

GRBIG-ASEP-01-004
GRB ad hoc group on ASEP R51
Issued by the Chairman
November 2005

Paper facilitating the framework and boundaries of the discussion in the GRBIG ASEP R51

In order to facilitate the discussion of the Informal group, the chairman has summed up a list of potential issues to be covered by the Additional Sound Emission Provisions. It is proposed to discuss these issues with the group and to decide which issues should be covered by the ASEP and which not. This may clarify the positions of delegations and speed up our process when the text of the ASEP is discussed in detail.

Potential scope:

1. The additional sound emission provisions apply to vehicles of categories M1 and N1 only.
2. 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 differ from those described in Annex 3.

Potential requirements to the ASEP

1. cover the scope and issues as decided by the group; or at least be representative and effective to reach the same goal
2. reproducible and unambiguous; The method should lead to the identical result, independent from facilities or operators; no difficult decisions for operators or test houses.
3. feasible, simple, low cost; both in handling and in investment; feasible to carry out by independent organisations. Any tests should be carried out on the vehicle as it is, without need for special (electronic) control boxes.

Potential issues to be covered:

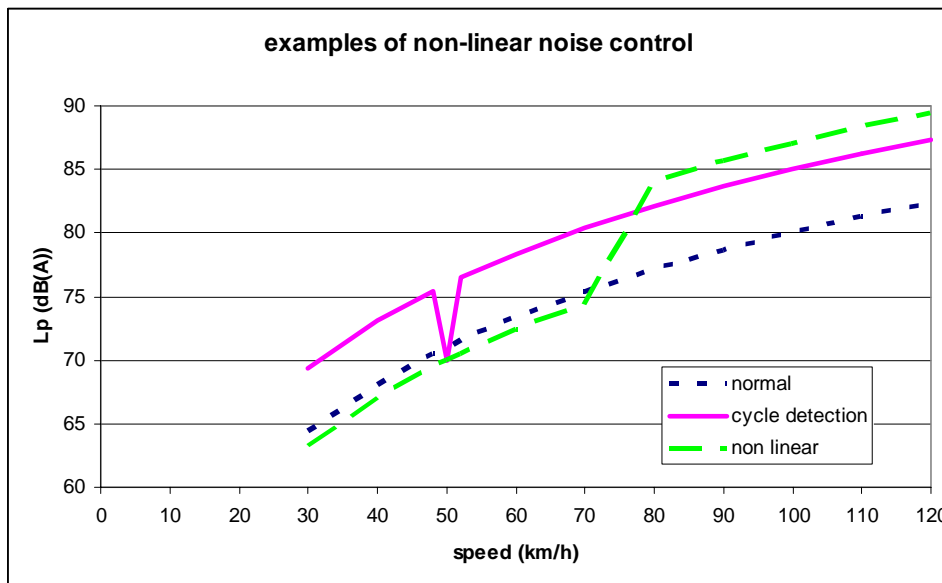
1. Keep the benefits of the past.

Notwithstanding noise reduction strategies that will be chosen in the future, the status of noise reduction as achieved up to date, should be secured for the future.

The background of this issue is the weak correlation between test results according to the existing method and the new method in Annex3. This means that the new method will incorporate for some vehicles and/or sources more stringent demands and for other vehicles/sources less stringent demands. In environmental regulations it is common to safeguard benefits achieved in the past, irrespective of demands in proceeding regulations.

2. Non-linear noise control strategies.

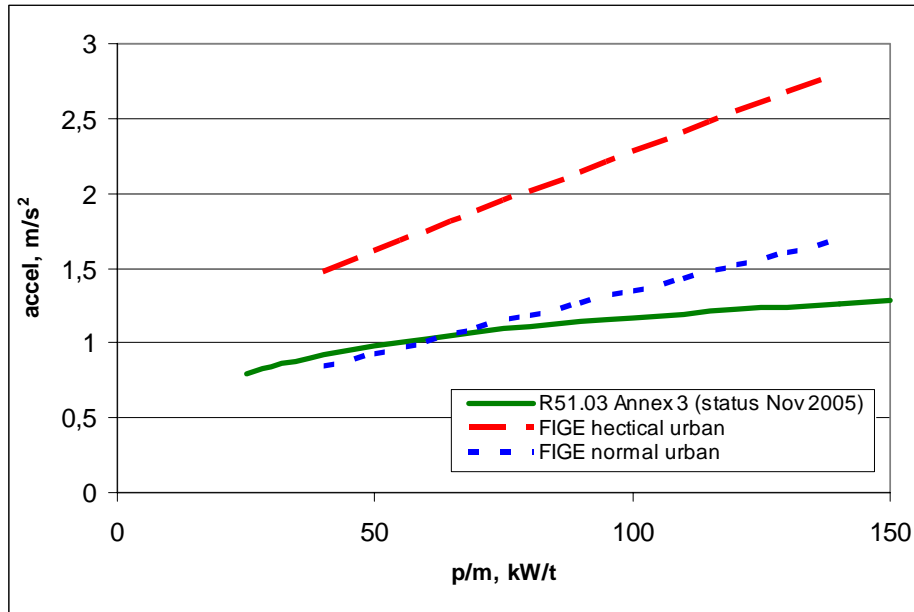
Switches, adaptive software, driving condition recognition, controlled valves, shutters etc may alter the noise emission of the vehicle. The potential noise increase due to these control strategies shall be limited compared to the vehicle configuration measured in annex 3.



The background of this issue is the fixed operation condition in Annex 3. This operation condition may be used by manufacturers to detect the test cycle and optimize the noise control strategy during this cycle, while maintaining another noise control strategy in other operation conditions.

3. High acceleration driving

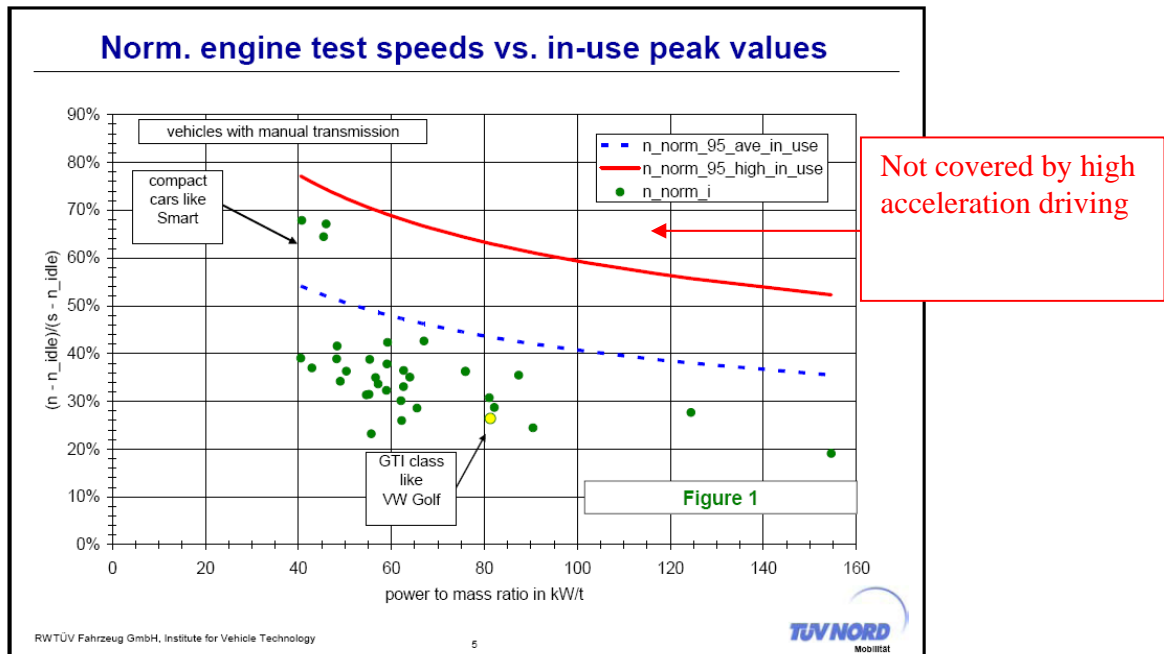
(also called red area, 95 percentile, sporty, fast, high rev etc). Accelerations and engine speeds in this operation condition are significantly higher than in Annex 3. The noise emission during these operation conditions shall not be more than X dB [or: X dB higher than that determined in Annex 3]. Open issue is the exact percentile of driving behaviour which should be covered.



The background of this issue is the chosen operation condition in Annex 3, which is representative for normal driving behavior. A certain amount of urban driving events exhibit a significant higher acceleration. These events are accompanied with higher engine speed, higher load and higher share of propulsion noise.

4. Worst case

(also called decency level). An absolute maximum noise level which the vehicle is never allowed to exceed at speeds below [120 km/h], even not at hard use conditions.



The background of this issue is that even the high acceleration driving mode does not cover all possible driving conditions. Most statistics focus on 90 or 95 percentile of operation conditions. Especially for vehicles with a higher Power to Mass Ratio, a significant part of the engine map may remain unexplored (in the figure above for example engine speeds > 60% for PMR > 100 kW/t).

NB.

Further points of clarification

1. Should the ASEP be part of normal COP, or should there be special provisions?
2. Should the results of ASEP checks be recorded in the communication form and/or test report?
3. What principal form should the ASEP have?
 - a. Own declaration of the manufacturer
 - b. Plausible prove by the manufacturer to the test house
 - c. Prescribed measurement method