The Russian Federation
Proposal for Amendment 2
to the Consolidated
Resolution on the
Construction of Vehicles
(R.E.3)
The proposal concerns:

- Specifications on category G for road tractors
- Specifications on the formulation of requirements on noise
- Modification of the method of measuring vehicle internal noise
- Recommended permissible levels of vehicle internal noise
Background

At the 55th and 56th GRB sessions the proposals of the Russian Federation concerning the Consolidated Resolution on the Construction of Vehicles R.E.3 (ECE/TRANS/WP.29/78/Rev.2) had been considered. The Russian expert introduced document ECE/TRANS/WP.29/GRB/2012/12. GRB decided to resume discussion on this subject at its February 2013 session, awaiting revised proposals by the Russian Federation and reproducing separately the different subjects of the said document.
## Specifications on category G for road tractors

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Road Tractor</th>
<th>Tractor-lorry-trailer combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>At least half the wheels are driven</td>
<td>Two axles from three</td>
<td>Two axles from five (Two axles from six)</td>
</tr>
<tr>
<td>At least one differential mechanism</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Climb a 25 per cent gradient</td>
<td>Yes</td>
<td>???</td>
</tr>
<tr>
<td>Approach angle must be at least 25°</td>
<td>26°</td>
<td>26°</td>
</tr>
<tr>
<td>The departure angle must be at least 25°</td>
<td>48°</td>
<td>8°</td>
</tr>
<tr>
<td>At ramp angle must be at least 25°</td>
<td>30°</td>
<td>20°</td>
</tr>
<tr>
<td>The ground clearance under the front axle must be at least 250 mm</td>
<td>More then 250 mm</td>
<td>More then 250 mm</td>
</tr>
<tr>
<td>The ground clearance under the rear axle must be at least 250 mm</td>
<td>More then 250 mm</td>
<td>More then 250 mm</td>
</tr>
<tr>
<td>The ground clearance between the axles must be at least 300 mm</td>
<td>230</td>
<td>230 or 280 ???</td>
</tr>
</tbody>
</table>
Paragraph 2.8.2.2.: The text of the UN R.E.3 does not specify, how to test the road tractor for towage semitrailers (with or without semitrailer) in order to refer them to G category vehicles. It may be possible to test a single tractor, which in practical conditions practically is not used on roads, and erroneously refer it to G category, although the basic designation of a trailer is to tow semitrailers on public roads. The proposed modification excludes possible reference of tractors to G category vehicles.
Specifications on the formulation of requirements on noise

- **Paragraph 3.** The proposal specifies that the column "Tractors" concerns T category vehicles and corrects the heading of the UN Regulation No. 117.

- **Paragraph 4.** The proposal gives more details of the scopes of UN Regulations concerning vehicle noise.

- **Paragraph 8.4, 8.4.4., 8.8.1.2., 8.8.2.1.1., 8.8.2.1.3., 8.8.2.1.4.:** Editorial corrections providing for uniformity of the provisions.

- **Paragraph 8.8.2.1.2.** The specification applies to noise emitted by three-wheeled vehicles in use. Also it is proposed to specify vehicle categories as established by the R.E.3.
Modification of the method of measuring vehicle internal noise

This informal document includes the amendments concerning:

- Means of measurement of internal noise;
- Requirements to a test site;
- Requirements to test samples;
- Test conditions and installation of microphones;
- Analysis of test results
• Paragraph 8.38. and its subparagraphs:
The present text contained in UN R.E.3. is based on the ISO 5128 standard, developed in 1980s. This proposal concerns both specifications of requirements of the measuring equipment, and changes to the test technique due to the development of vehicle design in the last decades.
Recommended permissible levels of vehicle internal noise
The histogram of distribution of noise levels on a driver workplace and in passenger compartment at acceleration according to GOST P 51616 (386 samples)

- **Driver workplace**
- **Passenger compartment**

- Normal - 78 dB (A)
- Normal 80 dB (A)

- Such called sport cars

- Train layout TC

- Production in Russia and China
The histogram of distribution of noise levels on a driver workplace and in passenger compartment at acceleration according to GOST P 51616 (95 samples)

Noise level in dB A

- РМВ
- салон
The histogram of distribution of noise levels on a driver workplace and in passenger compartment at acceleration according to GOST P 51616 (24 samples)
Statistics
Category N1 (m < 2000 kg)

The histogram of distribution of noise levels on a driver workplace at acceleration according to GOST Р 51616 (20 samples)

Noise level in dB A

Мрмв=74.8
Норма - 80 дБ (A)
The histogram of distribution of noise levels on a driver workplace and in passenger compartment at acceleration according to GOST P 51616 (79 samples)

- **Driver workplace**
- **Passenger compartment**

Noise level in dB A

- Mean = 79.8
- Median = 81.1

NORM - 82 dB (A)
The histogram of distribution of noise levels on a driver workplace at acceleration according to GOST P 51616 (39 samples)
The histogram of distribution of noise levels on a driver workplace and in passenger compartment at acceleration according to GOST P 51616 (39 samples)

Noise level in dB A

- Category N3
  - Statistical analysis
  - Histogram representation
  - 39 samples
  - Mrmv = 78.0 dB A
  - Norma - 82 dB (A)
The histogram of distribution of noise levels on a driver workplace at acceleration according to GOST P 51616 (80 samples)

Noise level in dB A
Statistics
Category M3 (engine in the front)

The histogram of distribution of noise levels on a driver workplace at acceleration according to GOST P 51616 (31 samples)

Noise level in dB A

0.0 10.0 20.0 30.0 40.0 50.0 60.0 70.0 80.0

% 40.0 30.0 20.0 10.0 0.0

МРМВ=79.5

Норма - 80 дБ (А)
The histogram of distribution of noise levels in passenger compartment at acceleration according to GOST P 51616 (64 samples)
The histogram of distribution of noise levels in passenger compartment at acceleration according to GOST P 51616 (64 samples)
Statistics
Category M3 (class I)

The histogram of distribution of noise levels in passenger compartment at acceleration according to GOST P 51616 (49 samples)
<table>
<thead>
<tr>
<th>Motor vehicle</th>
<th>Permissible levels of noise, dB (A) *</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Motor vehicles for transportation of passengers</strong></td>
<td></td>
</tr>
<tr>
<td>Categories M2 and M3</td>
<td></td>
</tr>
<tr>
<td>(a) at the driver’s seat</td>
<td>78</td>
</tr>
<tr>
<td>(a) in the passenger compartment of class B, II and III buses</td>
<td>80</td>
</tr>
<tr>
<td>(a) in the passenger compartment of class A and I buses</td>
<td>82</td>
</tr>
<tr>
<td>Categories M2 and M3 with the engine located in front of adjacent to the</td>
<td>80</td>
</tr>
<tr>
<td>driver’s seat, including special purpose buses manufactured on the chassis of</td>
<td></td>
</tr>
<tr>
<td>trucks</td>
<td></td>
</tr>
<tr>
<td><strong>Motor vehicles for transportation of goods</strong></td>
<td></td>
</tr>
<tr>
<td>Category N1 with a laden mass up to 2 t</td>
<td>80</td>
</tr>
<tr>
<td>Category N1 with a laden mass from 2 t up to 3.5 t</td>
<td>82</td>
</tr>
<tr>
<td>Categories N2 and N3</td>
<td>82</td>
</tr>
<tr>
<td>Categories N2 and N3 (trucks with a sleeping berth)</td>
<td>80</td>
</tr>
<tr>
<td>Semitrailers for transportation of passengers</td>
<td>80</td>
</tr>
<tr>
<td><strong>Trolley-buses</strong></td>
<td></td>
</tr>
<tr>
<td>(a) at the driver’s seat</td>
<td>78</td>
</tr>
<tr>
<td>(a) in the passenger compartment</td>
<td>82</td>
</tr>
<tr>
<td>Vehicles with the pneumatic braking system, when the compressed air is</td>
<td>70</td>
</tr>
<tr>
<td>discharged from the pneumatic valves after the actuation of brakes</td>
<td></td>
</tr>
</tbody>
</table>

* Note: The permissible noise levels for all-wheel drive motor vehicles of categories M2G, M3G, N1G, N2G, and N3G may be exceeded by not more than 1 dB (A).
Paragraphs 8.8.1. and 8.8.1.3.: These paragraphs recommend limit values on vehicle internal noise. These data will be useful in a technological level assessment of internal noise taking into account the technique specified in paragraph 8.38. Limit values are set for both the driver working space and for the passenger compartment. The proposed values are based on the statistics of a considerable number of measurements from the Russian Federation at the time of vehicle homologation within the framework of the national vehicle certification system. Several editorial corrections are also introduced.
THANK YOU!