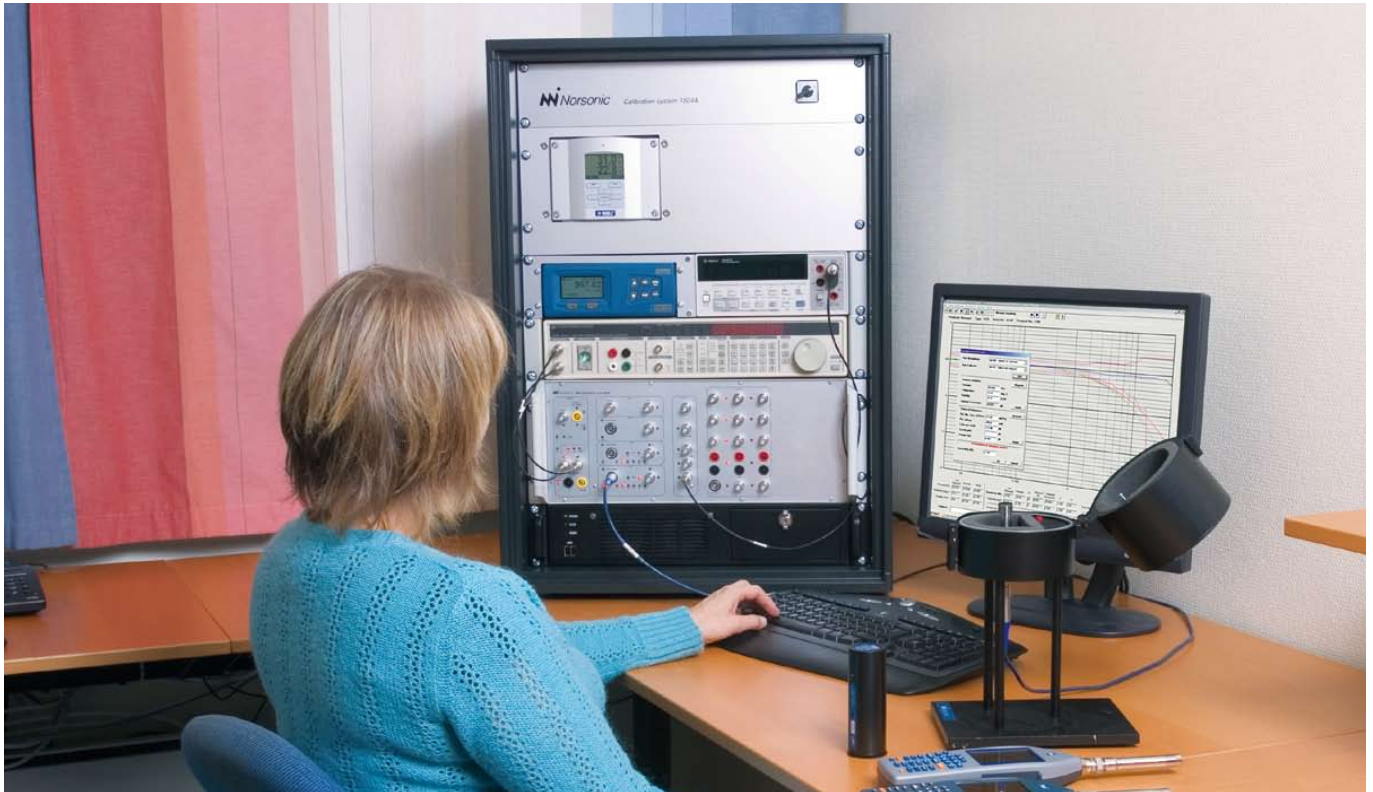




# Nor1504A Calibration System

for sound level meters, microphones and sound calibrators



- Frequency response calibration of microphones using electrostatic or acoustical method
- Sensitivity calibration of microphones using the insert voltage method ensures a high degree of accuracy
- Fast and accurate calibration of sound calibrators, pistonphones and associated barometers in accordance with IEC60942
- Sound level meter calibration in accordance with IEC61672, IEC60651, IEC60804, DIN45657, ANSIS1.4, ANSIS1.43 and BS7580
- Fast and accurate calibration of sound measuring instruments using three different interface modes; manual; semi-automated and fully automated
- Test of fractional octave filters in accordance with IEC61260 and IEC225
- Full test report generated
- Built-in self test features
- Turnkey system including all accessories needed.

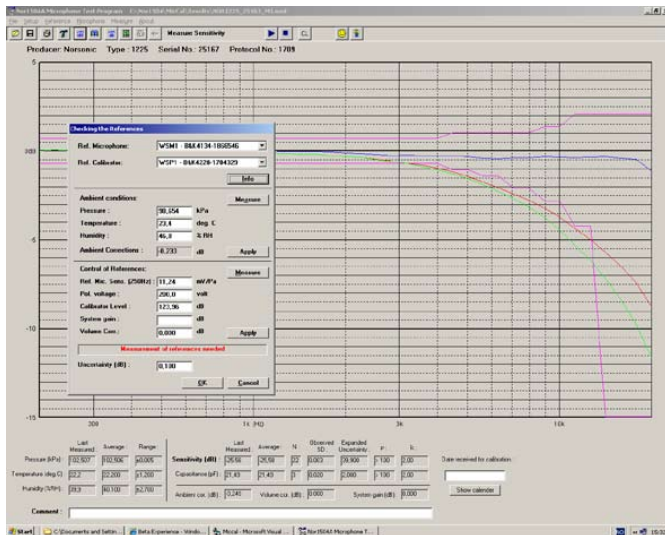
The calibration system Nor1504A is capable of calibrating virtually any type of sound measuring instruments, sound calibrators and microphones in accordance with applicable national and international standards.

The test system is operated by a MS-Windows bases PC controlling the signal generator, voltmeter, test unit and the device under test (DUT).

The computer also reads the barometer, the hygrometer and the thermometer which all are included with the system in order to provide the required environmental data in a fast and accurate manner for the calibration reports.

A calibration of a sound level meter is normally divided into two main parts: electrical calibration of the sound measuring instrument and calibration of the microphone. Eventually, an accompanying sound calibrator may be calibrated and used for an overall system check.

The measured results are automatically logged and used for an automatic generation of a calibration certificate in MS-word format. If needed, the certificate may be edited by the operator. Automatic generation of reported values minimize the risk for errors generated by the operator.



### Calibration of Sound Calibrators

- Sound level corrected for pressure, temperature and humidity
- Short term stability expressed in dB (option)
- Output frequency in Hz
- Total distortion in % (option).

When measurements are repeated, the expanded uncertainty as a combination of the uncertainty of the test system and the repeatability of the measurements are calculated. This includes the calculation of the standard deviations, degrees of freedom and coverage factor which are needed to estimate the 95% expanded uncertainty.

### Calibration of Microphones

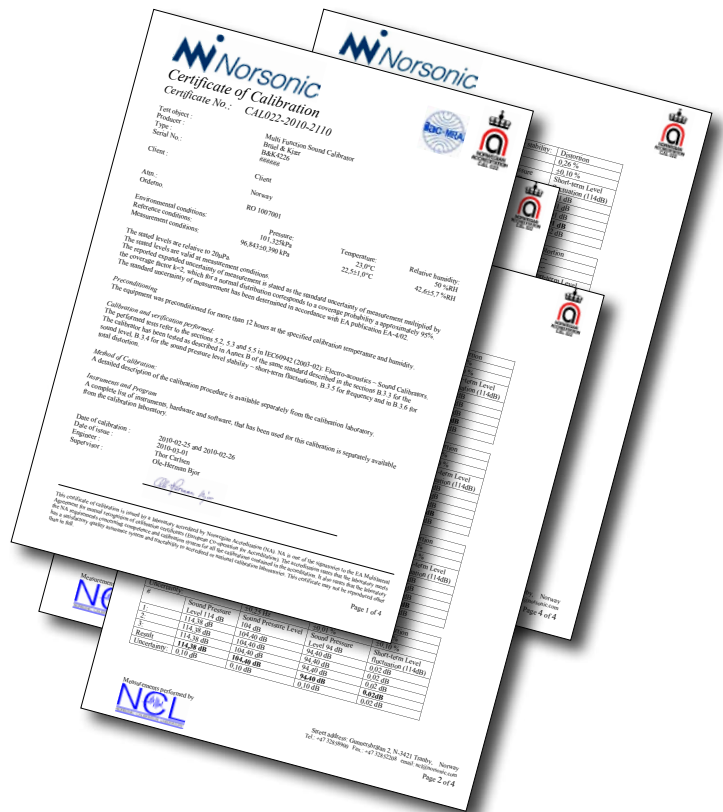
- Sensitivity of the microphone as mV/Pa and dB rel. 1V/Pa
- Frequency response using an electrostatic actuator in the frequency range 20-200 000 Hz
- Frequency response using an anechoic chamber in the frequency range 20-20kHz (option)
- The microphone cartridge capacitance [pF] (option)
- Acoustic low-frequency response down to 0,1 Hz (option).

The expanded uncertainty of the sensitivity measurements are calculated as a combination of the uncertainty of the test system and the repeatability of the measurements. This includes the calculation of the standard deviations, degrees of freedom and coverage factor which are needed to estimate the 95% expanded uncertainty.

### Verification of Sound Level Meters

The Periodic Verification of Sound Measuring Instruments can be performed in accordance with several national and international standards. This includes measurements of:

- Accuracy of input range selector
- Level linearity



- Spectral weighting networks A, B, C, Z, Lin and Flat
- F, S, and I time constants. Pulse measurement capability
- RMS detector capability
- Overload detector
- Inherent noise using microphone equivalent or acoustically insulated test vessel
- Integrating averaging functions Leq and SEL
- Noise dose
- 1/1 and 1/3 octave filters (option).

The results from the microphone and instrument calibration may be combined to validate conformance with standards for a complete sound level meter.

The calibration system Nor1504 may be configured to suit specified applications and consists typically of:

- Personal computer
- Voltmeter
- Actuator chamber with reference microphone and insert voltage preamplifier
- Temperature and humidity meter
- Barometer
- Signal generator
- Test unit Nor483B with microphone power supplies, amplifiers and filters
- Reference calibrator or pistonphone

Distributor: