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Comparison of low frequency accelerometer measurement results obtained from three different laboratories.

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Abstract content (Max 300 words)
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The Vibration laboratory of the National Metrology Institute of South Africa (NMISA) has recently acquired new low frequency exciters during the recapitalization, in replacing the old low frequency exciters. These exciters will be used with the secondary vibration calibration system, also acquired recently, to disseminate measurements in low frequency ranges down to 0,2 Hz

Measurements results of a particular transducer obtained from different laboratories using their own systems were compared. A transducer which was calibrated at Spektra and NMISA, using the primary calibration method, was used as the transfer standard to compare with the results obtained using the new secondary setup.

The calibration systems used, are employed using different calibration methodologies, i.e. methods in compliance with ISO 16063-11 and ISO16063-21 standard documents. In practise one would not expect any significant differences between the calibration results obtained from different laboratories, though they might be using different exciter types, i.e. the air bearing and the ball bearing type for the measurement in low frequency.

A study was undertaken where calibration results from three different laboratory systems were compared. The results were then evaluated in order to identify if there was any significant difference.

The comparison protocol followed and the results thereof are presented in this paper. Conclusions will be made to identify best practises to be employed when performing accelerometer calibrations.

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