

| HCS code | Measured quantity, Instrument, Measured Parameter | Range | CMC | Remarks |
|----------|---|---|--|--|
| AC 0 0 | ACOUSTICAL UNITS | | | |
| AC 1 0 | Sound pressure | | | 0 dB \triangleq 20 μ Pa (SPL) |
| | Microphone correction in combination with soundlevelmeter Lp = 94 dB Lp = 114 dB Lp = 124 dB | $f = 1000 \text{ Hz} \pm 0,1\%$ $f = 1000 \text{ Hz} \pm 0,1\%$ $f = 251,2 \text{ Hz} \pm 0,1\%$ | 0,15 dB 0,15 dB 0,12 dB | dB ref. 20 μ Pa Calibrator Class-LS Calibrator Class-LS Pistonphone Class-0L $\pm 0,1\%$ re the ISO-266 exact frequencies |
| | Microphone correction Lp = 94 dB Lp = 124 dB | $f = 1000 \text{ Hz} \pm 0,1\%$ $f = 10^{2,4} \text{ Hz} \pm 0,1\%$ | 0,10 dB 0,09 dB | dB ref. 20 μ Pa Calibrator Class-LS Pistonphone Class-0L |
| | Soundlevelmeter Lp = 94 dB Lp = 114 dB | $31,5 \leq f \leq 2000 \text{ Hz}$ $2000 < f \leq 4000 \text{ Hz}$ $4000 < f \leq 8.000 \text{ Hz}$ $8.000 < f \leq 16.000 \text{ Hz}$ | 0,19 dB 0,25 dB 0,34 dB 0,55 dB | dB ref. 20 μ Pa Multi Acoustic Calibrator Class-1 |
| | Microphone pressure sensitivity Lp = 94 dB Lp = 114 dB | $31,5 \leq f \leq 16.000 \text{ Hz}$ | 0,15 dB | dB ref. 20 μ Pa Sound pressure in coupler |

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| | Microphone pressure sensitivity | $31,5 \leq f \leq 25.200 \text{ Hz}$ | 0,15 dB | Electrostatic respons IEC-61094-6 |
| | Calibrator | 94 dB en 114 dB $f = 1000 \text{ Hz} \pm 0,1\%$ | 0,10 dB | IEC-60942 dB ref. 20 μPa |
| | Pistonphone | 124 dB $f = 251,2 \text{ Hz} \pm 0,1\%$ | 0,09 dB | dB ref. 20 μPa $f = 10^{2,4} \text{ Hz} \pm 0,1\%$ re. ISO-266 |
| | Total distortion | $5 \leq f \leq 20.000 \text{ Hz}$ | 0,01% | THD+N (measuring) |
| AC 2 0 | Transducers/Microphones (Electrical units) | | | |
| | Alternating voltage | | | |
| | Electrical part of Soundlevelmeter $31,5 \leq f \leq 25.200 \text{ Hz}$ | $15 \text{ dB} \leq L_p \leq 45 \text{ dB}$ $45 \text{ dB} < L_p \leq 94 \text{ dB}$ $94 \text{ dB} < L_p \leq 155 \text{ dB}$ | 0,24 dB 0,13 dB 0,09 dB | dB ref. 20 μPa 12 – 143 dB nominal microphone sensitivity -26 dB V/Pa 18 – 149 dB nominal microphone sensitivity -32 dB V/Pa 24 – 155 dB nominal microphone sensitivity -38 dB V/Pa IEC-61672-3 |

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| | Conditioner Amplifiers Vibration & Sound Charge IEPE / CCLD® / ICP® Voltage | 20 Hz ≤ f ≤ 100 kHz | 0,01 dB 0,01 dB 0,01 dB | dB ref. 1 μms ⁻² dB ref. 1 μV dB ref. 20 μPa |
| AM 0 0 | Acceleration, Velocity | | | |
| | Vibration sensitivity voltage or charge Acceleration (a) Velocity (v) | 3 Hz ≤ f ≤ 8 Hz 8 Hz < f ≤ 2000 Hz 2000 Hz < f ≤ 4000 Hz 4000 Hz < f ≤ 5000 Hz 5000 Hz < f ≤ 10 kHz | 1,3 % 1,1 % 1,9 % 2,6 % 3,4 % | 10μV/ms ⁻² to 10V/ms ⁻² 0,1pC/ms ⁻² to 1nC/ms ⁻² 1nC/ms to 10nC/ms 4 mV/ms to 40V/ms ⁻² ISO-16063-21 DIN 45669-1 |
| | Phase Shift (Δφ) | 3 Hz ≤ f ≤ 1000 Hz 1 kHz < f ≤ 10 kHz | 1,3° 1,4° | 1° = π/180° rad f > 1 kHz with mechanical filter |
| TF 2 1 | Frequency | | | |
| | Frequency (f) | 5 ≤ f ≤ 1000 Hz 1000 < f ≤ 10.000 Hz 10.000 < f ≤ 25.000 Hz 25.000 < f ≤ 100 kHz | 0,07 Hz 0,13 Hz 0,21 Hz 1 Hz | Generating |

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| | Frequency (f) | $5 \text{ Hz} \leq f \leq 30 \text{ Hz}$ $30 \text{ Hz} < f \leq 25.000 \text{ Hz}$ | 0,15 Hz 0,65 Hz | Measuring |

END

Notes:

1. CMC: Calibration and Measurement Capability is the smallest uncertainty of measurement the laboratory can provide to its customers, expressed as the expanded uncertainty having a coverage probability of approximately 95%. The expanded uncertainty U , is calculated according to EA-4/02 "Expression of the Uncertainty of Measurement in Calibration".
2. Calibration and Measurement in accordance with IEC-61672-3 are made in our lab under reference environmental conditions for periodic testing within the following ranges of environmental conditions: 80 kPa to 105 kPa for static air pressure, 20 °C to 26 °C for air temperature and 25% to 70% relative humidity.
3. Calibration and Measurement in accordance with IEC-60942-3 are made in our lab under reference environmental conditions for periodic testing within the following ranges of environmental conditions: 97 kPa to 105 kPa for static air pressure, 20 °C to 26 °C for air temperature and 40% to 65% relative humidity.
4. Reference environmental conditions for specifying the performance of sound level meters and sound calibrators are : 101,325 kPa for static air pressure, 23 °C for air temperature and 50% relative humidity.
5. Unless otherwise specified, uncertainties are given at actual laboratory environmental conditions.
6. Calibration and Measurement are only carried out within our laboratory.
7. Calibration and Measurement and Accept / Tolerance limits according to the latest standards of IEC-61672, IEC-60942, IEC-61260, ISO-16063-21, DIN 45669-1.
8. Calibration of 1", ½"en ¼"microphones.
9. Sound pressure is measured in a coupler.
10. The Free-field and Diffuse Field Responses characteristics of microphones are calculated using the measured actuator/pressure response and the correction coefficients provided by the manufacturer of the tested microphone.
11. Values listed with percent (%) are percent of reading of generated values.
12. IEPE stands for "Integrated Electronics Piezo Electric". Other proprietary names for the same principle are ICP®, CCLD®, Isotron®, Deltatron®, Piezotron®.
13. The generally applied calibration frequencies are Nominal Frequencies. The Exact Frequencies are in accordance with ISO 266 and equal to $10^{n/10}$ Hz, where n is an integer. Intermediate values are obtained by interpolation.