

Tests list for calibration services for Sound Level Meters and Analyzers

All calibration services offered by Scantek Inc are traceable to SI (International System of Units) through standards maintained by NIST, NPL-England or PTB-Germany. All calibration services include before and after data at no extra cost.

*The basic calibration service is performed either using exclusively acoustical tests or a combination of electrical and acoustical tests.

Calibration using combined electrical and acoustical tests	Basic calibration*	Standard calibration
Acoustical tests		
Overall accuracy test (ANSI S1.4 # -/IEC61672-3 #9)	x	x
A-weighted global acoustical response (ANSI S1.4 # 6.2.1/IEC61672-3 #11)	x	x
Separate calibration of the microphone (if possible)		x (type 1 only)
Dosimeter (ANSI S1.25 (#7.7)): Exponent circuit and integrator: linearity test, with ER=5 (or the one available)	x	x
Electrical tests		
1. Tests according to ANSI S1.4 - 1983 (R2001) / IEC 651: 1979		
Input Amplifier Test: Gain Step Test/Amplifier Setting (ANSI S1.4 # 5.3);		
- performed at 1 kHz	x	x
- performed at 31.5 Hz and 8 kHz		
Level Linearity Test (ANSI S1.4 # 6.9 & 6.10);		
- performed at 1 kHz	x	x
- test performed at 31.5 Hz and 8 kHz		x
Weighting Network Tests: A, C, Lin/Flat Network (# 6.2.1) (for the networks present)		x
Overload Detector Test: A-Network (ANSI S1.4 # 8.3.1)		x
Fast And Slow Overshoot Test (ANSI S1.4 # 8.4.1)		
- performed on reference range, at one level		x
- on reference range, repeated at one or more lower levels		x (type 1)
Fast And Slow Single Tone Bursts Test (ANSI S1.4 # 8.4.1)		
- performed on reference range, at one level	x	x
- on reference range, repeated at one or more lower levels		x (type 1)
F/S/I Test: Steady State Response (ANSI S1.4 # 6.4)	x	x
Impulse Test: Single Tone Burst (ANSI S1.4 # 8.4.3 part 1)		
- performed on reference range, one level		x
- on reference range, repeated at one or more lower levels		x (type 1)
Impulse Test: Continuous Sine Wave Bursts ANSI S1.4 (# 8.4.3 part 3)		
- performed on reference range, one level		x
- on reference range, repeated at one or more lower levels		x (type 1)
Peak Detector Tests: Single Square Wave Burst (ANSI S1.4 # 8.4.4)		x
RMS Detector Test: Continuous Sine Wave Burst (ANSI S1.4 # 8.4.2)		
- performed on reference range, one level		x
- on reference range, repeated at one or more lower levels		x (type 1)
RMS Detector Test: Crest Factor Test (ANSI S1.4 # 8.4.2)		
- performed on reference range, one level	x	x
- on reference range, repeated at one or more lower levels		x (type 1)
2. Tests according to ANSI S1.43: 1997(R2002) / IEC804: 1985		
Level Linearity Test (ANSI S1.4 # 8.3.3)		x
Time Averaging Test (ANSI S1.4 # 8.3.2)	x	x
3. Tests according to IEC61672 - 3: 2006 : these tests are an alternative for the tests performed in accordance w/ IEC651 & IEC 804 (or their ANSI equivalent), listed above at 1 & 2		
Self-noise test (#10)		x
Frequency Weighting (#12): A		x
Frequency Weighting (#12): C		x
Frequency Weighting (#12): Z	x	x
Frequency & time Weightings @ 1 kHz (#13)		x
Level Linearity on the Reference range Level (#14)		
- performed at 8 kHz	x	x
- performed at 31.5 Hz, 1 kHz and 8 kHz		x
Level Linearity Including The Level Range Control (#15)	x	x
Tone-Burst Response (#16)		x
Peak C Sound Level (#17)		x
Overload Indication (#18)		x
Tests of filters: relative attenuation according to the applicable standard		
- digital filters: relative attenuation for selected filters (IEC 1260 / ANSI S1.11)		x (2 upper filters)
- analog filters: relative attenuation for all filters (IEC225)		x

Calibration using acoustical tests only	Basic calibration*	Manufacturer level calibration
1. Tests according to ANSI S1.4 - 1983 (R2001) / IEC651: 1979 (Clause # ANSI)		
Overall accuracy test at 1kHz	x	x
C-weighted global response (# 6.2.1)	x	x
A-weighted global response (# 6.2.1)	x	x
Input Amplifier Test: Gain Step Test/Amplifier Setting (# 5.3); - performed at 1 kHz	x	
Level Linearity Test (# 6.9 & 6.10); - performed at 1 kHz (reduced test)	x	
Fast And Slow Single Tone Bursts Test (# 8.4.1), performed on reference range, at one level	x	
F/S/I Test: Steady State Response (# 6.4)	x	
RMS Detector Test: Continuous Sine Wave Burst (# 8.4.2)	x	
2. Tests according to ANSI S1.43 - 1997(R2002)/ IEC804: 1985		
Level Linearity Test (# 8.3.3)	x	
3. Tests according to IEC61672 - 3: 2006 : these tests are an alternative for the tests performed in accordance w/ IEC651 & IEC 804 (or their ANSI equivalent), listed above at 1 & 2		
Overall accuracy test at 1kHz	x	x
Frequency Weighting (#11): A	x	x
Level Linearity on the Reference range Level (#14) - performed at 1 kHz (reduced tests)	x	
Level Linearity Including The Level Range Control (#15) (reduced tests)	x	x
Tests of dosimeter functions according to ANSI S1.25 - 1997		
Exponent circuit and integrator: linearity test (#7.7) tested for ER=5	x	
Absolute Sensitivity test (# 7.2.1) alternative to the above Overall accuracy per ANSI S1.4)	x	

Tests list for calibration services for Personal Dosimeters:

When possible, dosimeters are tested as Sound Level Meters with additional functions, as detailed in the tables above. For other cases, we will perform the tests listed below.

Calibration using acoustical tests only	Basic calibration*
Tests of dosimeter functions according to ANSI S1.25 - 1997	
- Frequency response: Low frequency test (#7.2.2) tested for one value of ER (3,4,or 5)	x
- Exponent circuit and integrator: linearity test (#7.7) tested for one value of ER (3,4,or 5)	x
- Absolute Sensitivity test (# 7.2.1)	x

Custom services:

Test of dosimeter functions according to IEC61252-2002		
Full tests of 1/1 & 1/3 octave band filters according to IEC61260 (equivalent to ANSI S1.11)	Basic calibration*	Standard calibration
Relative attenuation		
two filters on the high end of the frequency domain are tested;	x	
filters between 20 Hz and 20 kHz are tested		x
Filter integrated response		
Linear operating range :		
the filters on the extremes of the frequency domain are tested; 5 dB level steps		x
filters on the extremes of the frequency domain are tested; 10 dB level steps	x	
Real time operation: filters between 20 Hz and 20 kHz are tested	x	x
Anti Alias filter		
two filters on the high end of the frequency domain are tested;	x	
filters between 20 Hz and 20 kHz are tested		x
Summation of output signals		
the three filters on the high end of the frequency domain are tested;	x	
filters between 20 Hz and 20 kHz are tested		x
Flat frequency response: 20 Hz- 20 kHz		x