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Product Overview

The Gammex 156D Stereotactic Mammographic Accreditation phantom is designed to test the performance of digital mammographic systems used for stereotactic biopsy and localization by a quantitative evaluation of the system’s ability to image small structures similar to those found clinically. The phantom is accredited by the ACR, with the added benefit of Gammex Quality Standards achieved over 30 years of serving the Mammography industry. Objects within the 156D phantom simulate micro-calcifications, fibrous structures in ducts, and tumor-like masses. The Model 156D can determine if your mammographic system can detect small structures that are important in the early detection of breast cancer. Test objects within the phantom range in size from those that should be visible on any system to objects that will be difficult to see. The Model 156D is a miniaturization of the Gammex 156 ACR Mammography Accreditation Phantom.
Product Description

The 156D Phantom is made up of a 7mm wax block containing 12 various sets of test objects, a 3.3 cm (1.3 in.) thick acrylic base, a tray for placement of the wax block, and a 0.3 cm (0.12 in.) thick cover. All of this together approximates a 4.2 cm compressed breast consisting of 50% glandular and 50% adipose tissue. Four groups of simulated micro-calcifications, four different size nylon fibers simulate fibrous structures, and four different size tumor-like masses are included in the wax insert. Figure 1 lists the sizes of the test objects and their position.

Figure 1: Location of the test objects in the wax insert. Note: Numbers are for reference only.
<table>
<thead>
<tr>
<th>Region Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 0.93 mm nylon fiber</td>
</tr>
<tr>
<td>2. 0.74 mm nylon fiber</td>
</tr>
<tr>
<td>3. 0.54 mm nylon fiber</td>
</tr>
<tr>
<td>4. 0.32 mm nylon fiber</td>
</tr>
<tr>
<td>5. 1.00 mm thick tumor-like mass</td>
</tr>
<tr>
<td>6. 0.75 mm thick tumor-like mass</td>
</tr>
<tr>
<td>7. 0.50 mm thick tumor-like mass</td>
</tr>
<tr>
<td>8. 0.25 mm thick tumor-like mass</td>
</tr>
<tr>
<td>9. 0.54 mm simulated micro-calcification</td>
</tr>
<tr>
<td>10. 0.32 mm simulated micro-calcification</td>
</tr>
<tr>
<td>11. 0.24 mm simulated micro-calcification</td>
</tr>
<tr>
<td>12. 0.20 mm simulated micro-calcification</td>
</tr>
<tr>
<td>13. Serial number</td>
</tr>
</tbody>
</table>
Using the Phantom

1. Place the phantom as you would the breast, on the breast support device, or over the digital image receptor. Use the compression plate to help hold the phantom in position.

2. Choose the kVp and mAs factors you would use for a 4.2 cm compressed breast.
   
   If phototimer is used, choose the phototimer settings as you would for an average 4.2 cm compressed breast.

3. Make an exposure. The resulting image represents the imaging abilities of your machine using these clinical factors.

4. Evaluate the image by looking for artifacts, homogeneity of the background optical density or pixel value. Compare the images with the reference image. Recommended variation in background optical density from the reference image is +/- 0.20 O.D.

5. Determine the number of objects visible in each group of test objects. The ACR criteria for a mini-phantom are as follows:

<table>
<thead>
<tr>
<th>Test Object</th>
<th>Film/Screen</th>
<th>Digital</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fiber</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Specks</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Masses</td>
<td>2</td>
<td>2.5</td>
</tr>
</tbody>
</table>
6. Record your results in your Quality Assurance Notebook. Significant changes in visualization of the test objects below the recommended criteria, background optical density, number of artifacts, or homogeneity should be brought to the attention of your service engineer or medical physicist.

**Care of the Phantom**

The 156D phantom is fragile to impact and is adversely affected by extended exposure to temperatures above 110°F.
References

2. American College of Radiology, Mammography Quality Control Manual, 1999
Sales and Service

GAMMEX, Inc. is committed to satisfying our customers’ needs. If you have any questions, comments, or suggestions regarding our products and service, please call or fax us.

Sales Department hours are Monday through Friday, 7:30 am to 5:30 pm, Central Time.

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Product Warranty

WARRANTY, DISCLAIMERS AND LIMITATION OF LIABILITY:
The Products are covered by the warranty set forth in the following paragraphs. The warranty is extended only to the purchaser of the Products directly from Seller (or an authorized dealer of Seller) as new merchandise. For a period of twelve (12) months from the date of original delivery to Buyer, the Products are warranted to be free from functional defects in materials and workmanship, provided they are operated under condition of normal use, and that repairs and replacements are made in accordance herewith. Seller does not warrant bulbs. The foregoing warranty shall not apply to Products that have been disassembled, altered or repaired (other than proper replacement bulbs) other than by Seller or if the Product has been subject to abuse, misuse, negligence or accident.

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