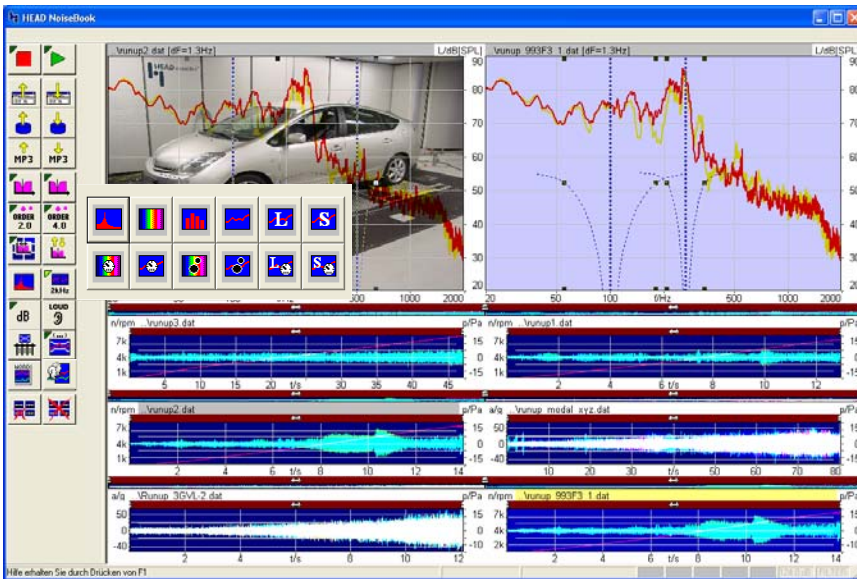


### NoiseBook (Code 4800)

2/4-Channel Recording and Analysis Software for Mobile Use



#### Overview

The NoiseBook analysis system is an affordable and easy-to-use software for noise analysis. The intuitive design, the large buttons and the possibility to control NoiseBook via hotkeys or a wireless mouse have proven ideal, especially for mobile use. In favour of an easy handling, e.g. no pull-down menus were used in the software interface.

From the recording via the analysis and modification of sound files to the playback - all tasks are handled by NoiseBook in a quick, safe and user-friendly manner.

#### Features

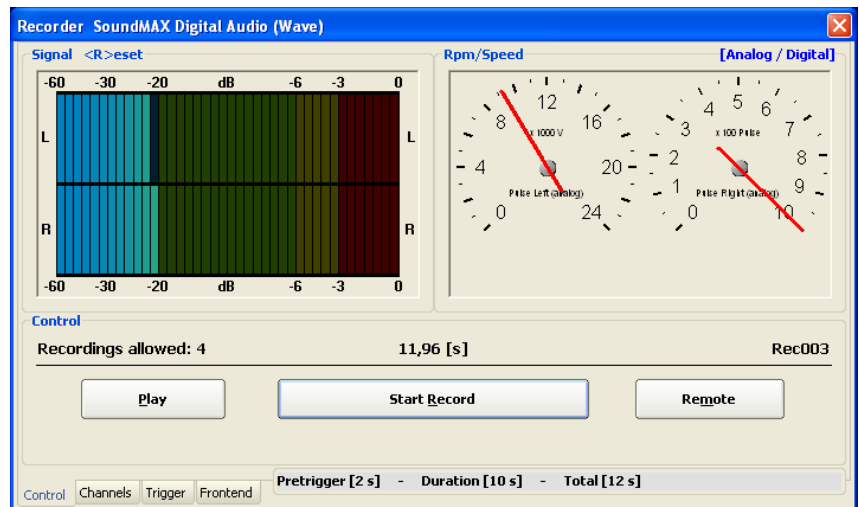
- Intuitive layout of all functional elements
- Optional control via mouse, keyboard or wireless remote control
- Aurally accurate recording and playback (depending on the front-end)
- Automatic front-end detection
- Easy sensor configuration
- Pre-trigger
- FFT analysis (basic version) and order analysis (optional)
- Psychoacoustical analyses loudness and sharpness (optional)
- Implementation of a customer specific analysis
- Interactive filtering
- Tracking filters (optional)
- Export of „living“ diagrams to Microsoft® PowerPoint® and Word
- Import / Export of WAV files and MP3 files (optional)
- Automated, custom-designed documentation with Microsoft® Word
- Multilingual user interface (DE, GB, FR, JAP) and context-sensitive help (DE, GB, FR)
- Compatibility with the ArtemiS analysis software

#### Supported front-ends

- Digital artificial head measurement systems of the HMS III and the HMS IV generation
- USB four-channel front-end SQuadruga
- Binaural two-channel front-end BEQ II with 24 bit technology, ADAT and USB interface
- Digital sound card DSB
- Other sound cards

#### Applications

- Sound analysis
- Mobile troubleshooting
- On-site noise diagnostics
- Recordings while driving
- Product development and quality control
- A/B comparisons



NoiseBook Recorder



Filter characteristics in the upper diagram

## Recording

With NoiseBook recordings can be made very easily. Supported front-ends are recognized automatically. The Sensor Explorer allows the user to configure the sensors. Individual configuration settings can be saved in the sensor database, from where they can be restored later at any time.

The user starts his recordings via the large, easily accessible buttons. Especially easy is the control with a wireless mouse, which allows recordings to be made without looking at the program interface, i.e. even with the notebook closed.

## Processing

NoiseBook can display up to six sound signals in the project window, making it ideally suited for A/B comparisons. For the analysis, FFT analyses, order ana-

lysis functions (optional) and psychoacoustical analyses (optional) are available.

Each signal can be processed with two filters, where the user can choose between band stop, band pass, high pass and low pass filters. NoiseBook displays the transfer curves graphically in the diagram and allows an individual adjustment of the filter parameters (e.g. Q frequency and center frequency). It is also possible to shift the transfer curve across the entire frequency range manually. NoiseBook displays the exact value of the filter frequency in a separate window. Files can also be filtered channel-wise, where two filters can be activated for each channel. Each filter is available as a tracking filter (NTP 01). The filter order can be increased or reduced in steps of 1/10.

## Playback

The easy to use playback function allows to involve the user's ear into the analysis process. The effect of the filters can be heard immediately. Conspicuous sound components can be quickly identified with NoiseBook, and specific parts can be immediately filtered out.

## MP3

Import and export of MP3 files are part of the feature list of NoiseBook (NTP 03). MP3 files are imported and converted to DAT files, so they are available for further processing. When converting NoiseBook files into the MP3 format, the user can specify the bit rate and thus the quality. For each conversion, NoiseBook creates an additional file containing, for example, information about the calibration or the revolution speed. NoiseBook allows to export the channels 1+2 or 3+4 of SQquadriga four-channel recordings.

## The use of SQquadriga

For recording and playback with the four-channel front-end SQquadriga, the software option NTP 05 is available.

Another tool in this software option is the SQquadriga Reader. It allows files to be read that were recorded to the internal memory of the four-channel front-end in stand-alone mode.

## Tolerance schemes

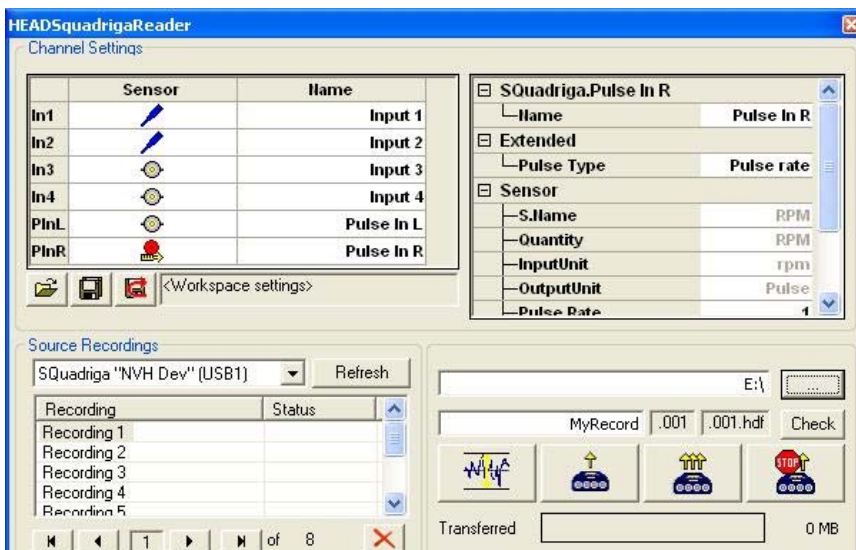
In order to determine whether an analysis result is within a certain tolerance limit, NoiseBook supports the use of tolerance schemes. The user can specify the tolerance range, consisting of lines with several nodes, and make the tolerance scheme visible on the screen.

## Customer specific analysis

NoiseBook allows for the implementation of a customer-specific analysis as plug-in. The implementation by HEAD acoustics is optionally available.

## Loudness / sharpness

With the software option NTP 04 the psychoacoustical analyses loudness and sharpness can be accomplished as a function of time or another reference variable. Loudness calculation is to DIN 45631 / ISO 532.



SQuadriga Reader

## Total level display / frequency weighting

In the analysis window, curves can be displayed either with a linear or with an A-weighted level. In addition, NoiseBook displays the single value.

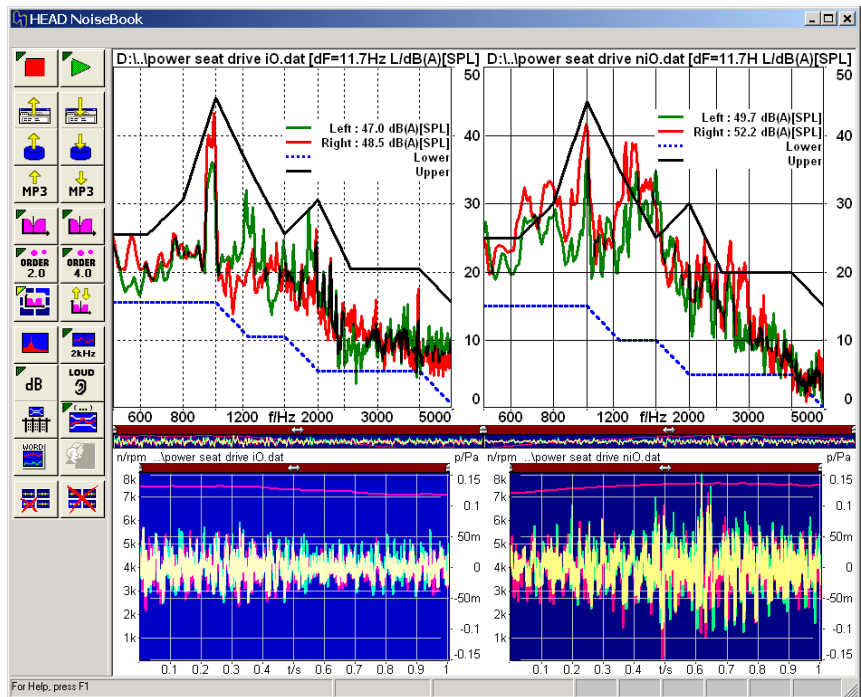
## Export of "living" diagrams

„Living“ diagrams can be inserted into Microsoft® PowerPoint®, Word or other programs supporting the integration of properties. At the same time, the usual functionality of the diagrams with NoiseBook (zooming, scaling, magnifying) remains unaffected.

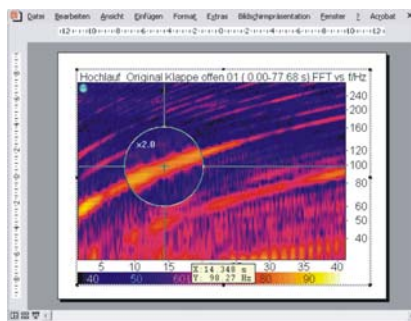
Furthermore, NoiseBook allows the diagrams to be exported to the formats Metafile and BMP.

## Word Report

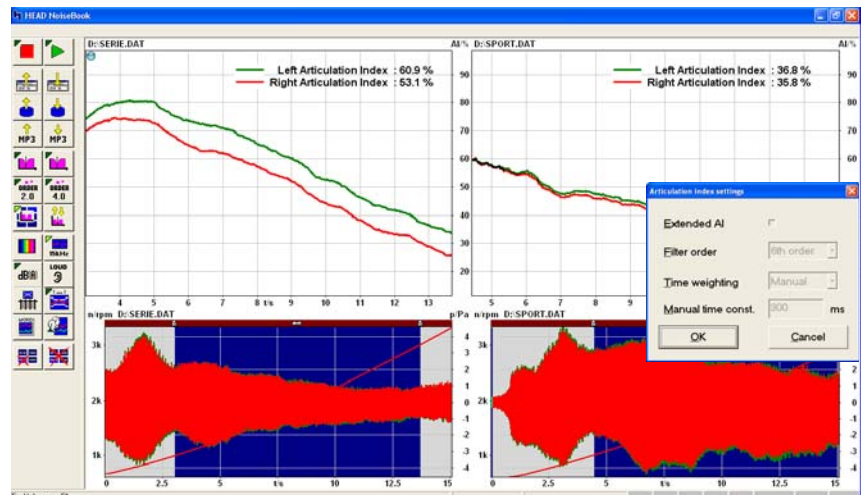
With the software option NTP 06 customers use the possibility to export measurements, analysis or whole projects by individual layout templates to Microsoft® Word.



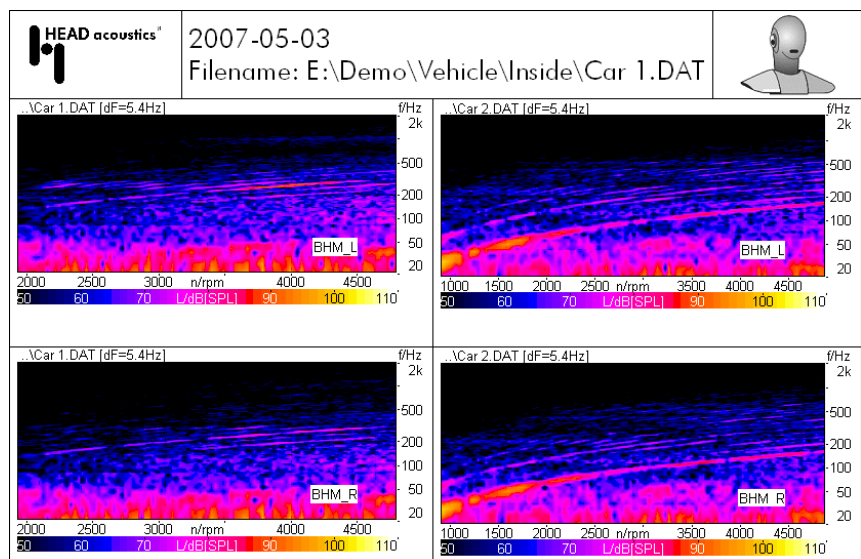
Tolerance scheme with several nodes



„Living“ diagram in PowerPoint®



Customer specific analysis: Articulation Index vs. Time (example)



Word export

### Analysis (basic version):

#### Averaged DFT spectrum

Frequency resolution:	switchable in two steps
Window function:	Hanning
Frequency weighting:	A-weighting (switchable)
Total level (Leq):	can be displayed

#### 1/3 octave spectrum

synthesized from DFT spectrum	
Window function:	Hanning
Frequency weighting:	A-weighting (switchable)
Total level (Leq):	can be displayed

#### DFT vs. time

Frequency resolution:	switchable in two steps
Overlap:	adapted to time signal segment
Window function:	Hanning
Frequency weighting:	A-weighting (switchable)
Total level (Leq):	can be displayed

Total level vs. time

Time weighting:	fast (125 ms)
Frequency weighting:	A-weighting (switchable)

### Filters (basic version):

Bandstop / Bandpass / Highpass / Lowpass

### Analysis (NTP 01):

#### Spectrum vs. RPM

Frequency resolution:	switchable in two steps
RPM step:	adapted to RPM range
Window function:	Hanning
Frequency weighting:	A-weighting (switchable)
Total level (Leq):	can be displayed

#### Order spectrum vs. RPM

Resolution:	1/10 order
RPM step:	adapted to RPM range
Window function:	Hanning
Frequency weighting:	A-weighting (switchable)
Total level (Leq):	can be displayed

#### Total level vs. RPM

Time weighting:	fast (125 ms)
Frequency weighting:	A-weighting (switchable)
RPM step:	adapted to RPM range

#### Order Spectrum vs. RPM

Resolution:	1/10 order
RPM step:	adapted to RPM range
Window function:	Hanning
Frequency weighting:	A-weighting (switchable)
Order (number):	2 max.

The middle order level can be faded over the number of revolutions. The total level process is presentable together with other order level process.

Tracking filters (both IIR filters can be transformed into tracking filters by pressing the order button. The adjustment takes place in steps from 1/10 orders.)

### Analysis (NTP 04):

#### Loudness vs time

Algorithm:	Filter / ISO 532 (DIN 45631)
Sound field:	diffuse

#### Loudness vs. RPM

Algorithm:	Filter / ISO 532 (DIN 45631)
Sound field:	diffuse
RPM step:	adapted to RPM range

#### Sharpness vs. time

Algorithm:	Filter / ISO 532 (DIN 45631)
Sound field:	diffuse
Method:	Aures

#### Sharpness vs. RPM

Algorithm:	Filter / ISO 532 (DIN 45631)
Sound field:	diffuse
Method:	Aures
RPM step:	adapted to RPM range

### Options (NoiseBook Tool Packs):

#### NTP 01 (Code 4801) Order Analysis Module

Advanced analyses, tracking filters

#### NTP 03 (Code 4803) MP3 Conversion Module

MP3 import / export

#### NTP 04 (Code 4804) Psychoacoustics Module

Calculation of loudness and sharpness

#### NTP 05 (Code 4805) Advanced Data Acquisition Module

2/4-channel data acquisition with SQuadriga, SQuadriga Reader incl.

#### NTP 06 (Code 4806) NoiseBook Documentation Module

Automated, custom-designed documentation with Microsoft® Word

### Scope of supply:

- NoiseBook (Code 4800) analysis software, basic version  
Optional: NTP 01, NTP 03, ... NTP 06
- Dongle

### System requirements:

- Windows XP (32 bit: Professional - languages: US / Western European)  
≥ 1.5 GHz Pentium M (or comparable)  
≥ 1 GB RAM

OR

- Windows® VISTA™ (64 bit and 32 bit: Business, Ultimate - languages: US / Western European)  
≥ Core2Duo Processor 2 GHz  
≥ 2 GB RAM

OR

- Windows® 7 (64 bit and 32 bit: Professional, Enterprise, Ultimate - languages: US / Western European)  
≥ Core2Duo Processor 2 GHz  
≥ 2 GB RAM
- Microsoft® Office (32 bit)