Regulation on Blind Spot Information System for the Detection of Bicycles
Introduction and Summary of Changes from IWG VRU-Proxi
Introduction - Concept
BSIS Concept: Warning and Information

**Warning**
- High intensity
- If issued right, good effects in steering driver’s attention
- High annoyance if issued too often

*Required, but activation strategy not limited*

**Information**
- Low intensity
- Low annoyance if issued too often
  Lesser effect in steering driver's attention

*Required with Performance Requirements*
Modifications – Function

Optical information signal
• > 30° to the right of the driver
• Only automatic deactivation (ice, snow on sensors, …)

Additional warning signal
• Different to information signal
• Activation strategy decided by Vehicle Manufacturer
• not before collision becomes imminent

Operation
• Vehicle speeds 0 (original proposal: 1) – 30 km/h
• Lateral separation of 0.9 (1.25) to 4.25 m
• Additional: Information signal for bicycles from 25 cm next to the most forward right wheel
• Should detect children as well (36% smaller than 50% male)
Motivation for Warning Signal: Multiple Cyclists

Cologne Accident (June 2018)
- Truck driver stops, gives way to adult bicyclist
- **Does not see child on sidewalk**

Blind Spot *Information* System
- Information signal would have been activated for both cycles
- No differentiation for second bicycle possible

Blind Spot *Warning*
- Additional Warning would have been triggered when collision becomes imminent
  - → When truck starts to move!
Modifications – Tests

- **Dynamic test cases**
  - Tests conducted without actual turn manoeuvre
    - *Test conduction simplified: Reduction from 12 to 7*
  - Information signal required 15 m before collision point
    (data shows turning manoeuvre starts not before 15 m)
    - *Requirements NOT simplified!*
  - Information signal not too early
  - Tests outside of test case table possible

- **New: Additional static test cases**
  - Vehicle stopped before roundabout
  - Vehicle stopped at intersection

- Cyclist Dummy: Reference to ISO [WD] 19206-4
- BSIS System should work with 36% smaller dummy-bicycle-combinations as well
Sensor Coverage Area

- System Operation Requirements
  - Coverage starts at 0.9 m separation
- Tests without turning: Early information
  - Longitudinal coverage area increased to 30 m (rear)
  - Lateral coverage area reduced to 4.25 m (side)
- Additional sensor coverage 0.25 to 0.9 m right of front wheel

Approx. to scale, 16x2.55m
Impressions: Bicycle 30 m @ TTC=5 seconds

<table>
<thead>
<tr>
<th>Test Case</th>
<th>vx,vut [km/h]</th>
<th>vx,bcy [km/h]</th>
<th>Lateral Offset</th>
<th>Max. Distance [m]</th>
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<td>10</td>
<td>20</td>
<td>4,5</td>
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</tbody>
</table>

30 m longitudinal, 1.5 m lateral

30 m → 5 s TTC!
Summary

• BSIS proposed regulation ECE/TRANS/WP.29/GRSG/2018/11 has been discussed in IWG VRU PROXI

• Changes:
  • Additional warning required
  • Test cases modified
  • Slight adjustments wrt coverage area, bicyclist size, vehicle speed

• New document ECE/TRANS/WP-29/GRSG/2018/24 and small corrections GRSG-115-10 available, both agreed in IWG VRU PROXI
Open Issues

- **Scope:**  
  This Regulation applies to the blind spot information system of vehicles of categories [M$_2$] N$_2$ [>(> 8 t permissible maximum mass)] and [M$_3$ and] N$_3$. Other vehicles may be approved at the request of the manufacturer.

- **Dummy reference:**  
  ISO [WD] 19206-4 → “Working draft” changed to “Committee Draft” [CD]

- **Illumination:**  
  The BSIS shall at least operate for all forward vehicle speeds from standstill to 30 km/h, for ambient light conditions above [1,000] Lux.
Thank you for your attention!

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and Digital Infrastructure

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