

# CALIBRATION SERVICES

- Shock & Vibration Calibration Services
- Accelerometers & Accelerometer/Amplifier Systems
- Traceable to NIST (National Institute of Standards & Technology)
- A2LA Accredited to ISO/IEC 17025-2005 [1]
- Compliant with ANSI/NCSL Z540-1-1994
- Certified to ISO 9001-2000



## Vibration Calibration Services

### VC17 – Comparison Calibration

Sensitivity calibration of the accelerometer or measurement system is performed by comparison to a NIST traceable precision standard accelerometer. The customer may select a reference frequency of measurement between 20 and 1,000 Hz; the default reference frequency is 100 Hz. The calibration report includes a frequency response plot from 20 Hz up to 10 kHz. A resonance frequency search to 50,000 Hz in dB is also performed, if applicable. Calibration data is presented on a one page certificate.

### VC11 – Low Frequency Vibration Calibration

1 Hz to 50 Hz Calibration is performed utilizing a Long Stroke Shaker. Calibration data is presented on a one page certificate.

### VC12 – Combined Calibration

Calibration service VC12 is a combination of calibration services VC17 and VC11 with calibration data presented in a one page certificate. The measurement frequency range is from 1 Hz to 10 kHz and does not include a resonance search.

### VC15 – System Sensitivity Adjustment

A calibration is performed and measurement system sensitivity is reported for the system, consisting of an accelerometer with associated cable and signal conditioning. Calibration data is presented in a one page certificate.

### VC14 – OEM Recalibration (EVM)

Calibration of engine vibration monitoring (EVM) accelerometers is performed in accordance with the original equipment manufacturer’s (OEM) calibration specifications. Calibration data is presented in a one-page certificate.

### Custom Calibrations

Custom calibration services are available on request.

# CALIBRATION SERVICES

## Shock Calibration Services

### SC20 – Comparison Calibration

The peak output of the test accelerometer is compared to the peak output of a reference standard accelerometer. Accelerometer sensitivity is measured by providing either 1 (SC20-1) or 5 (SC20-5) shock measurements from 20 g to 10,000g, as specified by the customer.

### SC22 – System Sensitivity Measurement Adjustment

A system sensitivity measurement is performed on the test accelerometer along with the signal conditioner that will be used with the accelerometer. As with the Comparison Calibration SC20, system sensitivity is measured by providing either 1 (SC22-1) or 5 (SC22-5) shock measurements from 20 g to 10,000g, as specified by the customer.

## Electronics & Systems Calibration Services

### VC18 - Calibration of Portable Calibrator

Calibration of a portable calibrator is performed with a NIST traceable precision standard accelerometer.

### Custom Calibrations

Custom calibration services are available on request.

### Calibration Reports

Most calibration service reports include a description of the Reference Standards used, calibration dates, temperature and humidity during the calibrations, traceability to the National Institute of Standards & Technology (NIST), and estimated uncertainty of the calibrations (see below).

## Calibration Equipment & Uncertainty Specifications

[1] All Calibrations Performed by Precision Labs  
A2LA Certificate #2405.01  
ISO 9001:2000 Certificate US-3242 (Intertek)

	VIBRATION High Frequency	VIBRATION Low Frequency		SHOCK
Method	Comparison	Comparison	Method	Comparison
Equipment	High Freq Air-Bearing Shaker	Long-Stroke Shaker	Equipment	Pneumatic Shock Calibrator
Frequencies	20 – 50,000 Hz	0.1 – 100 Hz	Shock g Range	20 – 10,000 g ( $\pm 10\%$ )
Acceleration	10g, 10 – 10,000 Hz	1g, 0.1 – 100 Hz	Pulse Shape	Approximate half-sine
Uncertainty (95%, k=2)	$\pm 1.5\%$ at 100 Hz Sensitivity $\pm 1.7\%$ 10 < f <= 100 Hz $\pm 1.5\%$ 100 < f <= 2500 Hz $\pm 2.7\%$ 2500 < f <= 10,000 Hz $\pm 4.7\%$ 10,000 < f <= 15,000 Hz	$\pm 1.7\%$ 0.1 < f <= 100 Hz	Uncertainty (95%, k=2)	$\pm 2.2\%$ 20 - 2000 g $\pm 2.9\%$ 2000 - 10,000 g