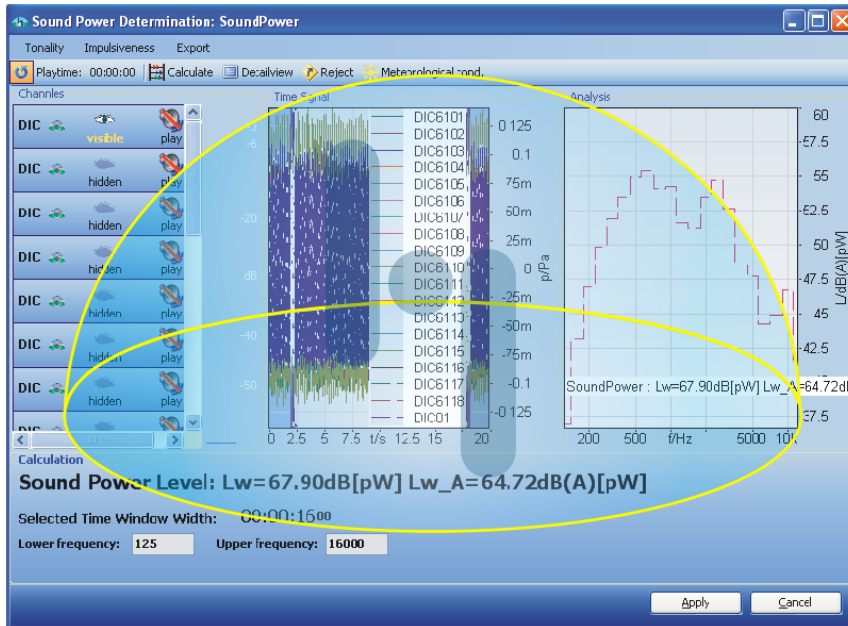


SoundPower (Code 4904)

Software for determining the sound power level according to ISO 7779



SoundPower

is an extremely elegant and user-friendly software solution for determining the sound power and sound pressure level of, for example, office, IT or telecommunications devices and household appliances.

Users are guided through the standard procedures for compliance with the international standards, so they can fulfill the legal requirements quickly and smoothly. Furthermore, of course, SoundPower also allows user-specific variations from the standardized solutions.

Apart from ensuring the compliance with applicable standards, SoundPower also makes the measured audio signals available for playback and for further processing with the ArtemiS analysis software, for example for psycho-acoustic analysis.

Features

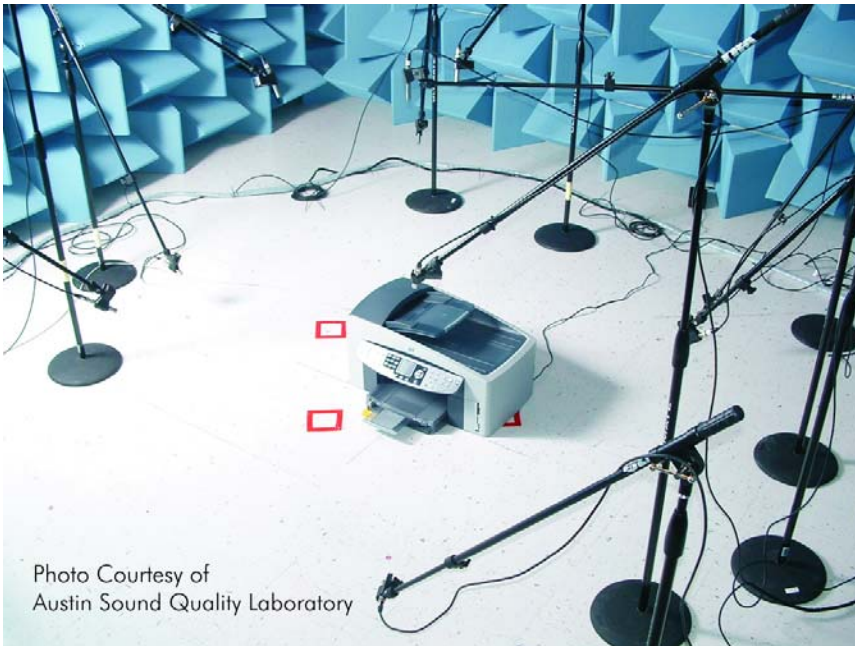
- Software solution for the standards-compliant determination of sound power levels
- The following standards are supported:
 - ISO 7779:** Determination of sound power and sound pressure level
 Detection of tone-to-noise ratio and impulsive noise (see ECMA-74)
 - ISO 3744:** Standard measurement procedure with accuracy class 2 (measurement of the sound power level in a mainly free sound field above a reflecting surface)
 - ISO 3745:** Determination of sound power levels of noise sources using sound pressure. Precision methods for anechoic and hemi-anechoic rooms
 - ISO 11201:** Standard measurement procedure with accuracy class 2; measurement at the positions of the operator and a bystander (measurement of the sound pressure level in a mainly free sound field above a reflecting surface)
 - ISO 9296:** Guideline for the declaration of sound power levels (see ECMA-109)
- Safe proceeding with wizards guiding the user through the measurement and calculation procedures
- Convenient project management using cross-project templates in order to avoid unnecessary measurement repetitions
- Time-saving work thanks to the storage of calibration data, measurements of background noise and environment correction values for other projects
- Quick measurement preparation thanks to automatic frontend detection and convenient sensor calibration
- Easy detection of creeping changes of the measurement setup by means of a calibration and measurement history
- Precise measurement control via playback of the audio signals
- Customization by user-specific cutting of audio signals
- Good overview thanks to the presentation of all individual measurements in one window, so entire series

of measurements can be compared at a glance

- Additional benefits by exporting audio signals to ArtemiS for the optimization of sound quality
- A wide range of custom documentation possibilities thanks to automatic report generation in MS Word

Applications

- Standards-compliant determination of sound power and sound pressure level of, for example, office, IT or telecommunications devices and household appliances
- Sound design, troubleshooting and Quality control



Exemplary arrangement of the microphones during a sound power measurement

SoundPower

Hardware manufacturers, for example in the IT or telecommunications industry, are legally bound to state the sound power of their devices according to international standards if the products are to be sold within the EU.

With SoundPower, HEAD acoustics is offering an outstandingly fast and elegant software solution for this purpose. The standards-compliant sound power determination with SoundPower is based on the international standards ISO 7779, ISO 3744, ISO 3745 and ISO 11201 (see ECMA-74) as well as ISO 9296 (see ECMA-109) for the standards-compliant declaration of sound pressure and sound power levels.

Wizards guide the user through the prescribed procedures quickly and safely, beginning with the measurement setup and the calibration, continuing with the actual measurement and ending with the report generation. Of course, user-specific measurement procedures differing from the standard procedures are possible as well. All settings and preparation measurements (e.g. corrections of background noise and environment corrections) are stored in a cross-project location, so they can be reused for future measurements. This avoids unnecessary repetitions and helps to discover long-term changes of the measurement setup and to document a proper system state.

Thanks to the convenient user interface, users always keep an overview of all relevant data, especially when different operating states of a device are to be measured. For example, several measurements can be displayed together in one window, so they can be easily compared.

Besides the determination of sound power and sound pressure levels, manufacturers can also use the measured audio signals to optimize the sound quality of their products. In connection with the ArtemiS analysis software, the SoundPower measurements can be further processed, for example with psychoacoustic analysis functions.

Using Templates

For the measurement of the sound pressure level and the determination

of the sound power level, different measurement conditions must be taken into account. Therefore, SoundPower provides separate templates for both purposes, making configuration parameters, calibration values, results of background noise measurement and environment correction etc. available for future projects.

Preparing the Measurement

SoundPower automatically detects the multi-channel frontends supported by HEAD acoustics and provides convenient configuration functions.

Automatic Calibration

Guided by a software wizard, the calibration of the sensors can be done quickly and easily, even if many channels are used.

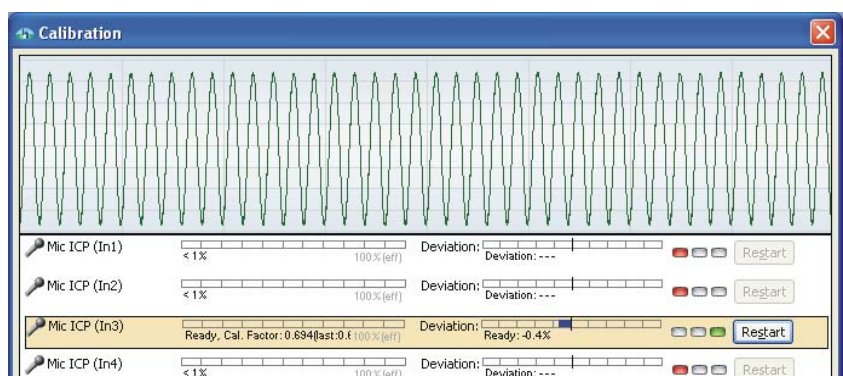
In an overview window, the user can see all connected sensors, and all he has to do is connect the calibrator to each of them one by one. SoundPower automatically displays the calibration value and the deviation from the previous calibration. All calibration data can be saved in a history file and reused at any time in the future.

Correction of Background Noise

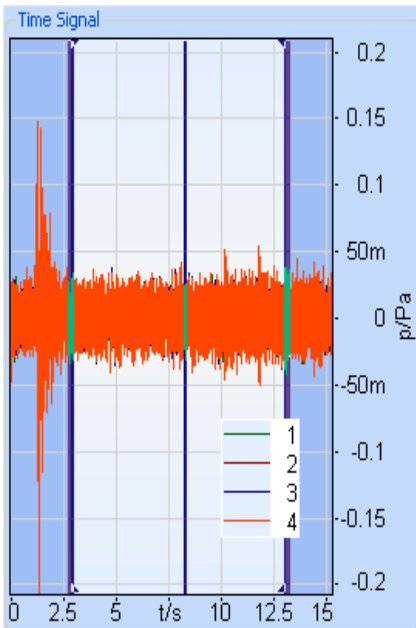
This procedure, too, is done quickly and safely with the help of a software wizard. The audio signal of the background noise is provided in real time, so afterwards the user can immediately cut it to the relevant section. For verification, the measurement can be played back immediately.

Environment Correction

Just like for the background noise correction, the measurements required for the correction for characteristics of the



Easy-to-use tool for calibrating large numbers of sensors



With the cutting function, the time signals can be adapted individually before the calculation.

measurement room or environment can be played back, custom-cutted and saved for future use.

Determining the Sound Pressure and Sound Power Level

For this purpose, SoundPower provides a solution that is especially suitable for the measurement of different operating states of a device. The user can decide which and how many measurements are automatically displayed in an overview window, from which he can then determine the sound power or the sound pressure level with one mouse click.

The determination of tonality (tone-to-noise ratio or prominence) and impulsive noise as prescribed in the ISO 7779 standard can be performed with a mouse click as well. All results are immediately visible in the overview window, so even after a large number of measurements the results can be easily compared at a glance.

Automatic Report Generation

Result reports are generated automatically in MS Excel in compliance with ECMA-109.

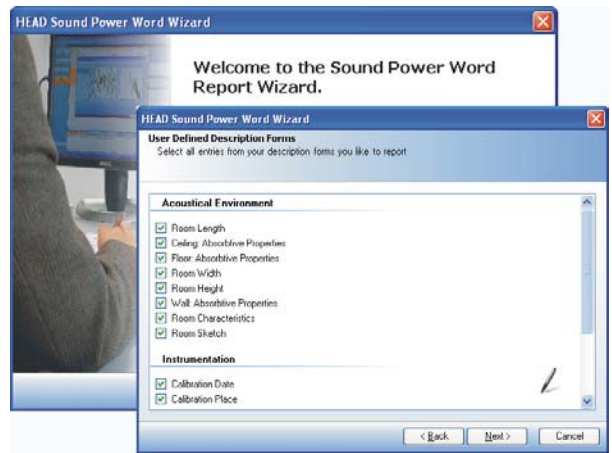
The results can be used to determine the sound power of device groups according to the ISO 9296 standard.

Export

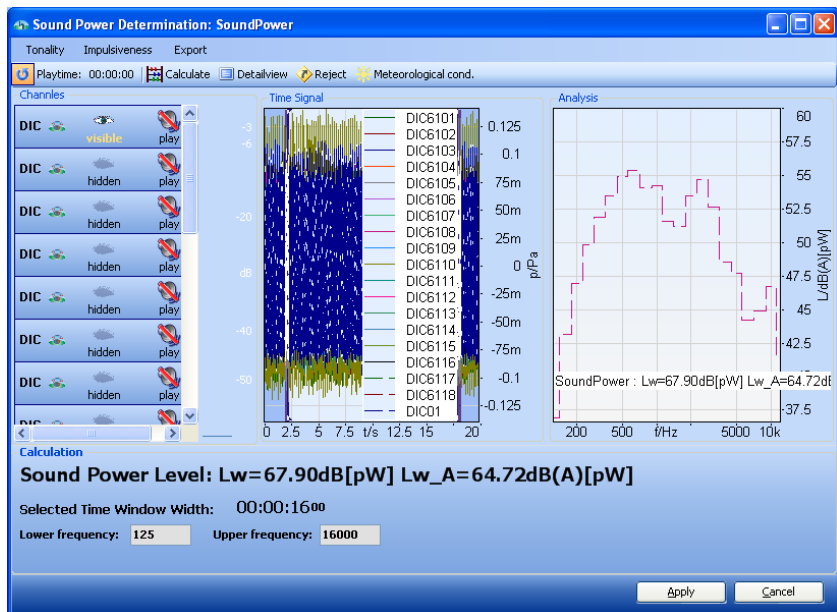
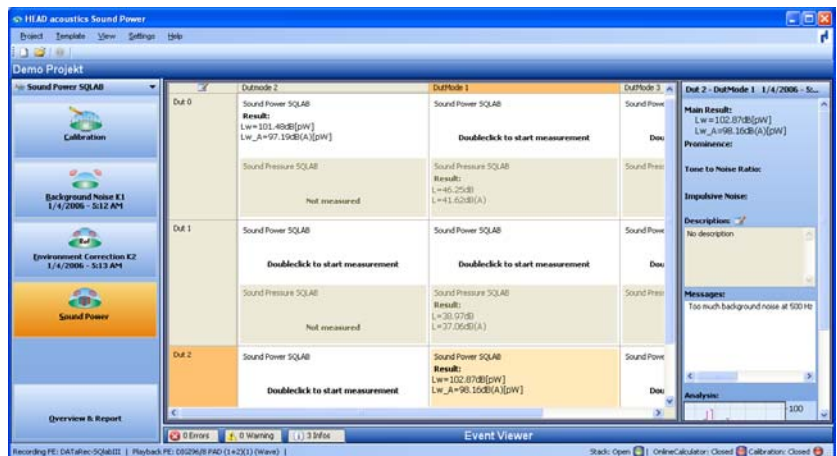
All audio and analysis data can automatically be exported into the ArtemiS analysis software, where they can be further processed for the optimization of sound quality and other purposes.

Customized Word report

Users can document diagrams, device descriptions, measurement reports, comments etc. in a Word report with a custom layout. Various checkboxes assist in the selection of the information, which is then automatically compiled into a customized Word report. Existing Word templates (.dot files) can be used and new templates can be created.



By means of check boxes users select which information are taken up to the report



The sound power level can be determined by only one mouseclick

Standards-compliant Sound Power Determination:

ISO 7779 1988

Acoustics; measurement of airborne noise emitted by computer and business equipment.

ISO 3744 1994

Acoustic determination of sound power levels of noise sources by means of sound pressure measurements – a measurement procedure with accuracy class 2 for a mainly free sound field above a reflecting surface.

ISO 3745 2003

Acoustic Determination of sound power levels of noise sources using sound pressure. Precision methods for anechoic and hemi-anechoic rooms

ISO 11201 1995

Noise emissions of machines and devices – measurement of emitted sound pressure levels at the workplace and other specific locations – a measurement procedure with accuracy class 2 for a mainly free sound field above a reflecting surface.

ISO 9296 1988

Allowed noise emission values for computers and business equipment

The relevant value specifying the noise emissions of a device is the sound power level, which can be determined using the procedure prescribed by the ISO 7779 standard. For the actual measurement of the sound power level, this procedure refers to various measurement standards. The standards ISO 3745 and ISO 3744 define specific methods for determining the sound power level. The enveloping-surface method according to ISO 3745 for anechoic rooms and semi-rooms complies with accuracy class 1. Users can also select the enveloping-surface method according to ISO 3744, which has established itself as the standard method. ISO 3744 describes how the emissions of a single device in a mainly free sound field above a reflecting surface is to be measured and how the sound power level is determined from the results. In addition, ISO 7779 specifies the measurement of impulsive noise and tonality.

The sound pressure level, too, must be measured according to ISO 7779 for the prescribed positions of the operator and a bystander. For this purpose, ISO 7779 refers to the standard measurement method defined in the ISO 11201 standard (accuracy class 2).

In order to assure that the measured sound power levels are representative for the devices of a production series, the declaration of the sound power level must follow certain statistic methods specified in the ISO 9296 standard.

See also: <http://www.iso.or>
<http://www.ecma-international.org>

Recommended Frontends:

- Multi-channel frontends supported by HEAD acoustics (e.g. SQLab, OctoBox+, frontends of the Sony EX series)

Standard Delivery Items:

- SoundPower (Code 4904)
Software Version 1.0
Setup CD
- Key file
- Dongle

System Requirements:

- Windows® XP
(languages: US / Western European)
- Microsoft Excel®

