

PET Phantom - NEMA IEC/2001

2000 NEMA Standards, ideal for whole-body PET.

- Complies with NEMA 2001 Standard
- Simulation of whole-body imaging using PET and camera-based coincidence imaging techniques
- Evaluation of reconstructed image quality in whole-body PET and camera-based coincidence imaging
- 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



Performance Measurements of Positron Emission Tomographs, NEMA Standards Publication No. NU2, National Electrical Manufacturers Association (NEMA), Washington, DC, 2001

International Standard: Radionuclide imaging devices- Characteristics and test conditions - Part I: Positron Emission Tomographs, International Electrotechnical Commission (IEC), 61676-1, Geneva, Switzerland, 1998.

Specifications

- Dimensions: 9.5" h x 12" w x 9.5 depth (24.1 x 30.5 x 24.1 cm)
- Interior Length of Phantom: 180 mm
- Fillable Spheres (six) Inner Diameter: 10 mm, 13 mm, 17 mm, 22 mm, 28 mm and 37 mm
- Distance From Sphere Plane to Inside Wall: 70 mm
- Volume of Empty D Shaped Cylinder: 9.7 L
- Cylindrical Insert Dimension: O.D.: 51 mm dia x 180 mm length
- Shipping Weight: 11 lb (4.9 kg)

PET Scatter Phantom™ - NEMA

- Complies with NEMA 2001 Standard
- Acceptance testing
- Determine the imaging systems relative sensitivity to scatter radiation
- Measure the effects of dead-time and the effects of random events generated at different levels of activity of the line source

Performance Measurements of Positron Emission Tomographs, NEMA Standards Publication No. NU2, National Electrical Manufacturers Association (NEMA), Washington, DC - 2001

Specifications

- Cylinder Outside Dimension: 20.3 cm dia x 70 cm long
- Cylinder Hole Size: 6.4 mm
- Cylinder Hole Offset: 4.5 cm
- Line Source Dimensions: 5 mm O.D. x 80 cm long
- Line Source Inside Diameter: 3.2 mm
- Shipping Weight: 52 lb (23.5 kg)



PET Sensitivity Phantom™ - NEMA

- Complies with NEMA 2001 Standard
- Ideal for PET camera sensitivity

*Performance Measurements of Positron Emission Tomographs,
NEMA Standards Publications No. NU2, National Electrical Manufacturers Association
(NEMA), Washington, DC, 2001*

Specifications

Five internally stacked concentric aluminum 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 mm
- Shipping Weight: 3 lb (1.3 kg)



NEW PET-CT Phantom

The PET-CT Phantom™ includes internal structures (three rods and six spheres) which, when imaged with both modalities, can demonstrate how accurately the two image sets are aligned.

In addition, a single sample of radioactive water is attenuated by water, bone and CT contrast material (as well as air only) to determine how accurately the CT-based PET attenuation correction works.

The Phantom is used for:

- Acceptance testing of PET/CT and SPECT/CT systems
- Routine quality evaluation of PET/CT and SPECT/CT systems
- Evaluation of new image fusion software
- Evaluation of new attenuation correction algorithms
- Aluminum tubes are for registration
- The outer 2" OD micro cylinder is for comparing attenuation region to non attenuation region
- The 6" ring is for contrast solution
- Research

Specifications

- Main Cylinder:
Interior length of phantom: 180 mm
Fillable spheres (5) inner diameter: 10 mm, 13 mm, 17 mm, 22 mm, and 28 mm.
- Distance from sphere plane to inside wall: 70 mm
- Volume of empty cylinder: 9.7 liters
- Main Cylindrical insert dimension:
Outside diameter: 51 mm
Length: 180 mm
- Top Cylinder:
Cylinder outside diameter: ~5.1 cm
Cylinder inside diameter: ~4. cm
Cylinder inside height: ~8.2 cm
Cylinder outside height: ~12.0 cm
Volume of empty cylinder: 408 cm³
- Three Aluminum Tubes:
One 5 inch long: ~1.7 cc
Two 7 inch (ea): ~ 2.5 cc
- Stepped Bone Ring:
Pre-filled with liquid bone composition, not to be opened
The volumes for the bone ring are:
Outer volume: 15.6 cu inch: ~256 cc
Inner volume: 6.7 cu inch: ~110 cc



Jaszczak SPECT Phantoms

ECT phantoms for PET and SPECT, meets ACR requirements

The flangeless SPECT Phantom and the flangeless PET Phantom meet the requirements set by ACR. The appropriate phantoms provide consistent performance information for any SPECT or PET system. The SPECT Phantom is the same as the Deluxe SPECT Phantom except that the flanges have been removed. Multiple performance characteristics of camera-based SPECT systems are evaluated from a single scan of the phantom.

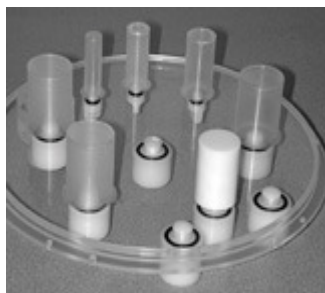
On-axis and off-axis transverse line spread function may be easily measured without removing the cover plate. Measurements of full-width-half (or tenth)

maximum can be readily determined, either in air or in water.

The Phantom is used for:

- System performance valuation of:
Collimator, Artifacts, Calibration, and
Reconstruction Parameters
- Acceptance testing
- Routine quality, assurance and control
- Evaluation of center-of-rotation error
- Evaluation of non-uniformity artifact
- Evaluation of changes of radius-of-rotation on spatial resolution
- Evaluation of reconstruction filters on spatial resolution
- Evaluation of attenuation and scatter compensation
- Single slice volume sensitivity
- Total system volume sensitivity
- Lesion detectability

The Flangeless SPECT Phantom is used for high resolution cameras, complying to the ACR requirements.



Flangeless PET Phantom Lid™

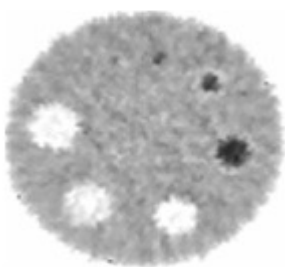
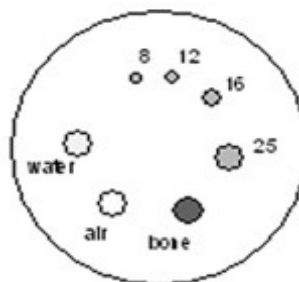


Image of PET Phantom Lid



PET Phantom Lid Containers

Specifications

SPECT and PET Phantoms:

- Cylinder Interior Dimensions: 8" dia x 7.32" h (20.4 x 18.6 cm)
- Cylinder Wall Thickness: 0.25" (6.4 mm)
- Volume: 6.4 L
- Volume With Inserts: 5.7 L
- Cold Rod Insert Height: 3.46" h (8.8 cm)
- Cold Rod Dimensions: 4.8 mm, 6.4 mm, 7.9 mm, 9.5 mm, 11.1 mm, 12.7 mm
- Height of Spheres From Base Plate: 5" h (12.7 cm)
- Solid Sphere Diameters: 9.5mm, 12.7 mm, 15.9 mm, 19.1 mm, 25.4 mm, 31.8 mm

Flangeless Esser PET Phantom Lid™

- Refillable thin-walled cylinders: 8,12,16,25 (x3)mm
- Solid cylinder (Teflon™): 25mm
- Cylinder height: 1.5 in

