ETRTO POSITION

41st GRB Meeting
Geneva 22/02/2005

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(41st GRB, 22-24 February 2005, agenda item 1.2.1.)

GRB- 22/02/05
Amendment of UN/ECE Regulation 51-03

ETRTO Position

The tyre should not be doubly legislated unless the new amended vehicle noise regulation 51 takes into account the limit(s) for the tyre in a harmonised way with the current Tyre/Road Noise Directive & ECE/Regulation 117.

Any tyre type fulfilling the requirements of EC/Dir 2001/43 & UN-ECE/Reg 117 must be acceptable for conducting the vehicle homologation.
AMENDMENT of UN/ECE REG 51

- Referring to Paragraph 2.2.2 Footnote 1
  The tyre contribution for overall sound emission being important, this Regulation has taken into account the tyre/road sound emission regulations

Full coherence between ECE/Regulations 51-03 and ECE/Regulation 117 needs to be addressed
Limits for the New Amd. UN/ECE Reg. 51-03

The new method has a different approach for the evaluation of the vehicle sound overall emission & is not correlated to the current one.
Therefore the limits for the new method should be established taking into account the new testing conditions only.

ETRTO has established a procedure to evaluate the coherence between the 2 Regulations.
COHERENCY BETWEEN TYRE & VEHICLE REGULATIONS

Power Train Contribution
50%

Tyre Contribution
50%

Power Train/Tyre ratio
50% - 50%

Corresponds Power Train Contribution
72 dB(A)

Tyre Rolling sound Emission
76 dB(A) *@ 80 kp
70 dB(A) @ 50 kph
+ (~1,5 to 2) dB(A) (tyre torque)

Limit for the overall Vehicle Sound Emission
(Power Train / Tyres ratio)
50% -50%
75 dB(A)

* To cover all tyre sizes that can fit M1 vehicles the highest tyre limits of ECE/Reg 117 is considered
Proposed Limits
versus
EC/Dir 2001/43 & ECE/Reg 117
French proposition for M1 vehicle category

Unique limit for gasoline & diesel vehicles :

73 dB(A)

• Off-road & sports category:
  *Limits to be proposed after their definition is clarified??*
# Possible Impact of the French proposition on ECE/Reg 117

<table>
<thead>
<tr>
<th>M1 vehicles</th>
<th>Sound level limits</th>
<th>Clear definition is needed for M1 sportive &amp; M1 off-road</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ECE/Reg 51-03</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>M1</td>
<td>73</td>
<td></td>
</tr>
<tr>
<td>M1 sportive</td>
<td>? To be defined</td>
<td></td>
</tr>
<tr>
<td>M1 off-road</td>
<td>? To be defined</td>
<td></td>
</tr>
<tr>
<td><strong>Impact on Reg 117</strong></td>
<td><strong>M1 = -2 dB(A)</strong></td>
<td></td>
</tr>
<tr>
<td>Highest Limit C1(e)</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td></td>
<td>~74</td>
<td></td>
</tr>
</tbody>
</table>
German proposition for M1 category

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>STEP 1 dB(A)</th>
<th>STEP 2 dB(A)</th>
<th>STEP 3 dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M1</td>
<td>71</td>
<td>70</td>
<td>69</td>
</tr>
<tr>
<td>M1s</td>
<td>73</td>
<td>72</td>
<td>71</td>
</tr>
<tr>
<td>M1o</td>
<td>72</td>
<td>72</td>
<td>71</td>
</tr>
</tbody>
</table>

The basis for the definition of M1s & M1o needs to be clarified
### Possible Impact of the German proposition on Tyre Dir 2001/43 & ECE/Reg 117

<table>
<thead>
<tr>
<th>M1 vehicles</th>
<th>Limits for Reg 51.03</th>
<th>Impact on Reg 117 Highest Limit C1(e)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sound level as Step 1 dB(A)</td>
<td>Sound level as Step 2 dB(A)</td>
</tr>
<tr>
<td>Limits for Reg 51.03</td>
<td>71</td>
<td>70</td>
</tr>
<tr>
<td>Impact on Reg 117 Highest Limit C1(e)</td>
<td>-4 dB(A)</td>
<td>-5 dB(A)</td>
</tr>
<tr>
<td>76</td>
<td>~72</td>
<td>~71</td>
</tr>
</tbody>
</table>
Is it realistic to require in the future that four tyres would have the same rolling sound emission as only one today?
Feasibility & Economic impact

As already practiced for many regulations we request that a feasibility study & a cost benefit analysis be performed.
The Compromise to achieve

• The challenge is to build a tyre whose performance characteristics (especially safety related) are all maximized:

- Safety
  - Endurance
  - High speed capability
  - Dry and wet braking
  - Aquaplaning
  - Handling
  - Heat build up

- Environment
  - Tread wear
  - Rolling resistance
  - Tyre weight
  - Tyre/road noise
Legislation for Tyre Rolling Sound Emissions
Points to consider

– Improvements in technology allow today’s tyre industry to better manage the interactions between SPL & wet braking distance.
– If limits for SPL are reduced significantly then there is a risk that tomorrow’s tyre industry will no longer be able to manage the tradeoffs.
– Focusing on SPL might jeopardise other safety or environmental performances.
– The level of any performance criterion is the result of the compromise chosen for the other criteria whether legislated or not.
– Care has to be taken when fixing limits based only on the analysis of the tyre rolling sound emission values of a sample of vehicles without considering the whole population of vehicles & tyres.
Legislation for Tyre Rolling Sound Emissions
Points to consider

– Current & future trends in vehicle design entail larger & wider tyres.

– For the moment the benefits in sound level reduction according to the UN-ECE Reg 51.03 have not been demonstrated on the public roads.
THANK YOU