

VRU-Proxi-06-04

Submitted by the secretary of the IWG VRU-Proxi

Informal document **GRSG-114-XX**  
(114<sup>th</sup> GRSG, 09-13 April 2018  
agenda item 5)

## **Proposal for a new Regulation on uniform provisions concerning the approval of motor vehicles with regard to the Blind Spot Information System**

The text reproduced below was prepared by the secretary of the IWG on Awareness of Vulnerable Road Users proximity in low speed manoeuvres (VRU-Proxi) to demonstrate the current status of the proposed regulation on Blind Spot Information Systems.

**Opmerking [SP1]:** Major topics with priority in Sweden

Scope: Should M2+M3 vehicles be included?

Is there a need to define the first point of information (e.g. earliest warning signal is given)?

Boundary values for initial lateral distance (0.25, 4.5)

## I. Proposal

### Regulation No. XXX

#### Uniform provisions concerning the approval of motor vehicles with regard to the Blind Spot Information System

#### 1.

#### Scope

- 1.1. This Regulation applies to the blind spot information system of vehicles of categories [M<sub>2</sub>] N<sub>2</sub> (>8t permissible maximum mass) and [M<sub>3</sub> and ] N<sub>3</sub>; other vehicles may be approved at the request of the manufacturer.
- 1.2. The requirements of this Regulation are so worded as to apply vehicles which are developed for right-hand traffic. In vehicles that are developed for left-hand traffic these requirements shall be applied by inverting the criteria, when appropriate.
2. Definitions
 

For the purposes of this Regulation:

  - 2.1. "Approval of a vehicle type" means the full procedure whereby a Contracting Party to the Agreement certifies that a vehicle type meets the technical requirements of this Regulation;
  - 2.2. "Vehicle type with regard to its Blind Spot Information System" means a category of vehicles which do not differ in such essential respects as:
    - (a) The manufacturer's trade name or mark;
    - (b) Vehicle features which significantly influence the performances of the Blind Spot Information System;
    - (c) The type and design of the Blind Spot Information System.
  - 2.3. "Blind Spot Information System (BSIS)" means a system to inform the driver of a possible collision with a bicycle near side, travelling in a trajectory parallel to the vehicle, if the driver would initiate a turn manoeuvre.
  - 2.4. "Reaction time" means the time between the information signal is given and a driver reaction has occurred.
  - 2.5. "Driver Brake deceleration" means the deceleration that typical drivers apply after receiving the information signal.
  - 2.6. "Stopping distance" means the distance required by the vehicle to come to a full stop after the Blind Spot Information Signal has been given, taking into account reaction time and brake deceleration.
  - 2.7. "Collision point" means the position where the trajectory of any vehicle point would intersect with any bicycle points if a turn by the vehicle would be initiated.
  - 2.8. "Last Point of Information (LPI)" means the point at which the information signal shall have been given. It is the point preceeding the expected turning motion of a vehicle towards a bicycle in situations where a collision could occur.

**Opmerking [SP2]:** At the time of type approval, part of the vehicles are not equipped with their bodywork. As a consequence, their sensors must be attached on the chassis itself rather than on their body. As a consequence, OICA favors a solution permitting an efficient functioning of the system with the sensors attached to the chassis or the cab. This will be as much as possible on a standard/common location in order to limit the number of vehicle variants, if performance requirements can be met with such installation. The situation is similar in the case the informal group decides installation of BSIS on M2/M3 categories, as the bus manufacturers can build incomplete chassis without any body part. In that case, sensor installation can only be done by bodybuilder, i.e. after the type approval. This situation can lead to uncertain responsibility split between manufacturer and bodybuilder.

**Opmerking [JB3]:** Agreed in 5<sup>th</sup> VRU-Proxi meeting to use 8t for N2 as this is similar to other EU and ECE Regulations.

EC comment: EU Regulation may also include buses, EC will deliver accident data. For time being M2 and M3 between brackets in this regulation.

DE: Accidentology does not provide a motivation for inclusion of buses.

- 2.9. "Near side" means the side of the vehicle near the bicycle. The near side of the vehicle is the right side for right-hand traffic and the left side for left-hand traffic.
- 2.10. "Information signal" means an optical signal with the purpose of informing the vehicle driver about a nearby moving bicycle.
- 2.11. "Vehicle Trajectory" means the connection of all positions where- the vehicle front right corner of the vehicle has been or will be during the course of a test run, projected towards the ground plane.
- 2.12. "Bicycle" means a combination of a bicycle and cyclist. This is simulated in test cases as specified in sections 6.5 and 6.6 with a test device according to ISO [WD] 19206-4. The reference point for the location of the bicycle shall be the most forward point on the center line.
- 2.13. "Common space" means an area on which two or more information functions (e.g. symbols) may be displayed, but not simultaneously
- 2.14. "Lateral displacement" means the distance between the vehicle and the bicycle at the near side of the vehicle where the vehicle and bicycle are parallel to each other. The distance is measured between the plane parallel to the median longitudinal plane of the vehicle and touching its lateral outer edge, disregarding the projection of devices for indirect vision, and the median longitudinal plane of the bicycle minus half of the bicycle width being 250 mm. The lateral outer edge of the vehicle is only to be regarded in the area between the vehicle's forwardmost point and up to 6 m rearward.
- [2.15. "First point of information" means the most forward point at which the information signal can ~~have been~~ given. It is the last point of information ~~plus and~~ a distance corresponding to a travel time of [8] seconds, taking into account the respective moving speeds of bicycle and vehicle.]
- [2.16. "Vehicle ~~front-front~~ right corner" means the projection of the ~~line-point~~ that results from the intersection of the vehicle side plane (not including mirrors/devices for indirect vision) and the vehicle front plane (not including mirrors/devices for indirect vision) with-on the road surface.]
- 2.17. "Impact Position" means the location of impact of the bicycle on the right side of the vehicle with respect to the front right corner of the vehicle/vehicle front right corner, when both vehicles have reached the collision point, as specified in Appendix 1, Figure 3.

### 3. Application for approval

- 3.1. The application for approval of a vehicle type with regard to the BSIS shall be submitted by the vehicle manufacturer or by his authorized representative.
- 3.2. It shall be accompanied by the documents mentioned below in triplicate and include the following particular:
- 3.2.1. A description of the vehicle type with regard to the items mentioned in paragraph 5. below, together with dimensional drawings and the documentation as referred to in paragraph 6.1. below. The numbers and/or symbols identifying the vehicle type shall be specified.
- 3.3. A vehicle representative of the vehicle type to be approved shall be submitted to the Technical Service conducting the approval tests.

**Opmerking [s4]:** Should be published approximately in Q3 2018.

**Opmerking [s5]:** Decision required at the next IWG meeting whether FPI **should be defined** and if so, what **timing is relevant** (see Table 1 Annex 1: line d)

This decision might depend on psychological considerations and the general concept of the regulation of either asking for an information or asking for a warning.

If FPI is in other changes are required, see alternatives.

**Opmerking [SP6]:** Proposal from VDA expected taking into account other devices than mirrors.

## 4. Approval

- 4.1. If the vehicle type submitted for approval pursuant to this Regulation meets the requirements of paragraph 5. below, approval of that vehicle type shall be granted.
- 4.2. The conformity of the requirements in paragraph 5. below shall be verified with the test procedure as defined in paragraph 6. below, however its operation shall not be limited to these test conditions.
- 4.3. An approval number shall be assigned to each vehicle type approved; its first two digits (00 for the Regulation in its initial form) shall indicate the series of amendments incorporating the most recent major technical amendments made to the Regulation at the time of issue of the approval. The same Contracting Party shall not assign the same number to the same vehicle type equipped with another type of Blind Spot Information System, or to another vehicle type.
- 4.4. Notice of approval or of refusal or withdrawal of approval pursuant to this Regulation shall be communicated to the Parties to the Agreement applying this Regulation by means of a form conforming to the model in Annex 1 and photographs and/or plans supplied by the applicant being in a format not exceeding A4 (210 x 297 mm), or folded to that format, and on an appropriate scale.
- 4.5. There shall be affixed, conspicuously and in a readily accessible place specified on the approval form, to every vehicle conforming to a vehicle type approved under this Regulation, an international approval mark conforming to the model described in Annex 2, consisting of either:
  - 4.5.1.1. A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval;<sup>1</sup>
  - 4.5.1.2. The number of this Regulation, followed by the letter "R", a dash and the approval number to the right of the circle prescribed in paragraph 4.5.1. above; or:
  - 4.5.2. An oval surrounding the letters "UI" followed by the Unique Identifier.
- 4.6. If the vehicle conforms to a vehicle type approved under one or more other Regulations annexed to the Agreement, in the country which has granted approval under this Regulation, the symbol prescribed in paragraph 4.5. above need not be repeated; in such a case, the Regulation and approval numbers and the additional symbols shall be placed in vertical columns to the right of the symbol prescribed in paragraph 4.5. above.
- 4.7. The approval mark shall be clearly legible and be indelible.
- 4.8. The approval mark shall be placed close to or on the vehicle data plate.

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<sup>1</sup> The distinguishing numbers of the Contracting Parties to the 1958 Agreement are reproduced in Annex 3 to the Consolidated Resolution on the Construction of Vehicles (R.E.3), document ECE/TRANS/WP.29/78/Rev.6 - [www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html](http://www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29resolutions.html)

## 5. Specifications

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 5.5. of this Regulation.

5.2. General requirements

The effectiveness of the BSIS shall not be adversely affected by magnetic or electrical fields. This shall be demonstrated by compliance with the technical requirements and transitional provisions of UN Regulation No. 10, 04 series of amendments or any later series of amendments.

5.3. Performance requirements

5.3.1. The BSIS shall inform the driver, ~~with the~~by means of an optical signal, so that the vehicle can be stopped before crossing the bicycle trajectory, taking into account a reaction time of 1.4 seconds and a deceleration of 5 m/s<sup>2</sup>. This shall be tested as specified in paragraph 6.5.

It shall also inform the driver about approaching bicycles while the vehicle is stationary before the bicycle reaches the vehicle front, taking into account a reaction time of 1.4 seconds. This shall be tested as specified in paragraph 6.6.

The optical signal shall be maintained for as long as the conditions are fulfilled and for at least three additional seconds.

5.3.1.1. **[Proposal from drafting group: Two-stage deactivation process similar to e.g. ESC deactivation. First stage/activation: e.g. sounds, warning functions, etc are turned off. Second stage: System is completely turned off, but is reactivated as soon as driving conditions significantly change].**

**[GER: Provisions to deactivate any optional functions (e.g. additional warnings, automatic braking) are allowed if the functionality as described in 5.3.1. maintained.]**

5.3.1.2. The information signal shall meet the requirements of paragraph 5.4. below.

5.3.1.3. The BSIS shall operate for all forward vehicle speeds between 0 km/h and 30 km/h and for lateral displacement ~~of the bicycle from~~of between ~~[0.25] to [4.5] m~~. The manufacturer shall demonstrate the operation and limitations in accordance with paragraph 6.1.

5.3.1.4. The BSIS shall be able to 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 displacement between bicycle and vehicle of between 1.15 and 4.5 metres, which could result in a collision between bicycle and vehicle **with an impact position** [0] to 6 m with respect to the ~~front right corner of the vehicle~~vehicle front right corner, if typical steering input would be applied by the vehicle driver.

**[The information signal shall not be visible at the earliest [8] seconds before the predicted position of the bicyclist is in area [0] to 6 m longitudinal and 0 to [4.5] m lateral distance from the before the last point of information. It shall be given between the first point of**

**Opmerking [s7]: France:** In addition we suggest to confirm the immunity check by adding in the UNECE n°10 regulation the following wording :  
"§ 2.12. "Immunity related functions" are: [...]  
(b) Functions related to driver, passenger and other road user protection:  
(i) e.g. airbag and safety restraint systems, blind spot information system."

**Opmerking [JB8]:** Between brackets due to no common agreement / different opinions. EC is not in favour of switching off as this is an information system only. Russia prefers switch off in case of extreme weather conditions. EC challenged the industry to manage this.

**Opmerking [SP9]:** Industry please prepare an overview over the consequences of these values from a technical and logical point of view as a basis for the discussion.

**information on the last point of information, front right corner of the vehicle]**

- 5.3.1.5. The BSIS shall be designed not give an information signal for static non-VRU objects such as cones, traffic signs, hedges and parked cars, **however it may give an information signal when a collision is imminent]**
- 5.3.2. The system shall also provide the driver with the failure warning specified in paragraph 5.5.1. below when tested in accordance with the provisions of paragraph 6.9. below (failure detection test).
- 5.4. Information signal
- 5.4.1. The blind spot information referred to in paragraph 5.3.1. above shall be an information signal and noticeable and easily verifiable by the driver from the driver's seat .This information signal shall be visible even by daylight
- 5.5 Failure warning signal
- 5.5.1 The failure warning referred to in paragraph 5.3.2. above shall be a yellow optical warning signal [and shall be other than or clearly distinguishable from the information signal]. The failure warning signal shall be visible even by daylight and shall be easily verifiable by the driver from the driver's seat.
- 5.5.2 The BSIS optical failure warning signal shall be activated either when the ignition (start) switch is turned to the "on" (run) position or when the ignition (start) switch is in a position between the "on" (run) and "start" that is designated by the manufacturer as a check position (initial system (power-on)) or when the vehicle is in "active driving possible mode" (whichever is applicable). This requirement does not apply to warning signals shown in a common space.
- 5.5.3 When the driver is provided with an optical warning signal to indicate that the BSIS is temporarily not available, for example due to inclement weather conditions, the signal shall remain active as long as the BSIS is not available. The failure warning signal specified in paragraph 5.3.2. above may be used for this purpose.
- 5.6 Provisions for inspection
- 5.6.1 It shall be possible to confirm the correct operational status of the BSIS by a visible observation of the failure warning signal status.

**6. [Test procedure [this has not been discussed in the IWG yet]**

- 6.1. The manufacturer shall provide a documentation package which gives access to the basic design of the system and, if applicable, the means by which it is linked to other vehicle systems. The function of the system shall be explained and the documentation shall describe how the operational status of the system is checked, whether there is an influence on other vehicle systems, and the method(s) used in establishing the situations which will result in a failure warning signal being displayed. The documentation package shall give sufficient information for the type-approval authority to identify the type and to aid the decision-making on the selection of the worst-case.
- 6.2. Test conditions

**Opmerking [s10]:** If "First Point of Information" is considered, otherwise remove.

**Opmerking [s11]:** The Secretary explained the origin of the paragraph as the best way found by the author to cover all the multiple situations encountered in the life of a vehicle while limiting the number of tests as reasonable as possible. The regulation hence imposes one test scenario, yet the manufacturer must demonstrate compliance for all the other real world situations via documentation. This does not preclude the Technical Service to impose an additional test when they believe increased evidence is necessary.

The chair found it a good approach, perhaps with some rewording. NL was keen that the Technical Services get a means to recognize the type of BSIS with regard to the regulation in this documentation package, as well as the worst case scenario.

**OF to explain, IWG to decide on this paragraph.**

- 6.2.1. The test shall be performed on a flat, dry asphalt or concrete surface.
- 6.2.2. The ambient temperature shall be between 0° C and 45° C.
- 6.2.3. The test shall be performed under visibility conditions that allow safe driving at the required test speed.
- 6.3. Vehicle conditions
- 6.3.1. Test weight
- The vehicle may be tested at any condition of load, the distribution of the mass among the axles being that stated by the vehicle manufacturer without exceeding any of the maximum permissible mass for each axle. No alteration shall be made once the test procedure has begun. The vehicle manufacturer shall demonstrate through the use of documentation that the system works at all conditions of load.
- 6.3.2. The vehicle shall be tested at the tyre pressures for normal running conditions.
- 6.3.3. In the case where the BSIS is equipped with a user-adjustable information timing, the test as specified in paragraphs 6.5 and 6.6 below shall be performed for each test case with the information threshold set at the setting that generates the information signal closest to the collision point (=worst case setting). No alteration shall be made once the test run has started.
- 6.4. Optical failure warning signal verification test
- With the vehicle stationary check that the warning signal complies with the requirements of paragraph 5.4. above.
- 6.5. Blind Spot Information Dynamic Test
- 6.5.1. Using cones and the bicycle dummy, form a corridor according to Figure 1, Appendix 1 of this document and the additional dimensions as specified in Table 1, Appendix 1 of this Regulation.
- 6.5.2. Position the bicycle target at the appropriate starting position as shown in Figure 1, Appendix 1 of this Regulation.
- 6.5.3. Position a local traffic sign corresponding to sign C14 as defined in the Vienna convention on road signs and signals (ECE/Trans/196, p. 91: speed limit 50 km/h) or the local sign closest to this sign in meaning on a pole at the entry of the corridor as shown in Figure 1, Appendix 1 of this Regulation.
- 6.5.4. Drive the vehicle at a speed as shown in Table 1, Appendix 1 of this document with a tolerance of +/- 2 km/h through the corridor.
- 6.5.5. Do not operate the turn lights during the test.
- 6.5.6. Move the bicycle dummy on a straight line as shown in Figure 1, Appendix 1 of this document in a way that the dummy position crosses line A (Figure 1, Appendix 1) with a tolerance of +/- 0.5 m at the same time when the vehicle crosses line B (Figure 1, Appendix 1) with a tolerance of ± 0.5 m. Accelerate the dummy within an acceleration distance of not more than 5.66 m to the speed as shown in Table 1, Appendix 1 of this document and assure that that the dummy moves in a steady state for at least 8 seconds, with a speed tolerance of ± 0.5 km/h, before reaching line C as specified in Figure 1, Appendix 1. If the acceleration distance cannot be achieved, adjust bicycle starting position and vehicle corridor length by the same amount.

**Opmerking [w12]:** Check if this can be removed.

**Opmerking [w13]:** found here:  
[http://www.unece.org/fileadmin/DAM/trans/conventn/Conv\\_road\\_signs\\_2006v\\_EN.pdf](http://www.unece.org/fileadmin/DAM/trans/conventn/Conv_road_signs_2006v_EN.pdf), p. 91

The lateral deviation of the dummy with respect to a straight line connecting initial starting position and theoretical impact point shall be maximum  $\pm 0.2$  m.

6.5.7. Verify if the Blind Spot Information signal has been activated before the vehicle crosses line C, Figure 1, Appendix 1 of this document **[, and if the Blind Spot Information signal has not been activated before the vehicle crosses line D, Figure 1]**.

6.5.8. Verify that the Blind Spot Information signal has not been activated when passing the traffic sign and any cones as long as the bicycle dummy is still stationary.

6.5.9. Repeat paragraphs 6.5.1. to 6.5.8. for test cases shown in Table 1, Appendix 1 of this Regulation

**[Where this is deemed justified, the technical service may select test cases different than shown in Table 1, Appendix 1, within the range of vehicle speed, bicycle speed and lateral clearance as indicated in paragraphs 5.3.1.3. and 5.3.1.4.]**

The technical service shall check that the ~~selected~~ parameter combination **in the selected test cases** would lead to a collision between bicycle and vehicle with an impact position in the range as ~~speified~~ **specified** in 5.3.1.4. and shall assure that the vehicle is moving with the selected speed when crossing line C in Figure 1, Annex 1. **be appropriately adjusting starting distances and corridor length for vehicle and bicycle.**

6.5.10. The test is passed when the Blind Spot Information signal has been activated in all test cases as shown in Table 1, Appendix 1 of this Regulation before the vehicle has crossed line C (see paragraph 6.5.7. above) and the Blind Spot Information signal has not been activated in any test run when the vehicle passes the traffic sign (see paragraph 6.5.8. above).

**For vehicle speeds up to [5] km/h, it is deemed satisfactory if the information signal is activated [1.4] seconds before the bicycle has reached the theoretical collision point as specified in Appendix 1 Figure 1].**

**For vehicle speeds above 25 km/h, where the stopping distance is higher than 15 m,  $\rho_c$  shall be as specified in Appendix 1 Table 2.**

**Opmerking [s14]:** If First Point of Information is defined.

**Opmerking [w15]:** To be discussed based on general GSR approach. Options see comment to 5.3.1.3. (required speeds). Proposal: P/F criteria is LPI at 15 m line for all cases.

**Opmerking [SP16]:** 5 km/h is acceptable: due to slow turn speeds and long turning time, the bicycle is in all conditions able to stop before reaching the collision point. In this case, the same requirements like for static tests should be applied.

**Met opmaak:** Lettertype: Cursief

6.6. **Blind Spot Information Static Tests**

6.6.1. **Static Test Type 1**

Leave the vehicle under test stationary. Then ~~maneuver~~ manoeuvre the bicycle dummy perpendicular to the vehicle's center axis with an impact position [1.15] m in front of the most forward point ~~of~~ of the vehicle, with ~~the~~ minimum-a bicycle speed of  $5 \pm 0.5$  km/h and a lateral tolerance of 0.2 m, as shown in Figure 2 in appendix 1.

The test is passed if the Blind Spot information signal is activated at the latest when the distance between bicycle and vehicle is [2] m.

6.6.2. **Static Test Type 2**

Leave the vehicle under test stationary. Then maneuver the bicycle dummy parallel to the vehicle's center axis, with a lateral separation of  $[3] \pm 0.2$  m between bicycle line of movement and the vehicle's moust outer point not counting mirrors, with a bicycle speed of  $20 \pm 0.5$  km/h, as shown in Figure 2 in appendix 1. The bicycle should be at constant speed at least 44 m before passing the most forward vehicle point.

The test is passed if the Blind Spot information signal is activated when the vehicle is 7.77 m away from the projection of the vehicle's most forward point to the bicycle line of movement.

6.7. The manufacturer shall demonstrate, to the satisfaction of the type-approval authority, through the use of documentation, simulation or any other means, that the Blind Spot Information signal is activated, as described in paragraph 6.5.10., also for smaller bicycles and smaller bike target postures, differing by not more than 20% from the values detailed in ISO [WD] 19206-4:2018.

6.8. The manufacturer shall demonstrate, to the satisfaction of the type-approval authority, through the use of documentation, simulation or any other means, that the Blind Spot Information signal is not activated, as described in paragraph 6.5.10., when the vehicle passes any other usual stationary object than the traffic sign. In particularly parked cars shall be addressed.

6.9. Failure detection test

6.9.1. Simulate a BSIS failure, for example by disconnecting the power source to any BSIS component or disconnecting any electrical connection between BSIS components. The electrical connections for the failure warning signal of paragraph 5.4.3. above shall not be disconnected when simulating a BSIS failure.

6.9.2. The failure warning signal mentioned in paragraph 5.4.3. above shall be activated and remain activated while the vehicle is being driven and be reactivated after a subsequent ignition "off" ignition "on" cycle as long as the simulated failure exists.]

**7. Modification of vehicle type and extension of approval**

7.1. Every modification of the vehicle type as defined in paragraph 2.2. of this Regulation shall be notified to the Type Approval Authority which approved the vehicle type. The Type Approval Authority may then either:

**Opmerking [s17]:** Reworded. All to check for clarity until IWG meeting.

**Opmerking [s18]:** Background: This test is meant to replicate roundabout situations

**Opmerking [SP19]: Alternative Wordings:** "With the vehicle under test stationary, manoeuvre the bicycle perpendicular to the vehicle with a minimum speed of 5 km/h. The longitudinal vertical median plane of the bicycle shall be coincident within  $\pm 100$  mm with a transverse vertical plane along the forward most point of the vehicle.  
The test is passed if the Blind Spot information signal is activated before the forward most point of the bicycle reaches [2] m distance from the vehicle's lateral outer edge (or "vehicle's side plane")."  
Or:  
"With the vehicle under test stationary, manoeuvre the bicycle perpendicular to the vehicle with a minimum speed of 5 km/h. The longitudinal vertical median plane of the bicycle shall be coincident within  $\pm 100$  mm with the vehicle front right corner.  
The test is passed if the Blind Spot information signal is activated before the forward most point of the bicycle reaches [2] m distance from the vehicle front right corner."

**Opmerking [s20]:** equals approx. 1.4 s TTC

**Opmerking [s21]:** No further definition of planes is needed to my understanding: 2 m away refers to the position the bicycle would impact the vehicle on its line of movement.

**Opmerking [s22]:** Background: This test is meant to replicate situations with a stopped truck due to traffic and fast ...

**Opmerking [s23]:** equals approx. 8 s TTC

**Opmerking [s24]:** equals approx. 1.4s TTC for 20 km/h

**Opmerking [T.M.H.25]:** Juveniles are mostly involved in these accident types in The Netherlands. Juveniles have a small ...

**Opmerking [s26]:** NL to check if this is acceptable

**Opmerking [T.M.H.27]:** The NL has concerns whether the system is robust against parked cars.

**Opmerking [s28]:** This addresses false positives due to static objects.

**Opmerking [w29]:** Check if redundancy can be removed (both terms needed?)

- 7.1.1. Consider that the modifications made do not have an adverse effect on the conditions of the granting of the approval and grant an extension of approval;
- 7.1.2. Consider that the modifications made affect the conditions of the granting of the approval and require further tests or additional checks before granting an extension of approval.
- 7.2. Confirmation or refusal of approval, specifying the alterations, shall be communicated by the procedure specified in paragraph 4.4. above to the Contracting Parties to the Agreement applying this Regulation.
- 7.3. The Type Approval Authority shall inform the other Contracting Parties of the extension by means of the communication form which appears in Annex 1 to this Regulation. It shall assign a serial number to each extension, to be known as the extension number.

## **8. Conformity of production**

- 8.1. Procedures concerning conformity of production shall conform to the general provisions defined in Article 2 and Schedule 1 to the Agreement (E/ECE/TRANS/505/Rev.3) and meet the following requirements:
- 8.2. A vehicle approved pursuant to this Regulation shall be so manufactured as to conform to the type approved by meeting the requirements of paragraph 5. above;
- 8.3. The Type Approval Authority which has granted the approval may at any time verify the conformity of control methods applicable to each production unit. The normal frequency of such inspections shall be once every two years.

## **9. Penalties for non-conformity of production**

- 9.1. The approval granted in respect of a vehicle type pursuant to this Regulation may be withdrawn if the requirements laid down in paragraph 8. above are not complied with.
- 9.2. If a Contracting Party withdraws an approval it had previously granted, it shall forthwith so notify the other Contracting Parties applying this Regulation by sending them a communication form conforming to the model in Annex 1 to this Regulation.

## **10. Production definitively discontinued**

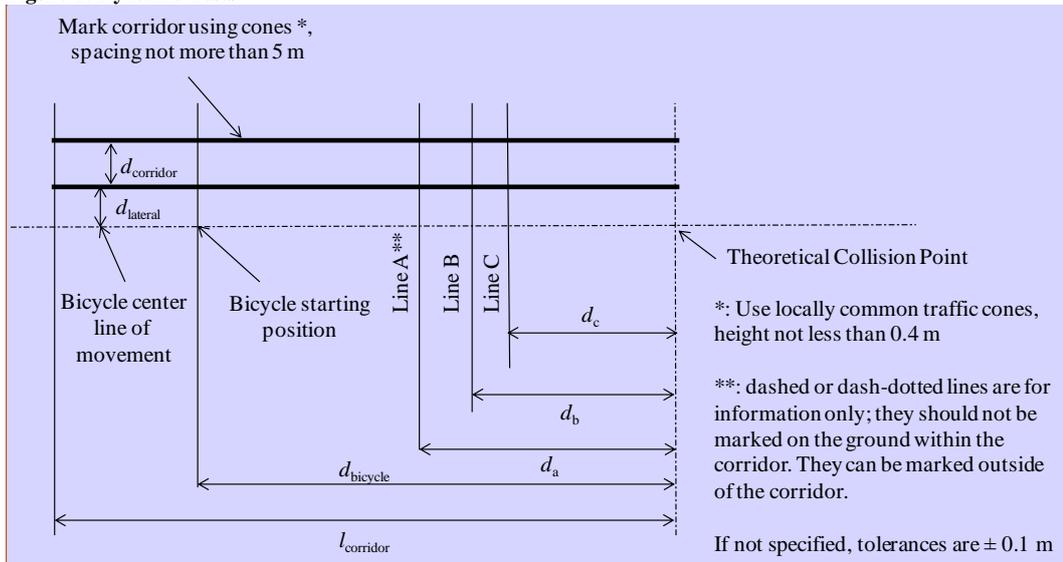
If the holder of the approval completely ceases to manufacture a type of vehicle approved in accordance with this Regulation, they shall so inform the Type Approval Authority which granted the approval, which in turn shall forthwith inform the other Contracting Parties to the Agreement applying this Regulation by means of a communication form conforming to the model in Annex 1 to this Regulation.

**11. Names and addresses of the Technical Services responsible for conducting approval tests and of Type Approval Authorities**

The Contracting Parties to the Agreement applying this Regulation shall communicate to the United Nations Secretariat the names and addresses of the Technical Services responsible for conducting approval tests and of the Type Approval Authorities which grant approval and to which forms certifying approval or extension or refusal or withdrawal of approval are to be sent.

## Appendix 1

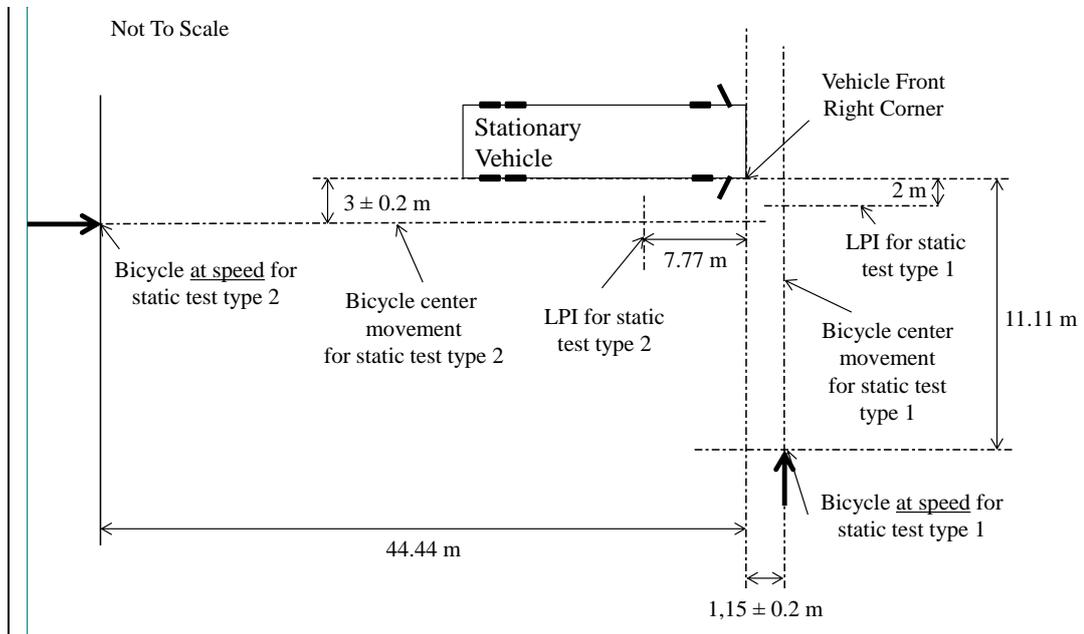
Figure 1: Dynamic Tests



**Opmerking [SP30]:** OICA recommends to keep the corridor on vehicle width  $\pm 0.5$  m as a narrower corridor only makes the test more difficult for the driver with added value. Reducing the corridor and is also less representative for the reality.

**Opmerking [s31]:** Line D (similar to lines A,B,C) will be included after decision for FPI at next IWG meeting.

Figure 2: Static Tests



**Opmerking [w32]:** Correct errors, make clearer

Figure 3: Impact Location

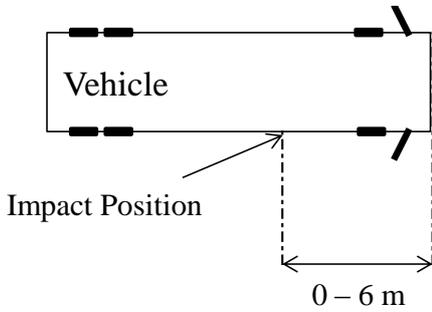


Table 1: Test cases

The following table details the test cases, using the following variables:

- $v_{vehicle}$ , steady-state velocity of vehicle,
- $v_{bicycle}$ , steady-state velocity of bicycle,
- $d_a$ , bicycle position when vehicle crosses line b,
- $d_b$ , vehicle position when bicycle crosses line a,
- $d_c$ , vehicle position at last point of information,
- $d_d$ , vehicle position at first point of information,
- $d_{bicycle}$ , starting position of bicycle
- $l_{corridor}$ , length of vehicle corridor,
- $d_{corridor}$ , width of vehicle corridor.

Test Case	$v_{vehicle}$ [km/h]	$v_{bicycle}$ [km/h]	$d_{lateral}$ [m]	$d_a$ [m]	$d_b$ [m]	$d_c$ [m]	$d_d$ [m]	$d_{bicycle}$ [m]	$l_{corridor}$ [m]	$d_{corridor}$ [m]	
1	10	20	1.5	44.4	15.8	[15]	[37.2]	65	80	vehicle width + 0.41 m	
2	10	20			22	[15]	[37.2]				
3	20	20			38.3	[15]	[37-259.4]				
4	20	10	4.5	22.2	43.5	[15]	[59.4] [37-259.4]				
5	10	10			19.8	[15]	[37.2]				
6	10	20			44.4	14.7	[15]				[37.2]
7						17.7					[37.2]

Table 2:  $d_c$  for speeds above 25 km/h

Vehicle Speed [km/h]	$d_c$ [m]
25	15
26	15.33
27	16.13
28	16.94
29	17.77
30	18.61

**Opmerking [s33]:** If FPI is not considered, this can be removed.

**Opmerking [s34]:** First Point of Information:  $d_c + \text{abs}(v_{rel}) * [8]$  s. If FPI is not considered, this column can be removed again.

**Opmerking [s35]:** 15 m line C + 44.44 m 8 seconds at 20 km/h + 5.66 m acceleration length. Since tests ends at LPI, maximum distance of bicycle at speed is 44.44 m.

**Opmerking [s36]:** +10 m because bicycle starting pos has moved.

**Opmerking [w37]:** +- 0.2 to be checked by DAF and others

**Met opmaak:** Niveau 1, Regelaafstand: Minimaal 12 pt, Bij volgende alinea houden, Niet afbreken

**Met opmaak:** Lettertype: 10 pt, Engels (Groot-Brittannië)

**Met opmaak:** Lettertype: Cursief

**Met opmaak:** Subscript

**Met opmaak:** Lettertype: 10 pt, Engels (Groot-Brittannië)

**Met opmaak:** Lettertype: Niet Vet

**Met opmaak:** Centrum

**Tabel met opmaak**

**Met opmaak:** Lettertype: Niet Vet

**Met opmaak:** Centrum

Annex 1

Met opmaak: Engels (Groot-Brittannië)

Communication

Met opmaak: Frans (standaard)

(Maximum format: A4 (210 x 297 mm))



issued by : (Name of administration)

.....  
.....  
.....

- Concerning: <sup>2</sup>
- Approval granted
  - Approval extended
  - Approval refused
  - Approval withdrawn
  - Production definitively discontinued

of a type of vehicle with regard to the Blind Spot Information System (BSIS) pursuant to Regulation No. XXX

Approval No.: .....

Opmerking [T.M.H.38]: Extension number is part of the approval number since the Revised 1958 Agreement.

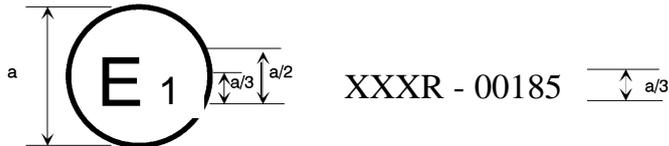
1. Trademark: .....
2. Type and trade name(s): .....
3. Name and address of manufacturer: .....
4. If applicable, name and address of manufacturer's representative: .....
5. Brief description of vehicle: .....
6. Date of submission of vehicle for approval: .....
7. Technical Service performing the approval tests: .....
8. Date of report issued by that Service: .....
9. Number of report issued by that Service: .....
10. Reason(s) for extension (if applicable) : .....
10. Approval with regard to the BSIS is granted/refused/extended/withdrawn:<sup>2</sup>
11. Place: .....
12. Date: .....
13. Signature: .....
14. Annexed to this communication are the following documents, bearing the approval number indicated above: .....
15. Any remarks: .....

<sup>1</sup> Distinguishing number of the country which has granted/extended/refused/withdrawn an approval (see approval provisions in the Regulation).  
<sup>2</sup> Strike out what does not apply.

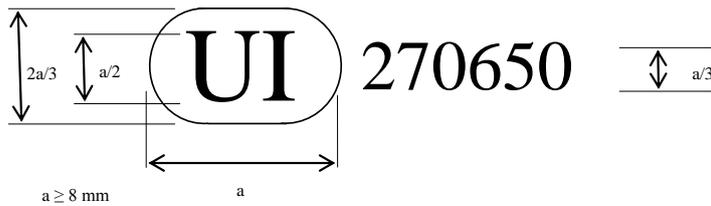
## Annex 2

## Arrangements of approval marks

(see paragraphs 4.5. to 4.5.2. of this Regulation)

 $a = 8 \text{ mm min}$ 

The above approval mark affixed to a vehicle shows that the vehicle type concerned has been approved in Germany (E1) with regard to the BSIS pursuant to Regulation No. XXX. The first two digits of the approval number indicate that the approval was granted in accordance with the requirements of Regulation No. XXX in its original form.



The above Unique Identifier shows that the type concerned has been approved and that the relevant information on that type-approval can be accessed on the UN secure internet database by using 270650 as Unique Identifier. Any leading zeros in the Unique Identifier may be omitted in the approval marking.

**Opmerking [T.M.H.39]:** Updated according to the Revised 1958 Agreement.



## **II. Justification**

The justification and information about the test procedure was provided in informal document GRSG-109-19 and in presentations GRSG-110-18-Rev.1 and GRSG-111-24. The draft Regulation was further explained during the 112th session of the Working Party on General Safety Provisions (GRSG) on the basis of another informal document, and consequently forwarded to the Proxy-VRU working group for technical discussion.

This document reflects the current status of the discussion in the Proxy-VRU working group. It is expected that decisions for the brackets as well as an agreement on chapter 6 will be found during the meeting Proxy-VRU 06 in June 2018 and a final working document is expected for the 115th GRSG.

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