

Some proposals to improve efficiency of road vehicle noise regulation

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Background

What could be a problem ?

- 1) Dispersion between day-to-day and track-to-track
- 2) Different interpretation of a text

What could be a risk ?

- Non compliance during controls.
- Increase negative relation and competition between manufacturers, technical services, authorities.
- Loosing trust on noise standards.
- Loosing trust on industry

1) Dispersion between day-to-day and track-to-track

Some answers from regulations :

- Laboratory alignment
 - *Regulation EC (No) 1222/2009, tyre labelling*
- Temperature correction : ECE117

What to do ?

- As temperature correction is already applied on ECE117, we could start by ECE51.
- As laboratory alignment already applied on labelling, we could start by ECE117 and extend to ECE51.

2) Different interpretations of a text

- Clarity and simplification of our regulations (e.g. flowchart)
- Harmonize selection of representative vehicle , worst case, ...

2) Different interpretations of a text

Transmission Set Up :

If MT, the vehicle is tested on locked-gear

If AT, the vehicle could be tested either in locked gear or non-locked gear with the following “*Gear ratio selection*” condition :

“If the vehicle allows different transmission setups like automatic or manual gear selection and/or different software programs or modes (e.g. sporty, winter, adaptive) leading to valid accelerations, the vehicle manufacturer shall prove to the satisfaction of the Technical Service, that the vehicle is tested in the mode which achieves an acceleration being closest to $a_{wot\ ref.}$ ”

(ECE51.03 Annex 3)

Question : Is it really clear how to prove which is the better mode to be tested ?

2) Different interpretations of a text

Transmission Set Up :

The vehicle transmission, gear, or gear ratio may be controlled by electronic or mechanical measures to avoid the activation of a kick-down function.”

Definition of kick-down : A method of changing gear in a car with automatic transmission, by fully depressing the accelerator

Therefore, it is permitted to establish and use electronic or mechanical devices, including alternate gear selector positions, to prevent a downshift to a gear ratio which is typically not used for the specified test condition in urban traffic.

Question :

- Is it really clear what is kickdown?
- What are electronic or mechanical devices? Which effect on vehicle ?

Different interpretations of a text

Selection of representative vehicle : ECE51.03 Vehicle type for M1/N1

- The shape or materials of the engine compartment and its soundproofing;
- The type of engine (positive or compression ignition, two- or four-stroke, reciprocating or rotary piston), number and capacity of cylinders, number and type of carburettors or injection system, arrangement of valves, or the type of electric motor;
- Rated maximum net power and corresponding rated engine speed(s); however if the rated maximum net power and the corresponding rated engine speed differs only due to different engine mappings, these vehicles may be regarded as from the same type;
- The silencing system.

Question : Is it really clear how to select representative vehicle ?

2) Different interpretations of a text

Selection of representative vehicle : Transmission set-up

Transmissions set-up is not part of the Vehicle Type definition

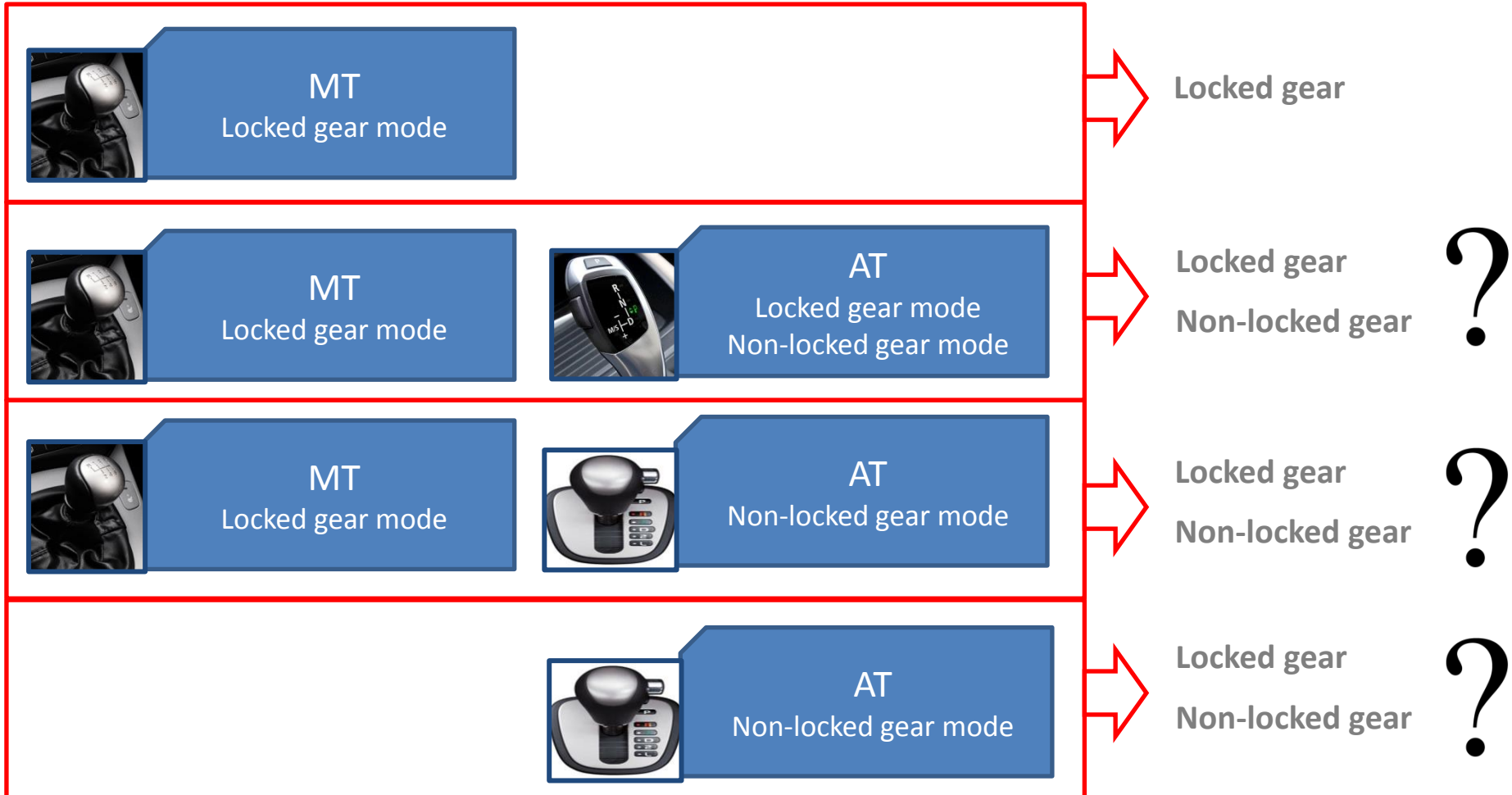
→ The representative vehicle selected could be either in locked gear, non-locked gear or both

Questions :

- How to select transmission set-up for the representative vehicle?

2) Different interpretations of a text

Selection of representative vehicle : Transmission set-up



2) Different interpretations of a text

Selection of representative vehicle : Mass

The test mass has to be measured with +/- 5% compared to target mass.

- Mass is not part of the Vehicle Type definition. In that case, the representative vehicle selected for testing could be for example, a 5 seats or 7 seats. In that case, a urban and L_{urban} could be different.

Questions : How is it possible to propose a family based on vehicle mass range ?

2) Different interpretations of a text

- Continue work done by GRB, ISO to update the text to improve clarity and simplification. Enforce exchange between contracting parties and organization.
 - Consider it as a specific topic for GRB
- If it is not possible to be included in regulation directly, propose recommendation document (excel sheet, ...)