


Original Paper

Improved and Automated Primary Ultrasonic Power Measurement Setup at CSIR-NPL, India

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Abstract

Ultrasonic power generated by an ultrasonic transducer must be measured and declared for the ultimate safety of patients. According to IEC-61161 radiation force balance is internationally recommended primary method for measurement of total, time averaged ultrasonic power radiated by transducer. In a manual RFB system, the output of microbalance is recorded manually at no radiation force and after transducer excitation. Manual technique suffers from various errors, such as overshoot due to momentum of target, disturbance due to small tilt in target and buoyancy change of target. The developed automated system provides scope to visualize these effects and enables us to considerably reduce effects of above sources and hence improves uncertainty. In this article developmental details and the functionality of an improved automated system is described.

Keywords

Ultrasonic power measurement – Radiation force balance – LabVIEW software