

Classification of services in Acoustics, Ultrasound and Vibration

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¹Metrology Area: Acoustics, Ultrasound and Vibration

Branch: Sound in Air

NOTE: This service category covers CMCs for the calibration of measurement microphones and other sound pressure measuring devices, when used for acoustic measurements.

1. Measurement microphones

1.1 Pressure sensitivity level

1.1.1. Modulus: *frequency*

1.1.2. Phase: *frequency*

1.2 Free-field sensitivity level

1.2.1. Modulus: *frequency*

1.2.2. Phase: *frequency*

1.2.3. Directivity: *frequency*

1.3 Diffuse field sensitivity level

1.3.1. Modulus: *frequency*

1.3.2. Phase: *frequency*

1.4 Electrostatic actuator normalized response

1.4.1 Modulus: *microphone type, frequency*

2. Sound calibrators

2.1 Single frequency

2.1.1. Sound pressure level: *microphone type*

2.2 Multi-frequency

2.2.1. Sound pressure level: *microphone type, frequency*

3. Sound measuring instruments

3.1 Response

3.1.1. Sound pressure response level: *frequency*

3.1.2. Free-field response level: *frequency*

3.1.3. Diffuse field response level: *frequency*

3.1.4. Sound intensity response level: *frequency*

4. Ear simulators

4.1 Reference couplers or artificial ears

4.1.1. System response level: *frequency*

4.1.2. Acoustic impedance: *frequency*

4.2 Mechanical couplers

4.2.1. Force response level: *frequency*

4.2.2. Mechanical impedance: *frequency*

¹ For each service the measurand is indicated in Roman characters, and the parameter(s) in italic characters.

- 4.3 Impedance head force transducer
 - 4.3.1. Modulus of charge sensitivity: *frequency*
 - 4.3.2. Phase shift of charge sensitivity: *frequency*
- 4.4 Impedance head force measuring chain
 - 4.4.1. Modulus of voltage sensitivity: *frequency*
 - 4.4.2. Phase shift of voltage sensitivity: *frequency*
- 5. Reference sound sources
 - 5.1 Output
 - 5.1.1. Sound power level: *frequency*
 - 5.1.2. Directivity: *frequency*
- 6. Audiometers
 - 6.1 Response
 - 6.1.1. Air-conduction response level: *frequency*
 - 6.1.2. Bone-conduction response level: *frequency*
- 7. Reserved for future use
- 8. Reserved for future use
- 9. Reserved for future use
- 10. Reserved for future use

Branch: Sound in Water

- 11. Hydrophones (medical ultrasonic)
 - 11.1 Free-field sensitivity
 - 11.1.1. Modulus: *frequency*
 - 11.1.2. Phase: *frequency*
 - 11.2 Pressure sensitivity
 - 11.2.1. Modulus: *frequency*
 - 11.2.2. Phase: *frequency*
- 12. Hydrophones (underwater acoustics)
 - 12.1 Free-field sensitivity
 - 12.1.1. Modulus: *frequency*
 - 12.1.2. Phase: *frequency*
 - 12.2 Pressure sensitivity
 - 12.2.1. Modulus: *frequency*
 - 12.2.2. Phase: *frequency*
- 13. Ultrasound transducer with generator
 - 13.1 Output
 - 13.1.1. Ultrasonic power: *frequency*
 - 13.1.2. Directivity: *frequency*
 - 13.1.3. Ultrasonic pressure: *frequency*

14. Ultrasound transducer

14.1 Output

14.1.1. Electroacoustic radiation conductance: *frequency, r.m.s. voltage*

14.1.2. Directivity: *frequency*

14.1.3. Ultrasonic power: *frequency, r.m.s. voltage*

15. Reserved for future use

16. Reserved for future use

17. Reserved for future use

18. Reserved for future use

19. Reserved for future use

20. Reserved for future use

Branch: Vibration

NOTE: For this branch the CMCs are expressed in terms of the physical quantity of acceleration or angular acceleration. For sinusoidal vibration (e.g. primary vibration calibration in accordance with ISO 16063-11) the entries may also represent the calibration and measurement capabilities for derivatives such as velocity, displacement, angular velocity and rotation angle.

31 Acceleration measuring instrument

31.1. Frequency response

31.1.1. Modulus: *frequency*

31.1.2. Phase: *frequency*

31.2. Shock response

31.2.1. Modulus: *shock duration*

32 Acceleration calibrator

32.1. Acceleration output

32.1.1. Modulus: *frequency*

32.2. Shock output

32.2.1. Modulus: *shock duration*

33 Acceleration measuring chain / accelerometer

33.1. Charge sensitivity

33.1.1. Modulus: *frequency*

33.1.2. Phase: *frequency*

33.2. Shock charge sensitivity

33.2.1. Modulus: *peak value, shock duration*

33.3. Voltage sensitivity

33.3.1. Modulus: *frequency*

33.3.2. Phase: *frequency*

33.4. Shock voltage sensitivity

33.4.1. Modulus: *peak value, shock duration*

33.5. Current sensitivity

- 33.5.1. Modulus: *frequency*
 - 33.5.2. Phase: *frequency*
 - 33.6. Shock current sensitivity
 - 33.6.1. Modulus: *peak value, shock duration*
- 34 Angular acceleration measuring instrument
 - 34.1. Angular acceleration response
 - 34.1.1. Modulus: *frequency*
 - 34.2. Shock response
 - 34.2.1. Modulus: *shock duration*
- 35 Angular acceleration calibrator
 - 35.1. Angular acceleration output
 - 35.1.1. Modulus: *frequency*
 - 35.2. Angular shock output
 - 35.2.1. Modulus: *shock duration*
- 36 Angular acceleration measuring chain / accelerometer
 - 36.1. Charge sensitivity
 - 36.1.1. Modulus: *frequency*
 - 36.1.2. Phase: *frequency*
 - 36.2. Shock charge sensitivity
 - 36.2.1. Modulus: *peak value, shock duration*
 - 36.3. Voltage sensitivity
 - 36.3.1. Modulus: *frequency*
 - 36.3.2. Phase: *frequency*
 - 36.4. Shock voltage sensitivity
 - 36.4.1. Modulus: *peak value, shock duration*
 - 36.5. Current sensitivity
 - 36.5.1. Modulus: *frequency*
 - 36.5.2. Phase: *frequency*
 - 36.6. Shock current sensitivity
 - 36.6.1. Modulus: *peak value, shock duration*
- 37 Force measuring instrument for mechanical impedance and mobility measurements or modal testing
 - 37.1. Frequency response
 - 37.1.1. Modulus: *frequency*
 - 37.1.2. Phase: *frequency*
 - 37.2. Shock response
 - 37.2.1. Modulus: *shock duration*
- 38 Force measuring chain / force transducer for mechanical impedance and mobility measurements or modal testing
 - 38.1. Charge sensitivity

- 38.1.1. Modulus: *frequency*
 - 38.1.2. Phase: *frequency*
- 38.2. Shock charge sensitivity
 - 38.2.1. Modulus: *peak value, shock duration*
- 38.3. Voltage sensitivity
 - 38.3.1. Modulus: *frequency*
 - 38.3.2. Phase: *frequency*
- 38.4. Shock voltage sensitivity
 - 38.4.1. Modulus: *peak value, shock duration*
- 38.5. Current sensitivity
 - 38.5.1. Modulus: *frequency*
 - 38.5.2. Phase: *frequency*
- 38.6. Shock Current sensitivity
 - 38.6.1. Modulus: *peak value, shock duration*

- 39. Reserved for future use
- 40. Reserved for future use
- 41. Reserved for future use
- 42. Reserved for future use
- 43. Reserved for future use
- 44. Reserved for future use

- 45 Vibration signal conditioner
 - 45.1. Charge sensitivity:
 - 45.1.1. Modulus: *frequency*
 - 45.1.2. Phase: *frequency*
 - 45.2. Voltage sensitivity:
 - 45.2.1. Modulus: *frequency*
 - 45.2.2. Phase: *frequency*
 - 45.3. Current Sensitivity:
 - 45.3.1. Modulus: *frequency*
 - 45.3.2. Phase: *frequency*