



Fraunhofer
IDMT

AUVIP

Making virtual products audible in space

At a glance

- Product acoustics rendered audible in space based on acoustic simulation and measurement data
- Assessment of product acoustics before physical prototypes are built
- Product rendered audible in its future application environment
- Enables you to personally experience the product acoustics and make a reliable decision

While modern simulation and visualization processes are already making it possible to experience the products of the future visually on computers, they still reach their limits when it comes to authentically reproducing acoustics. "False color charts" can be used to visually demonstrate how far the sound of a virtual product model spreads.

But what does red or blue sound like? Does the machine have a decent sound or does it emit disruptive noise? And what impact does changing a component have on acoustics? The Fraunhofer IDMT is providing a new digital product-development tool in the form of AUVIP, which, for the first time ever, enables us to realistically experience the sound of virtual products in space, allowing acoustic properties to be consciously designed and specifically optimized right from the drafting stage.

Interactive and holistic

Innovative, object-based audio algorithms create an exact, acoustically three-dimensional image of the virtual prototype, enabling acoustic properties, such as volume, timbre or the intensity of the radiated sound in various directions, to be reliably heard in real time from any angle. The acoustic quality of the finished product can thus be experienced personally, and its effect individually assessed, right from the development phase.

As the perception of product acoustics always depends on the surroundings, AUVIP takes things one step further and makes it possible to authentically acoustically experience the virtual product in its future surrounds. Whether it be a production hall, construction site or urban square, AUVIP allows you to hear any complex acoustic environments easily and interactively as a virtual audio scene. The impact of spatial acoustic factors and ambient noise on product acoustics can thus be realistically simulated and assessed right from the early phases of development, enabling product behavior to be acoustically optimized early on in terms of its future use – long before an initial prototype is built and tested under real conditions.

Applications

AUVIP can be used wherever there is a need to authentically simulate, plan and design acoustic properties, such as in mechanical and plant engineering, the automotive industry, or in the soundproofing field.

Technical information

- Importing of simulation and measurement data within the time or frequency range
- Intuitive user interface to configure audio scenes
- Audio playback via headphones or 3D speaker setup
- Playback of 32 audio objects and high-quality spatial acoustics simulation
- Connects to any 3D visualization engine

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