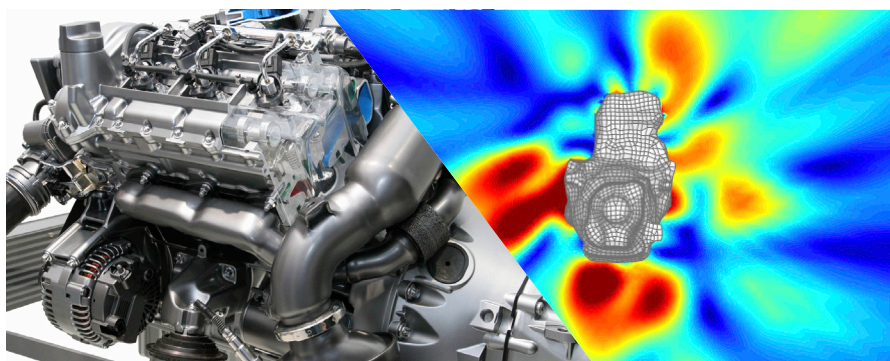


The most efficient solution for predicting acoustic radiation.

KEY FEATURES

- > Standard and convected acoustics
- > Extraction of acoustic modes
- > Handling of heterogeneities such as complex flows or temperature gradients
- > Account for dissipation mechanisms such as viscothermal losses, acoustic absorption...
- > Direct response and modal superposition approaches
- > Unique library of stable infinite elements for modeling anechoic boundary conditions
- > Pressure, velocity and admittance boundary condition
- > Plane, spherical and cylindrical wave sources and excitation of ducts by incident plane waves
- > Vibration results recovery from most FEA structural analysis solvers for radiation analysis
- > Direct and iterative solvers for fast CPU times
- > Available platforms: Windows 32 & 64 bits, Linux and most Unix platforms
- > Integration in ACTRAN VI



Product overview

Rich and powerful acoustic features for your simulation needs

ACTRAN Acoustics is the foundation module of the ACTRAN family and is both a standalone tool and a prerequisite for advanced modules like ACTRAN VibroAcoustics, ACTRAN AeroAcoustics or ACTRAN TM.

ACTRAN Acoustics contains a wide set of acoustic modeling features making it the CAE tool of choice for the simulation of a large variety of problems, from the simplest component to the most elaborate system. The ACTRAN Acoustics product relies on Free Field Technologies' exclusive powerful, robust, fast and reliable acoustic finite and infinite element library.

Sound fields in cavities are easily analyzed with ACTRAN Acoustics which offers both modal and physical approaches. Absorbing walls may be modeled in detail using impedance conditions or porous material models.

ACTRAN Acoustics is also uniquely suited for sound radiation analysis,

where it brings unprecedented efficiency, speed and productivity to your analysis process. ACTRAN Acoustics features seamless interfaces with most FEA structural analysis codes like NASTRAN, ABAQUS™ or ANSYS™.

ACTRAN Acoustics also offers powerful features for analyzing sound propagation in ducts and may be used for designing e.g. intake and exhaust lines or air distribution systems in buildings, aircrafts and cars.

Among the many advanced features available in ACTRAN Acoustics are the handling of a mean flow field (convected acoustic propagation) and temperature gradient effects. Specific elements are also available to handle visco-thermal effects that are important when sound waves propagate in narrow ducts or thin cavities (eg: hearing aids, solar array panels, etc.).

Target applications

- > Sound radiation by vibrating structures: powertrain, engine components (oilpan, intake manifold and air filter, valve cover, etc.), compressors, electrical motors, loudspeakers and more.
- > Intake and exhaust noise, including complex mufflers and silencers.
- > Air conditioning units and distribution systems (calculation of transfer matrices coefficients).
- > Sound absorption inside passenger compartment of cars, trains and aircrafts.
- > Sound propagation in complex media with mean flow or temperature gradient.
- > Audio devices such as telephones, hearing aids or musical instruments.

ACTRAN Acoustics

THE ACTRAN SOFTWARE SUITE

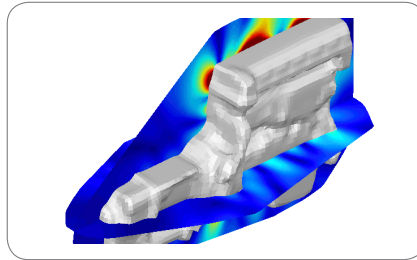
ACTRAN is the most complete acoustic, vibro-acoustic and aero-acoustic CAE software suite. Under a common technological umbrella provided by the finite and infinite element method, ACTRAN provides a rich library of elements, material properties, boundary conditions, solution schemes and solvers. ACTRAN is a high performance, high productivity, high accuracy modeling environment suiting the needs of the most demanding engineers, researchers and teachers and empowering them with the tool they need for solving the most challenging acoustic problems.

FREE FIELD TECHNOLOGIES

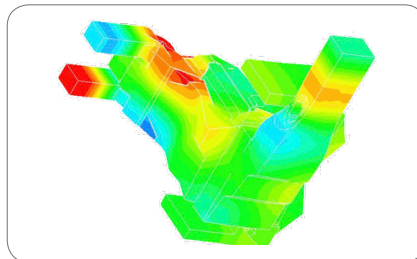
Free Field Technologies develops, maintains, supports and sells the ACTRAN acoustic CAE software suite. The company also provides related support, technology transfer, engineering, technical support, training and customization services.

FFT operates from its headquarters in Mont-Saint-Guibert (Belgium) and from local offices in Toulouse (France) and Tokyo (Japan). ACTRAN is distributed worldwide by a dense network of partners; please contact us for details of your nearest partner.

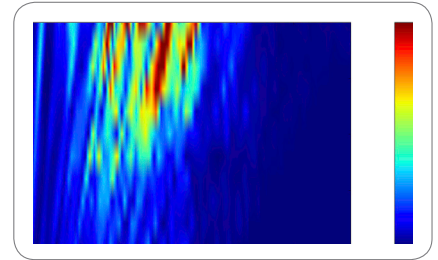
www.fft.be



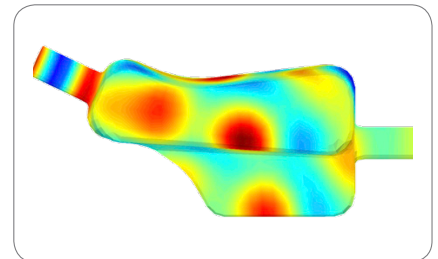
Sound radiation by a powertrain.



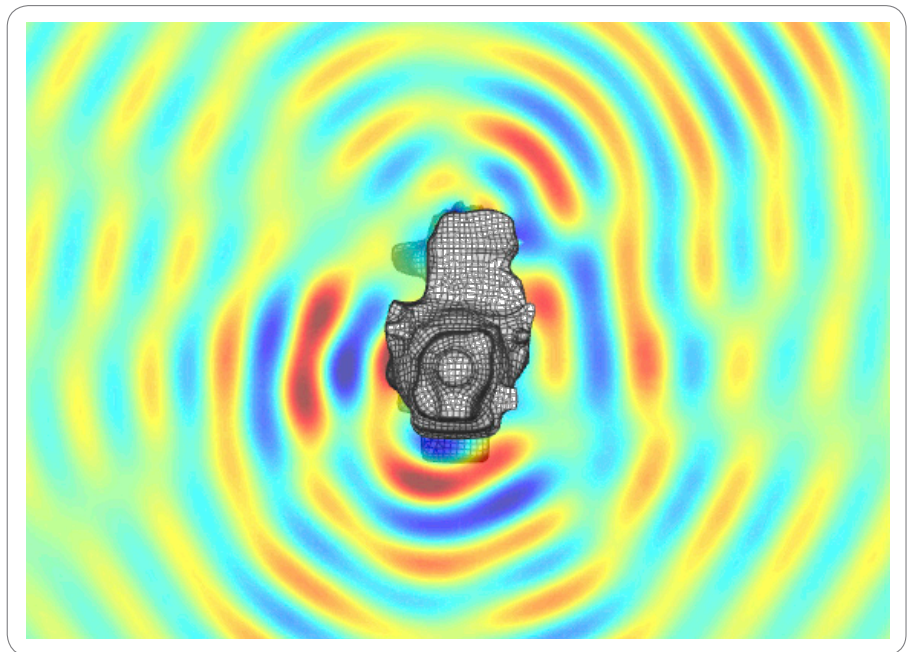
Acoustic modes of an air conditioning module.



Waterfall diagram of the sound pressure level as a function of frequency and regime.



Pressure distribution in an exhaust muffler, where temperature gradients and mean flow are taken into account.



Pressure field generated by the vibration of a powertrain.

FREE FIELD TECHNOLOGIES

Axis Park Louvain-la-Neuve - Rue Emile Francqui, 1
B-1435 Mont-Saint-Guibert - BELGIUM

T +32 10 45 12 26 F +32 10 45 46 26

info@fft.be - www.fft.be

