

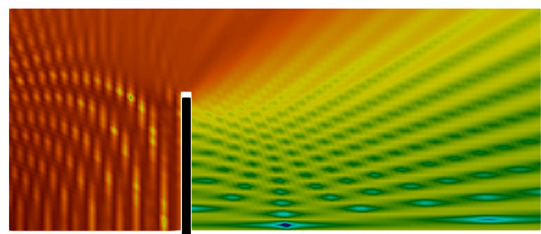
OPTIMIZATION AND TESTING OF NOISE BARRIERS

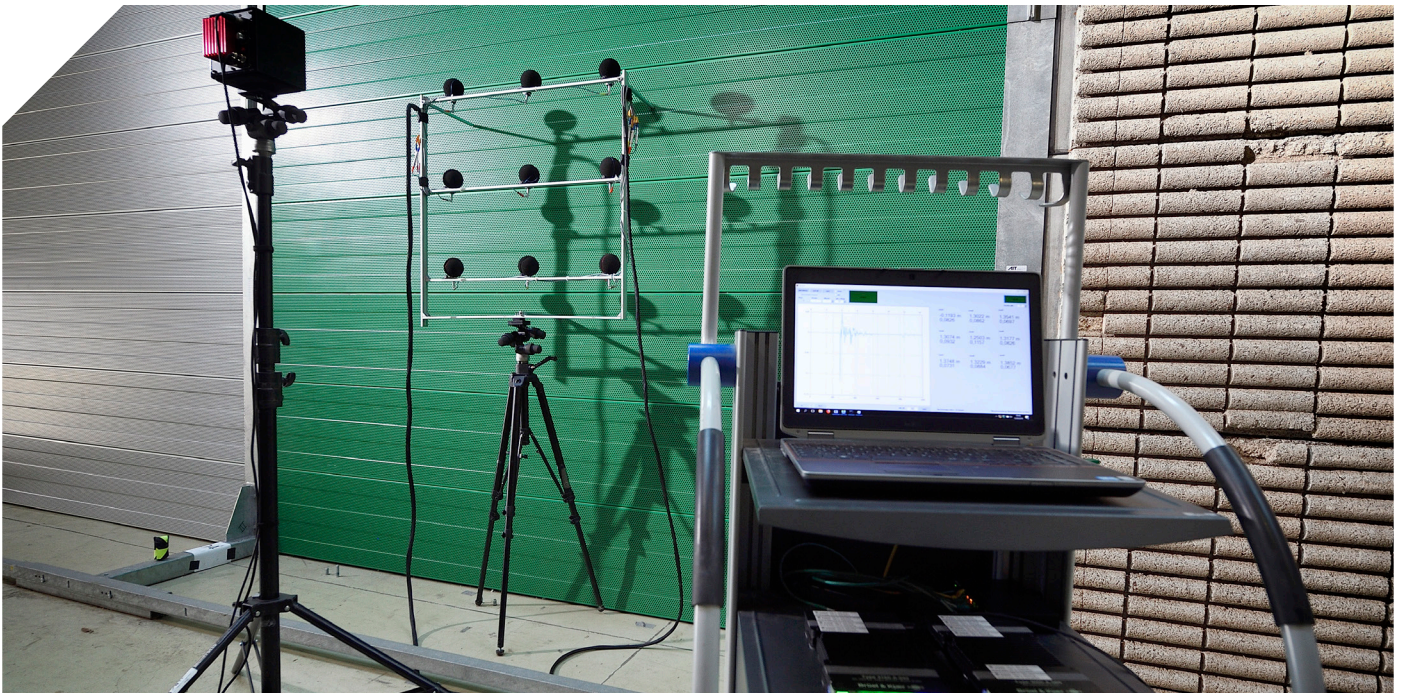
Noise barriers along traffic routes such as motorways, federal roads and railways are an effective measure to reduce traffic noise. Only by understanding the noise generation and its propagation in the immediate vicinity of a noise barrier is it possible to apply noise protection measures in an optimal way, which satisfies infrastructure operators and noise barrier manufacturers as well as the affected residents.

The AIT regularly demonstrates its competence in testing and optimizing the acoustic properties of noise barriers through its extensive testing activities and participation in national and European standardisation committees. This expertise is also used to optimize computer-aided models and simulations of the complex sound field around noise barriers.

OUR SERVICES

- Accredited tests on the AIT test bench and along the built transport infrastructure
- Acoustic measurements of noise barriers and analyzes with regard to acoustic performance and long-term behaviour of the acoustic properties
- Further development of existing test methods for in-situ measurements on noise barriers
- Optimization of the acoustic properties of noise barriers using computer simulation; for example BEM, FEM and raytracing
- Model development and model validation by means of measurements of real noise barriers along transport infrastructure or on the AIT test bench





MEASURING EQUIPMENT AND ANALYSIS TOOLS

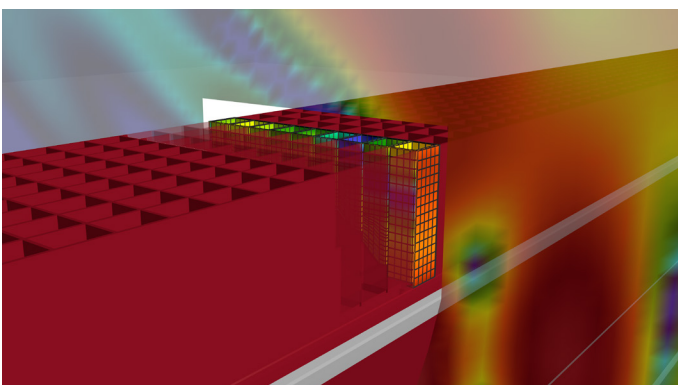
The AIT has a complete system of measuring equipment and software for acoustics. This includes special measuring vehicles or trailers, test benches, mobile measuring devices and simulation software. Thus, the entire chain from data acquisition and evaluation through modelling and simulation to optimization is available.

The use of calibrated multi-channel measurement technology allows not only a high degree of accuracy but also a more detailed spatial view of the sound field. The perception of ambient noise is subject to the subjective disturbance perception of residents and can best be described with psychoacoustic models. Due to its competence in the field of psychoacoustics, the AIT can carry out meaningful listening tests with the aid of binaural measurement or aurally correct reproduction technology.

ACCREDITED TESTS

As an accredited testing laboratory, the AIT is available for precise acoustic measurements in the areas of sound power, ambient noise and noise protection. The test procedures of the acoustics working group are based on measurements of sound pressure and further calculations (sound intensity, sound pressure level, impulse responses or transfer functions). The most important test methods in the field of noise barriers include:

- Measurement of sound diffraction according to EN 1793-4 and EN 16272-4
- Measurement of sound reflection according to EN 1793-5 and CEN/TS 16272-5
- Measurement of airborne sound insulation according to EN 1793-6 and EN 16272-6
- In-situ approval testing procedure for assessing the acoustic quality of noise barriers according to ASFINAG test manual



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