



Study “Requirements on a universal ear-simulator”

Within the framework of the project „Metrology for a universal ear simulator and the perception of non-audible sound“, funded by the European Metrology Research Programme (EMRP), a universal ear simulator will be developed, with the aim to improve the relevance of metrology in modern audiological practices. To design the ear simulator that can be used for calibrating all types of earphones typically used for clinical audiological practice and for hearing screening on adults, young and newborn children, we kindly ask for your help. In a first step of the programme we intend to gather requirements from potential users of the device to be developed. Hence, we would like to ask you to briefly answer the following questions.

Further information can be found on the website of the project: <http://www.ears-project.eu/>.

Questions

1) Specification on age

- a) Thinking particularly about specifications relating to young and newborn children, what age ranges should be targeted with a universal ear simulator? Please specify the age range(s) in the table below. The specification of several age ranges is possible.

#	Age range
1	
2	
3	
4	
5	
6	
7	
8	

- b) Above which age can the specification on the acoustic impedance of adults generally be used?

<input type="checkbox"/>	Above years.
<input type="checkbox"/>	I don't know.

2) Specification on impedance

- a) What studies or references involving acoustic impedances data of the ear canal for different age ranges do you know to be available to support the specifications? If you can provide information, please specify the available studies or references.

Study / Reference	Age range

- b) What further studies or references do you know to be available to support the specification?

	Studies on	Specifications, Reference, etc.
<input type="checkbox"/>	Ear canal volume	
<input type="checkbox"/>	Energy reflectance	
<input type="checkbox"/>	Properties of ear canal	
<input type="checkbox"/>	Properties of ear drum	
<input type="checkbox"/>	Cross sections of ear canal	
<input type="checkbox"/>	Anatomic data of the head	
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		

3) How will a universal ear simulator be used in your research and clinical activities?

<input type="checkbox"/>	Calibration of stimuli for audiometric tests
<input type="checkbox"/>	Hearing aid fitting
<input type="checkbox"/>	
<input type="checkbox"/>	

4) Test signals

a) What test signals will be used?

		Specification of technical parameters (for example frequency range, duration, etc.)
<input type="checkbox"/>	Pure tones	
<input type="checkbox"/>	Speech	
<input type="checkbox"/>	Short-term signals	
<input type="checkbox"/>	Noise	
<input type="checkbox"/>		
<input type="checkbox"/>		
<input type="checkbox"/>		

b) Would you like to see to the new ear simulator(s) cover an extended frequency range? If yes, please specify the frequency range.

Note: Current devices typically provide an acoustic impedance simulation in the frequency range 100 Hz to 10 kHz.

<input type="checkbox"/>	No
<input type="checkbox"/>	Yes Frequency range:

5) What type of instruments/transducers do you wish to calibrate?

<input type="checkbox"/>	Supra-aural headphones
<input type="checkbox"/>	Circumaural headphones
<input type="checkbox"/>	Insert earphones
<input type="checkbox"/>	Hearing aid drivers
<input type="checkbox"/>	Ear canal probes
<input type="checkbox"/>	

6) Do you have further remarks or comments?

If you have any questions, do not hesitate to contact us!

Contact

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