



PassBy: Making truck noise visible

Acoustic Camera shows where the noise of a moving truck originates

Reducing vehicle noise is becoming increasingly important in the development and optimization of modern commercial vehicles. But where exactly does the noise come from? gfai tech's PassBy solution can answer this question during a drive-by measurement. An [Acoustic Camera](#) is used for this purpose.

Capturing noise sources at a glance with the Acoustic Camera

During the measurement, the passing truck is recorded both visually and acoustically. The NoiseImage software combines the image data with the sound signals measured by the Acoustic Camera and maps the noise sources directly onto the vehicle. The measurement therefore shows not only how loud a vehicle is, but also where the noise originates and how it changes as the vehicle moves.

What makes the PassBy measurement special is that the truck can be analyzed while driving – it does not need to stop or be equipped with multiple individual microphones. The entire vehicle can also be analyzed as part of the measurement. The so-called [Doppler effect](#) is taken into account as well: Because the truck is moving, the perceived frequencies change. The software incorporates these changes into the analysis, enabling precise localization of the noise sources.

From measurement data to targeted vehicle optimization

The results provide an important basis for acoustic vehicle development. For example, engineers can investigate the influence of different speeds, loads, gears, and operating conditions on the vehicle's noise behavior.

Different noise sources can become more prominent depending on the driving situation. At higher speeds, for example, tire-road noise often dominates, while during acceleration, the powertrain can contribute more





significantly to the overall noise level. PassBy makes these relationships visible and supports developers and acoustics experts in targeting the relevant components.

Acoustic analysis for the next generation of commercial vehicles

For vehicle and tire manufacturers, R&D departments, as well as testing and homologation teams, PassBy provides an efficient way to investigate the noise behavior of commercial vehicles under real-world driving conditions.

But how exactly does such a measurement work? And what can a single drive-by reveal about the acoustic behavior of a truck? Find out more about gfai tech's PassBy measurement here: [PassBy measurement of truck drive-by noise](#).

About gfai tech

gfai tech GmbH is a German company specializing in innovative sound and vibration measurement and analysis solutions. We offer advanced Acoustic Cameras, comprehensive analysis software, and cutting-edge structural dynamics solutions. Our expertise spans various industries, helping customers achieve noise reduction, false detection, sound design improvement, and precise vibration monitoring. As a subsidiary of GFal e.V., we provide unique hardware, software, and customized customer solutions backed by global support.

Contact

info@gfaitech.de

High resolution images can be provided upon request.

