DEWESoft®
measurement innovation

SOUND POWER

SOUND SOURCE RATING AND COMPARISON
SOUND DESIGN

SOUND PRESSURE BASED

RATE AND COMPARE DIFFERENT NOISE SOURCES WITH EASE AND EXACTNESS WHILE SIMULTANEOUSLY MONITORING ANY NUMBER OF MEASURED PARAMETERS.

INTRODUCTION

Producers of almost any kind of machinery or devices are required by regulations, e.g. the Noise and machinery directive of EU (2006/42/EC), to measure and declare the sound power of their products - anything from toys, printers and white goods to industrial tools and construction machinery. Sound Power is also used in engineering tasks such as product sound design.

Dewesoft Sound Power solution - data acquisition unit, microphone and PC-based software - provides sound power measurements with familiar, distinctive user interface.

FUNCTIONALITY

Sound sources such as machinery radiates acoustic power and this creates sound pressure. Sound pressure the measurable effect, but sound power is the cause. Sound power is useful to quantify the noise of a product.

Sound Power is defined as the total sound energy radiated by a sound source per unit time - the unit of measurement is the watt. The sound power level is the preferred measurement as it is consistent, comparable, and more useful for noise control engineering – results are usually reported in dB.

APPLICATIONS

- Sound power rating and comparison in accordance with multiple ISO standards, e.g. for product noise labelling
- Production audits and high-volume testing
- Preventive and reactive sound design of products

KEY FEATURES

- Multiple standards with a single solution
- Fully compliant with relevant sound power standards ISO 3741, ISO 3743-1, ISO 3743-2, ISO 3744, ISO 3745, ISO 639-3, ISO 639-4, ISO 639-5, ISO 639-6
- Step-by-step procedure
- Guides you through the entire measurement procedure with the clear and comprehensive user interface of Dewesoft X software
- Real time and offline calculation
- All calculated parameters are available during measurement as well as offline; rapid calculation of correction factors K1 (background noise measurement), K2 (room correction with integrated RT60 module), C1, C2 and C3 (deviations due to meteorological reasons - temperature and barometric pressure); support for raw time domain data storing and offline sound power calculation
- Heavy machinery procedure
- Designated measurement procedures for heavy machinery
- Reporting template
- After conducting the measurement, present your data in the pre-defined yet flexible report template

LEARN MORE:
https://dewesoft.com/applications/acoustics/sound-power

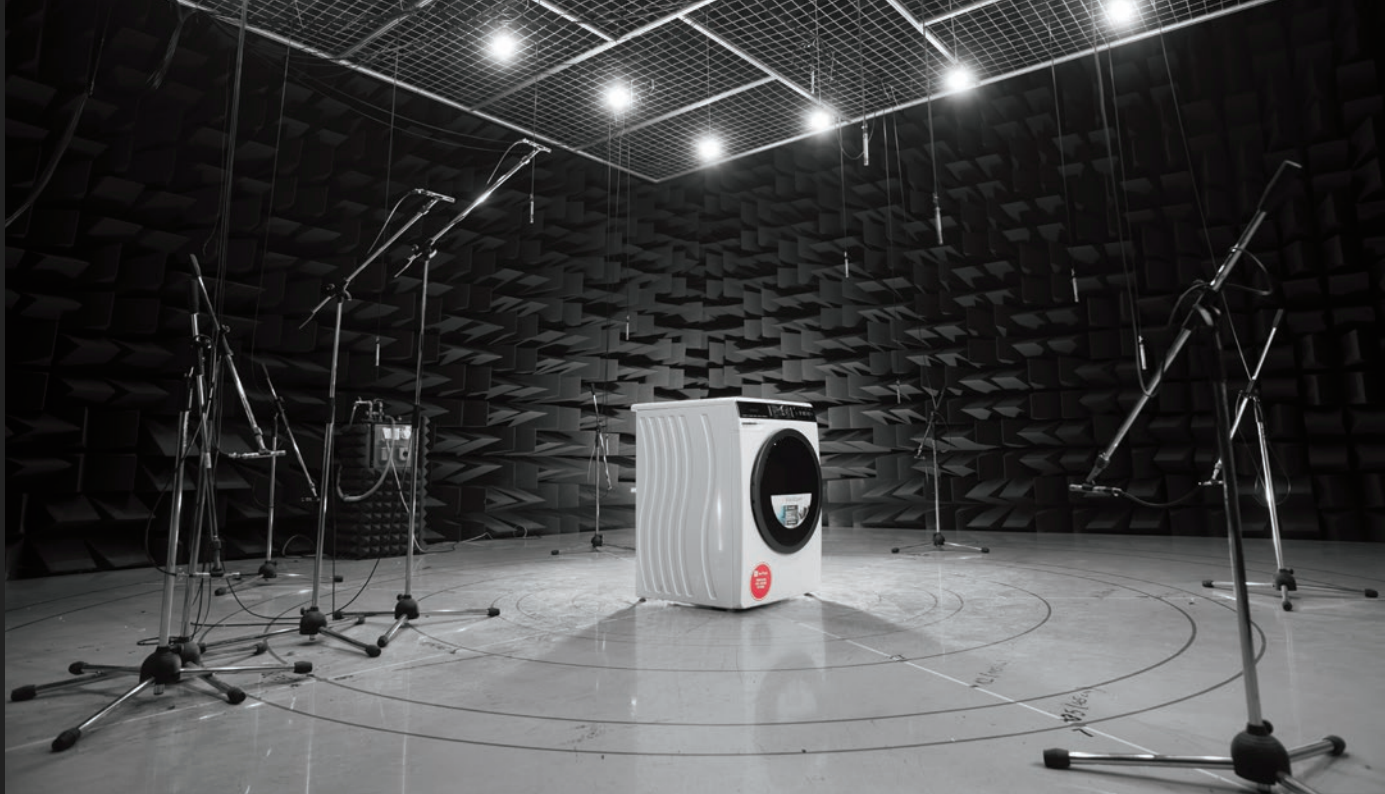# DEWESoft®
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DEWESOFT WORLDWIDE:
Austria, Brasil, China, Denmark, France, Germany, Hong Kong, Italy, India, Russia, Singapore, Sweden, UK, USA - partners in more than 50 countries

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https://dewesoft.com/support/distributors

SOFTWARE: DEWESoft X3

Minimum

Processor:	Intel Atom Z3740
RAM:	2GB
Storage:	1GB of hard drive for software + Storage for data (32GB)
Graphic:	Open GL 4.0 support
OS:	Windows 7 (32bit - 64bit)
Other:	USB 2.0 or higher

Recommended

Processor:	Intel Core i5, 1.9 GHz
RAM:	4GB
Storage:	1GB of hard drive for software + Storage for data (32GB)
Graphic:	Open GL 4.0 support
OS:	Windows 7 (32bit - 64bit) or Windows 10 (64bit)
Other:	USB 2.0 or higher

*NOTE: These recommendations are intended as a reference point. DEWEsoft X3 easily works on lower-end computers, but it is always advised to use a stronger computer. For larger systems, please contact support@dewesoft.com for advice on the computer needed your application.

MICROPHONE

Model	46AE - ½" CCP Free-field Standard Microphone
Frequency range (±1 dB)	5-10 kHz
Frequency range (±2 dB)	3.15-20 kHz
Dynamic range lower limit with GRAS preamplifier	17 dB(A)
Dynamic range upper limit with GRAS CCP preamplifier	138 dB
Set sensitivity @ 250 Hz (±2 dB)	50 mv/Pa
Set sensitivity @ 250 Hz (±3 dB)	/
IEC 61094-4 Compliance	WS2F
Temperature range, operation	-30 to 85 °C
Temperature range, storage	-40 to 85 °C
TEDS	Yes
Weight	33 g

HARDWARE: DAQ SYSTEM - SIRIUS 8XACC

Input types	Voltage, IEPE	
ADC Type	24bit delta-sigma dual core with anti-aliasing filter	
Sampling Rate	Simultaneous 200kS/sec	
Dual Core Low Range	**±10V (±500mV)**	**±500mV (NA)**
Input Accuracy (Dual Core)	±0.1% of reading ±10(1)mV	±0.1 of reading ±1(NA)mV
Dynamic Range@10kS (Dual Core)	140 dB (160 dB)	135 dB (NA)
Typ. SNR@50kS (Dual Core)	107 dB (125 dB)	100 dB (NA)
Typ. CMR @ 50Hz/1kHz	140/120 dB	140/120 dB
Gain Drift	Typical 10 ppm/K, max. 30 ppm/K	
Offset Drift	Typical 0.5 µV/K + 2 ppm of range/K, max 2 µV/K + 10 ppm of range/K	
Gain Linearity	<0.02%	
Inter Channel Phase-mismatch	0.02° * fin [kHz] + 0.1° (@ 200 kS/sec)	
Channel Cross talk	>160 dB @ 1kHz	
Input Coupling	DC, AC 0.1 Hz,1Hz	
Input Impedance	1 MΩ (270kΩ for AC coupling ≥ 1Hz) in parallel with 100pF	
Overvoltage Protection	In+ to In-: 50 V continuous; 200V peak (10msec)	
IEPE mode		
Excitation	2, 4, 8, 12, 16 or 20mA	
Compliance voltage	25 Volt	
Output Impedance	>100 kΩ	
Sensor detection	Shortcut: <4Volt; Open: > 19Volt	
Counters (ACC+ type only)		
Inputs	1 digital counter input, 3 digital inputs, Fully synchronized with analog data	
Counter Modes	counting, waveform timing, encoder, tacho, gear-tooth sensor	
Additional Specifications		
Input connector BNC	BNC	
TEDS support	IEPE mode only	

ORDERING INFO

DEWESOFT SOUND POWER 4
- DEWESoft SP: sound power plugin
- SIRIUSm-4xACC: Sirius mini, 4 Channels
- 67HA-04: G.R.A.S. 1m 4 ch. CCP Sound Power Hemisphere
- 42AG: G.R.A.S. Multifunction Sound Calibrator, Class 1

DEWESOFT SOUND POWER 10
- DEWESoft SP: sound power plugin
- 2x SIRIUS-8xACC: Sirius, 16 Channels
- 67HA-05: G.R.A.S. 1m 10 ch. CCP Sound Power Hemisphere
- 42AG: G.R.A.S. Multifunction Sound Calibrator, Class 1

DEWESOFT SOUND POWER 20
- DEWESoft SP: sound power plugin
- 3x SIRIUS-8xACC: Sirius, 24 Channels
- 67HA-06: G.R.A.S. 1m 20 ch. CCP Sound Power Hemisphere
- 42AG: G.R.A.S. Multifunction Sound Calibrator, Class 1

OPTIONAL
- 67HB-04: G.R.A.S. 2m 4 ch. CCP Sound Power Hemisphere
- 67HB-05: G.R.A.S. 2m 10 ch. CCP Sound Power Hemisphere
- 67HB-06: G.R.A.S. 1m 20 ch. CCP Sound Power Hemisphere
- AL0006: G.R.A.S. Tripod, general purpose, high quality
- AL0008: G.R.A.S. 1/2" Microphone Holder, POM