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SOUNDPET NEWSLETTER

ISSUE 3

Providing with news on MRI guided Focused Ultrasound technology in the field of oncology, in the framework of the SOUNDPET project!

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Ultrasonic transducer

Medical Cart

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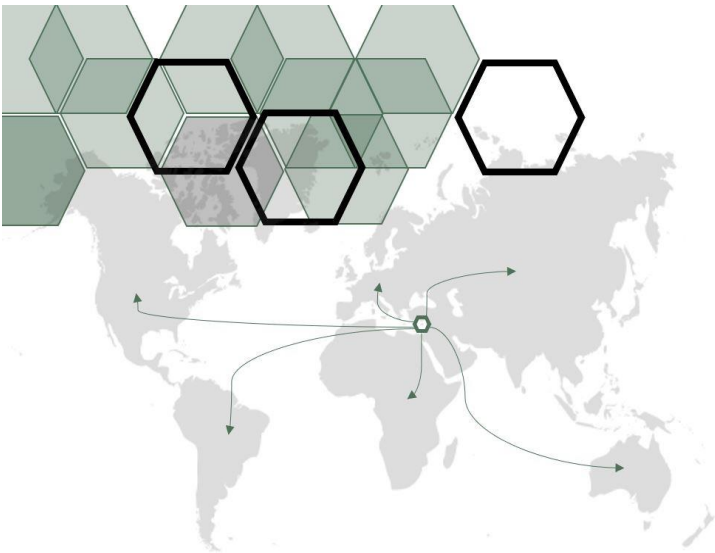
Ευρωπαϊκή Ένωση
Ευρωπαϊκό Ταμείο
Περιφερειακής Ανάπτυξης



Κυπριακή Δημοκρατία



Διαρθρωτικά Ταμεία
της Ευρωπαϊκής Ένωσης στην Κύπρο



Ultrasonic transducer

Two transducers were specially designed to be single element, spherically focused, MR compatible and compact. The structural characteristics and operating frequency of the manufactured transducers were estimated by simulation studies, which investigated the power field and heating effects of different candidate transducers. Purchased piezoelectric elements were housed in 3D printed plastic cases and covered by an encapsulant. Specifically, an ultrasonic transducer element made out of P762-type piezoceramic, with the selected specifications of 1 MHz central frequency, 70 mm radius of curvature and 60 mm diameter, was provided by Ferroperm (Kvistgaard, Denmark) company. The other selected element of 2.5 MHz frequency, 50 mm diameter and 65 mm radius of curvature was provided by Piezo Hannas (Wuhan, China) company. Special emphasis was placed on the selection of the suitable materials for safe long-term high-power operation of the transducers.

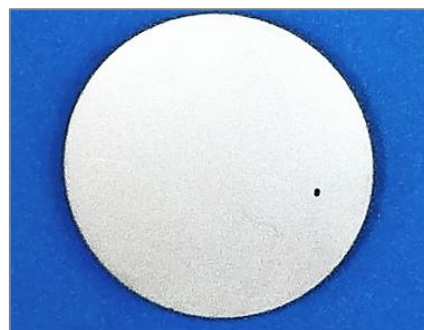
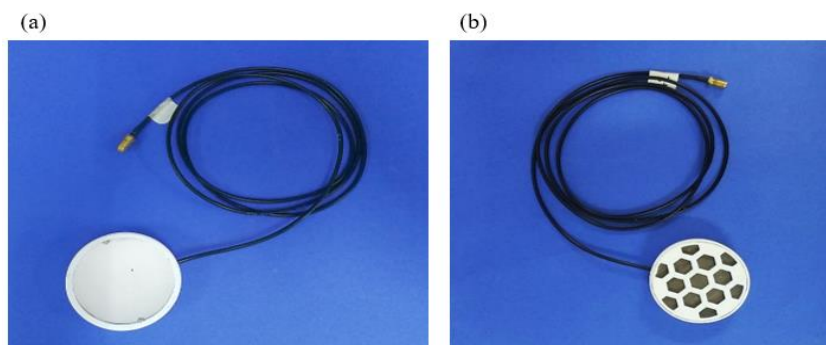
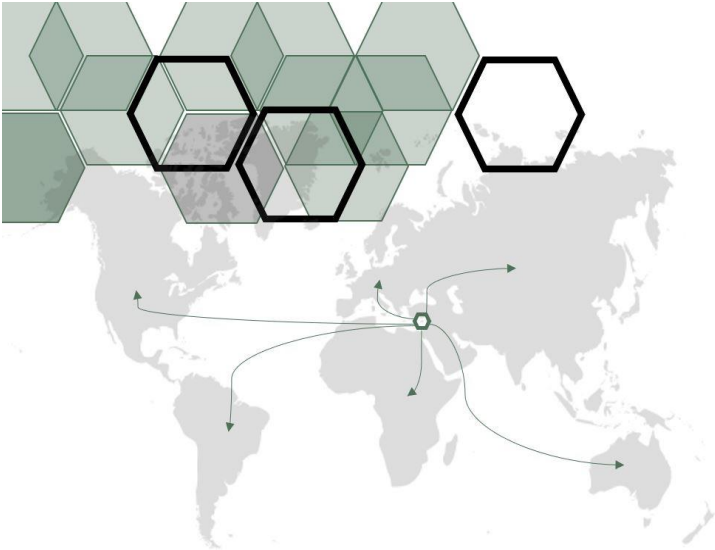


Photo of the ultrasonic element.

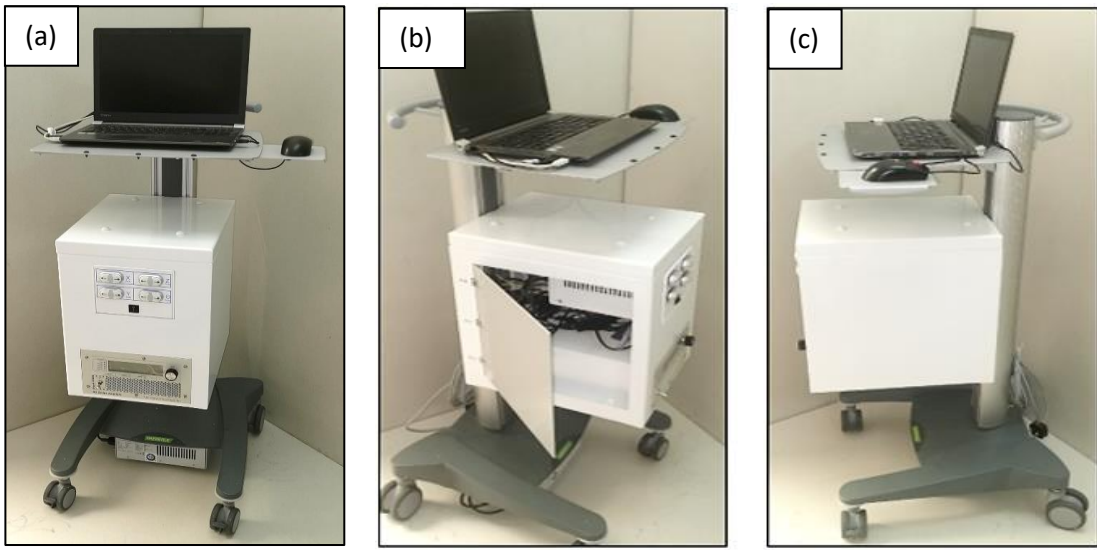


Photos of the developed transducer: a) top view, and b) bottom view.



Medical Cart

A medical cart was designed to host all the electronic devices needed for proper operation of the SOUNDPET system. An already existing cart of the Haeberle company was modified according to the requirements and specifications of the present system, which consists of a laptop, an electronic driving system, and an amplifier.



Photos of the developed medical cart: (a) front view and (b) & (c) side views.

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