

New System for Realising the Sine Approximation Method in ISO 16063-11

Speaker/Author: Torben Licht
Briel & Kjaer A/S
Skodsborgvej 307
Naerum, DK-2850 Denmark
trlicht@bksv.com

Co-Authors: Sven Erik Salboel

Abstract

Some calibration laboratories have used primary vibration calibration by laser interferometry using quadrature outputs for the last 10-15 years. The ISO 16063-11 was published in 1999 and this has increased the interest further.

With the new compact laser interferometers the difficulties of optical alignment and adjustment has been practically eliminated.

To simplify the system further and automate it an advanced FFT analyser and dedicated software has been employed.

The filtering by the analyser is a more advanced form of sine approximation. It also permits the use of dual-sine excitation to improve the performance at high frequencies. Access to the quadrature outputs and simulation tools for testing the analysing part of the system makes it ideal for primary laboratories.

A system that has been realised following these ideas will be described. The evaluation of the system's sensitivity to different imperfections, e.g. noise and gain differences in the interferometer output, will also be reported.