Item 0.4

GTB Working Group
Light Sources

Status February 2011

Please view in presentation mode; animations included
Content

• Scope
  – Agenda

• Organization
  – Working group
  – Tools

• Work items
  – Permanent
  – New

• Outlook
Scope

“All aspects of light sources”
within the scope of GTB

Agenda

• Regulation 37
• Regulation 99
• Regulation xxx LED light sources

• Other light source matters
  – Light Source Modules
  – Non-replaceable filament lamps
• IEC, ISO and CIE
• US
Organization - groups

Working Group

Task forces

Active

• LED light source categories ($R_{LED}$, LR1, …)

Closed (2000-2010)

• D5S
• Light source control gear
• DRL light source categories (P13W, H15)
• AFS light source categories
Organization - tools

Tools

– List of work items
– Progress of amendments sheet
– Consolidated regulations at different stages
– Criteria tool for evaluation of proposals for new light source categories

Throughput time new light source categories:
37 months average (1st proposal – enter into force)
Progress - groups

Work item
• 1st Proposal
  – Origin
  – Date
• WG LS
• GTB
• GRE
• WP.29
• Expected date of enforcement

• Document numbers
• Date of approval
### Progress - documents

<table>
<thead>
<tr>
<th>Item</th>
<th>WG LS</th>
<th>GTB</th>
<th>GRE</th>
<th>Proposal</th>
<th>1st</th>
<th>Subject</th>
<th>WP.29</th>
<th>R37</th>
</tr>
</thead>
<tbody>
<tr>
<td>wi 055</td>
<td>LS-353, LS-369, LS-375-77, LS-381-2, LS-381-4</td>
<td>05/08</td>
<td></td>
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<td>WGP/2007/08 03/06</td>
<td>Colour endurance test</td>
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</tbody>
</table>

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**GTB Document rev. of No. CE-4559**
The regulatory process goes hand in hand with development process
• Light source regulations prescribe interchangeability requirements and allow less design freedom
• No development nor investments without sales is foreseen

➢ The regulatory process goes hand in hand with development process
➢ Progress of amendments info is necessary for alignment of industrial milestones
Progress – after GRE

- In force
  Original/ Revision/ Amendment/ Corrigendum

- Entered in force
  Official documents awaited
  (WP.29 documents to be converted and published)

- Expected date of entry into force
  Amendment (6-9 months after WP.29)
  Corrigendum (WP.29 decision)

- Good guess of a date of entry into force
  After GRE approval
### Progress – after GRE

#### Example

<table>
<thead>
<tr>
<th>WP.29</th>
<th>In force</th>
<th>notification</th>
<th>Expected date of entry into force</th>
<th>Good guess of date of entry into force</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corr. 1 to Suppl. 34</td>
<td>June 2010</td>
<td>19-08-2010</td>
<td>19-08-2010</td>
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<td>Corr. 2 to Suppl. 32</td>
<td>November 2010</td>
<td>13-12-2010</td>
<td>28-12-2010</td>
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<td>Suppl. 33</td>
<td>March 2010</td>
<td>08-12-2010</td>
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<td>November 2010</td>
<td>09-12-2010</td>
<td>23-12-2010</td>
<td>23-12-2010</td>
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<tr>
<td>Draft Suppl. 36</td>
<td>November 2010</td>
<td>23-12-2011</td>
<td>23-12-2011</td>
<td>23-12-2011</td>
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</tbody>
</table>

- **In force; Official publications awaited**
- **Expected date of entry into force**
- **Good guess of date of entry into force**

**To be awaited**
- Awaiting conversion into Amendment or Corrigendum (at the appropriate moment)
### Progress – items after GRE

**Completed WG LS proposals on track to entry into force/ publication**

<table>
<thead>
<tr>
<th>Regulation</th>
<th>Work item</th>
<th>New</th>
<th>Amendments</th>
<th>Corrections</th>
<th>Maintenance</th>
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<tbody>
<tr>
<td>General</td>
<td>wi034</td>
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<td>Light Source Control Gear (Definition of objective luminous flux)</td>
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<tr>
<td>R37</td>
<td>wi065</td>
<td>H16B</td>
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<td>Addition of ref. lum. flux at 13.2V for H16, H16B and PSX26W</td>
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<td>wi028</td>
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<td>Repetition correction O-ring issue for S categories of P19 and 24W</td>
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<tr>
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<td>wi068</td>
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<td>Voltage controlled dual halogen light source H9 and H9B</td>
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<td></td>
<td>wi028</td>
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<td>Definition of filament lamp missing</td>
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<td>wi042</td>
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<td>Deletion of light source categories (H14, S2, S3, all 6V)</td>
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<td>R99</td>
<td>wi066</td>
<td>DSS, D6S</td>
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<tr>
<td></td>
<td>wi066</td>
<td>D75</td>
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<td>R-LED</td>
<td>wi033</td>
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<td>New draft Regulation for LED light sources</td>
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<td></td>
<td>wi064</td>
<td>LR1</td>
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</table>
Evaluation

Criteria “tool”

GRE/2009/32

- Evaluation criteria that are applied to filament lamps of normal production
- Maintain excel base of data

- Light source regulations R37, R99 and $R_{\text{led}}$
  - Photometric, electrical and dimensional characteristics
  - Different character than other regulations: categories are standardized

- State-of-the-art technology (as in signatory countries)
- Other characteristics as formulated by WP.29:
  - higher levels of vehicle safety, environmental protection, energy efficiency
  - a need to reduce the diversity
The International Automotive Lighting and Light Signalling Expert Group

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GTB Document rev. of No. CE-4559
Work items - 1

Permanent

wi 028 Updating cap references IEC60061
wi 042 Phasing out light source categories/ types
wi 046 Maintain evaluation results of
new proposed categories in an EXCEL base

New

wi 067 Category H17
wi 061 P(R)15/5W (India)
wi 033 LED light sources; new categories LW2 and LR3
Work items - 2

Changes
wi 028 H27W/1 and H27W/2, definition of γ1 and γ2
wi 042 Phasing out of light source categories; set 3

Other light source related issues
wi 013 Non-replaceable filament lamps testing (ECE and IEC)

Other standards
wi 017 IEC 60809: Removal of sheets that are in R37, R99
wi 018 IEC 60810: Test requirements for LED light sources
Outlook - theoretical

- Research
- Learning
- Maturity
- Consolidation
- Phasing out

Time

Not on scale
Technology curves - theoretical

Filament  Halogen  HID  LED  OLED ?
Technology curves?
Outlook?

Not on scale
Question

Considering requirements to *approved* light sources:

Enforcement in the aftermarket is well defined?
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Automotive Tree of Light

Tree adapted from http://www.dragonartz.net/
END