ACTA ACUSTICA UNITED WITH ACUSTICA
Vol. 88 (2002) 52 – 64

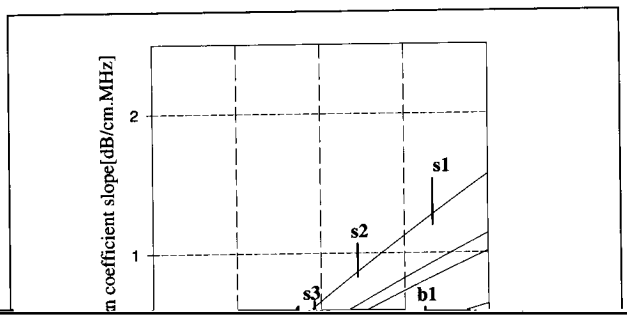
Tissue Mimicking Materials for Thin Film Phantom

Zaegyoo Hah*
Dept. of Electronics Eng., Kongju National Univ., Kongju, Korea

Stephen McAleavey, Kevin J. Parker
Dept. of Electrical and Computer Eng., University of Rochester, Rochester, NY, USA

Summary
A systematic approach is proposed for developing tissue mimicking materials. Speed of sound and the attenua-

the water-sample interface perpendicular to the ultrasonic beam, the holder was mounted on an optical jig and care was taken to ensure that the Saran Wrap interface was perpendicular to the beam. All the measurements were done at the temperature of 21±2 °C. The errors in measuring the speed of sound and the attenuation slope, mainly from the error in thickness and density of the sample, were estimated from reproducibility measurement to be ±2 m/s and ±0.15 dB/cm respectively.



[3] E. L. Madsen, J. A. Zagzebski, R. A. Banjavie, R. E. Jutila: Tissue mimicking materials for ultrasound phantoms. Med. Phys. **5** (1978) 391–394.

[4] E. L. Madsen, J. A. Zagzebski, R. A. Banjavie, G. Frank: Oil-in-gelatin dispersions for use as ultrasonically tissue-mimicking materials. Ultrasound in Med. Biol. **8** (1982) 277–287.

[5] E. L. Madsen, G. R. Frank, F. Dong: Liquid or solid ultrasonically tissue-mimicking materials with very low scatter. Ultrasound in Med. Biol. **24** (1998) 535–542.

[8] D. Phillips, S.McAleavey, K. J. Parker: A new thin film phantom for performance evaluation of ultrasonic doppler imaging system. 1996 IEEE Ultrasoincs Symposium Proceedings **2** (1996) 1201–1204.

[9] P. Jiang, C. Everbach, R. E. Apfel: Application of mixture laws for predicting the compositions of tissue phantoms. Ultrasound in Med. Biol. **17(8)** (1991) 829–838.

[10] P. Jiang, R. Apfel: Method for determining the reliable predictions of compositions of tissue phantom. Ultrasound in Med. Biol. **20(8)** (1994) 791–802.