

Suggestions on development of UN Regulation No. 51

Introduction

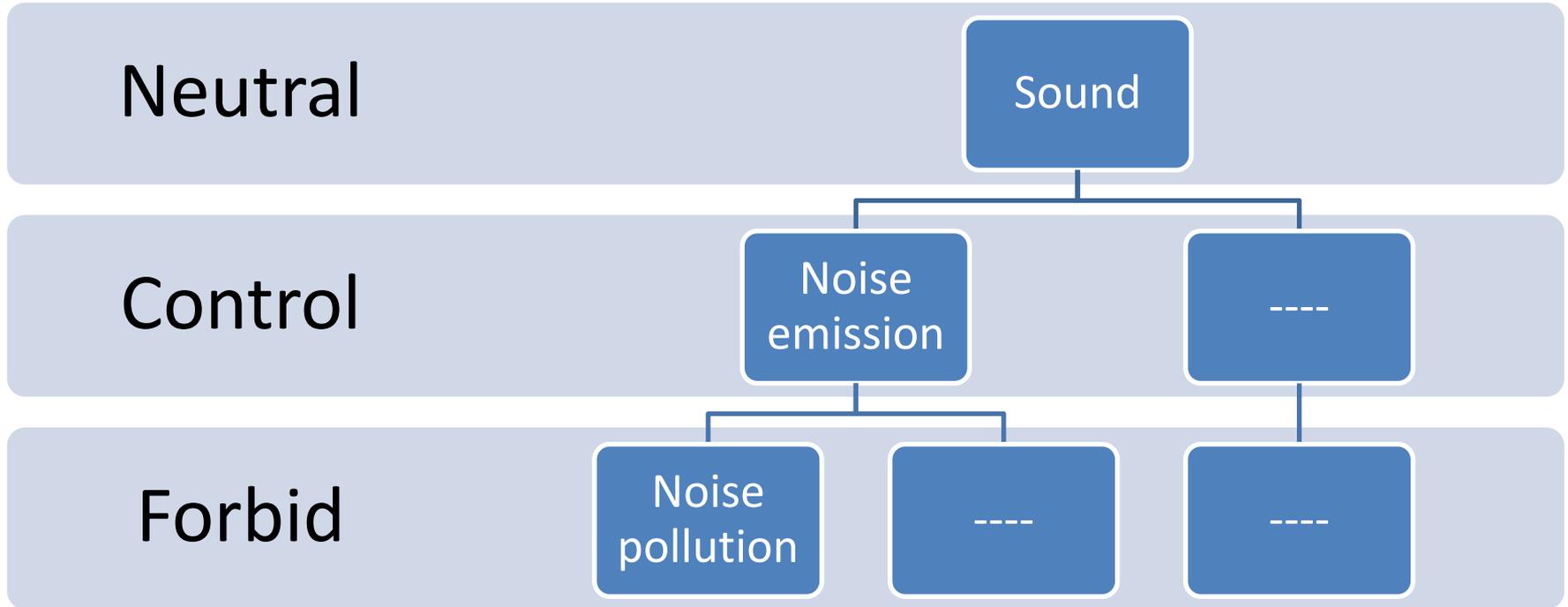
China has collected more than **200 public comments** on Chinese GB 1495 final draft “Limits and measurement methods for noise emitted by accelerating motor vehicles ”.

From these comments we see the public expectations on future noise standards and regulations. And which will also make sense for the development of UN noise regulations.

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Sound, Noise emission or Noise pollution



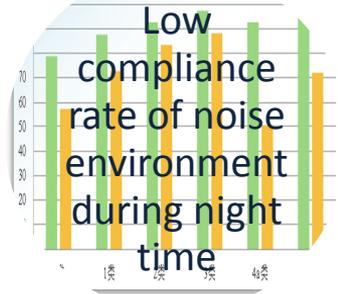
The manufacturers and the public begin to consider the differences and connections between pollution, noise and sound.

Noise problem of commercial vehicles during night time

Commercial vehicles are forbidden to travel in the urban area during day time in many cities.

The cities need logistic, so commercial vehicles have to go inside urban area during night time. And always start and pause and travel at very high speed.

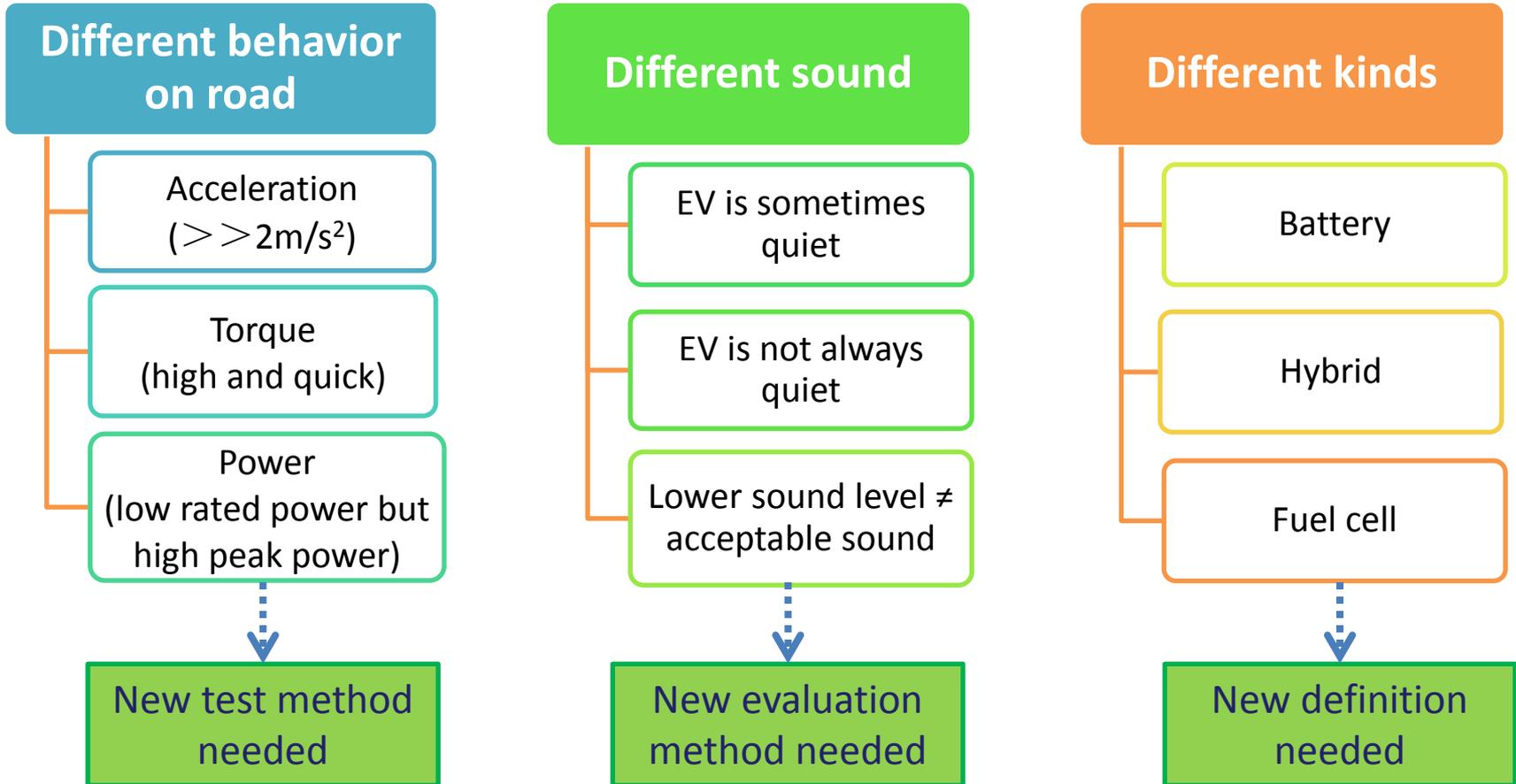
The commercial vehicles are always more loudly than passenger cars. And also the test method now only covers a short speed range.



1. Change the whole logistic and transport system?
2. Wider speed range and lower limit value for commercial test?

How to improve the noise environment during the night time is really a big issue.

Electric vehicles



ASEP + Simplification of test method

The opinion is still very strong in the industry and technical service that the method B is too complicated.

ASEP is added now, and it will be a new challenge for the manufacturers, technical service organizations and ISO test tracks.

A more clear scope for ASEP, an easier approach for the whole pass-by noise standards and also the in use vehicle test method are all needed for management.

The simplification work is necessary for the whole system of Regulation No. 51, and China has already some trying in test simplification and tested on 5 vehicles based on **“China Test Cycle”**.

Test mass and reference acceleration ($a_{\text{wot ref}}$)

Vehicle category	Vehicle test mass
M_1	$m_t = m_{ro} \pm 5\%$ The test mass m_t of the vehicle shall be between $m_{ro} - 10\%$ and $m_{ro} + 20\%$
N_1	$m_t = m_{ro} \pm 5\%$ The test mass m_t of the vehicle shall be between $m_{ro} - 10\%$ and $m_{ro} + 20\%$
M_2 ($M \leq 3,500$ kg)	$m_t = m_{ro}$ The test mass m_t of the vehicle shall be between $m_{ro} - 10\%$ and $m_{ro} + 20\%$

3.1.2.1.2.4. Reference acceleration
 $a_{\text{wot ref}} = 1.59 * \log_{10}(\text{PMR}) - 1.41$

3.1.2.1.4.1. Vehicles locked gear ratios
 The following conditions for selection of gear ratios are possible:
 (a) If one specific gear ratio gives an acceleration in a tolerance band of 5 per cent of the reference acceleration $a_{\text{wot ref}}$ not exceeding 2.0 m/s^2 , test with that gear ratio.

ECE/TRANS/WP.29/GRB/2017/6 - (Germany and OICA) Proposal for Supplement 3 to the 03 series of amendments to Regulation No. 51 (Noise of M and N categories of vehicles)

- The tolerance of test acceleration is only $\pm 5\%$, which is much lower than the tolerance of test mass (nearly $\pm 15\%$).
- -10% and $+10\%$ comparing test shows it has little changes in the sound level, but high influence on acceleration. Which will lead to different test gears and 1.5 dB(A) difference.
- We change the tolerance of test mass or gear selection acceleration tolerance trigger?

Rights and responsibilities

● **Manufacturers**

- They do not have the responsibility to adjust the vehicle acceleration performance even it is high than $2m/s^2$.

- They have the rights to change the vehicle before COP test, including the acceleration performance and tyres selection.

● **Technical Service Organizations**

- They have the rights to make the decision on the test situation like when or if the vehicle need a pre-acceleration according to the vehicles performance, but not need to get the agreement of manufacturers.

- They have the rights to know what is the normal road use condition, and all the changes of vehicle during the test should be in the monitoring of them.



Thanks for your attention



Web site: www.catarc.org.cn

