Portable device for prediction and analysis of sound pressure of ultrasonic transducers

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Technology description

Introduction
Medical ultrasound equipment is evaluated according to the acoustical parameters set by the standard during its manufacture. The standard ensures that the acoustic emissions within the diagnostic range are not harmed by the thermal effects and that the therapeutic range of heating and/or ablation is controlled in accordance with a medical prescription. The transducer has a high incidence of defects due to greater exposure to shock and misuse during its lifetime. In the diagnostic instrument, the defective transducer reduces the resolution of the image and penetrates it. The error of Doppler blood velocity calculation is caused by the increase of background noise. And could cause warming damage. More frequent assessments of transducers are needed to ensure patient safety and, despite standard predictions, no national or international regulatory body has imposed or recommended such an assessment.
Objective
The present invention aims at a novel portable battery-powered device for evaluating the operation of a transducer by analyzing the acoustic radiation force generated by the working transducer.
Target audience:Medical, hospital and dental equipment industry companies.

Application area

The technique is used to evaluate the transducer's operation directly by the medical personnel themselves in clinical practice, to point out the early signs of failure, and to make it possible for the transducer to trigger maintenance in advance before it stops working completely.

Advantages

Low cost and complexity;
No specialized manpower is required;

Establishment of simple facilities in clinics and hospitals;
A predictive analysis that reduce costs and administrative impact as a result of rearrangement of examinations, loss of productivity, extension of hospital stay and inconvenience to patient;
Improved control of replacement parts;
Ensure effective diagnosis and treatment of patients.

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