CLEPA inputs for 12th VRU-Proxi IWG
26-28 November 2019
STATUS ON REVERSING MOTION

- The regulation should fulfill the GSR (General Safety Requirements) by EU for vehicle category M1, M2, M3, N1, N2, N3
- The current draft on reversing motion allows Vision and Detection system:

  - Paragraph 17: Requirements for detection systems

- The approach for detection system is based on ISO 17386:2010 (Manoeuvring Aids for Low Speed Operation (MALSO))
- Scope of ISO 17386 are light-duty vehicles, e.g. passenger cars, pick-up trucks, light vans and sport utility vehicles

Latest draft document VRU-11-12

Relevant for detection system:
1.) Reference ISO Standard (ISO 17386:2010) is mainly designed for PC => does not address CV applications

Reversing aids and obstacle-detection devices on heavy commercial vehicles are not addressed by this International Standard; requirements for those systems are defined in ISO/TR 12155.

2.) Reference ISO Standard (ISO 17386:2010) has the focus on USS solution

MALSO systems use object-detection devices (sensors) for ranging in order to provide the driver with information based on the distance to obstacles. The sensing technology is not addressed; however, technology affects the performance-test procedures set up in this International Standard (see Clause 7). The current test objects are defined based on systems using ultrasonic sensors, which reflect the most commonly used technology at the time of publishing this International Standard. For other sensing technologies possibly coming up in the future, these test objects shall be checked and changed if required.

3.) Test object with no link to VRU (Vulnerable Road Users)

<table>
<thead>
<tr>
<th>Material</th>
<th>Diameter</th>
<th>Length</th>
<th>Monitoring range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood, metal, or hard plastic</td>
<td>75 mm</td>
<td></td>
<td>All horizontal areas Test object H</td>
</tr>
</tbody>
</table>
4.) Detection range (ISO 17386:2010) => focus on existing PC applications using USS

5.) No consideration of crossing scenario

Test fits for M1, but does not really fit for larger categories (e.g. to N2 and N3 applications)

Source: Internet

VRU-Proxi-11-15 Draft minutes

- It was remarked that accident statistics indicate that moving pedestrian (crossing at the rear) ought to be addressed as Reversing Motion scenario. Chair took notice and proposed after consideration to move this to a second phase in order to avoid jeopardizing the deadline for submission of the draft regulation (April 2020). UK, J, F and the Industry agreed.

Reference: VRU-Proxi-11-08

Key Collision Characteristics: REV

- Comparison of pedestrian manoeuvres for:
  A. Reversing – driver failed to look properly
  B. Reversing – vehicle blind spot
  C. Reversing – both contributory factors
  D. Reversing – either contributory factor

- Key pedestrian manoeuvres:
  - Crossing from nearside/offside
  - In carriageway – relatively small proportion

- Vehicle categories:
  - M3 vehicle collisions primarily associated with vehicle blind spots – CMS needed?
  - Other vehicles dominated by driver failing to look properly – information systems needed?
1.) Reference ISO Standard (ISO 17386:2010) is mainly designed for PC => does not address CV applications

To consider ISO/TR 12155 (e.g. detection range)

2.) Reference ISO Standard (ISO 17386:2010) has the focus on USS solution

To change from technology approach to use case approach, by adaption of monitoring area, test object and test scenario
3.) Test object with no link to VRU (Vulnerable Road Users)

Alternative:
To consider ISO 19206

To use Dummy (proposal child dummy) like Euro NCAP Pedestrian

Road vehicles — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions —

Part 2:
Requirements for pedestrian targets
4.) Detection range (ISO 17386:2010) => focus on existing PC applications using USS

To use CV relevant detection ranges (e.g. 0,3m.......2m) / Input from GS-VL 40 or ISO/TR 12155
Combination of Test object 3.) and detection range 4.) for categories M2, M3, N2, N3

Alternative:
- Poles or Dummy can be used
- Increased detection range
5.) No consideration of crossing scenarios

To use crossing scenarios comparable to MOIS or AEB VRU systems (PC)

MOIS

Details under discussion in VRU-Proxi

AEB VRU systems (PC)