



## Model 514

### Multipurpose Phantom



### Product Description

The Model 514 Multipurpose Phantom is composed of a hydrogel-based material which acoustically mimics human tissue. The phantom is contained in an acrylic housing to provide strength and permanence. A soft polyurethane film with an impedance closely matching that of human skin is used for the scan window, thereby allowing easy transmission of the ultrasound beam into the phantom. A built-in scanning well is provided to allow the use of water as the coupling medium. However, coupling gels may be used if desired.

The phantom is designed specifically to evaluate the performance of sector scan, linear, phased and annular array ultrasound imaging systems.

### Specifications

#### General

Overall dimensions	23.5 x 22.4 x 9.7 cm*
Weight	5.33 Kg*
Housing Material	Acrylic
Scan Surface	1
Scan Surface Material	Polyurethane Membrane
Scan Surface Dimensions	22.0 x 8.0*

#### Tissue Mimicking Material

Type	Hydrogel
Freezing Point	0° C
Melting Point	49° C
Speed of Sound	1540 m/s ± 1.0% at 23° C
Attenuation Coefficient	0.5 db/cm/Mhz ± 5.0%

### Tests Performed

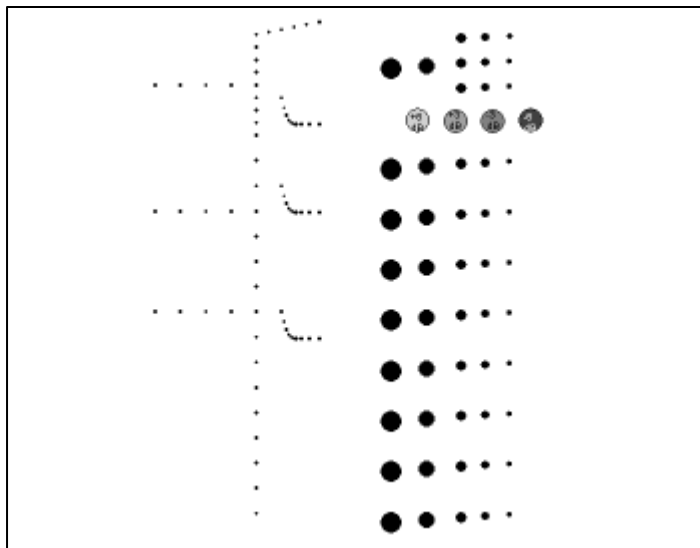
- Dead Zone or Ring-Down
- Vertical Measurement Calibration
- Horizontal Measurement Calibration
- Axial and Lateral Resolution
- Sensitivity
- Focal Zone
- Functional Resolution
- Definition and Fill-in
- Gray Scale & Displayed Dynamic Range

### Line Targets

Material	Monofilament nylon		<b>Horizontal</b>	
Diameter	0.12 mm ± 5.0%		Number of Groups	3
<b>Dead Zone</b>			Target per group	5
Number of Targets	6		Depth	3.0, 8.0, 12.0 cm
Lateral Displacement	5 mm ± 0.1 mm		Interval Spacing	1.0 cm
Depth	5 to 10 mm ± 0.1 mm			
<b>Vertical Group</b>			<b>Axial-Lateral Resolution</b>	
Number of targets	23		Number of Groups	3
Interval Spacing	.5 cm ± 0.1 mm		Target per group	10
Depth	1.0 – 5.0 cm			
Interval Spacing	1.0 cm ± 0.1 mm		Depth	3.5, 7.0, 12.0 cm
Depth	5.0 – 20.0 cm			
<b>Anechoic Target Structure</b>			Lateral displacement	1.0 mm ± 0.1 mm
Type	Non-echogenic, cylindrical		Axial Spacing	4, 3, 2, 1, .5 mm
Positional Tolerance	± 0.1 mm		Lateral Spacing	4, 3, 2, 1 mm
Diameter Tolerance	± 5%			
Number of Groups	5		<b>Gray Scale Target Structures</b>	
Diameters	2, 3, 4, mm		Type	Echogenic cylindrical
Interval Spacing (center to center)			Number of Targets	4
Depth of 1.0 – 3.0 cm	1.0 cm		Diameter	10 mm ± 5.0%
Depth of 3.0 – 20.0 cm	2.0 cm		Depth	4 cm ± 1.0 mm
Diameters	6.0, 8.0 mm		Contrast relative to the background material (dB)	+6, +3, -3, -6
Interval Spacing (center to center)				
Depth of 2.0 – 20.0 cm	2.0 cm			

**WARRANTY** One Year

\*Nominal dimensions



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