PSS Product Inspection

Jason McComb / NTT DVS 2024 / 7 Jun 2024

Complete

Score	62 / 63 (98.41%)	**Flagged items**	0	**Actions**	0

Device Inspected	NTT DVS 2024
Site conducted	Unanswered
Firmware Versions	
Conducted on	07.06.2024 15:00 BST
Prepared by	Jason McComb
Location	This device was tested and viewed remotely in Lithuania. No timings could be assessed. Provisional test.

Camera Monitoring system

5 / 5 (100%)

A fully operational camera monitoring system must be fitted to the nearside of the vehicle, to completely eliminate the remaining blind spot at the nearside

Pass

Photo 1

Comments

Integrated in to AI System

Integrated to AI System

Yes

At least 1.5m from the ground level

Pass

Fitted at 1.5 metres

Photo 2

To completely eliminate the remaining vehicle blind spot at the nearside, a camera monitoring system must be fitted, regardless of whether mirrors are fitted.

Pass

In-cab monitors must be positioned close to a window edge or existing mirror location (without obscuring the view through the window) to minimise the time the driver needs to take their eyes off the road to see the monitor

Pass

Photo 3

Comments

Please submit a video of the footage with the camera with the right indicator on please

Audible Warning

2 / 2 (100%)

Vehicles must be fitted with audible warning equipment to make nearby pedestrians, cyclists and other road users aware that the vehicle intends to carry out a turning manoeuvre. The volume of the audible warning, measured at one metre from the sounder, should be between 65 and 88 decibels/dB(A).

Pass

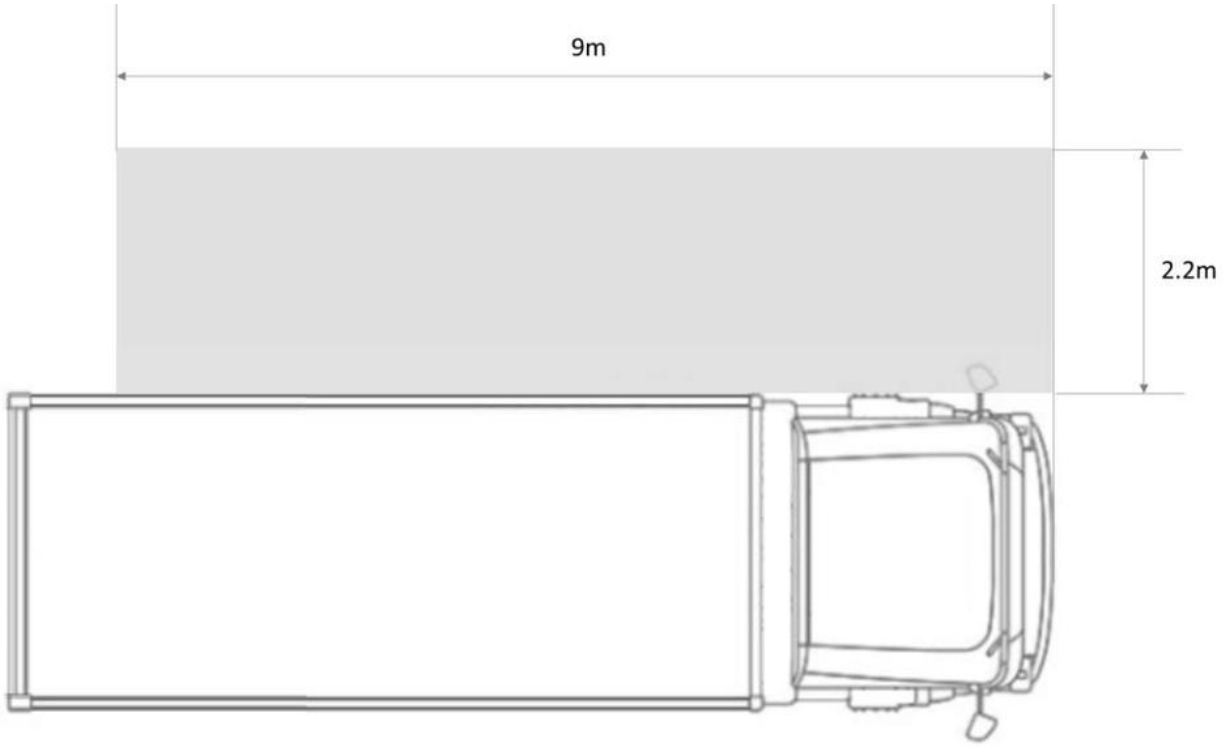
Outside, turn, quite mode_AFD629B4-506A-4516-89C1-0D1A0DE72ECF.mp4

Operators should consider fitting an audible warning system that combines spoken warnings and white noise. It is recommended that audible warning devices require minimal driver intervention. The device should have a manual on/off switch for use between the hours of 23:30 and 07:00.

Pass

BSIS. turn , quite mode _53085EF2-D8A2-4B52-8662-4B71A4D0A2F6.mp4

Blind Spot Information System	25 / 26 (96.15%)
Main Requirements	6 / 6 (100%)
When the Blind Spot Information System identifies that a collision is imminent, for example if the vehicle turns toward the VRU, then it shall warn the driver, by means of a different and more urgent warning signal. When a vehicle and a VRU are travelling in the same direction on a parallel path to each other, they can continue to do so for an infinite time without collision even if they are in close proximity. This situation does not constitute an imminent collision.	Pass
BSIS_operation_ with VRU_indicator _71D841BB-8F09-442A-9AB6-66A498EDD913.mp4	
The system shall be "active" and able to issue information signals and warnings irrespective of the activation status of the direction indicators	Pass
Information signals shall only be given for moving objects whose speeds, trajectory, or other identifiable characteristics (such as size, shape, movement, or combination thereof) indicate that they are a VRU.	Pass
The BSIS shall be active at all vehicle speeds between 0 km/h and 30 km/h for all ambient lighting conditions above 15 lux. It shall detect VRUs including bicycles of all typical sizes and designs at all bicycle speeds between 5 km/h and 20 km/h.	Pass
The BSIS shall provide information signals whenever it is active and a VRU is detected within the range shown in the diagram below: from the nearside vehicle edge (taken at the widest point, excluding mirrors, auxiliary equipment and super structures above the height of 2m from the ground plane), to 2.2m lateral distance from the vehicle, ranging from the front left corner of the vehicle to at least 9m rear of this point	Pass



The system shall also be capable of providing collision warnings whenever it is active and a VRU is detected, and the system calculates that a collision is imminent based on the trajectories of the vehicle and/or the VRU.

Pass

Human Interface

3 / 3 (100%)

The blind spot information signal shall be a visual signal that is clearly noticeable and easily verifiable by the driver from the driver's seat. This information signal shall be visible in daylight, including in direct sunlight, and at night without causing disabling glare or distraction to the driver.

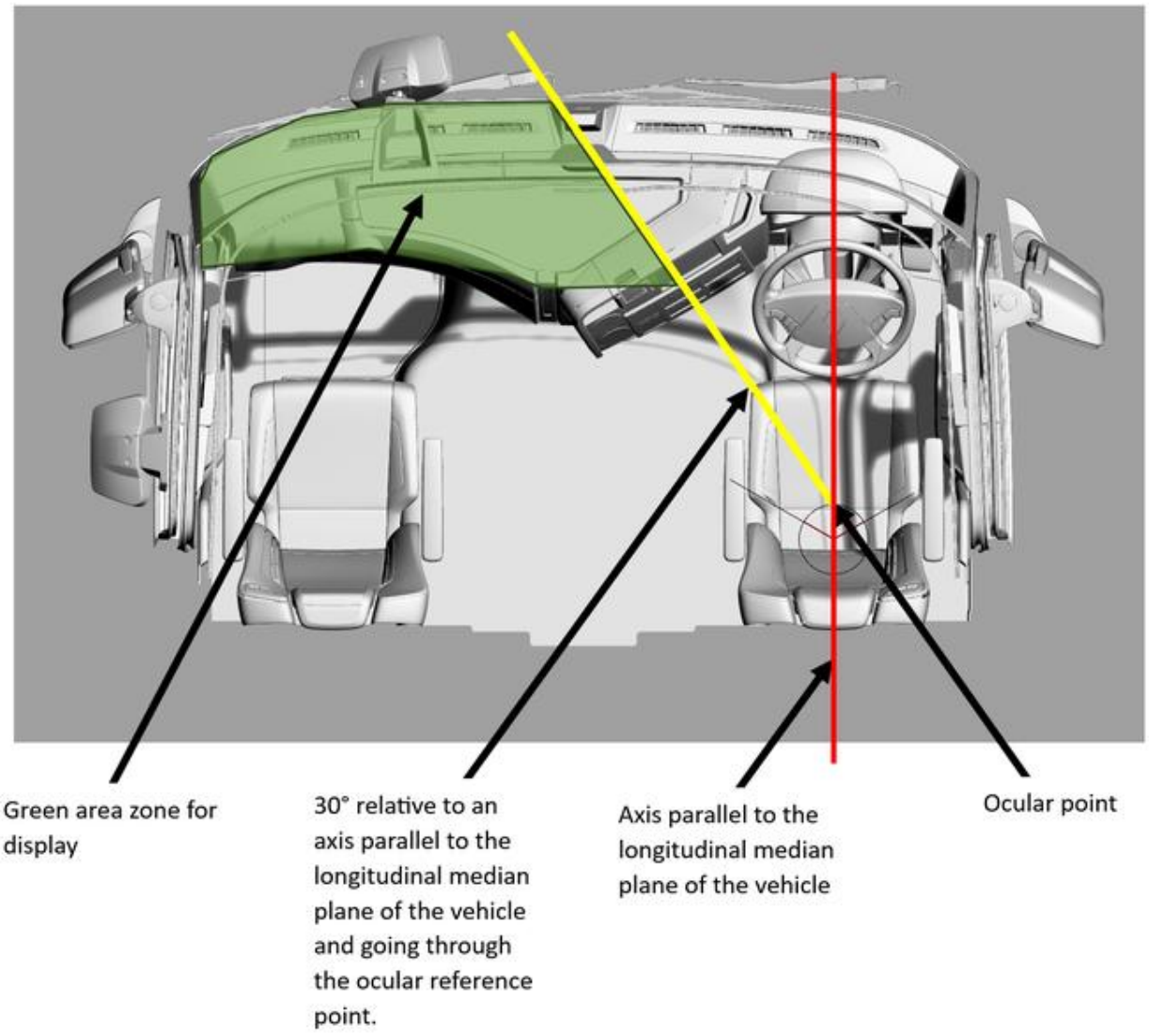
Pass

Photo 4

The device displaying the optical information signal shall be located at the near side of the vehicle at a horizontal angle greater than 30° relative to an axis parallel to the longitudinal median plane of the vehicle and going through the ocular reference point. If the driver's seating position is located on the near side of the vehicle, this value may be reduced.

Pass

BSIS_operation_ with VRU_indicator _71D841BB-8F09-442A-9AB6-66A498EDD913.mp4



The system shall display a permanent error in the event of restricted functionality, a malfunction, (e.g., sensor failure or covering), defective information or warning signalling, partial or complete failure of the system. **Installation requirements** BSIS, people pass and cover camera.MP4	Pass
Installation requirements	4 / 4 (100%)
The system shall be installed in such a way that it is not possible for the driver to switch off the system, for example, no main electrical (on/off) switch should be available to the driver.	Pass
The system shall not adversely affect any safety critical aspect of the function or performance of the base vehicle to which it is installed.	Pass
Sensors or other means of detection, where the alignment or stability is critical to successful operation in the defined	Pass

zone, shall be mounted on structures that are essentially rigid and are not liable to movement or vibration in service. Mirror arms that are adjustable in position shall not be considered suitable.	
No sensors, other means of detection, or other components of the system shall be mounted such that they protrude in a manner that is liable to cause injury risk to a VRU in the event of a collision, or conflict with the type-approval requirements for sideguards, spray suppression or external projections.	Pass
Test procedure	3 / 4 (75%)
The manufacturer shall provide details of the basic design of the system and, if applicable, how it is linked to other vehicle systems. The function of the system including its sensing and warning strategy shall be explained and an operator's manual/handbook 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 test service to identify the type of system and to aid the decision-making on the selection of worst-case conditions.	Pass

Although most of the key information is provided, its advisable that the instruction manual does not give any information on device set up, and should be separated between user and Installation manual

NTT_DVS_2024 ENG-1.pdf

Describe the sensors used and connections to the vehicle to determine how the device senses movement of the vehicle.	The device uses a combination of steering Angle sensor, Handbrake and indicators
Physical connections	Hard wired to Vehicles fuse box and connected to FMS Canbus
GPS	☑
Gyro	☐
Canbus	☑
To retrieve information on	Handbrake and Steering Angle sensors and indicator
Assessment conditions (true positive tests)	

The tests shall take place on a flat asphalt or concrete surface.

The vehicle sensors of the blind spot information system shall not be impeded in their functionality by contaminants (e.g., ice/snow) or other means.

Visibility conditions shall allow safe travel at the required travel speeds.

The tests may be carried out in any load condition so long as the axle loads do not exceed the limit specified by the vehicle manufacturer. The manufacturer shall confirm that the function is available in all permissible load states.

The vehicle tyre pressure shall be set according to the specifications of the vehicle manufacturer.

Static test Required 3 / 3 (100%)

The vehicle presented for testing shall be set up on a sufficiently large test area ready to be driven off.
The vehicle under test shall be secured against starting and rolling with the parking brake system or additional mechanical means (wheel chocks etc).
A VRU shall pass through the area covered by the Blind Spot Information System as defined in the performance requirements section above, in such a way that the movement is parallel to the longitudinal axis of the vehicle at speeds and lateral separations described in the following table overleaf:

Test 1 Lateral distance from nearside vehicle edge
500 ± 200 (mm)
VRU type : Cycle
VRU speed : 7 ± 2km/h

Pass

WhatsApp Video 2024-06-21 at 09.14.02.mp4

Test 2 Lateral distance from nearside vehicle edge
1100 ± 200 (mm)
VRU type : Cycle
VRU speed : 12 ± 2km/h

Pass

WhatsApp Video 2024-06-21 at 09.13.54.mp4

Test 3 Lateral distance from nearside vehicle edge
2200 ± 200
VRU type : Cycle
VRU speed : 18 ± 2km/h

Pass

WhatsApp Video 2024-06-21 at 09.13.44.mp4

Static Test Recommended 3 / 3 (100%)

Test 4
Lateral distance from nearside vehicle edge
300 ± 200 (mm)
VRU type : Pedestrian
VRU speed : 4 ± 2km/h

Pass

Not completed

WhatsApp Video 2024-06-21 at 09.13.28.mp4

Test 5
Lateral distance from nearside vehicle edge (mm)
300 ± 200
VRU type : Pedestrian
VRU speed : 4 ± 2km/h

Pass

Not completed

WhatsApp Video 2024-06-21 at 09.13.38.mp4

Test number 6
Lateral distance from nearside vehicle edge
2200 ± 200 (mm)
VRU type : Pedestrian
VRU speed : 4 ± 2km/h

Pass

Not completed.

Compliance with the distance and speed specifications shall be demonstrated using calibrated and traceable measuring equipment, markings on the test area and film documentation. This can be done, for example, by determining speed using a GPS-based measurement system and by observing the VRU path along defined markings.

The test is passed if the presence of the VRU is signalled by the BSIS in all test cases for at least as long as part of the VRU is within the coverage area according to the performance requirements section.

Signalling of the presence of the VRU shall be confirmed with cameras that can determine the delivery of the signal and the respective position of the VRU alongside the vehicle.

This can be done, for example, by using synchronized video capture covering both the internal VRU signal and the external position of the VRU on the test markings.

Assessment conditions (false positive tests) 3 / 3 (100%)

The vehicle presented for testing must drive at a speed of 10 ± 2 km/h on a sufficiently large test area through the centre of a marked corridor (width: vehicle 10 width + 2 ± 0.1 m, length: 20 ± 0.1 m, distance between markings: maximum 5 ± 0.1 m, marking height: maximum 5 cm).

Pass

A sign in accordance with BS EN 12899 1:2007(a) Fixed vertical road signs – fixed signs) shall be attached at a usual height in line with the left-hand row of markings (test setup see figure below). No other objects or VRUs should be in the covered area. Care must be taken to ensure that the right row of markings and the traffic sign are within the coverage area during the test.

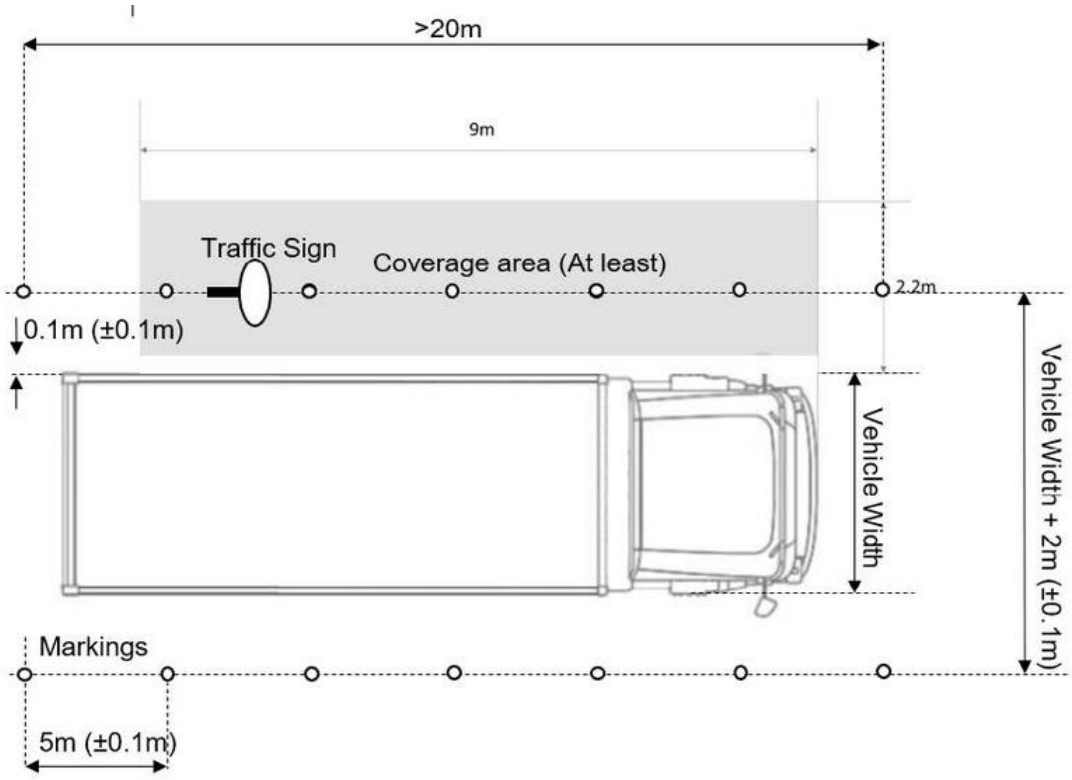
Pass

VIDEO-2024-06-21-09-21-25.mp4

The test is passed if no information or warning signal is

Pass

issued.


>20m
9m
Traffic Sign
Coverage area (At least)
2.2m
0.1m (±0.1m)
Vehicle Width
Vehicle Width + 2m (±0.1m)
Markings
5m (±0.1m)

Moving Off Information System	29 / 29 (100%)
Functional requirements Stationary	3 / 3 (100%)
The MOIS shall inform the driver of the presence of VRUs who are within or about to enter the critical blind spot area (dw in figure below) in front of a stationary vehicle and that might be endangered if the vehicle were to move off, by means of a visual signal.	Pass
MOIS_operation_indicator_A3C0680C-2C7F-45B0-BE9D-35C08ED5A733.mp4	
The MOIS shall warn the driver of the risk of an imminent collision with VRUs who are within or about to enter the critical blind spot area (dw in figure below) in front of the vehicle, if the vehicle is in a potential moving off manoeuvre.	Pass
see above	
The MOIS shall not issue a collision warning if the vehicle is in the 'at rest' condition. An information signal is still required in accordance with the first paragraph of this 'when stationary' requirement.	Pass

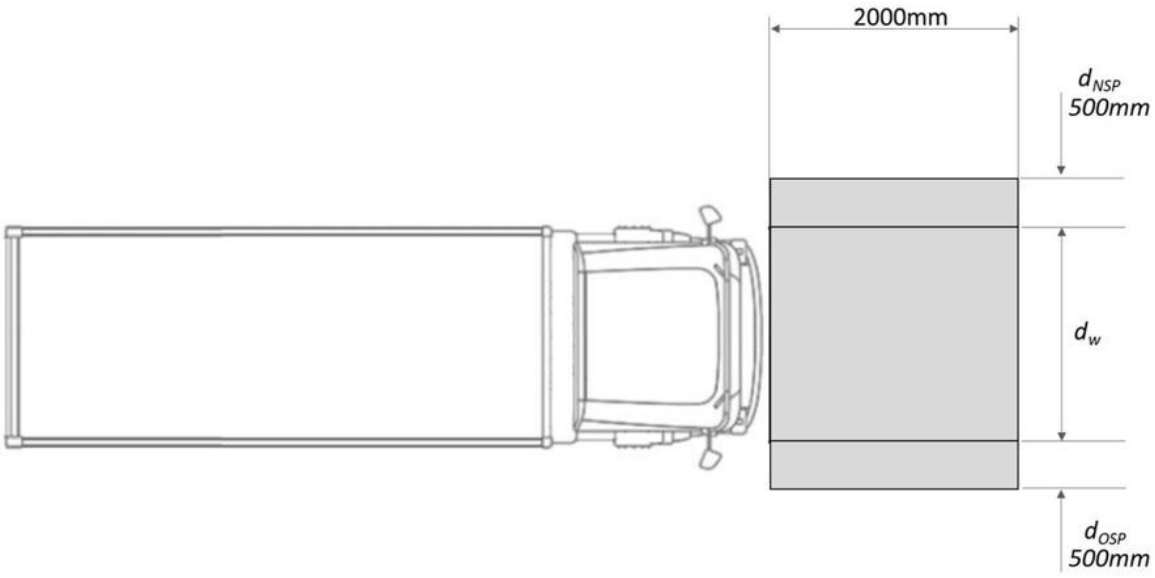
The exact parameters that determine if a vehicle has moved from an 'at rest' condition to a 'potential moving off manoeuvre' shall be determined at the discretion of the manufacturer. However, a vehicle that is stationary with either the park brake or the service brake applied shall always be considered 'at rest'. The manufacturers strategy should aim to use parameters that identify a potential moving off manoeuvre at the earliest opportunity.

A warning signal shall be maintained only for as long as the conditions specified in the performance requirements below are fulfilled.

When performing a moving-off manoeuvre	5 / 5 (100%)
When a vehicle performing a moving off manoeuvre has already detected a VRU and provided an information or warning signal, the MOIS shall maintain the signal even if the vehicle comes to a standstill. The information/warning signals shall be maintained for as long as the VRU remains in the defined zone in front of the vehicle.	Pass
MOIS_operation_indicator 2_0A06F2A9-ADEF-44A7-89B2-CC1D1BB74568.mp4	
The MOIS shall be active and able to issue information signals and warnings irrespective of whether the vehicle is stationary or in motion.	Pass
The MOIS shall be activated (or reactivated in the case of failure) upon each activation of the vehicle master control switch. The default shall be on with every key cycle with the system remaining active when the ignition is switched on.	Pass

Vehicles rated 0 to 2 star

2000
dw + DNSP + DOSP



The MOIS shall provide an information signal for VRUs that are stationary or moving forward at speeds of between 3 km/h and 5 km/h when travelling from the nearside or offside of the vehicle in a direction perpendicular to the vehicle median longitudinal plane.	Pass
When performing a potential moving-off manoeuvre, the MOIS shall provide a warning signal to the driver indicating the imminent collision with the VRUs moving at speeds of between 3 km/h and 5 km/h, when travelling from the nearside or offside of the vehicle in a direction perpendicular to the vehicle median longitudinal plane at vehicle speeds between 0km/h and 5km/h.	Pass
Human Machine Interface	6 / 6 (100%)
Information signals should only be given for objects whose speeds, trajectory, or other identifiable characteristic (such as size, shape, movement, or combination thereof) indicate that they are a Vulnerable Road User. The number of false-positive information signals due to the detection of non-VRU objects, such as other vehicles, shall be minimized. However, a warning signal is permitted if an imminent collision with a non-VRU object has been detected within the detection area as defined in the performance requirements section.	Pass
It shall be clear to drivers of vehicles if the MOIS becomes impaired or unavailable. MOIS covered 1.MP4.mov MOIS covered 2.MP4.mov	Pass

Restricted functionality, a malfunction, (e.g. sensor failure or covering), defective information or warning signalling, partial or complete failure of the system shall be indicated by means of an error message. If a permanent error display is not possible, an error message can alternatively be displayed, which shall be confirmed by the driver.	Pass
The collision warning signal shall be provided by the means of a combination of at least two modes selected from an optical signal, acoustic signal or haptic signal. Where the collision warning signal is provided by using an optical mode, this shall be a signal differing from those specified for the information signal	Pass

Photo 5

Photo 6

The collision warning signal shall be easily understandable for the driver to relate the signal to a potential collision.	Pass
The information and warning signal (if optical) shall be visible by daylight and at night.	Pass
Installation requirements	4 / 4 (100%)
The system shall be installed in such a way that it is not possible for the driver to completely switch off the system, for example, no main electrical (on/off) switch should be available to the driver.	Pass
The system shall not adversely affect any safety critical aspect of the function or performance of the base vehicle to which it is installed.	Pass
Sensors or other means of detection, where the alignment or stability is critical to successful operation in the defined zone, shall be mounted on structures that are essentially rigid and are not liable to movement or vibration in service. Mirror arms that are adjustable in position shall not be considered suitable.	Pass
No sensors, other means of detection, or other components of the system shall be mounted such that they protrude in a manner that is liable to cause injury risk to a VRU in the event of a collision, or conflict with the type approval requirements for sideguards, spray suppression or external	Pass

projections.	

Assessments	4 / 4 (100%)

The manufacturer shall provide a documentation package which gives access to the basic design of the system and, if applicable, how it is linked to other vehicle systems. The function of the system including how it detects and warns and VRUs 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 TfL and or testing service to identify the type of and to aid the decision-making on the selection of worst-case conditions.	Pass

Although most of the key information is provided, its advisable that the instruction manual does not give any information on device set up, and should be separated between user and Installation manual

NTT_DVS_2024 ENG-1.pdf

Describe the sensors used and connections to the vehicle to determine how the device senses movement of the vehicle.

Physical connections	Connected to Fuse box and FS Connector
GPS	☑
Gyro	☑
Canbus	☑
To retrieve information on	Steering angle and Handbrake

Assessment conditions (true positive tests)

The tests shall take place on a flat asphalt or concrete surface.
The vehicle sensors of the MOIS system shall not be restricted in their functionality by contaminants (e.g., ice/snow) or other means.
Visibility conditions shall allow safe travel at the required travel speeds.
The tests may be carried out in any load condition so long as the axle loads do not exceed the limit specified by the vehicle manufacturer.
[Note] For the load condition requirement above, a confirmation from the manufacturer of the MOIS should be provided indicating that the function is available in all permissible load states.
The vehicle tyre air pressure shall be set according to the specifications of the vehicle manufacturer.

Information signal - Lateral crossing tests with moving VRU	6 / 6 (100%)

The motor vehicle presented for testing shall be set up on a sufficiently large test area ready to be driven off.	Pass

The vehicle under test shall be secured against starting and rolling with the parking brake system or additional mechanical means (wheel chocks etc). A VRU shall pass through the area covered by the MOIS in such a way that the movement is perpendicular to the longitudinal axis of the vehicle at speeds and longitudinal separations described in the below table. The centreline of the VRU shall be used for placement on the longitudinal distance from the vehicle front. VRU centreline is defined as the median longitudinal plane of the VRU.	
Test number Longitudinal distance from vehicle front (mm) VRU orientation VRU type VRU speed (km/h) 1 500 ± 200 Perpendicular to vehicle centre line Cycle 3 ± 2km/h The handbrake was off WhatsApp Video 2024-06-21 at 09.13.03.mp4	Pass
2 2000 ± 200 Perpendicular to vehicle centre line Cycle 5 ± 2km/h The handbrake was off WhatsApp Video 2024-06-21 at 09.12.57.mp4	Pass
3 500 ± 200 Perpendicular to vehicle centre line Pedestrian 4 ± 2km/h The handbrake was off WhatsApp Video 2024-06-21 at 09.13.08.mp4	Pass
4 1000 ±200 Perpendicular to vehicle centre line Pedestrian 4 ± 2km/h The handbrake was off WhatsApp Video 2024-06-21 at 09.13.15.mp4	Pass

5
2000 ± 200
Perpendicular to vehicle centre line
Pedestrian
4 ± 2km/h

Pass

The handbrake was off

WhatsApp Video 2024-06-21 at 09.13.21.mp4

Compliance with the distance and speed specifications shall be demonstrated using calibrated and traceable measuring equipment, markings on the test area and film documentation.

[NOTE] This can be done, for example, by determining speed using a GPS-based measurement system and by observing the VRU path along defined markings.

The test is passed if the information signal is active in all test cases at least as long as part of the VRU is within the coverage area, according to the coverage areas set out above.

Signalling of the VRU shall be confirmed with calibrated measuring equipment that can determine the delivery of the signal and the respective position of the VRU alongside the vehicle.

[NOTE] This can be done, for example, by using synchronized video capture covering both the internal VRU signal and the external position of the VRU on the test markings.

Warning signal - Static VRU

1 / 1 (100%)

The motor vehicle presented for testing shall be set up on a sufficiently large test area ready to be driven off.
The whole of a pedestrian shall be placed anywhere within the zone defined by the width dw and within 2m from the front of the vehicle and provide a warning signal.
For systems that use triggers such as throttle depression, gear engagement or brakes release to determine an increase in collision risk the vehicle can remain secured against starting and rolling through mechanical means (wheel chocks etc). In these instances, a human target can be used.
For systems that use forward motion or other vehicle movement metrics to determine an increase in collision risk a pedestrian dummy shall be used.
The test is passed if the warning signal, as defined by the system designer, is signalled within 0.5s of the collision risk trigger being detected.
Signalling of the VRU shall be confirmed with calibrated measuring equipment that can determine the delivery of the signal and the time the signal was given.
[NOTE] This can be done, for example, by using synchronized video capture covering both the internal VRU signal and the external position of the VRU on the test markings.

Pass

VIDEO-2024-06-21-09-19-26.mp4

Warning Sticker	1 / 1 (100%)
External pictorial stickers and markings	1 / 1 (100%)

Warning signage as shown below must be displayed on the rear of the rigid vehicle and any trailer unit in use, not the front tractor unit. This must be designed to warn people walking and cycling of the hazards posed when near the vehicle. The signage must not be offensive or give instructional advice to people walking and cycling. The text point size must be legible to a cyclist or pedestrian at a reasonable distance from the vehicle. Signage used should be of at least A3 size.

Pass

Device installed on a tractor unit and no signage required

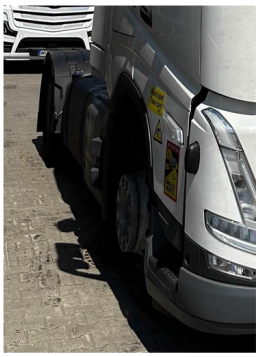


Photo 7

Warning signage, preferred

Instructional signage, not to be used

Media summary

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

Photo 6

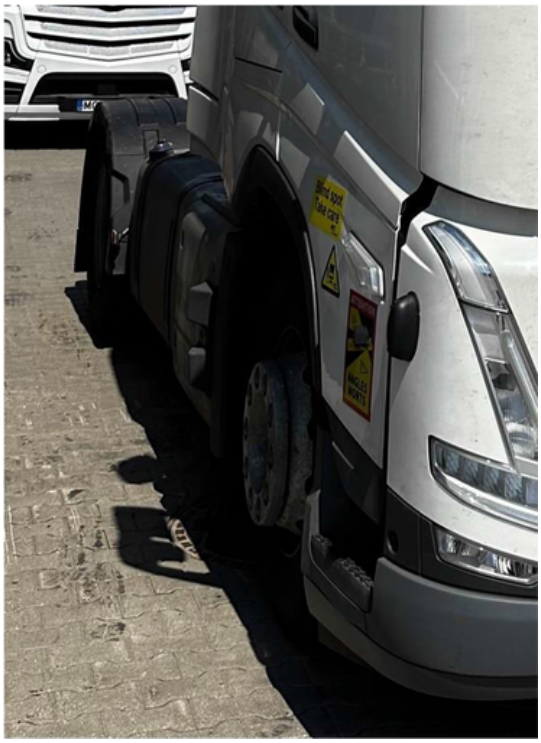


Photo 7

File summary

NTT_DVS_2024 ENG-1.pdf
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Outside, turn, quite mode_AFD629B4-506A-4516-89C1-0D1A0DE72ECF.mp4

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BSIS, people pass and cover camera.MP4
WhatsApp Video 2024-06-21 at 09.14.02.mp4
WhatsApp Video 2024-06-21 at 09.13.54.mp4
WhatsApp Video 2024-06-21 at 09.13.44.mp4
WhatsApp Video 2024-06-21 at 09.13.28.mp4
WhatsApp Video 2024-06-21 at 09.13.38.mp4
VIDEO-2024-06-21-09-21-25.mp4
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MOIS covered 2.MP4.mov
WhatsApp Video 2024-06-21 at 09.13.03.mp4
WhatsApp Video 2024-06-21 at 09.12.57.mp4
WhatsApp Video 2024-06-21 at 09.13.08.mp4
WhatsApp Video 2024-06-21 at 09.13.15.mp4
WhatsApp Video 2024-06-21 at 09.13.21.mp4
VIDEO-2024-06-21-09-19-26.mp4