generic approach

- electronic braking
  ECE-R 13

- electronic steering
  ECE-R 79

Framework
ECE-R 10

- Complex Electronic Vehicle Control System
  ECE-R xxx

Informal Document No. GRRF-56-25
(56th GRRF, 20-22 September 2004, agenda item 7.3.)
generic approach

single vehicle systems

ECE-R 13
incl. CECS annex

ECE-R 79
incl. CECS annex

...incl. CECS annex

complex vehicle systems

ECE-R xxx
CEVCS

56 GRRF
20.-22.09.2004
German Ministry of Transport, Building and Housing
Existing type approval

- network of electronic controlled:
  - steering systems
  - propulsion systems
  - brake systems
  - anti-theft systems
  - restraint systems
intention

- Increasing rate of CEVCS influencing vehicle’s control
  - autonomous cruise control
  - autonomous park assistance
  - lane keeping assistance
  - enhanced stability control
  - active pre-crash system
  - …
  ⇒ suitable type approval?

Systems not covered by type approval
engineering process

- brake approval
- steering approval
- anti-theft approval

⇒ mutual influence of physical data, priorities, status info
⇒ failure mode analysis of the entire system
existing type approval process

- brake approval
- anti-theft approval
- steering approval

safety concept for vehicle control system
existing type approval process

<table>
<thead>
<tr>
<th>approvals</th>
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<tbody>
<tr>
<td>brake</td>
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<td>steer</td>
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<th>new system</th>
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<tr>
<td>brake</td>
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<td>- one amended Type Approval and</td>
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<td>- forces two additional Type Approvals</td>
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ECE-R xxx CEVCS

- Anti-theft approval
- Brake approval
- Steering approval
- System safety concept approval
- Systems not covered by type approval

German Ministry of Transport, Building and Housing
ECE-R xxx CEVCS
ECE-R xxx CEVCS

- this approach
  - assesses the vehicle safety system for CEVCS
  - avoids multiple assessments
  - keeps CEL annexes (ECE-R 13, 13H, 79, …) to reduce type approval efforts for single systems
  - is based on voluntary usage
  - addresses system related approval (different vehicles, models or manufacturers)