: 25 mm
  - cylinder height: 38 mm
- optional heavy duty carrying case

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - AAPM Report No. 9 - Computer Aided Scintillation Camera Acceptance Testing
  - AAPM Report No. 22 - Rotating Scintillation Camera SPECT Acceptance Testing and Quality Control
  - ACR–SNM (Res. 5 – 2011) technical standard for diagnostic procedures using radiopharmaceuticals
- CE certified
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Pro-NM Performance SMALL

08-111 - standard version
08-112 - version with the PET Lid

The phantom for small FOV NM and PET systems performance evaluation (collimator, artifacts, calibration, reconstruction parameters) Among other things, it can be used to evaluate: center-of-rotation error, non-uniformity artifacts, changes of radius-of-rotation on spatial resolution, reconstruction filters on spatial resolution, attenuation and scatter compensation.

Technical data (can be modified to customer specifications):

- main cylinder:
  - inside cylinder diameter: 140 mm
  - inside cylinder height: 150 mm
  - cylinder wall thickness: 6 mm
- cold rods insert:
  - rod diameters: 3.2, 4.8, 6.4, 7.9, 9.5 and 11.1 mm – height of rods: 40 mm
- cold spheres:
  - solid sphere diameters: 3.2, 4.8, 9.5, 12.7, 15.9 and 19.1mm – height of the center of the spheres from the base plate: 78.5 mm
- optional PET Lid with cylindrical samples:
  - refillable thin-walled cylinders, diameters: 4, 6, 8, 12, 16 mm
  - PTFE solid cylinder diameter: 16 mm
  - cylinder height: 25.4 mm
- optional heavy duty carrying case (08-120)

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - AAPM Report No. 9 - Computer Aided Scintillation Camera Acceptance Testing
  - AAPM Report No. 22 - Rotating Scintillation Camera SPECT Acceptance Testing and Quality Control
  - ACR–SNM (Res. 5 – 2011) technical standard for diagnostic procedures using radiopharmaceuticals
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Pro-NM Performance MINI

08-108

The phantom for performance evaluation of small animal systems or ultra-high resolution ECT systems.

It can be used to evaluate: center-of-rotation error, non-uniformity artifacts and spatial resolution. Available in two sizes for FOV at least 45 mm or 75mm.

Technical data (can be modified to customer specifications):

at least 75mm FOV version:

- main cylinder:
  - outside cylinder diameter: 80 mm
  - inside cylinder diameter: 74 mm
  - inside cylinder height: 65 mm
- cold rods insert:
  - rod diameters: 1.2, 1.6, 2.4, 3.2, 4.0 and 4.8 mm
  - height of rods: 34 mm

at least 45mm FOV version:

- main cylinder:
  - outside cylinder diameter: 50 mm
  - inside cylinder diameter: 45 mm
  - inside cylinder height: 65 mm
- cold rods insert:
  - rod diameters: 1.2, 1.6, 2.4, 3.2, 4.0 and 4.8 mm
  - height of rods: 34 mm

- optional carrying case

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - AAPM Report No. 9 - Computer Aided Scintillation Camera Acceptance Testing
  - AAPM Report No. 22 - Rotating Scintillation Camera SPECT Acceptance Testing and Quality Control
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Pro-NM Performance ECT

08-501

The phantom for **NM systems performance evaluation: routine quality assurance tests,** as well as extensive acceptance tests. It can be used to evaluate: pixel size, spatial linearity, RMS noise, signal to noise ratio (SNR), slice width, uniformity, spatial resolution, point spread function, slice position verification, slice incrementation, accuracy, center of rotation, verification, volume sensitivity and low contrast sensitivity.

Technical data (can be modified to customer specifications):

- main cylinder:
  - internal cylinder diameter: 206 mm – internal cylinder height: 186 mm
  - cylinder wall thickness: 7 mm
- main insert (slice width, pixel size and high resolution):
  - external diameter 200 mm
  - free square internal 80 x 80 mm
  - consists of 10x 5 mm discs, 2 spacers and 3 mounting screws
  - contains a pair of channels 20 x 10 mm thick forming two hot ramps whose slope angle tangent is equal to 0.5
  - contains four hot holes 5mm in diameter that are located in corners of the 120 x 120 mm square
  - contains four groups of hot and cold resolution patterns that are 2, 4, 6 and 8 mm thick and correspond to 2.5, 1.25, 0.83 and 0.625 LP/cm
- point source insert (PSF - point spread function):
  - the fill plug can be positioned at the center or at radial plug location
  - source screw contains a well (Ø3 x 5 mm) that can be filled with appropriate solution
  - source screw can be mounted outside of or inside the phantom (for in air or scatter measurements)
- low contrast inserts:
  - can be threaded into the phantom in a radial pattern 75 mm of the center axis
  - three cold low contrast rods comprised of three parts: 10, 15 and 20 mm in diameter and 40 mm long
  - three optional hot low contrast rods comprised of three parts: 10, 15 and 20 mm in diameter and 40mm long that can be filled from the outside
- heavy duty carrying case

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - NEMA Standards Publication (NU-1 2007) Gamma Cameras
  - AAPM Report No. 9 - Computer Aided Scintillation Camera Acceptance Testing
  - AAPM Report No. 22 - Rotating Scintillation Camera SPECT Acceptance Testing and Quality Control
  - ACR–SNM (Res. 5 – 2011) technical standard for diagnostic procedures using radiopharmaceuticals
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Pro-NM Linear Source Module

08-201

This module can be used as a standalone in air or in water if mounted in the Pro-NM Performance cylinder. It can be used to evaluate changes of radius-of rotation on spatial resolution, spatial resolution measurement in air and in water, quantitative evaluation of reconstruction filters and scatter compensation methods.

Technical data (can be modified to customer specifications):

- insert diameter: 186 mm
- diameter of line sources: 1 mm
- spacing of line sources: 75 mm
- useful height of line sources: 70 mm
- stopcocks with luer connection allow easy and safe filling and draining of line sources

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - AAPM Report No. 9 - Computer Aided Scintillation Camera Acceptance Testing
  - AAPM Report No. 22 - Rotating Scintillation Camera SPECT Acceptance Testing and Quality Control
  - ACR–SNM (Res. 5 – 2011) technical standard for diagnostic procedures using radiopharmaceuticals
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Pro-NM NEMA NU2

08-105

The phantom for evaluating performance of positron emission tomographs (PET). Recommended for use in the evaluation of reconstructed image quality in whole body PET imaging. **For simulation of whole-body imaging especially using PET and camera-based coincidence imaging techniques**.

Can also be used for determination of the coincidence count rate characteristics in brain and cardiac imaging, evaluation of the relationship between true coincidence count rate and radioactivity, determination of the address errors caused by address pile up, evaluation of the count loss correction scheme.

It has been designed in accordance with the recommendations by the International Electrotechnical Commission (IEC) and modified by the National Electrical manufacturers Association (NEMA).

Technical data (can be modified to customer specifications):

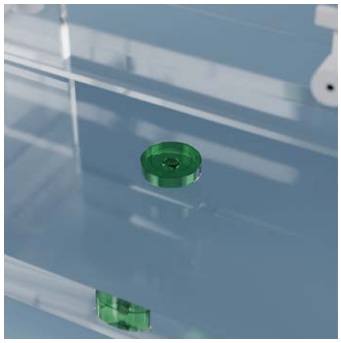
- interior length of the phantom: 180 mm
- volume of empty cylinder: 9.7 liters
- 6 fillable spheres:
  - inner diameter: 10 mm, 13 mm, 17 mm, 22 mm, 28 mm, and 37 mm
  - distance from sphere plane to inside wall: 70 mm
- cylindrical insert dimension:
  - outside diameter: 51 mm
  - length: 180 mm
- optional heavy duty carrying case (08-110)

Product features:

- Complies with:
  - International Standard: Radionuclide imaging devices – Characteristics and test conditions – Part 1: Positron emission tomographs, International Electrotechnical Commission (IEC), 61675-1, Geneva, Switzerland, 1998.
  - Performance Measurements of Scintillation Cameras, NEMA Standards Publication No. NU2, National Electrical Manufacturers Association (NEMA), Washington, D.C., 2001.
  - NEMA2007/IEC2008
  - NEMA 2012/IEC 2008
- CE certified
- the Manual provides detailed guidelines for carrying out each test, results assessment and registration

Pro-NM NEMA NU 2 Resolution

08-109



The phantom for evaluation of spatial resolution of positron emission tomographs (PET).

It is used to characterize the widths of the reconstructed image point spread functions (PSF) of compact radioactive sources.

It has been designed in accordance with the NEMA Nu 2-2012.

Technical data (can be modified to customer specifications):

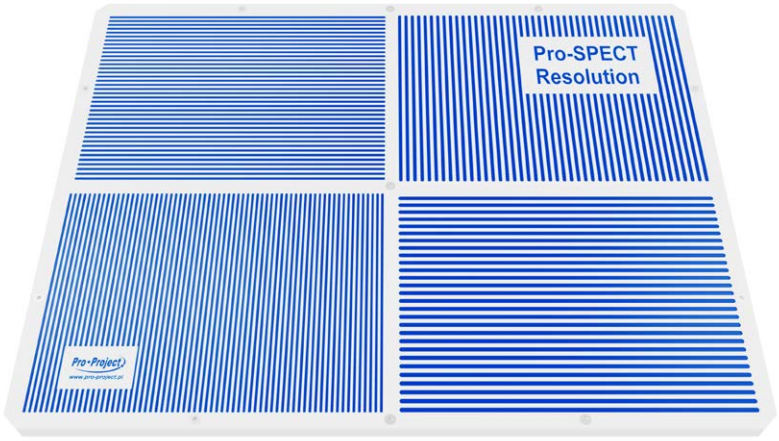
- five capillaries with an inside diameter of 1 mm and an outside diameter of less than 2 mm
- in the transverse direction the capillary is positioned at 1 cm (to represent the center of the FOV, but positioned to avoid any possible inconsistent results at the very center of the FOV), 10 cm, and 20 cm from the center of the plane
- middle of the capillaries is marked to provide guidance while the radionuclide is introduced
- markers and convenient base with a spirit level for easy and accurate positioning
- optional carrying case (08-120)

Product features:

- Complies with:
  - International Standard: Radionuclide imaging devices – Characteristics and test conditions – Part 1: Positron emission tomographs,
  - International Electrotechnical Commission (IEC), 61675-1, Geneva, Switzerland, 1998.
  - Performance Measurements of Scintillation Cameras, NEMA Standards Publication No. NU2, National Electrical Manufacturers Association (NEMA), Washington, D.C., 2001.
  - NEMA 2007/IEC2008
  - NEMA 2012/IEC 2008
- CE certified
- the Manual provides detailed guidelines for carrying out each test, results assessment and registration

Pro-NM Resolution

08-301



The bar phantom for determination of resolution of Scintillation Cameras. Four-quadrant phantom offers precise determination of camera intrinsic resolution, collimator spatial resolution, field size and linearity. **In addition this standard size phantom, we offer different sizes and configurations manufactured to the highest quality standards**.

Technical data (can be modified to customer specifications):

- dimensions: 564 x 432 x 15 mm
- lead bar widths: 2.0, 2.5, 3.0 and 3.5 mm
- field across bar configuration: 533 x 405 mm

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - AAPM Report No. 9 - Computer Aided Scintillation Camera Acceptance Testing
  - AAPM Report No. 22 - Rotating Scintillation Camera SPECT Acceptance Testing and Quality Control
  - ACR–SNM (Res. 5 – 2011) technical standard for diagnostic procedures using radiopharmaceuticals
- CE certified
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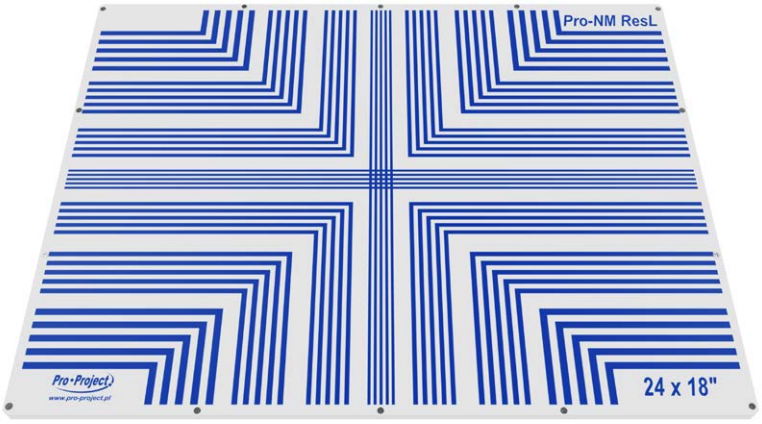
Pro-NM ResL

08-303 - 21" x 21" version
08-305 - 24" x 18" version



Pro-NM ResL for determination of resolution of Scintillation Cameras. The phantom offers precise determination of camera intrinsic resolution, collimator spatial resolution, field size and linearity. In addition this standard size phantoms, we offer different sizes and configurations manufactured to the highest quality standards.

- the most cost-effective means of performing routine quality control checks of gamma camera resolution or linearity on the market today
- one image per detector head is all that's needed to equally and effectively test all quadrants of the gamma camera
- perform routine quality control tests of spatial resolution and linearity in approximately one quarter of the time needed at present, which will make it possible to save time and money!
- quickly and easily perform extrinsic testing and intrinsic visual evaluation
- outperforms any 90° bar phantom, single-frequency Parallel-Line Equal-Space (PLES), Hine-Duley or orthogonal hole test pattern
- meet mandatory requirements of state quality control
- optimized for dual and triple-head gamma cameras
- ideal for large detectors - its large size covers UFOV
- increase patient throughpu

Technical data (can be modified to customer specifications):

- dimensions: 447.2 mm (18") x 609.6 mm (24") x 15 mm (0,59")
- dimensions: 533.2 mm (21") x 533.2 mm (21") x 15 mm (0,59")
- lead bar widths: 6.35 mm (1/4"), 4.763 mm (3/16"), 3.969 mm (5/32"), 2.54 mm(1/10")

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - AAPM Report No. 9 - Computer Aided Scintillation Camera Acceptance Testing
  - AAPM Report No. 22 - Rotating Scintillation Camera SPECT Acceptance Testing and Quality Control
  - ACR–SNM (Res. 5 – 2011) technical standard for diagnostic procedures using radiopharmaceuticals
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Pro-NM Distortion

08-304

A simple phantom for quality assurance of geometric distortion and spatial resolution of gamma cameras. Array of holes, which when filled with activity, allows to measuring point-to-point distances and Point Spread Function (PSF) - spatial resolution - at each point and its homogeneity across the entire Field of View.

Technical data (can be modified to customer specifications):

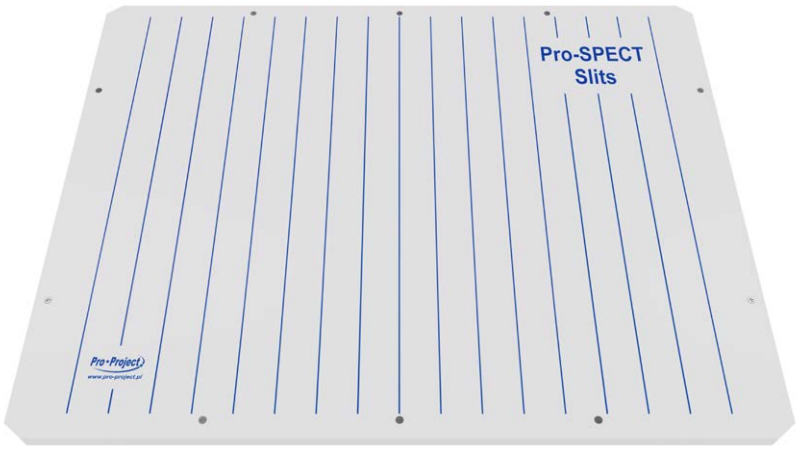
- dimensions 500 x 400 x 5 mm
- series of holes of 1 mm in diameter and 3 mm deep, at 80 mm pitch, to be filled with activity

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - NEMA Standards Publication (NU 1-2012) Performance Measurements of Scintillation Cameras
- CE certified
- the Manual provides detailed guidelines for carrying out each test, results assessment and registration

Pro-NM Slits

08-302



Slits phantom for **Intrinsic Spatial Resolution evaluation (Quantitative technique)** according to **NEMA Standards Publication NU 1-2012**. In addition to this standard size phantom, we offer different sizes and configurations manufactured to the highest quality standards.

Technical data (can be modified to customer specifications):

- dimensions: 564 x 432 x 15 mm
- lead size 539 x 405 x 3 mm
- parallel 1 mm thick slits with 30 mm spacing
- cover made of PMMA
- uniform PMMA part of the phantom

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - NEMA Standards Publication (NU 1-2012) Performance Measurements of Scintillation Cameras
- CE certified
- the Manual provides detailed guidelines for carrying out each test, results assessment and registration

Pro-NM PETsensi

08-801

The PET sensitivity phantom is used to measure the sensitivity or ability of positron emission tomographs to detect positrons. The phantom used for this purpose is a set of five metal tubes with a similar wall thickness. A plastic tube homogeneously filled with 18F liquid is inserted for the measurement. Successive measurements are made by accumulating the sleeve wall thickness with the uniform line source surrounded by known absorbers. From these measurements, the sensitivity without absorbers can be extrapolated to arrive at an attenuation free measurement. The measurement setup, data collection and analysis are described in section 5 of the NEMA standard NU 2-2007.

Technical data (can be modified to customer specifications):

- five internally stacked concentric aluminium tubes – all 700 mm in length.
- 1st Tube
  - inside diameter: 3.9 mm
  - outside diameter: 6.4 mm
- 2nd Tube
  - inside diameter: 7.0 mm
  - outside diameter: 9.5 mm
- 3rd Tube
  - inside diameter: 10.2 mm
  - outside diameter: 12.7 mm
- 4th Tube
  - inside diameter: 13.4 mm
  - outside diameter: 15.9 mm
- 5th Tube
  - inside diameter: 16.6 mm
  - outside diameter: 19.1 mm
- 6th Innermost Tube (a fillable polyethylene tube)
  - inside diameter: 1 mm
  - outside diameter: 3.2 mm

Product features:

- Complies with:
  - NEMA Standard (NU 2-2007)
- CE certified
- the Manual provides detailed guidelines for carrying out each test, results assessment and registration

Pro-NM PETscatter

08-802

The PET scatter phantom is an acceptance testing tool used to determine the imaging systems relative sensitivity to scatter radiation. It can be used to measure the effects of dead-time and the effects of random events generated at different levels of activity of the line source.

The test phantom is a right circular cylinder composed of polyethylene. For ease of handling, it consists of 3 segments that are assembled together during testing. A hole is drilled parallel to the central axis of the cylinder, at a radial distance of 45 mm.

Technical data (can be modified to customer specifications):

- cylinder
  - outside diameter: 203 mm
  - length: 700mm
  - hole diameter: 6.4 mm
  - hole offset from the central axis: 45 mm
- line source
  - outside diameter: 4.8 mm
  - length: 800 mm
  - inside diameter: 3.2 mm
- carrying case

Product features:

- Complies with:
  - NEMA Standard (NU 2-2007)
  - NEMA 2012 Standard
- CE certified
- the Manual provides detailed guidelines for carrying out each test, results assessment and registration

Pro-NM MultiAlign

08-701

The Phantom designed for a simple and cost effective **verification of image alignment and distortion in hybrid scanning systems like PET/CT or NM/CT**. It consists of a cylinder that can be filled with a variety of fluids. Several non-parallel rods of varying diameter and at certain angles in relation to the phantom's axes run the entire length of the cylinder. Images produced with different modalities allow quick and **simple identification of misalignments on fused studies**.

Additionally, the phantom contains 2cm calibration module that is used by Pro-Control software to accurately identify the phantom's position in space and accurately calculate any mismatches.

Technical data (can be modified to customer specifications):

- PMMA cylinder dimensions: 250 x 260 x 410 mm
- 20 mm thick calibration section with four through holes
- 4 PMMA rods: 30, 25, 20, 15 mm in diameter
- filling plugs and vent ports
- carrying handle

Product features:

- Complies with:
  - AAPM Report No. 22 - Rotating Scintillation Camera SPECT Acceptance Testing and Quality Control
- CE certified
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Pro-NM DualSource

08-601

This scatter phantom simulates in-vivo forward and backscatter characteristics of 99mTc gamma rays for the extrinsic measurement of a scintillation camera's deadtime. The phantom produces a spectrum typical of that observed from 99mTc in the myocardium.
Reference: Ralph Adams, Gerald J. Hine, and C. Duane Zimmerman, "Deadtime Measurements in Scintillation Cameras Under Scatter Conditions Simulating Quantitative Nuclear Cardiography," The Journal of Nuclear Medicine, 19 (1978), 538-544.

Technical data (can be modified to customer specifications):

- made of PMMA
- dimensions: 150 x 200 x 200 mm
- the two holes are used to hold the radioactive sources
  - hole dimensions: Ø 17 mm x 120 mm deep
  - spaced 50 mm apart (center-to-center)
  - distance from the face of the phantom: 50 mm

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - NEMA Standards Publication (NU-1 2007) Gamma Cameras
  - AAPM Report No. 9 - Computer Aided Scintillation Camera Acceptance Testing
  - AAPM Report No. 22 - Rotating Scintillation Camera SPECT Acceptance Testing and Quality Control
  - ACR–SNM (Res. 5 – 2011) technical standard for diagnostic procedures using radiopharmaceuticals
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Pro-NM FloodRECT

08-401 - Pro-NM FloodRECT
08-402 - Pro-NM FloodRECT XL

Flood phantoms provide a simple and efficient means of **obtaining optimum camera performance with respect to uniformity of response over the entire crystal area**. These phantoms are **designed to be filled in horizontal position, thus preventing slight bulging caused by water pressure during vertical filling**. Therefore, better uniformity in distribution of activity can be achieved.

Technical data (can be modified to customer specifications):

- Pro-NM FloodRECT:
  - outside dimensions: 460 x 580 x 23 mm
  - cavity dimensions: 410 x 530 x 13 mm
- Pro-NM FloodRECT XL:
  - outside dimensions: 710 x 570 x 33 mm
  - cavity dimensions: 660 x 520 x 13 mm

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - AAPM Report No. 9 - Computer Aided Scintillation Camera Acceptance Testing
  - AAPM Report No. 22 - Rotating Scintillation Camera SPECT Acceptance Testing and Quality Control
  - ACR–SNM (Res. 5 – 2011) technical standard for diagnostic procedures using radiopharmaceuticals
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Pro-NM FloodROUND

08-403 - Pro-NM FloodROUND
08-404 - Pro-NM FloodROUND XL

Flood phantoms provide a simple and efficient means of **obtaining optimum camera performance with respect to uniformity of response over the entire crystal area**. These phantoms are **designed to be filled in horizontal position, thus preventing slight bulging caused by water pressure during vertical filling**. Therefore, better uniformity in distribution of activity can be achieved.

Technical data (can be modified to customer specifications):

- Pro-NM FloodROUND:
  - outside dimensions: 460 x 460 x 23 mm
  - cavity dimensions: Ø430 x 13 mm
- Pro-NM FloodROUND XL:
  - outside dimensions: 580 x 580 x 23 mm
  - cavity dimensions: Ø560 x 13 mm

Product features:

- Complies with:
  - NEMA Standards Publication (NU 1-2001) Performance Measurements of Scintillation Cameras
  - AAPM Report No. 9 - Computer Aided Scintillation Camera Acceptance Testing
  - AAPM Report No. 22 - Rotating Scintillation Camera SPECT Acceptance Testing and Quality Control
  - ACR–SNM (Res. 5 – 2011) technical standard for diagnostic procedures using radiopharmaceuticals
- CE certified
- the Manual provides detailed guidelines for carrying out each test, results assessment and registration

Pro-NM AutoFlood

08-410

The Pro-NM AutoFlood is dedicated for weekly inhomogeneity and sensitivity control and acquisition of correction matrices, according to revised Guideline on Radiation Protection in Medicine. Regarding its dimensions the Pro-NM AutoFlood corresponds to DIN 6855, Part 2. It contains a mixing system with built-in pump. Due to its special composite design, deformation of the measuring areas is avoided by permanent water contact.

Technical data (can be modified to customer specifications):

- dimension of the cuvette [mm]: 545 x 630 x 80
- dimension with attachment parts [mm]: 635 x 630 x 90
- filling quantity approx. [liters]: 12
- weight empty approx. [kg]: 21
- operation weight approx. [kg]: 31
- eff. field of view [mm]: 400 x 540
- total field of view [mm]: 440 x 580
- material in measuring range: 20 mm acrylic glass/glass
- measuring accurarcy according to DIN: 1%
- filling medium: distilled water
- power supply: low voltage (12V wall plug transformer)
- mixing time: 4 minutes
- operation temperature: 15° C – 25

Product features:

- fully automatic mixing with integrated circulation pump
- including air chambers for pressure compensation
- compact, closed system
- measuring areas made of glass/acrylic glasscomposite design
- optional: Positioning cart for different camera systems

Product features:

- Complies with:
  - DIN 6855, Part 2
- CE certified
- the Manual provides detailed guidelines for carrying out each test, results assessment and registration

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