

USER MANUAL

# RaySafe Pro-Mam AEC BR Phantom



# ABOUT THE PRO-MAM AEC BR PHANTOM

The Pro-MAM AEC BR phantom is designed for testing Automatic Exposure Control (AEC) of mammography systems.

## SPECIFICATIONS

Phantom body	
Material	Breast tissue equivalent resin (50% glandular, 50% adipose)
Dimensions and weight	
Overall dimension (h × w)	Three 20 mm plates: 20 x 125 x 100 mm (0.8 x 4.9 x 3.9 in.) Two 10 mm plates: 10 x 125 x 100 mm (0.4 x 4.9 x 3.9 in.) One 5 mm plate: 5 x 125 x 100 mm (0.2 x 4.9 x 3.9 in.)
Weight	20 mm plate: 62 g (2.2 oz.) 10 mm plate: 123 g (4.3 oz.) 5 mm plate: 246 g (8.7 oz.)
Standards	
Compliance	Compliance with, but does not hold an accreditation: 2018 ACR Digital Mammography Quality Control Manual

# TEST PROCEDURE

This is an example. Be sure to comply with your local regulations.

## NOTE FOR DIGITAL DEVICES

For digital imaging, use the pixel value measurement tool at the workstation instead of densitometer. Be sure to always use DICOM files in a non-processed format.

Calculate the Signal to Noise Ratio (SNR) using the formula below.

$$SNR = (\text{average value of pixels in the ROI}) / (\text{standard deviation of pixels in the ROI})$$

ROI=The Region of Interest (e.g. 4 cm<sup>2</sup> or 0.6 sq inch). The ROI should be placed 60 mm (2.4 in.) from the chest wall side, and centered laterally.

## MEASUREMENT SETUP

1. Place the 20/45/65 mm stack on the breast support table.
2. Align the stack with the edge of the table.
3. Use the compression paddle. Always use the same paddle size and compression force (recommended value is 100 N).
4. Make an exposure in a clinical AEC mode. Record exposure settings.
5. Measure the SNR in the reference ROI, and fill in the value in the table on the next page.
6. Repeat the procedure for each stack thickness.

## CALCULATING REFERENCE VALUES

7. Repeat the measurements described above for five consecutive days and calculate the average value for each thickness (see table on the next page). These three average values should be used as reference for daily measurements onwards.

## RECOMMENDATIONS

The absolute value of the difference between the calculated reference value and daily measurement should not be greater than 15% for SNR.

# MEASUREMENTS

## TEST SETUP

X-ray device:			
Plate thickness	20 mm	45 mm	65 mm
Tube Voltage (kV):			

## MEASUREMENT OF REFERENCE VALUES

Date	SNR (20 mm)	SNR (45 mm)	SNR (65 mm)
Average:			

# WARRANTY

Unfors RaySafe warrants to the original product purchaser that each product it manufactures will be free from defects in material and workmanship under normal use and service. The warranty period is 12 months and begins on the date of delivery.