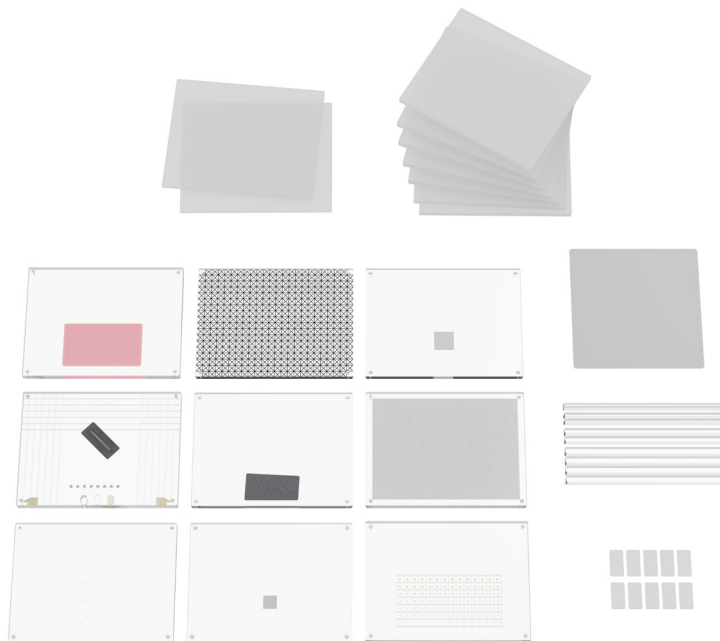


# Pro-DigiMAM



03-301 - basic model (03-303 + 03-310 + 03-311)

03-302 - complete set (03-303 to 03-318, without 03-312, 03-313)



This versatile phantom can be used for monitoring technical parameters of digital mammography imaging systems according to the requirements of the "European Guidelines for Quality Assurance in Mammography Screening" and IEC 61223-3-2:

- optical density / luminance in the reference point
- spatial resolution
- threshold contrast visibility
- contrast
- effective radiation field
- automatic exposure timer
- CNR, SNR
- NPS
- MTF
- ghosting
- filaments
- artefacts evaluation
- geometric distortion check
- contrast details

## Technical data (can be modified to customer specifications):

- dimensions: 240 x 180 mm or 300 x 240 mm
- modular construction – different modules can be firmly placed on the main module
- optional carrying case (03-322)

## Product features:

- complies with:
  - IEC 61223-3-2
  - "European Guidelines for Quality Assurance in Mammography Screening"
- plus supplement
- CE certified
- the Manual provides detailed guidelines for carrying out each test, results assessment and registration



### Main module (03-303)

set of PMMA attenuation plates: 6x 10 mm thick and 2x 5 mm thick; one plate contains marking of the reference point



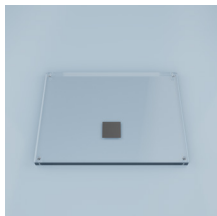
### CNR module (03-311)

10mm thick module containing a 20 x 20 x 0.2 mm aluminium filter, located 6 cm from the chest side



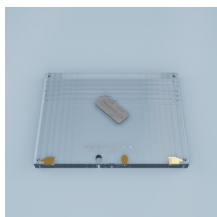
### Contrast detail module (03-309)

20 mm thick module containing gold (99.99%) discs organized in a 7x14 matrix (diameter x thickness). Discs have the following diameters: 0.1, 0.25, 0.5, 0.75, 1.0, 1.5, 2.0 mm and 14 thicknesses ranging from 0.03 to 2.0  $\mu\text{m}$ . Thickness accuracy: 1 nm (0.001  $\mu\text{m}$ ), diameter accuracy 0.001 mm (1  $\mu\text{m}$ )



### Ghosting module (03-304)

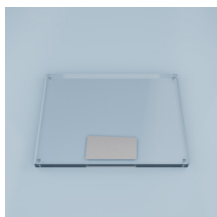
10mm thick module containing a 30 x 30 x 0.1 mm aluminium filter for a ghost test



### Resolution and geometry module (03-310)

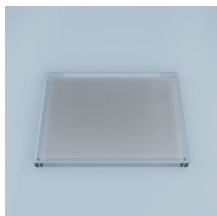
10 mm thick module containing:

- pattern for the line pair resolution evaluation (from 1,5 to 20,0 LP/mm) rotated 45°
- 8 low contrast objects ( $\varnothing$ 5.5 mm and depth from 0.1 mm to 0.45 mm)
- 3 objects of a different absorption level
- pattern for evaluation of the effective radiation field



### MTF module (03-305)

10 mm thick module containing a straight stainless steel edge accurate to  $\pm 2 \mu\text{m}$  at a 3° angle



### Artefacts evaluation module (03-307)

10 mm thick module containing a mesh for artefacts evaluation



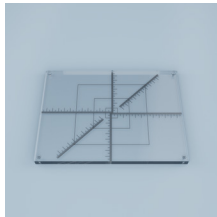
### Filaments module (03-306)

10 mm thick module containing 6 groups of multi-directional filaments 0.40 mm to 0.20 mm in diameter



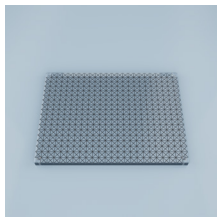
#### Dynamic range module (03-320)

10 mm thick module containing Al step wedge with 14 steps from 0.0 to 5.2 mm



#### Geometry distortion module (scales) (03-312)

10 mm thick module containing a grid with scales



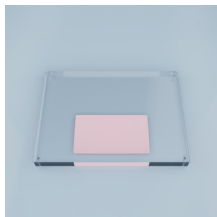
#### Geometric distortion module (mesh) (03-308)

10 mm thick module containing a wire mesh of horizontal, vertical and diagonal lines (45°)



#### ACR Accreditation module (03-319)

14 mm thick module containing a wax insert as in Pro-MAM Accreditation (when used with 3x10 mm plates from main module simulates 42 mm compressed breast of average glandular/adipose composition)



#### Full Field ACR Accreditation module (03-317)

14 mm thick module containing a wax insert as in Pro-MAM Accreditation FF (when used with 3x10 mm plates from main module simulates 42 mm compressed breast of average glandular/adipose composition)



#### Noise evaluation module (03-315)

2 mm thick aluminium plate 200 x 200 mm



#### Spacers sets (03-314)

180 x 15 mm or 240 x 15 mm PMMA plates:

- 4 pieces 10 mm thick,
- 2 pieces 8 mm thick,
- 2 pieces 5 mm thick,
- 2 pieces 2 mm thick

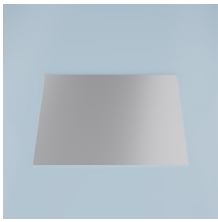


#### Compensation module (03-316)

set of 10 PMMA plates 40 x 20 x 2 mm



## Tomosynthesis dedicated modules



### NPS attenuator

2 mm thick high purity aluminium filter



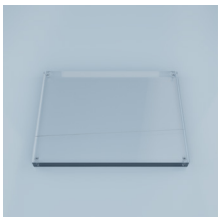
### MTF module

10 mm thick module containing a stainless steel square (50 x 50 mm) with straight edges accurate to  $\pm 2 \mu\text{m}$  rotated  $3^\circ$



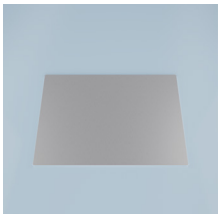
### Z-resolution module

5 mm thick module containing 25 aluminium spheres 1 mm in diameter arranged in an array with 55 mm cell



### Wire MTF module

15 mm module containing  $25 \mu\text{m}$  tungsten wire at a  $3^\circ$  angle 60 mm from the chest wall



### Protective steel plate

2 mm stainless steel plate 240 x 300 mm covering the whole image receptor



### Spacers set

Two 240 x 20 x 30 mm spacers for appropriate positioning of test modules