

VNoise

Module Description : FWH Solver

FWH Solver

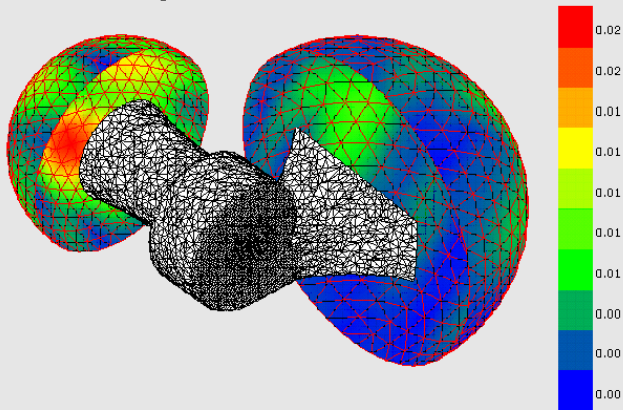
The FWH Solver is a VNoise module that permit to consider aero-acoustic sources in VNoise analyses.

Typical application include:

- Sound radiated by blades, fans, rotors.
- Sound generated by unsteady pressure fluctuations on solid surfaces.
- Sound radiated by turbulence.

The FWH Solver is based on an advanced integration technique of the Ffowcs Williams Hawkins equation.

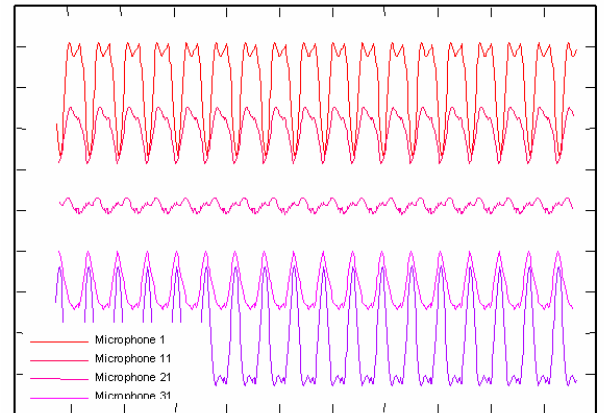
Boundary Pressure : 4320.0 Hz



Typically the FWH solver require some aerodynamic data computed by a CFD code, and that characterize the aero-acoustic source.

The FWH Solver then permit to integrate the FWH equation over a suitable surface that enclose the source. Both permeable and non permeable surfaces are available enabling a more easy choice of the integration surface, and a more easy coupling with CFD codes. Typical example of the integration surface are:

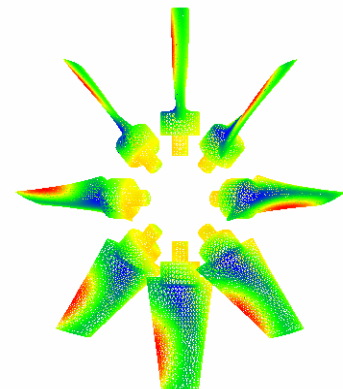
- Surface of rotating blades and fans.
- Physical surfaces on which aerodynamic loads are applied.
- Fictitious surfaces that enclose an aeroacoustic source.



Both Fixed and rotating integration surfaces can be used.

The results provided by the FWH Solver is the acoustic pressure generated by the aerodynamic sound in any desired microphone position.

If in the proximity of the aerodynamic noise sources other objects are present that can scatter the aerodynamic noise or if some elastic structure is present that can couple with the generated sound field, then the sound field computed by the FWH Solver can be used as a starting point for a VNoise BEM analysis that can eventually take into account the scattering effects of other bodies or can include the coupling with structural deformations.



VNoise is produced by:

S.T.S. Scientific and Technical Software
Via Dalmazia 30
21100 Varese (VA), ITALY

Email: info@sts-web.it
Tel: (+39) 0332-333871
Fax: (+39) 0332-341113
Web: <http://www.sts-soft.com>