

Highly Efficient Sound Power and Sound Intensity Measurements with Augmented Reality

HEAD acoustics expands its portfolio with an award-winning Augmented Reality solution from HoloMetrix

With the ArtemiS SUITE Sound Intensity Module ASM 30, customers of HEAD acoustics measure sound intensities to determine sound power according to ISO 9614 or create sound intensity maps for quick source localization. The software's assistance functions guide even inexperienced users safely through the necessary steps. If a procedure standard requires a measurement grid surrounding the test object, actual physical setups at a high cost have been necessary, making the measurements very time-consuming and complicated. This is often an exclusion criterion, especially for troubleshooters who need to achieve results quickly.

Augmented Reality (AR) makes a physical measurement grid superfluous

The HoloMetrix solution projects a virtual measurement grid onto the screen of the AR glasses and thus overlays the real test object and the measurement probe, whose orientation is based on the measurement grid. In addition, it overlays the sound power of the already measured partial surfaces in color, making acoustic measurements intuitive and time-efficient. The standard-compliant measurement positions are automatically visualized on the AR glasses and no longer have to be determined by the users in a time-consuming manual process. Together with HoloMetrix, HEAD acoustics has developed an interface to the ArtemiS SUITE software. Combined with ArtemiS SUITE, Augmented Reality significantly reduces the setup effort and offers several additional synergy effects. For example, users first configure the test setup in ArtemiS SUITE and transfer it to the AR glasses with one click.

Award-winning innovation

The innovative Frankfurt-based startup HoloMetrix GmbH has developed a software platform for acoustic measurements based on Augmented Reality, which projects the virtual measurement grid in three dimensions in the actual measurement environment. HoloMetrix was honored for this positioning support on May 24, 2022, in Berlin in the presence of HoloMetrix Managing Director Alexander Pfaff and Dr.-Ing. Aulis Telle, Technical Managing Director Sound, Vibration and Perception at HEAD acoustics, with the golden German Innovation Award from the German Design Council in the "Excellence in Business to Business" competition class in the "Machines & Engineering" area. The award honors companies that impress with new, forward-looking technologies, processes, or services.

The Sound Intensity Module of ArtemiS SUITE offers

- Sound intensity measurements to determine sound power according to ISO 9614
- Troubleshooting support through sound intensity maps for fast source localization
- Assistance functions that guide through the measurements
- Automatic quality checks with acoustic or visual feedback
- Workflow concept: save and repeat individual configuration and measurement steps
- 3D model generation, including the associated measurement grid, simplifies handling when configuring and performing testing
- A sound intensity map that can be overlaid on the 3D model
- Report function: summary of results, figures, and diagrams according to the standard or individually customized
- Template function: Create extensive reports easily
- Thanks to modular design: Further analyses beyond sound power

- Various frontends for data acquisition
- Uncomplicated mobile measurements with systems with integrated batteries (SQuadriga III and SQobold)

Even better performance in combination with the HoloMetrix AR solution

- Increases efficiency through significantly reduced setup effort: no physical measurement grids made of subframes with wires or manual measurement of the measurement positions
- Positioning of the measuring probe with the help of a virtual measuring grid, which is displayed to the user on AR glasses and overlays the actual test setup
- Augmented Reality for user guidance through the entire measurement procedure, visualization of the measurement progress, and overlay of the measurement results (e.g., sound intensity map or measured values)
- Interface to the ArtemiS SUITE software from HEAD acoustics allows access to the familiar functionalities of the sound intensity module of ArtemiS SUITE and provides several additional synergy effects
- More accurate measurements due to the elimination of auxiliary constructions influencing the sound field



About HEAD acoustics

HEAD acoustics GmbH is one of the world's leading companies offering holistic sound and vibration analysis solutions. The company enjoys global recognition in the telecom sector due to its expertise and pioneering role in developing hardware and software for measuring, analyzing, and optimizing voice and audio quality and customer-specific solutions and services. HEAD acoustics' range of services covers sound engineering for technical products, investigation of environmental noise, speech quality engineering, consulting, training, and support. The medium-sized company from Herzogenrath near Aachen in Germany has subsidiaries in China, France, Italy, Japan, South Korea, the UK, and the USA, as well as numerous sales partners worldwide.