

Ultrasound Resolution Phantom

Designed for evaluating system resolution

The CIRS series of ultrasound phantoms, unlike human subjects or random scannable materials, offers a reliable medium which contains specific, known test objects for repeatable qualitative assessment of ultrasound scanner performance over time.

This phantom is constructed from the patented solid elastic material, Zerdine^{®(1)}. Zerdine^{®(1)}, unlike other phantom material on the market, is not affected by changes in temperature. It can be subjected to boiling or freezing conditions without sustaining significant damage. Zerdine^{®(1)} is also more elastic than other materials and allows more pressure to be applied to the scanning surface without subsequent damage to the material. At normal room temperature, the Zerdine^{®(1)} material found in the Model 044 will accurately simulate the ultrasound characteristics found in human liver tissue.

The Model 044 consists of two planes of short cylinders. One plane has an attenuation



Model 044

coefficient of 0.5 dB/cm/MHz while the other is 0.7 dB/cm/MHz. Each plane has two groups of targets. The 12 mm diameter test objects have three contrasts with respect to the background enabling low contrast resolution assessment at many depths. All other targets have a -15 dB contrast. To facilitate

proper probe alignment, the Model 044 contains a series of nylon targets. The phantom includes a sturdy carrying case and certification sheet. The Model 044 is ideal for simultaneous assessment of axial, lateral, and elevational resolution.

⁽¹⁾ US PATENT# 5196343

Model 044 Specifications

MATERIAL: Zerdine^{®(1)}, solid-elastic, water-based polymer
 Freezing Point: 0°C
 Melting Point: Above 100°C

ATTENUATION COEFFICIENT:
 0.50 dB/cm/MHz \pm 0.05 dB/cm/MHz
 0.70 dB/cm/MHz \pm 0.07 dB/cm/MHz

SPEED OF SOUND:
 1540 m/s \pm 6 m/s

SCANNING MEMBRANE:
 Saran based

TARGETS:
 Number of Groups: 4

Number of Targets per Group:
 35, 45, 45 & 15

Type of Target: short cylinders

Diameter of Targets: 1.5 mm, 3 mm, 3 mm & 12 mm

Length Targets: 2.4 mm, 3 mm, 6 mm & 18 mm

Placement: see diagram

Contrast:
 12 mm: - 2 dB, - 4 dB & - 6 dB
 all others: - 15 dB \pm 2 dB wrt background

ALIGNMENT TARGETS:

Material: Nylon Monofilament
 Diameter: 0.1 mm

Depths: 1.5 cm, 3.5 cm, 6.5 cm, 9.5 cm & 12 cm

