

## **CURRENT AND FUTURE EUROPEAN RESEARCH IN ROAD TRANSPORT NOISE**

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### **1. Environmental noise in Europe**

Environmental noise is still a pollutant of high public concern with road transportation as a primary source. In the 1990s, it has been estimated that around 20 percent of the population in the European Union (approx. 80 million people of the EU-15) suffer from noise levels which are considered to be unacceptable leading to high annoyance, sleep disturbance and other adverse health effects. Further 170 million people live in so-called grey areas with noise levels causing serious annoyance during daytime. Despite of increasingly stringent legislative limits and despite of the considerable effort and progress made in noise control by the industry, there has been no significant improvement in the noise exposure levels. Therefore, the European Commission (EC) has extended its noise policy towards a knowledge-based and perception-oriented approach resulting in the Environmental Noise Directive (END) of 2002.

### **2. The EU legal framework**

The two legislative cornerstones of the EU noise policy are firstly the set of emission-related directives (reaching back to the early nineteen seventies) and secondly the END of 2002 complementing the emission-related directives. The Environmental Noise Directive relating to the assessment and management of environmental noise, focuses on a common approach which is to be executed at national, regional and local levels according to the principles of shared responsibility. The competent authorities of the EU member states are responsible of the strategic noise mapping and action plans for countermeasures.

### **3. The CALM network and the European Technology Platforms (ETPs)**

Both the further development and transposition of the legal framework and the demand for advanced abatement technologies require further intensive research. The EC has initiated the CALM network to coordinate EU noise research and to develop a strategic noise research planning up to 2020. In a similar way, the ETPs have been established to set up Strategic Research Agendas (SRAs) for each transport mode like ERTRAC for the road transport.

### **4. Research in road transport noise**

The target for the reduction of the noise emission from road traffic extends up to 10 dBA, in accordance with ERTRAC's SRA. The research topics of highest priority are rolling noise (tyres and road surfaces) and propulsion noise (especially for trucks and buses). A further focus of research is the traffic noise in urban areas with dense population. Consequently, the large EU projects like SILENCE and QCITY work in all these fields. Additional aspects of current and future research include smart materials (EU project InMAR), advanced thermal management of sound-tight engine bays, sophisticated traffic management and driver support systems as well as enhanced noise propagation modeling and adequate city planning.