Strengthening Tyre Limits

Informal doc GRB 62-11-Rev.1

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Ministry of Infrastructure and the Environment
The Netherlands

GRB 64, 5-7 September 2016
Statistics of tyre label values in relation to the limit values in EC/661/2009

Erik de Graaff

Client: Netherlands Ministry of Infrastructure and Environment
Question of the ministry

• What is the actual tyre performance relative to:
  – the EC/661/2009 limits and
  – the EC/1222/2009 tyre label classes
Workplan

• Collect statistical analysis of tyre label data
• Data source: VACO database (Netherlands tyre branch organisation)
• C1, C2 and C3 tyres; summer, winter and special
• subset of top 7 brands and top 7 sizes
  – Pro:
    • Representing 90% of the tyres sold in the Netherlands
    • Good correlation with performance in the street
    • Good correlation with OEM tyres and premium tyre brands
    • Stable data set for multi year evaluation
  – Con:
    • B and C brands are not very well represented
      – This was thought acceptable as the current tyre limits apply earlier for “OEM” tyres compared to “all” tyres
Note: Representativity of a top 6
Results

• Trends
  – 2007-2013 (Noise only)
  – 2013-2016 (RR, WG and Noise)

• Statistics 2016
Noise of C1 tyres: 2007 vs. 2013

C1 noise, influence of time
average of C1 tyres 175-245 mm width

ETRTO data 2007: 71.5 dB(A)
Label data Nov 2013: 69.9 dB(A)

C1 noise, influence of time
C1 tyres ≤ 245 mm width

- ETRTO data 2007: avg = 71.5 dB(A)
- Label data Nov 2013: avg = 69.9 dB(A)
Noise of C2 and C3 tyres: 2007 vs. 2013

C2 noise, influence of time
average of C2 tyres in database

C2 noise, influence of time
C2 tyres in database

C3 noise, influence of time
average of C3 tyres in database

C3 noise, influence of time
C3 tyres in database
Trends 2013-2016

Fuel efficiency class C1

Shift towards better performance
## Trends 2013-2016

<table>
<thead>
<tr>
<th></th>
<th>2013</th>
<th>2016</th>
<th>delta</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>avg</td>
<td>avg</td>
<td></td>
</tr>
<tr>
<td>C1</td>
<td>RR</td>
<td>4,4</td>
<td>4,0</td>
</tr>
<tr>
<td></td>
<td>WG</td>
<td>2,6</td>
<td>2,3</td>
</tr>
<tr>
<td></td>
<td>Noise</td>
<td>1,9</td>
<td>1,8</td>
</tr>
<tr>
<td></td>
<td>dB</td>
<td>69,9</td>
<td>69,7</td>
</tr>
<tr>
<td>C2</td>
<td>RR</td>
<td>4,3</td>
<td>4,1</td>
</tr>
<tr>
<td></td>
<td>WG</td>
<td>2,7</td>
<td>2,6</td>
</tr>
<tr>
<td></td>
<td>Noise</td>
<td>2,0</td>
<td>1,9</td>
</tr>
<tr>
<td></td>
<td>dB</td>
<td>71,6</td>
<td>71,2</td>
</tr>
<tr>
<td>C3</td>
<td>RR</td>
<td>3,7</td>
<td>3,6</td>
</tr>
<tr>
<td></td>
<td>WG</td>
<td>2,5</td>
<td>2,5</td>
</tr>
<tr>
<td></td>
<td>Noise</td>
<td>1,8</td>
<td>1,6</td>
</tr>
<tr>
<td></td>
<td>dB</td>
<td>72,2</td>
<td>71,9</td>
</tr>
</tbody>
</table>

Consistent trend for better performance in all aspects/classes
2016 Statistics C1 tyres

- Blue bars: percentage per label class
2016 Statistics C1 tyres

- Blue bars: percentage per label class
- Black lines: cumulative percentage
2016 Statistics C1 tyres

- Blue bars: percentage per label class
- Black lines: cumulative percentage
- Orange lines limit value EC/661/2009 (phase 1 and 2)
2016 Statistics C2 tyres

**C2 tyres**

**Fuel efficiency class**

**C2 tyres**

**Wet grip class**

**C2 tyres**

**Noise class**

**C2 tyres**

**Noise dB**
2016 Statistics C3 tyres

C3 tyres
Fuel efficiency class

C3 tyres
Wet grip class

C3 tyres
Noise class

C3 tyres
Noise dB

Cumulative [%]

[dB(A)]
2016 Statistics C3 tyres

A small percentage of tyres does not meet the 2012 limits

Significant number of tyres perform (much) better than the limits
2016 Statistics C3 tyres

50 percentile complies with “CBA” label
Summary of observations

• (consistent) trend for better performance in all aspects/classes

• Only a small percentage of the tyres (1-5%) does not yet meet the 2012 limits (Note: these can be legally sold for some time)

• Significant number of tyres perform (much) better than the limits

• The 50 percentile of these tyres complies roughly with
  – Label C for Rolling Resistance
  – Label B for Wet Grip
  – Label A for Noise
Strengthening Tyre Limits
Regulation 661/2009 and 1222/2009

Johan Sliggers
Ministry of Infrastructure and the Environment
The Netherlands
132nd MVWG, July 2016
The average tyre label in the NLs
1 Extra fuel costs per year (17000 km/yr)

2 Extra braking distance wet road at 80 km/h (Braking distance A=27 m)

3 Noise*
   • A: 2 times as quiet
   • B: average
   • C: 2 times as loud

* Doubling noise is 3 dB
**Triple-A tyres – benefits for environment, noise, safety and economy**

Results of ‘Potential benefits of Triple-A tyres in the Netherlands and the EU, a study performed by order of the Dutch Ministry of Infrastructure & Environment’

(source: www.garageadrem.nl)
## Potential Benefits Best Tyres in EU

<table>
<thead>
<tr>
<th>Potential benefits</th>
<th>Energy</th>
<th>Safety</th>
<th>Noise</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual fuel savings [ billion l]</td>
<td>17</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Annual CO$_2$ reduction [ MtCO$_2$]</td>
<td>42</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reduced number of fatalities</td>
<td>-</td>
<td>2567</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reduced number of slight/serious injuries</td>
<td>-</td>
<td>19631/12353</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reduced number of annoyed people [millions]</td>
<td>-</td>
<td>-</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>Reduced number of sleep disturbed people [ millions]</td>
<td>-</td>
<td>-</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Annual cost savings [ billion €]</td>
<td>13</td>
<td>10</td>
<td>11</td>
<td>34</td>
</tr>
</tbody>
</table>
Tyre label (Reg. 1222/2009)
## Rolling resistance (Reg. 661/2009)

<table>
<thead>
<tr>
<th>Tyre type</th>
<th>Current value (kg/ton)</th>
<th>Suggestion NLs</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>≤10.5</td>
<td>-1.5</td>
</tr>
<tr>
<td>C2</td>
<td>≤9.0</td>
<td>-1.0</td>
</tr>
<tr>
<td>C3</td>
<td>≤6.5</td>
<td>-0.5</td>
</tr>
</tbody>
</table>
# Wet grip indexes (Reg. 661/2009)

<table>
<thead>
<tr>
<th>Tyre type</th>
<th>Current value (G)</th>
<th>Suggestion NLs</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>≥1.1 (1.0; 0.9)</td>
<td>+0.3</td>
</tr>
<tr>
<td>C2</td>
<td>≥0.95 (0.85)</td>
<td>+0.3</td>
</tr>
<tr>
<td>C3</td>
<td>≥0.80 (0.65)</td>
<td>+0.3</td>
</tr>
</tbody>
</table>
## External Noise (Reg. 661/2009)

<table>
<thead>
<tr>
<th>Tyre type</th>
<th>Current limit value (dB(A))</th>
<th>Suggestion NLs</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1A-E</td>
<td>70-74</td>
<td>-3dB</td>
</tr>
<tr>
<td>C2</td>
<td>72-73</td>
<td>-2dB</td>
</tr>
<tr>
<td>C3</td>
<td>73-75</td>
<td>-4dB</td>
</tr>
</tbody>
</table>
Tyre label (Reg. 1222/2009)
## Potential Benefits EU of NLs suggestion

<table>
<thead>
<tr>
<th>Potential benefits</th>
<th>Energy</th>
<th>Safety</th>
<th>Noise</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual fuel savings [ billion l]</td>
<td>13.5</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Annual CO₂ reduction [ MtCO₂ ]</td>
<td>35</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reduced number of fatalities</td>
<td>-</td>
<td>2000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reduced number of slight/serious injuries</td>
<td>-</td>
<td>15000/10000</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Reduced number of annoyed people [millions]</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>13</td>
</tr>
<tr>
<td>Reduced number of sleep disturbed people [ millions]</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>6</td>
</tr>
<tr>
<td>Annual cost savings [ billion €]</td>
<td>10</td>
<td>8</td>
<td>11</td>
<td>29</td>
</tr>
</tbody>
</table>
Question to the European Commission

- Please start with the evaluation and subsequent strengthening of the limit values for tyres on wet grip, rolling resistance and noise (Regulation 661/2009).

- Adjust Regulation on Tyre Labelling accordingly (Regulation 1222/2009)
Adjustment to inf doc GRB-62-11-Rev.1

Proposal for amendments to the 02 series of amendments to Regulation 117