



Leeds Test Objects
medical imaging phantoms

MAM IQ

USER MANUAL



Mammography

MAM IQ

Mammography Phantom

COMPONENT LIST

- 1 x Image quality phantom
- 1 x PMMA contrast disc

DESCRIPTION

MAM IQ is a mammography image quality phantom comprising a PMMA housing and a tissue equivalent insert with embedded contrast details.

PMMA housing of dimensions:
101.5 mm x 108.0 mm x 44.0 mm

PMMA contrast disc:
10.0 mm diameter, 4.0 mm thickness

Wax insert dimensions:
80.0 mm x 80.0 mm

Embedded features:
5 x masses
(0.25, 0.50, 0.75, 1.0, 2.0 mm thickness)

5 x groups of microcalcification 'specks'
(160, 240, 320, 400, 540 microns)

6 x fibrils
(0.44, 0.55, 0.75, 0.90, 1.12, 1.60 mm diameter)



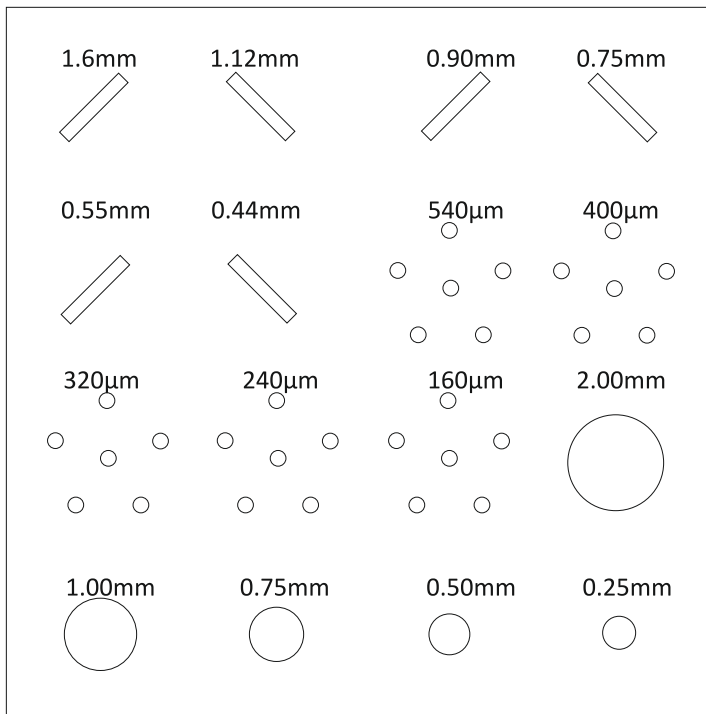


Figure 1 MAM IQ detail layout

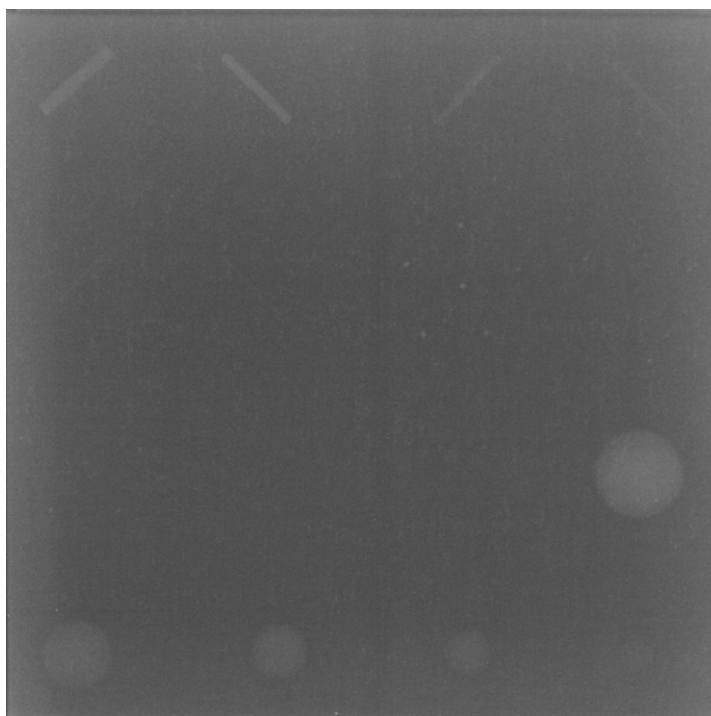


Figure 2 MAM IQ mammographic image

INTRODUCTION

MAM IQ has been designed to be used on a routine basis by mammographers to check the imaging performance of mammography systems. This may be done on a week to week basis, keeping an on-going record of the test results, which will indicate any deterioration in imaging performance.

Figure 1 shows the layout of the test details, which enable contrast detail detectability to be assessed. Figure 2 is an example mammographic image.

The small details found within the MAM IQ phantom represent pathological features often seen in the abnormal breast, e.g. spicules, micro-calcifications and tumorous masses.

The total thickness of MAM IQ equals a 4.2cm compressed breast of average 50% glandular / 50% adipose composition.

POSITIONING

MAM IQ should be positioned centrally on the breast platform so that the chest wall edge of the phantom is aligned with the chest wall side of the image receptor and the nipple marker is facing away from the chest wall.

Lower the compression paddle so that it just touches the top of the phantom (do not actually apply any compression as this may cause damage to the compression paddle, however, on some mammography units, mild compression is needed to enable an exposure to be taken).

Ensure that the AEC detector is located directly beneath the centre of the phantom and that it is in the same location every time the test is performed.

For routine quality control, obtain a test image at 28kVp under automatic exposure control (or use the relevant clinical settings for a 4.2cm compressed breast of average tissue density).

The PMMA contrast disc provides the test step needed to measure density differences. It should be positioned on top of the phantom in a consistent location, so that it does not obscure any of the details within the phantom.

Record all exposure conditions so that the test can be repeated.

INTERPRETATION

The MAM IQ image should be obtained and visualised at the same settings as would be used clinically.

The details should be counted and recorded and compared to the baseline values. Any change should be investigated.

CARING FOR YOUR PHANTOM

Your MAM IQ phantom should provide years of reliable results, but must be properly cared for.

Please adhere to the following tips for providing proper care.

Maintenance

Observation of physical damage to the phantom over time. Action is required only if the component(s)/unit are physically damaged. In such a case, the component(s)/unit needs to be replaced/repared.

Cleaning

Clean the phantom using a soft, dry, clean cloth, do not use solvents.

Protection

Always store your MAM IQ in a protective case/bag when not in use.

MAM IQ does not require calibration.

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