

Three Dimensional Ultrasound Calibration Phantom

The perfect tool for assessment of volumetric measurement accuracy.

The Model 55 was designed to allow for assessment of volumetric measurement accuracy and 3D imaging.

The background is calibrated to mimic the ultrasound characteristics of human liver tissue. The phantom contains two calibrated volumetric test objects. The test objects and background material are made from Zerdine™ a patented, solid elastic material. Unlike other phantom materials Zerdine™ is not damaged by changes in temperature.

The Model 55 is completely encased within a rugged ABS container which minimizes desiccation and facilitates scanning on two sides – enabling 3D scanning.

There are two embedded test objects – a small egg and a large egg. The targets are off centered within the background material. Depending upon what side is scanned, the test objects are located at distances ranging from 2cm to 6cm from the scanning surface.



Model 55

The backscatter within the test objects is $12 \text{ dB} \pm 3 \text{ dB}$ less than the background material. The speed of sound within both the background and the test objects is $1540 \text{ m/s} \pm 6 \text{ m/s}$ with the speed of sound relative to each other of $\pm 2 \text{ m/s}$.

The attenuation coefficient in both the background and test objects is 0.50 dB/cm/

$\text{MHz} \pm 0.05 \text{ dB/cm/MHz}$. The volume of each test object is recorded on a certification sheet which accompanies each phantom.

The Model 55 3D Calibration Phantom is the tool for routine quality assurance of three dimensional ultrasound systems, software development, and research.

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Model 55 Specifications

MATERIAL

Zerdine™(1), solid elastic water-based polymer

Freezing Point: 0°C

Melting Point: above 100°C

ATTENUATION COEFFICIENT

.50 dB/cm/MHz $\pm$.05 dB/cm/MHz

SPEED OF SOUND

1540 m/s $\pm$ 6 m/s

CONTRAST

Targets 12 dB $\pm$ 3 dB lower than background

DEPTH OF TARGETS

2cm to 6 cm from scanning surface

SCANNING MEMBRANE

Saran

PHANTOM DIMENSIONS

(nominal)

15cm L x 15cm W x 14.7cm H

