# ISO 16063-41:2011-08 (E)

## Methods for the calibration of vibration and shock transducers - Part 41: Calibration of laser vibrometers

## Contents

Page


Foreword ..... iv

1 Scope ..... 1

2 Normative references ..... 1

3 Classification of laser vibrometers and principles of test methods ..... 2

4 Uncertainty of measurement ..... 4

5 Requirements for apparatus and other conditions ..... 5

6 Preferred amplitudes and frequencies ..... 14

7 Common procedure for primary calibration (methods 1, 2 and 3) ..... 15

8 Method using fringe counting (method 1) ..... 15

9 Method using minimum-point detection (method 2) ..... 16

10 Methods using sine approximation: method 3 (homodyne version) and method 3 (heterodyne version) ..... 18

11 Method using comparison to a reference transducer (method 4) ..... 20

12 Report of calibration results ..... 21

Annex A (normative) Uncertainty components in the primary calibration by laser interferometry of vibration and shock transducers ..... 31

Annex B (informative) Three versions of method 3 based on laser Doppler velocimetry ..... 36

Annex C (informative) Example of calculation of measurement uncertainty in calibration of a laser vibrometer ..... 40

Annex D (informative) Phase shift calibration of laser vibrometers ..... 42

Bibliography ..... 44