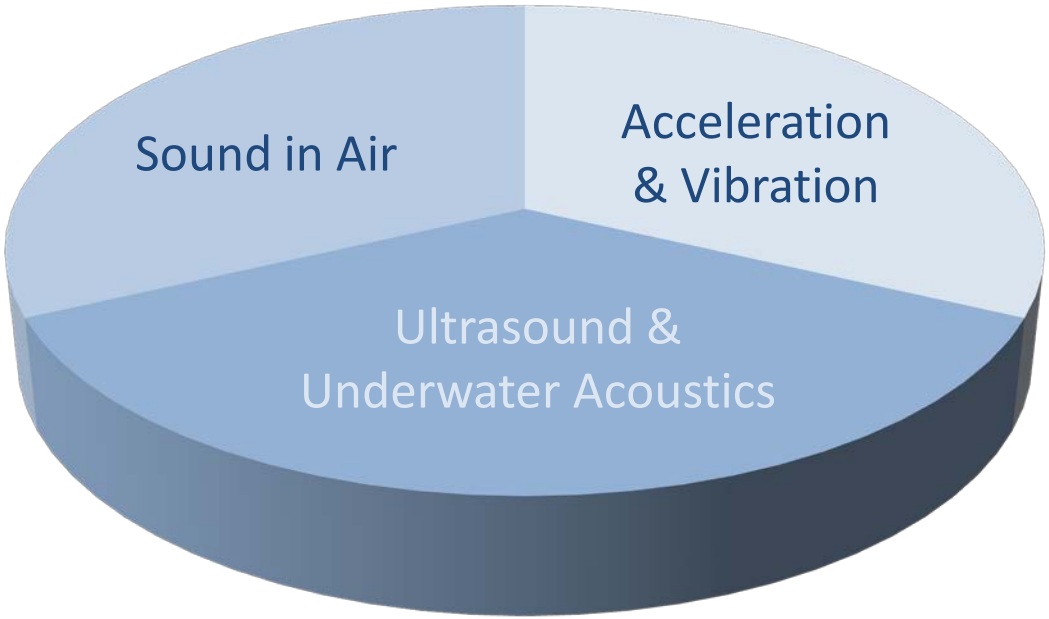
EURAMET TC-AUV 2014 highlights

Richard Barham
TC-AUV Chair

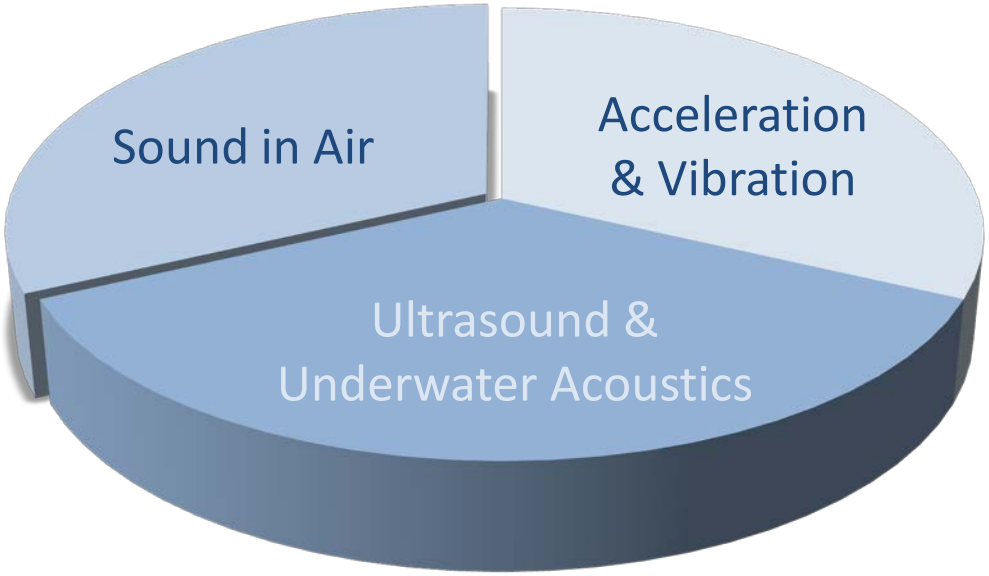
8th EURAMET General Assembly- Cavtat, June 2014

TC-AUV
Acoustics, Ultrasound and Vibration
EURAMET Technical Committee

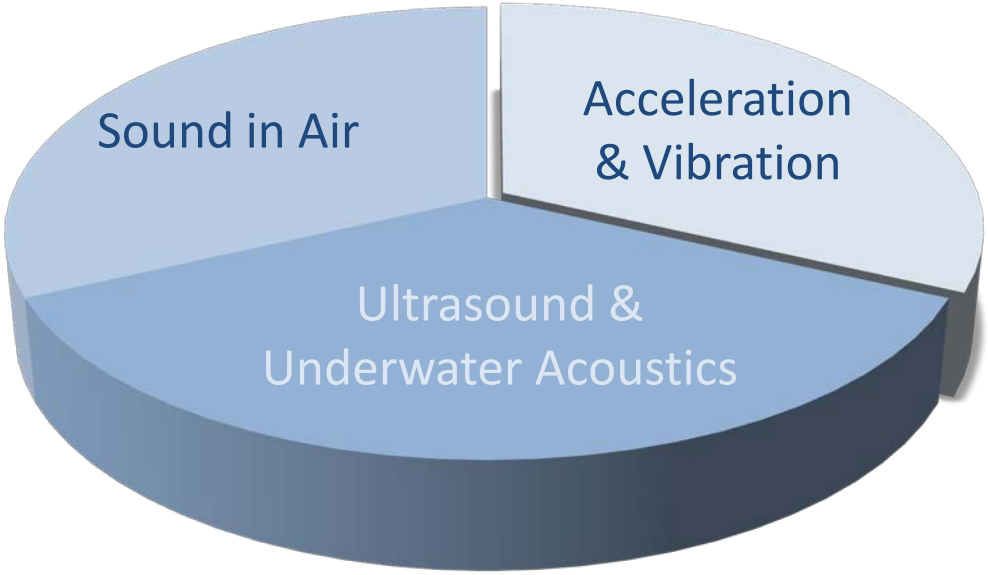
Scope of TC-AUV



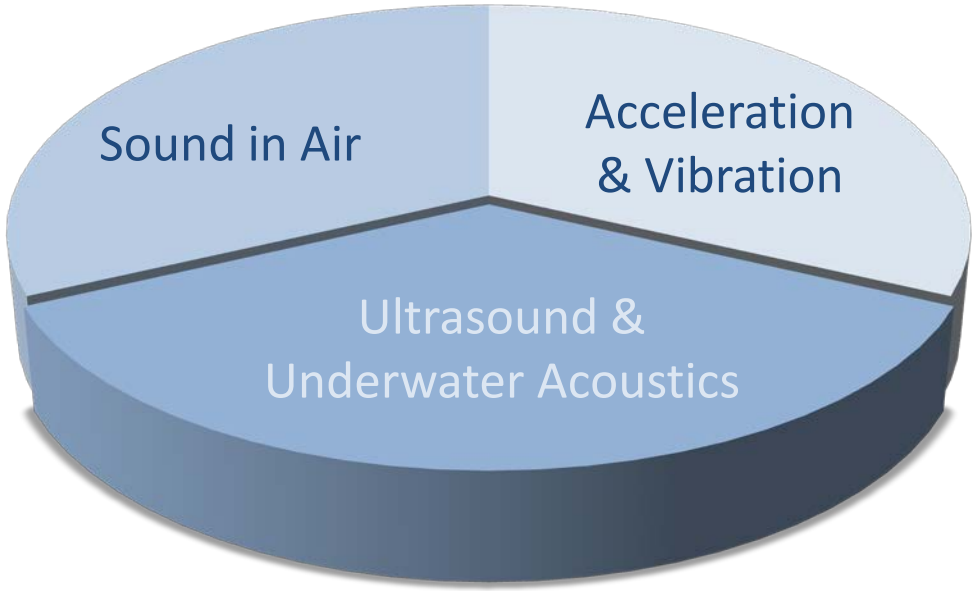
Scope of TC-AUV

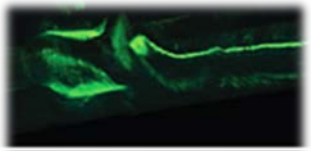


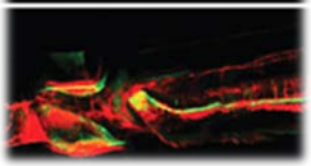
Scope of TC-AUV

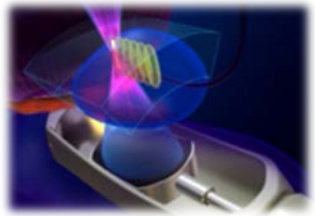


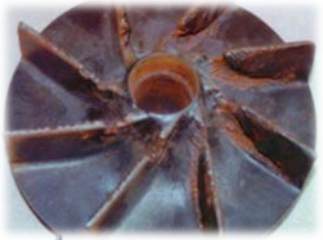
Scope of TC-AUV











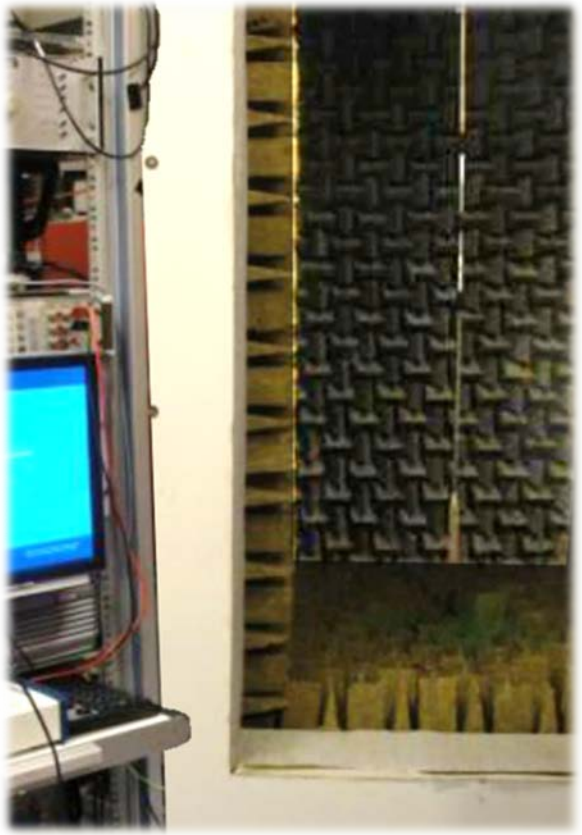
EMRP case study : *EARS* Project (HLT01)

Safety criteria and risk assessment methodology for non-audible sound (airborne ultrasound and infrasound) based on an evaluation of human perception thresholds using neuro-imaging techniques as indicators of perception

ears

EMRP *EARS :* Beyond state-of-the-art

- New primary standards established for sound pressure in the frequency range 20 kHz to 120 kHz
- Realised through the calibration of measurement microphones
- The world's first and only measurement capability providing traceability in this frequency range
- Would not exist without EMRP



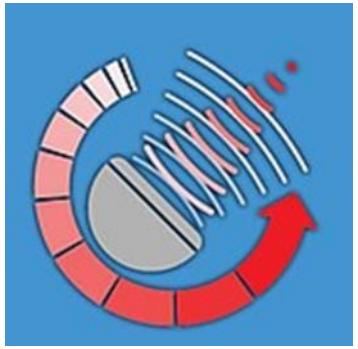
EMRP *EARS :* Creating impact

- Wolfson Microelectronics provide MEMS microphones to the consumer electronics market
- A high profile client and leading cell phone manufacturer had requirements to understand the performance envelope of MEMS microphones in the ultrasound region up to 100 kHz
- Secondary calibration methods traceable to the new primary standard provided a unique solution addressing the need

Feedback from Wolfson…
"We were able to use the excellent reports provided, almost verbatim. ***The client was extremely impressed*** *by the quality and clarity of reporting and content,* ***and considered the work to be definitive****. They raised no further questions or requests for further information from Wolfson.* ***We regard this as the perfect outcome*** *and would like to pass on our sincere thanks to those involved."*

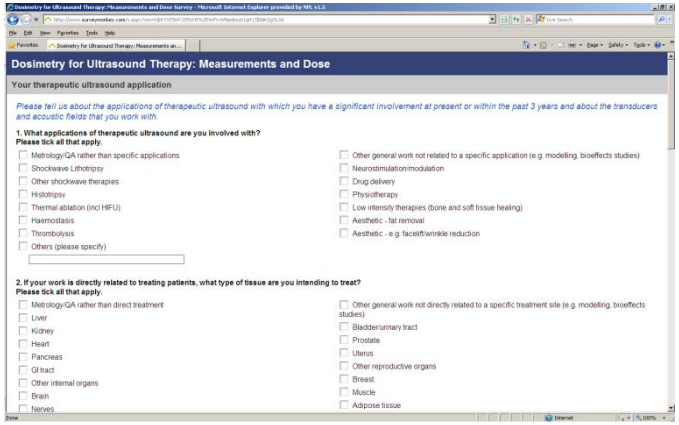
EMRP case study : *DUTy* Project (HLT03)

Develop the concept of **dose** for therapeutic ultrasound applications, and the metrology to underpin appropriate treatment planning and risk assessment, laying the foundations for new international standard and best practices



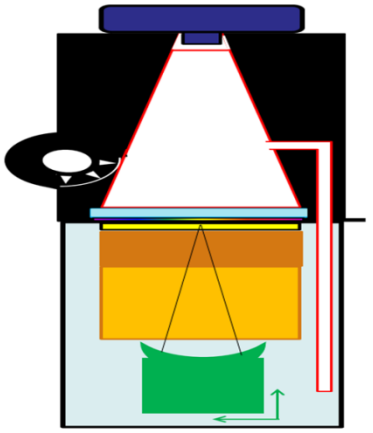
EMRP *DUTy :* Stakeholder engagement

- A web-based survey was established to elicit views across the scope of the project (concepts-metrology-standards)
- 120 responses with global coverage
- Indication that there exists a lack of consensus and some misunderstanding of dose concepts
- Majority are of the opinion that greater development and common understanding of dose will lead to significant benefits
- The survey has identified a wide stakeholder community to target for dissemination



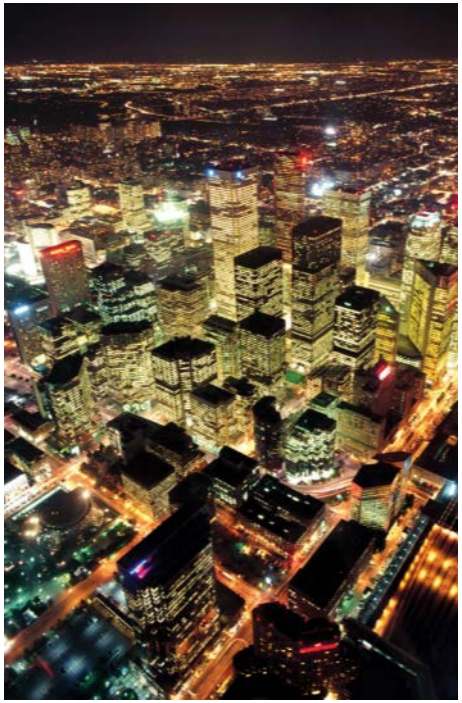
EMRP *DUTy :* Scientific excellence

- At the mid-point of the project DUTy has produced
  - 17 scientific papers published in leading peer review journals
  - 63 presentations and posters for conferences, meetings and symposia
- Established new calibration sources, transfer standards and measurement phantoms
- Provides input to 3 published and draft IEC Standards

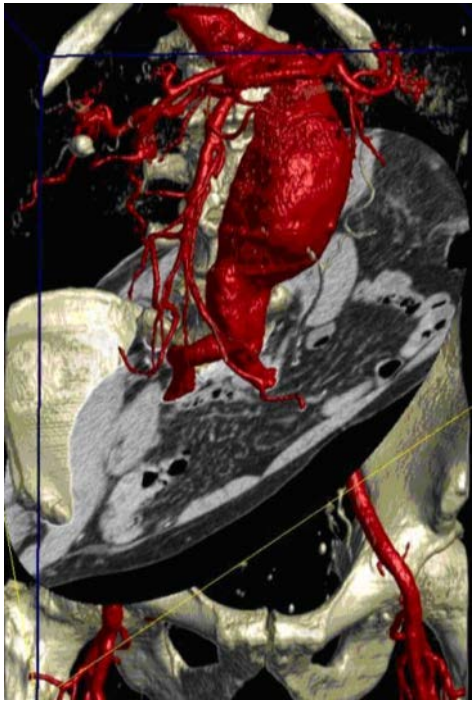


EURAMET
European Association of National Metrology Institutes

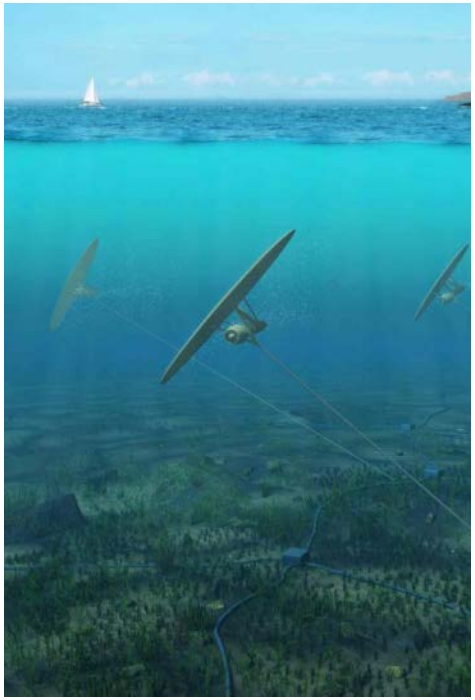
Links with EMPIR & Horizon 2020



Future Cities



Advanced medical imaging



Marine renewables

Digital technologies

Sustainable urban and marine environments

Innovation in industrial process control

Secure, clean and efficient Energy

Sensor networks


EURAMET
European Association of National Metrology Institutes

Thank you