

WP.29

March 2006

Informal document No. WP.29-138-21
(138th WP.29, 7-10 March 2006,
agenda item 8.2.)

**New test method
for
the measurement of sound emissions
of
motor vehicles**



Federal Ministry
of Transport, Building
and Urban Affairs

Dietmar Meyer – GRB-Chairman

Proposals for amendments to Regulation No. 51

ECE/TRANS/WP.29/2006/4

transmitted by the Working Party on Noise (GRB)

ECE/TRANS/WP.29/2006/31

transmitted by the representative of the
European Community (EC)



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Similarities of both proposals

- the new test method shall reflect sound levels from vehicles during normal driving in urban traffic.
- For passenger cars/light duty vehicles:
 - power train and tyre noise shall be covered (acceleration and constant speed test)
 - engine speed decreases
 - target speed (50 km/h at PP`)
 - tyre selection needs to be amended



Similarities of both proposals

- For heavy duty vehicles
 - comparable to the existing method
 - engine speeds in the “green area” (85% of rated engine speed)
 - lower entrance speed
 - tested with payload
 - tyre selection needs to be amended (a minimum tread depth of 80 per cent of the full tread depth)



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Similarities of both proposals

- Additional sound emission provisions (ASEP) are needed for M_1 and N_1
 - noise output at higher engine speeds
 - irregular sound emission shall be prohibited by performance requirements



1. Scope

GRB has recommended to split the scope in Parts A and B:

Part A contains:

- the present test method and
- the present limit values

Part B contains:

- the new test method (without limit values)

Later on Part A should be deleted and Part B becomes mandatory (with the new limit values and ASEP).



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2. Paragraph 5.1

GRB: Vehicles **shall** be tested according to the existing test method and in addition they **can** be tested according to the new method.

EC: Vehicles **shall** be tested according to both test methods (existing one and new one).

Measurement results of the new test method have to be added to the communication form.



3. Tyre selection (Paragraph 2.2.2.)

EC: The tyre shall be representative for the axle.

Comment:

Different interpretations are given because specific definitions are missing.

GRB: The tyre shall be representative for the vehicle.

Justification:

Tyres are defined in ECE-R 30/54.

Specific definitions for tyres used on e.g. traction axle or driving axle are not given.



4. Vehicle classification

GRB: The new test method is much more related to the power to mass ratio of the vehicle.

Therefore GRB has developed a new vehicle classification which is in line with the technical requirements of the new test method and which follows the technical development of the vehicles.

EC: Stays with the current classification.



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4. Vehicle classification

1. Vehicles tested by acceleration and constant speed test

M_{1a} is a M_1 vehicle with a $PMR \leq 120$

M_{1b} is a M_1 vehicle with $120 < PMR \leq 200$

M_{1c} is a M_1 vehicle with a $PMR > 200$

M_{1d} is a M_1 vehicle fulfilling off-road requirements

+ wading depth * ≥ 500 mm

+ hill climbing ability $\geq 35^\circ$

N_{1a} and M_{2a} are vehicles with a $mass_{max} \leq 2.5$ t

N_{1b} and M_{2b} are vehicles with $2.5 \text{ t} < mass_{max} \leq 3.5$ t

* GRB has recommended the determination of the wading depth



4. Vehicle classification

2. Vehicles tested by acceleration test

M_{2c} is a M_2 vehicle with a mass $m_{\max} > 3.5 \text{ t}$

M_3 vehicles

N_2 vehicles

N_{3a} is a N_3 vehicle with an engine power $\leq 300 \text{ kW}$

N_{3b} is a N_3 vehicle with an engine power $> 300 \text{ kW}$

