

Proposal for a new supplement to the original version and the 01 series of amendments to UN Regulation No. 154

This document aims at improving the clarity of the requirements regarding inclusion of vehicles in a road load family on the basis of the n/v ratios. The modifications to the current text of the Regulation are marked in bold for new or strikethrough for deleted characters.

I. Proposal

In the original version and the 01 series of amendments

Paragraph 6.3.3.; amend to read:

"6.3.3. Road load family

Only vehicles that are identical with respect to the following characteristics may be part of the same road load family:

- (a) Transmission type (e.g. manual, automatic, CVT) and transmission model (e.g. torque rating, number of gears, number of clutches, etc.). At the request of the manufacturer and with approval of the approval authority, a transmission with lower power losses may be included in the family;
- (b) n/v ratios (engine rotational speed divided by vehicle speed). This requirement shall be considered fulfilled if, for all transmission ratios concerned **and for a single tyre rolling circumference**, ~~the difference with respect to the transmission ratios~~ **n/v ratios do not exceed those of the vehicle tested for road load determination most commonly installed transmission type is within by more than 25 per cent;**
- (c) Number of powered axles;
- (d) Number of wheels per axle.

If at least one electric machine is coupled in the gearbox position neutral and the vehicle is not equipped with a vehicle coastdown mode (paragraph 4.2.1.8.5. of Sub-Annex 4) such that the electric machine has no influence on the road load, the criteria in paragraph 5.6.2. (a) and paragraph 5.6.3. (a) shall apply.

If there is a difference, apart from vehicle mass, rolling resistance and aerodynamics, that has a non-negligible influence on road load, that vehicle shall not be considered to be part of the family unless approved by the approval authority."

II. Justification

1. The concept of the most commonly installed transmission type is difficult to establish at Type Approval and does not give a physical basis for the assessment.
2. The shortest overall gear ratio is the worst case for this assessment and therefore a plus/minus tolerance is unnecessary.

3. For information, it is normal practice to refer to “n/v ratios” but use units of km/h per 1000 rpm which would correctly be v/n. In the development of WLTP legislation it was decided to remove this inaccuracy and define n/v as rpm per km/h. This is important to understand that a shorter gear ratio gives a numerically higher n/v ratio.
