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Summary

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Summary

by

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One major key element for further road traffic noise reduction is the reduction of tyre/road noise. Several research projects are dedicated to this subject. Some of them are dealing with the optimisation of road surfaces (asphalt concrete or stone mastic asphalt as well as cement concrete surfaces). But also the limit values for tyres as defined in the EU directive 2001/43/EC are currently under revision in order to encourage the tyre manufacturers to further noise reduction measures for their tyres. ISO is in addition to that working on improvements of the requirements for the ISO test track surface (ISO 10844) with a long term goal to modify it in that way that it comes closer to modern public road surfaces.

With respect to vehicle noise it can be stated that the tyre/road noise has a higher influence for the new amended type approval vehicle noise emission measurement test procedure than for the current method. Since the test track surface is standardized, the choice of the tyres can have a high influence on the total vehicle noise emission.

With this background the German Environment Agency prescribed the following goals for the project:

1. The margins offered by the current and the amended type approval method regarding the choice of the tyre during type approval as well as in on road operation should be documented.

2. It should be elaborated to what extend these margins are currently used in Germany and in EU member states for vehicle homologation.

3. Proposals to eliminate the margins in order to improve the situation should be incorporated.

4. The possible noise reduction potential should be quantitatively estimated.

Unfortunately not all of these goals could be reached during the project. It was possible to document the margins and estimate the influence of the tyre choice on type approval levels quantitatively for cars and light duty vehicles for the current and amended type approval noise measurement method as well as for on road conditions. But it was not possible to get the information to what extend these margins are currently used in Germany and EU member states.

On the other hand could be shown by scenario calculations, performed within the project, that no significant influence on the noise impact on the population is to be expected, even for the amended vehicle type approval noise emission measurement method, as long as the chosen tyres fulfil the requirements of the regulation ECE R117 with respect to tyre noise emission. Significant influences are restricted to a smaller part of high powered cars, covering only a low percentage (2%) of the whole car stock.

The result of a legal report elaborated within the frame of the project and dedicated to the question whether the use of aftermarket tyres could lead to transgressions of the vehicle type approval noise limits under COP conditions can be summarised as follows:

The measurement method for the determination of the vehicle noise emission is currently under revision. The amendment may lead to an actual tightening of the noise limits. .This tightening is of international law nature, the Federal Republic of Germany is contracting party of a corresponding international agreement. . Nevertheless, such amendment does at first not lead to immediate legal consequences, e.g. an expiration of the operating license of the vehicle, even if the corresponding regulation (ECE R51) according to para 2 of the German contract law (concerning the UN agreement from 20.03.1958) will come into force and the vehicle would fail the limit requirements of this

regulation because of the use of aftermarket tyres that are noisier than the tyres used for type approval.

This result is devoted to the fact, that European Community law basically overrules in national law transformed international law. Exaggerated formulated, the operating license remains valid for vehicles with more noisy aftermarket tyres (cars) or with snow tyres on drive axles (heavy duty vehicles), even if the COP requirements would be exceeded, as long as one of the corresponding EU directives would allow such combinations. Currently this would apply for the EU directives 70/157/EEC and 92/23/EEC, both directives would be in contrary to the amended future ECE regulation. Although the EU is contracting party of the 1958 agreement, the community and also other contracting parties are not obliged to bring international regulations, such as ECE R51, into force for their sovereign territory. Whether and when a harmonisation between EU directives and ECE regulations will be carried out is currently not foreseeable. Only after such harmonisation the legal situation may be different for the above mentioned vehicle/tyre combinations that would not meet the ECE requirements. At present the operating license remains valid under the outlined prerequisites.

A future harmonisation of ECE R51 and EU directive 70/157/EEC with the consequence of actually more stringend limit values as before does not lead to an expiration of the national operating license for an originally approved vehicle even if equipped with tyres that would lead to a transgression of the vehicle noise emission limit, as long as the tyres are type approved according to EU law and as long as the tyres comply with para 5 of the directive 92/23/EEC. This results from § 19, para 3, S. 1 No. 2 a) of StVZO (German national road traffic licensing regulation). The directive 92/23/EEC overrules directive 70/157/EEC with regard to emissions.

If the tyre choice related margins should be reduced, we recommend to amend ECE regulation R117 in that respect that the tyre must be labelled with the tyre noise type approval value. Supplementary ECE regulation R51 should be amended accordingly, requiring that the labelled noise level of the tyre used for type approval of the vehicle has to be included in the communication form. If this value would additionally be included in the registration certificate, it could be required that the tyres of the vehicle could only be replaced by tyres of the same or a lower noise emission level.

This approach should be restricted to cars and light duty vehicles. For heavy duty vehicles an assessment should be performed related to the question whether an analogous approach would be necessary and adequate. At present it appears inappropriate for heavy duty vehicles because of the much higher number of variants and applications.