Submitted by the experts from VRU-Proxi Informal Working Group

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Proposal for supplement to UN Regulation No. 151 (Blind Spot Information Systems)

The text was reproduced below was prepared by the experts from the VRU-Proxi Informal Working Group (VRU-Proxi) to propose a supplement to the UN Regulation on uniform provisions concerning the approval of motor vehicles with regard to the Blind Spot Information Systems. The modifications to the existing text of the draft Regulation are marked in bold for new or strikethrough for deleted characters.

I. Proposal

After *paragraph 2.18.*, insert a new paragraph 2.19., to read:

"2.19. „*TTC*" means the time to collision, calculated between the bicycle reference point and the (theoretical) collision point. In context of this regulation the equation can be calculated as $TTC = x_{bicycle}/v_{bicycle}$.

Paragraph 5.1., amend to read:

"5.1. Any vehicle fitted with a BSIS complying with the definition of paragraph 2.3. above shall meet the requirements contained in paragraphs 5.2. to 5.7. of this Regulation.

~~**Paragraph 5.2 to 5.5 do not apply for vehicles**~~

- ~~**where auxiliary equipment for on-road use is in operation that is incompatible with the blind spot information system, subject to the decision of the Type Approval Authority.**~~
- ~~**which are not ready to drive off."**~~

When the vehicle is equipped with a means to automatically deactivate the BSIS function, for instance in situations such as having street cleaning equipment or snowplows attached, emptying waste containers, or having doors opening to the outside of a bus, the following conditions shall apply as appropriate:

The vehicle manufacturer shall provide a list of situations and corresponding criteria where the BSIS function is automatically deactivated to the technical service at the time of type approval and it shall be annexed to the test report.

The BSIS function shall be automatically reactivated as soon as the conditions that led to the automatic deactivation are not present anymore.

A constant optical warning signal shall inform the driver that the BSIS function has been deactivated. The yellow failure warning signal specified in paragraph 5.6. below may be used for this purpose.

Paragraph 5.3.1.4., amend to read:

"5.3.1.4 The BSIS shall give an information signal at last point of information, for a bicycle moving with a speed between 5 km/h and 20 km/h, at a lateral separation between bicycle and vehicle of between 0.9 and 4.25

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metres, which could result in a collision between bicycle and vehicle with an impact position 0 to 6 m with respect to the vehicle front right corner, if typical steering motion would be applied by the vehicle driver.

The information signal shall not be visible before the first point of information. It shall be given between the first point of information and the last point of information.

It shall also give an information signal for a bicycle moving with a speed between 5 km/h and 20 km/h, at a lateral separation of between 0.25 m up to 0.9 m and longitudinally located between -0,6 and +0,6 m in reference to the centre of the most forward front wheel while driving straight.

However, the information signal is not required when the relative longitudinal distance between bicycle and front right corner of the vehicle is more than 30 m to the rear or 7 m to the front. **Furthermore, the information signal is not required if the TTC is higher than [9] s."**

After *paragraph 6.3.3.*, insert a new paragraph 6.3.4., to read:

6.3.4 Pre-Test Conditioning

If requested by the vehicle manufacturer, the subject vehicle may be driven a maximum of 100 km on a mixture of urban and rural roads with other traffic and roadside furniture to initialise the sensor system.

II. Justification

1. There are some vehicle configurations for which BSIS may not work correctly (because of the vehicle body, the vehicle use…). As we do not want to exempt these vehicles as in some UN regulations (UN-R58, UN-R73, UN-R151, UN-159…), we propose to allow these vehicles to not fulfil the requirements of the blind spot information system as long as they are not ready to drive off or during operation of incompatible auxiliary equipment if it is agreed by the Type Approval Authority.

2. There are some combinations of vehicle and bicycle speeds for which the formulas in the regulation lead to unintentionally high TTCs. Therefore, we propose to limit the TTC to a value slightly larger than the highest value calculated based on the LPI conditions in table 1 of Appendix 1.

3. The blind spot information system must detect bicycles up to 30m. For such long distances a good alignment of the system is needed to evaluate the information signal conditions properly. We propose to allow a pre-test condition of the vehicle on public roads as it is allowed in other UN regulations (UN-R159…).