

Combined effects of silent tyres and silent roads

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Silent road surfaces have an increasing attention in noise mitigation purposes throughout the EU. Broad application of silent roads is stimulated in an increasing number of countries. Silent tyres for passenger cars and heavy vehicles have similar attention. The EU regulation on tyres (2001/43/EC) focusses on phasing out loud tyres. National programs focus on the stimulation of the use of silent tyres without affecting safety and fuel consumption.

In the present tyre market a “natural” spread of 6 to 7 dB(A) can be found for passenger cars tyres and 4 to 5 dB(A) for the traction tyres of heavy vehicles, both measured on the ISO surface. Road surfaces exhibit a spread of up to 15 dB(A) between the loudest and most silent specimen.

These results cannot be directly transferred to a practical situation. The road surface properties affect differences between tyres and in general do decrease the overall effect.

In the paper data will be presented on noise measurements of about 30 tyres on several road surfaces in Netherlands and Germany. Based on these results and on other at M+P available information scenariostudies were performed to predict the overall effect of the combination of silent tyres and silent road surfaces.

These simulations demonstrate a possible effects of a broad application of silent tyres of 1 to 3 dB(A) when applied on a population of generally applied road surfaces.