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Chinese Academy of Sciences

"Acoustic Camera" Unveiled to the Public

Acoustic imaging system, a new generation of noise measurement equipment, developed by Key Laboratory of Noise and Vibration, Chinese Academy of Sciences was unveiled to the public recently in CAS Institute of Acoustics. So far, the technique in this system reaches the world-class level.

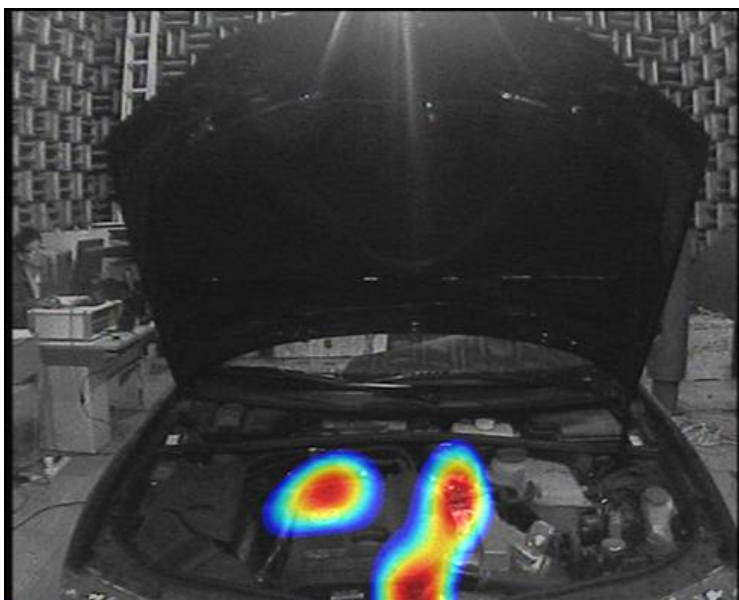
Acoustic imaging system (also known as Acoustic Camera) can measure the sound field and visually localize acoustic emissions. The system exploits the difference of phase from sources to microphones based on the theory of phased array. The distribution of acoustic pressure in sound field can be characterized by color map, RGB and brightness of which represent the intensity of sound. The software fuses the color map into the image of physical object, which can easily identify the noises emitting from physical objects.

The acoustic imaging system explores the techniques in acoustics, electronics, and information processing and converts the recorded noise into visible pictures. Therefore, the acoustic imaging system allows us to truly see the sound and identify the main noise emitting from machines. Moreover, the system is rapidly set up and very easy to use for untrained engineers.

The acoustic imaging system are widely applied in some fields such as airplane, cars, high-speed trains, computers and household electrical appliance to identify main noise source for further noise reduction. Besides, it can also be used to separate and extract the desired machine noise to online monitor the condition of the electrical generators or huge running machines for fault diagnosis.

The visitors showed great interest to attend the demonstration of the acoustic imaging system during "Public Science Day" in CAS held by Institute of Acoustics on May 16, 2010. Especially for some children and their parents, they were excited to see the color map on their lips, which indicates that sound comes from mouths.





Identification of car engine noise sources (Image by IOA)