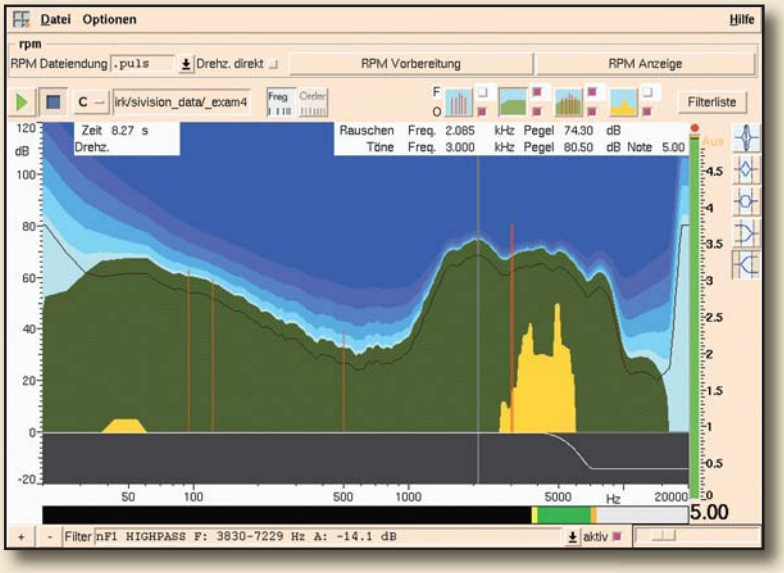
si Vision

Integrated analysis, filtering and noise rating



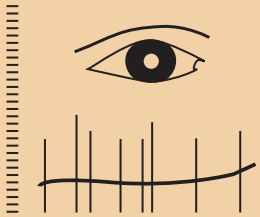
Realize your sound vision in real time!

si **Vision** optically displays what the ear perceives and makes it possible to separately filter disturbance and background for the first time. Tonal components are automatically separated from the sound and rated for perceptibility.

This is done using curves of the same loudness that are calculated from the background sounds. The displayed loudness levels can be adjusted according to the required quality and make it possible to rate disturbing components.

The rating can be immediately checked and verified acoustically. All of this is presented in an intuitive, technical display. The user has full control over the sound.

- Integrated psychoacoustic know-how
- Aurally equivalent in the frequency and order range
- Separate filter groups for tones, noise and overall sound
- Direct comparison to standard (third-octave) analyses
  - Adjustable to individual rating scale
  - Reference curves are calculated depending on the background noise.
  - Allocation of sounds to quality groups



Aplications

- Simulation of target sounds
- Interactive and intuitive sound design and sound prototyping
- Object-oriented evaluation on a graded scale
- A/B comparison
- Acoustic source identification on the object

Characteristics

- Identification, rating and filtering of sound components during audio replay
- Aurally-equivalent spectral analysis and order analysis
- Automatic decomposition of noise into tones, modulation and residual noise
- Measurement and filtering of the tonal quality of components and overall sound
- Measurement and filtering of the modulation components

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siVision

Psychoacoustic know-how at the press of a button

With classic methods, analyzing disturbing components and designing machine sounds is a time-consuming task for experts. si**Vision** separates disturbing components without any user interaction or special prior knowledge of psychoacoustics. As a result, it is very easy to identify different tonal components as well as the noise floor. This is possible due to a new analysis method that uses a model of human hearing and special non-linear filter techniques.

Comparability to standard analyses

The values calculated in si**Vision** are computed on an aurally-equivalent frequency scale and standardized according to classic third-octave analysis. The relationship of the tonal component level to the rest of the noise is given directly in dB. This makes it possible to determine the strength of a disturbing component in a quantitatively meaningful way.

Filtering, sound design

The sound components can be influenced through separate filter groups; this sound simulation provides the user with specific objectives (in dB) for optimizing sound on a real component. Tonal components and modulations can be analyzed and filtered either as orders via the r.p.m. or in the frequency range. The automatic sound separation makes it possible to filter orders without r.p.m. information for the first time. The direct filtering of modulations is also new.

Evaluation of the tonal quality using an objective grading scale

Noise quality is usually graded by experienced listeners. This method is time-consuming and involves uncertainty due to the individual evaluation criteria. siVision now provides an objective grading of tonal components in noise through comparison with curves of the same loudness for tonal components in the background noise. Conversely, it is also possible to specify a grade for the desired noise quality in order to achieve an objective through automatic filtering. In this way, the problematic components of the current noise are immediately visualized by the filters selected with siVision.

Evaluation and filtering of modulations

For the first time, it is now also possible to influence modulations in the stochastic component of the noise. As a result, the acoustic influence of this type of information can be rendered audible, adjusted and evaluated in comparison. The strength of the remaining modulation in the signal is displayed as a component of the noise level.

Complete recording and manipulation of all acoustic parameters

Due to the adjustability and measurability of all hearing-relevant characteristics of the noise, it is now possible to acoustically implement a target noise immediately, without tonal or modulating components. Each development status, however, can be compared objectively as well as subjectively.

Offline analysis

Background noise, audibility threshold, tones and curves of the same loudness are also available for offline analysis in the si**Workbench**.

Presented by:

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Features

- Works with 1- and 2-channel signals
- Decomposition into sound components without user interaction
- Processing and filtering directly during audio replay
- Rating of the sound
- Output and further processing of the filtered signals

Interaction

- The selected filter function and rating curves for tonal components are displayed
- Various selectable filter curves; increase/decrease via sliding controls
- Level and frequency of the residual noise as well as the next tonal component are read out at the cursor position

Filters

- Narrow band
- Band pass / band stop
- High pass / low pass
- Level in the frequency range with selectable transition

Evaluation

- Display of curves of the same loudness
- Loudness curves adjustable according to subjective rating scale
- Display of the overall rating for tonal components