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**PRESENTATION OF**



**INTERNATIONAL ORGANIZATION OF MOTOR VEHICLE MANUFACTURERS**

**Additional Sound Emission Provisions for Vehicles of  
Category M1 and N1 - OICA Position**



## **Importance of ASEP**

### **6.2.3. Additional sound emission provisions (Actual draft wording ECE R 51 )**

The additional sound emission provisions apply to vehicles of categories M1 and N1 only.

They are **preventive requirements** intended to also cover driving conditions of the vehicle in real traffic, which can be environmentally relevant concerning their sound emission and which differs from those during type approval, described in Annex 3.

#### **Conclusion:**

- Some are concerned, that the manufacturer could highly increase the noise emission in the upper engine speed range. A need for regulatory measures may come in future.
- However actually there is no need for regulatory measures.
- The noise behavior of today's OE-vehicles is broadly accepted (with regard to "noise jumps" in the sound emission in higher engine speed areas). <sup>1)</sup>

**1) If there are concerns with actual OE-vehicles, it should be possible to identify concrete examples for detailed studies.**



## How to deal with ASEP during type approval ?

- **ASEP shall not be an additional constraint for actual designed cars.**
- **No** mandatory application during type approval.
- Application **only** in cases of doubts:
  - If the technical service suspects that the noise behavior of the presented vehicle could be a concern, ...
  - **BUT:**  
Different interpretations by technical services of an acceptable noise behavior could lead to problems during type approval, that cannot be handled by the manufacturer in advance.

### Question:

- Does ASEP really require a test, or would it be sufficient to develop a guideline for evaluation for all technical services ?



## How to proceed with the development of ASEP ?

### 6.2.3.3 (Actual draft wording)

The sound emission of the vehicle under **normal driving conditions** different from the conditions of the type approval test in Annex 3 shall not differ **considerably** from what can be expected from the type approval test result for this specific vehicle with regard to technical practicability. This is fulfilled if the requirements of Annex 10 are met.

A definition is needed, therefore it should be known:

- What is covered by the type approval test in annex 3 ?
- Which parts of the noise map are left uncontrolled ?  
Do these parts belong to “normal driving condition” ?
- What is the frequency of use, the importance of these areas and the potential work load to verify the noise emission ?

A definition is needed:

- To define a “considerable” deviation, it is helpful to know the “normal” deviation in noise emission.
- A study of actual cars is helpful.



## **ASEP - A Requirement for the Perfect Noise Behavior ?**

- The imagination of a steady noise behavior like a straight line or a logarithmic curve over speed or engine speed is pure theoretical.
- Any part of a vehicle has an influence on the noise behavior. Deviations are normal.  
Example: exhaust pipes
  - low tube diameters reduce resonances (<300Hz), but increase the high frequency gas flow noise (>800Hz) and backpressure (loss of power). For large tube diameters it is vice versa.
  - **There is no perfect solution, it is always a compromise.**
- Vehicles are designed to optimize the noise behavior specially for the driving comfort of the passengers. Unavoidable noises are pushed to areas, **which are typically rarely used by the driver.**
- To match a perfect noise behavior, enormous measures are needed, which affect vehicle parameter (weight, power, drivability, ...) and are in conflict to other important requirements (safety, emission).
- To enable the best compromise between any requirements, it is necessary to consider realistic noise regulations.

**More liberal noise requirements in ASEP will reflect the occurrence, importance, feasibility and costs of the noise behavior.**