



## Product Description



The Model U-245 tissue equivalent Doppler flow phantom is for the evaluation of diagnostic Doppler ultrasound.

The phantom is used for the assessment of;

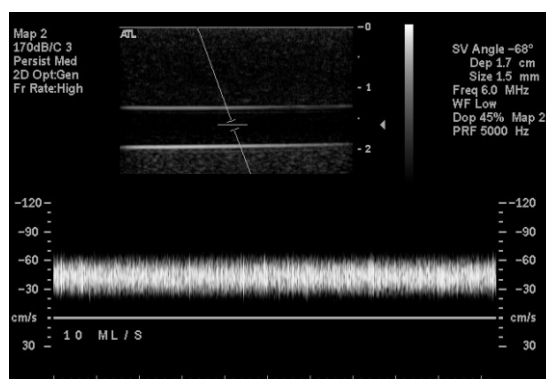
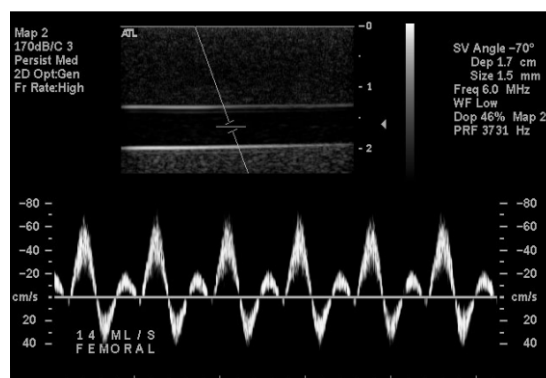
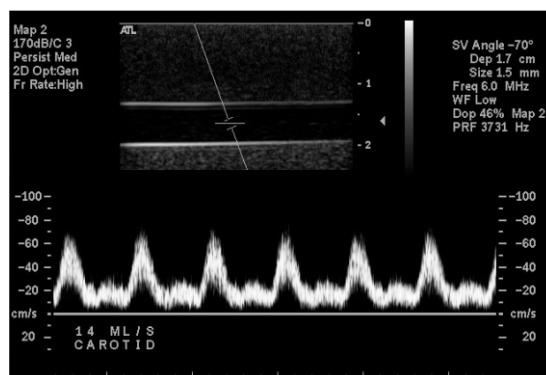
- Sensitivity
- Volume flow
- Flow Velocity
- Flow Location
- Penetration
- Image uniformity
- Directional discrimination
- Flow visualization

The Model U-245 contains a long lasting tissue equivalent urethane and incorporates two wall-less vessels. An 8 mm diameter vessel, which is positioned horizontally 2 cm below the scanning surface simulating the common carotid artery and a 4 mm vessel angled 45° from the scanning surface.

Connect the model U-245 Doppler Flow Phantom to Shelley Medicals' portable AccuFlow-Q flow pump system (or CompuFlow 1000 computer-controlled flow pump simulator), fill the pump with our blood mimicking fluid (BMF-US) and produce the most realistic, accurate and repeatable physiological flow waveforms for Doppler & colour Doppler testing.

## Sample Waveforms Using Model U-245

Waveforms produced by combining Shelley's Model U-245 Doppler flow phantom, AccuFlow-Q physiological flow pump and blood mimicking fluid (Model: BMF-US).





## Specifications for Model U-245

Tissue mimicking material: Urethane

Attenuation coefficient:  $0.50 \pm 0.05$  dB/cm/MHz at 3.5 MHz

Speed of Sound: 1450 m/s  $\pm$  15 m/s at 20° C

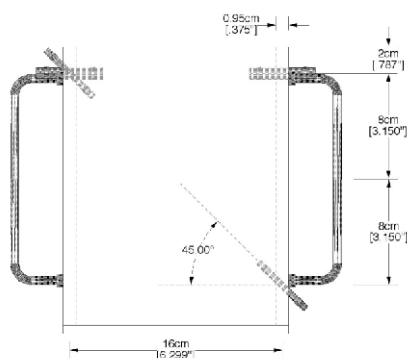
Overall dimensions: 17 cm x 10 cm x 21.5 cm

Scan surface dimensions: 14 cm x 7.5 cm x 0.5 cm

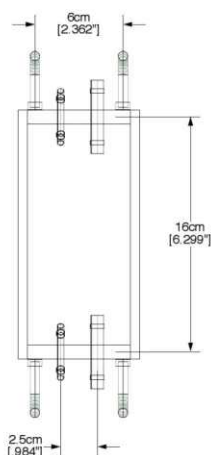
Connectors: 8 mm and 4 mm stainless steel hose barb

Weight: 4.3 kg

Flow Vessels/Channels: Two wall-less vessels; 8 mm I.D. horizontal and 4 mm I.D. angulated 45°



Side view of Model U-245 Doppler phantom



Top view of Model U-245 Doppler phantom

## Limited Warranty

Model U-245 warranty against defects in material and workmanship for a period of 1 year from date of original shipment.

## Optional Connection Kit

Shelley Medical offers an optional valve, fittings and tubing connection assembly that allows U-245 Flow Phantom users to connect to our AccuFlow-Q or CompuFlow 1000 physiological flow pump systems. Custom connection assemblies are also available.

## Alternative Tissue Mimicking Material

The same phantom can be filled with the following alternative tissue mimicking material:

Agar - Tissue Mimicking Material

- Speed of sound 1540 m/s  $\pm$  10 m/s at 22°C
- Attenuation coefficient 0.7 dB/cm/MHz @ 5 MHz

## Shelley's Blood Mimicking Fluid Specifications Model: BMF-US

Back-scatterer size	5 $\mu$ m
Hematocrit (% of vol.)	< 5
Density	1037 $\pm$ 2 kg m <sup>-3</sup>
Viscosity	4.1 $\pm$ 0.1 mPa s
Velocity	1548 $\pm$ 5 m s <sup>-1</sup>
Attenuation	0.05 $\pm$ 0.01 dB cm <sup>-1</sup> MHz

## Shelley's Blood Mimicking Fluid (BMF-US) Reference:

Kumar V. Ramnarine, Dariush K. Nassiri, Peter R. Hoskins and Jaap Lubbers

"Validation Of A New Blood-Mimicking Fluid For Use In Doppler Flow Test Objects" *Ultrasound in Med. & Biol.* Vol. 24, No. 3, pp. 451-459, 1998



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