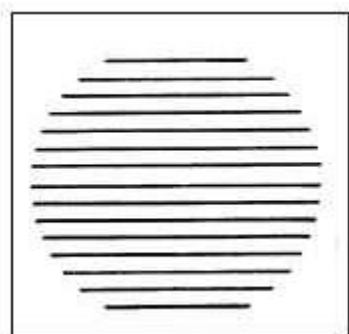




## BRH TEST PATTERN



**For comprehensive evaluation of gamma camera performance.**

**A single transmission image of this orthogonal-hole test pattern provides precise data for any gamma camera:**

- **Intrinsic resolution**
- **Field uniformity**
- **Spatial distortion.**

Quantitative evaluation of the transmission images is most suited for gamma camera:

- A. Long-term quality control.
- B. Acceptance testing of new instruments.
- C. Performance testing for different operating conditions (window width, asymmetric window, etc., for sources of various photon energies).
- D. Checking of tuning and service procedures.

The BRH Test Pattern consists of an orthogonal array of 2.5 mm diameter holes in a 3.2 mm thick lead plate, 52.4 x 52.4 cm.

The columns of holes have a center-to-center hole spacing of 4 mm, increasing to 9.5 mm. After removal of the collimator, the test pattern is positioned in contact with the detector face.

A source of several millicuries (in a syringe or small vial) is placed at least two meters from the center of the test pattern. A few million counts are registered within a short time. Tc-99m (140 keV), Xe-133 (81 keV), Tl-201 (69-80 keV) or other radionuclides may serve as sources. A particular camera's performance depends on the radiation source and the operating

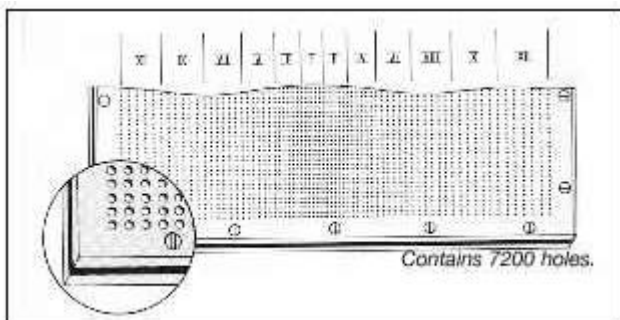
conditions of the instrument.

The group of holes with the closest spacing that appears still resolved on the transmission image of the BRH Test Pattern is a measure of the camera's intrinsic resolution. Nonuniformities superimposed on the hole pattern are recognized more clearly than on a flood image.

Spatial distortions appear as displacements of the hole images from the orthogonal grid. All three performance parameters are less clearly displayed by a quadrant-bar image.

## 76-835 BRH Test Pattern

# GAMMA CAMERA RESOLUTION/LINEARITY TEST PATTERN



**Follows NEMA ® standards measurements.\***

- For measuring intrinsic spatial resolution and linearity per NEMA ®standards.
- Follows NEMA ®specifications.
- Fits most scintillation cameras.

The National Electrical Manufacturers Association (NEMA ® ) has developed standards for making performance measurements of scintillation cameras, in order to provide a uniform criterion for measuring and reporting the parameters by which a manufacturer may specify a device. Our test pattern follows these specifications for checking a camera's intrinsic spatial resolution and linearity according to NEMA ® protocol.

The test pattern consists of a 1/8" thick lead sheet, 22" square, sandwiched in protective plastic. A series of parallel 1 mm-wide slits in the lead, 3 cm (center-to-center) apart, are arranged so that the ends of the slits form an 18" diameter circle, large enough to be compatible with most gamma cameras. The 1/8" lead thickness completely shields the areas between the slits from the 140 keV photons from 99m Tc.

This test pattern is used with two limiting rings with outside diameters of at least 18" and with inside diameters equal to the Useful Field of View (UFOV) and the Central Field of View (CFOV);

75% of the UFOV diameter) of the camera.  
The rings are not included, but can be constructed using  
Nuclear Associates' Lead-Vinyl (see page 294).

**Weight:** 29 lbs

**76-836** Gamma Camera Resolution/Linearity Test Pattern

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© Elimpex-Medizintechnik, Spechtgasse 32, A-2340 Moedling, Austria  
phone +43-2236-410450  
fax +43-2236-410459

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