



SenAH™ Nearfield Acoustic Holography Product Suite

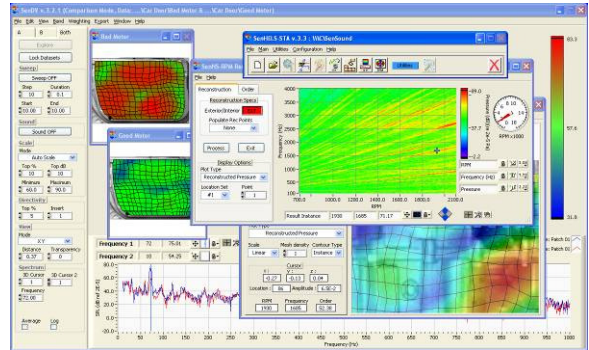
SenSound's powerful software tools allow you to diagnose noise sources faster and more accurately.

Using new and patented acoustic holography techniques, SenSound's integrated tools allow you to make acoustics measurements and visualize acoustic pressure, intensity and particle velocity in three dimensions.

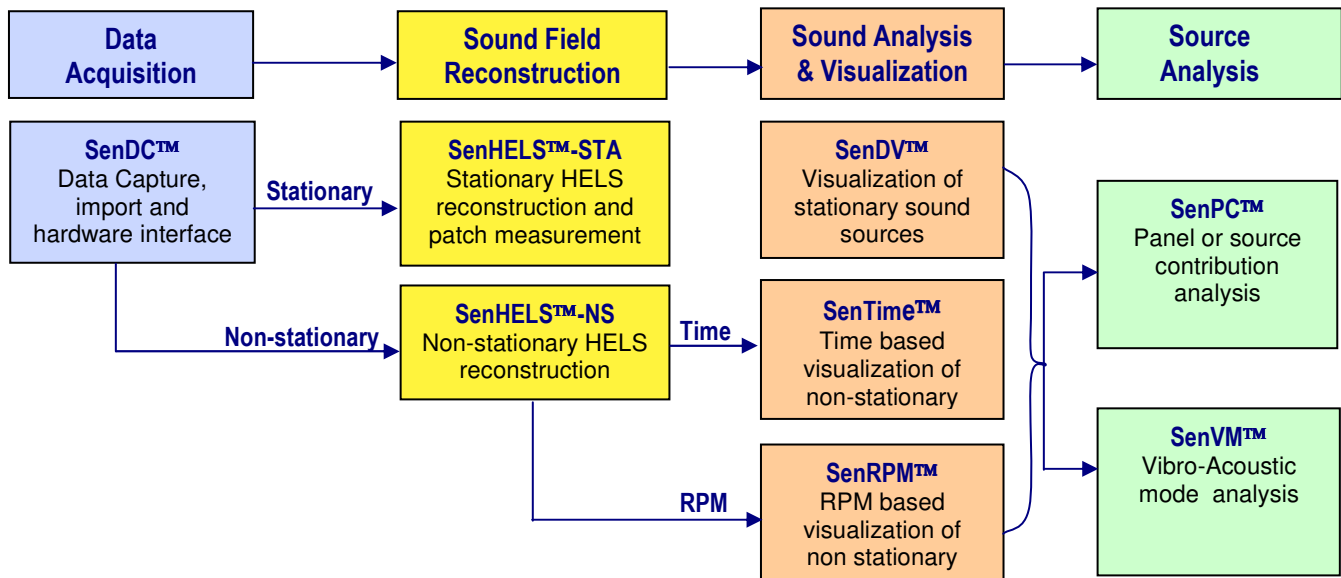
With our suite of tools, you can:

- pinpoint noise sources for interior or exterior sound fields,
- link source images to order tracking or changes over time,
- determine the vibration modes responsible for sound radiation, and
- identify the contribution of different noise sources to the overall noise level.

The bottom line is that SenSound tools give you a competitive advantage by delivering the insight into noise necessary to reduce engineering, warranty and quality control costs, design and build quieter products faster, and demonstrate that your products meet customer specifications in an objective, credible and easy to understand manner.



HELs Based Noise Diagnostic Methodology Using SenSound Tools



SenSound's modular approach allows the user to purchase as much capability as the user needs and easily add on capability as needs change. The separate modules can also be used as a single integrated set of tools on a single computer or distributed for use on different computers by different users so as to maximize flexibility of use in larger organizations.

www.SenSound.com

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Product Descriptions

Data Acquisition	
SenDC Data Capture and hardware interface	SenDC allows you to easily and accurately capture information about a test object, configure a test setup, calibrate microphones, and acquire acoustic pressure data. It interfaces to both coordinate measurement equipment to capture information about the test object and data acquisition equipment that makes the acoustic pressure measurements.
Sound Field Reconstruction	
SenHELs-STA Stationary HELS reconstruction and measurement patch	SenHELs-STA provides the tools you need to accurately process and reconstruct acquired stationary sound fields and allows you to join multiple measurement patches to form one large measurement patch. It calculates frequency domain information, provides a quick snapshot of the acoustic pressure field, and reconstructs a 3D view of the other sound parameters.
SenHELs-NS Non-stationary HELS reconstruction	SenHELs-NS processes and reconstructs non-stationary data. It calculates frequency domain information and reconstructs the sound field. When this data is viewed with either SenTime or SenRPM, you can visualize the acoustic data with respect to time, RPM, or other parameters.
Sound Analysis and Visualization	
SenDV Data Visualization of stationary sources	SenDV is the suite's visualization and analysis module for stationary sound. Using data you have acquired with SenDC and processed with SenHELs-STA, SenDV provides two types of displays to help you visualize your data—a 3D Graph to show spatial distributions and a Spectrum Graph to show frequency content. You can visualize measured or reconstructed data separately or overlaid on an image or 3D mesh of your test object.
SenTime Time based Data visualization of non-stationary sources	SenTIME is a visualization and analysis module that lets you display reconstructed acoustic parameters for non-stationary sound as a function of time. Using data you have acquired with SenDC and processed with SenHELs-NS, SenTIME provides two types of displays to help you visualize your data—a 3D Graph to show spatial distributions and a Spectrum Graph to show frequency content as a function of time. You can set the display to automatically step through a given time period, yielding a display, or manually step through a series of measurements.
SenRPM RPM based Data visualization of non stationary sources	SenRPM is a visualization module that lets you display reconstructed acoustic parameters for non-stationary sound as a function of rotations per minute (RPM). Using data you have acquired with SenDC and processed with SenHELs-NS, SenRPM provides two types of displays to help you visualize your data—a 3D Graph to show spatial distributions and a Spectrum Graph to show frequency content with respect to RPM. This module also provides order tracking information and the ability to sweep through the RPM range at a fixed frequency or by tracking the order.
Source Analysis	
SenPC Panel or source contribution analysis	SenPC analyzes the contribution made to noise levels at user-selected locations by noise sources and panel elements. Using a user-defined panel structure, SenPC analyzes measurement data to determine noise contributions from current designs or CAE-generated data to predict noise contributions from designs not yet fabricated.
SenVM Vibration mode component analysis	SenVM identifies the components of vibration modes that are responsible for sound radiation in the far field and helps you determine the sound-generation mechanisms. Like SenPC, you can analyze CAE-generated data to analyze designs and catch potential problems before they are put into production.

System Requirements

- IBM PC or equivalent with a Pentium 2GHz or higher processor
- Windows XP or higher
- XGA 1024x768 resolution (we suggest using a higher resolution monitor for better graphic interfaces)
- 1 GB of RAM (4 GB suggested; higher the memory, better the performance and larger the data set)
- 200 MB of free disk space for installation. More disk space is required for data storage depending on the use and data management practices
- CD-ROM drive
- Mouse or other pointing device

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