Final report on the key comparison CCAUV.A-K3 - DTU Orbit (27/09/2019)

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This is the final report for key comparison CCAUV.A-K3 on the sensitivity calibration of laboratory standard microphones in the frequency range from 31.5 Hz to 31.5 kHz. Fifteen national measurement laboratories took part in this key comparison and the Centro Nacional de Metrología (CENAM), Mexico, piloted the project with the assistance of the Danish Primary Laboratory for Acoustics (DPLA), Denmark. Four travelling standard microphones were circulated to the participants in two loops linked through the measurements of the CENAM and the DPLA. The participants' results in the form of sensitivity measurements (dB re 1 V/Pa) and full uncertainty budgets were collected throughout the project. Reference values for all four standard microphones have been calculated using a linear least squares minimization method. The differences between measurements and references have been averaged to obtain the degrees of equivalence per laboratory and interlaboratory. The deviations are all below 0.1 dB, except at 31.5 kHz. A frequency of 1000 Hz has been chosen to illustrate the degrees of equivalence. In all cases, the deviation is smaller than the associated uncertainty.

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