

Ultrasound Phantoms for 2D & 3D Evaluation

Model 555 Set



DESIGNED FOR COMPLIANCE WITH AIUM STANDARDS

The Model 555 Set consists of two phantoms, the CIRS Model 055 3D Ultrasound Calibration Phantom and 055A 3D Wire Test Object, as described in the AIUM publication “Standard Methods for Calibration of 2-Dimensional and 3-Dimensional Spatial Measurement Capabilities of Pulse Echo Ultrasound Imaging Systems”. These phantoms were designed to evaluate measurements taken on ultrasound systems using newer spatial encoding algorithms. This is especially important for the 3-D and 4-D ultrasound systems currently on the market.

Both phantoms are manufactured from the water-based polymer developed by CIRS called Zerdine^{®(1)} and housed in rugged ABS containers that minimize desiccation. The background is calibrated to mimic the ultrasound characteristics of human liver tissue. Unlike other phantom materials, Zerdine is not damaged by changes in temperature.

The Model 055 3D Ultrasound Calibration Phantom is a volumetric target phantom and contains a small and large egg shaped volume. There are two scanning surfaces and the targets are off centered within the background material. Depending upon what side is scanned, the test objects are located at distances ranging from 2 to 6 cm from the scanning surface.

The Model 055A 3D Wire Test Object is a wire-target phantom. In 2-D, the wires can be used to trace imaginary elliptical or rectangular shapes while, in 3D-mode, the same wire targets can trace out elliptical and/or rectangular rods. These are used to measure perimeters, volumes and surface areas. The phantom also can be used to determine image uniformity and depth of penetration.

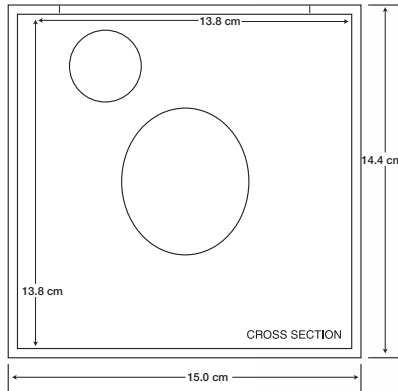
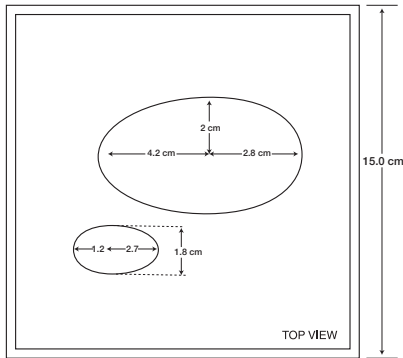
The phantoms come with a carry case, a copy of the above referenced AIUM publication as a user's guide, and handling instructions.

Phantoms may also be purchased separately.

Benefits

- Perform systems checks according to published AIUM Standard
- Evaluate measurements taken on 2D, 3D, and 4D ultrasound machines
- Determine image uniformity & depth of penetration

SPECIFICATIONS



Model 055

CONTAINER

Dimensions: 15 x 15 x 15 cm
Material: ABS Housing

BACKGROUND GEL

Zerdine, solid elastic water-based polymer
Freezing Point: 0° C
Melting Point: Above 100° C
Attenuation Coefficient: 0.5 dB/cm-MHz
Speed of Sound: 1540 m/s
Contrast: 0 dB
Other: Compatible with harmonic imaging

TOP SCAN WINDOW

Scanning Membrane: Saran-based laminate
Membrane Retainer: 1/16" Black ABS
Dimensions of scan opening: 12 cm x 12 cm

SIDE SCAN WINDOW

Scanning Membrane: Saran-based laminate
Dimensions scan opening: 11 cm x 11 cm

SMALL VOLUME

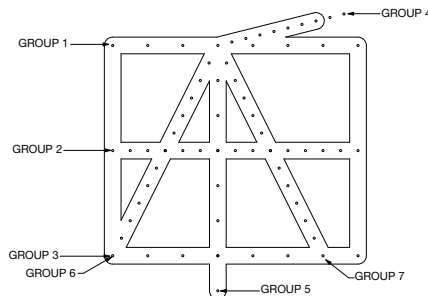
Material: Zerdine
Speed of Sound: 1540 m/s
Attenuation Coefficient: 0.5 dB/cm-MHz
Contrast: -9 dB
Nominal Volume: 6.9 cc
Depth of Target: 2-6 cm from scanning surface

LARGE VOLUME

Material: Zerdine
Speed of Sound: 1540 m/s
Attenuation Coefficient: 0.5 dB/cm-MHz
Contrast: -9 dB
Nominal Volume: 69 cc
Depth of Target: 2-6 cm from scanning surface

MODEL 055 INCLUDES

3D Ultrasound Calibration Phantom
Carry Case
Certificate of Compliance
QA Worksheet
48-month Warranty



Model 055A

CONTAINER

Dimensions: 13 x 18 x 11 cm
Material: ABS Housing

BACKGROUND GEL

Zerdine, solid elastic water-based polymer
Freezing Point: 0° C
Melting Point: Above 100° C
Attenuation Coefficient: 0.5 dB/cm-MHz
Speed of Sound: 1540 m/s
Contrast: 0 dB
Other: Compatible with harmonic imaging

SCAN WINDOW

Scanning Membrane: Saran-based laminate
Membrane Retainer: 1/16" Black ABS
Dimensions of scan opening: 14 cm x 9 cm

WIRE TARGETS

Material: Nylon Monofilament
Diameter: 0.1 mm

GROUP	STARTING POSITION (X, Y)	SUBSEQUENT WIRE MOVES
1	(0 cm, 0 cm)	$\Delta x = 1 \text{ cm}, \Delta y = 0 \text{ cm}$
2	(0 cm, 4 cm)	$\Delta x = 0.5 \text{ cm}, \Delta y = 0 \text{ cm}$
3	(0 cm, 7 cm)	$\Delta x = 1 \text{ cm}, \Delta y = 0 \text{ cm}$
4	(3 cm, 0 cm)	$\Delta x = 0.4 \text{ cm}, \Delta y = -0.1 \text{ cm}$
5	(3 cm, 0 cm)	$\Delta x = 0 \text{ cm}, \Delta y = 1 \text{ cm}$
6	(3 cm, 0 cm)	$\Delta x = -0.25 \text{ cm}, \Delta y = 0.5 \text{ cm}$
7	(3 cm, 0 cm)	$\Delta x = 0.25 \text{ cm}, \Delta y = 0.5 \text{ cm}$

MODEL 055A INCLUDES

3D Wire Test Object Phantom
Removable water well
Removable endocavity cover
Removable storage cover
Carry Case
Certificate of Compliance
48-month Warranty

Model 555 Set contains all items included with Model 055 and Model 055A.

(1) US Patent # 5196343

