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General Safety Regulation EU2019:2144

R. N.

23rd February 2023

THE QUEEN'S AWARDS FOR ENTERPRISE: INTERNATIONAL TRADE 2019

Topics

- GSR – wat is het
- Wat zijn de verorderingen die Brigade kan inlossen?
- Welke producten voldoen?

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GSR – Wat is het?

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GSR – Wat is het?

De General Safety Regulation (GSR) heeft betrekking op EU-verordening 2019/2144, die op 27 november 2019 is aangenomen en sinds 2022 van kracht is.

De GSR heeft betrekking op veiligheidsvoorzieningen voor voertuigen en specificeert verschillende eisen voor diverse voertuigtypen, zoals auto's, bestelwagens, vrachtwagens en bussen.

De GSR vereist de verplichte montage van bepaalde veiligheidsvoorzieningen op het niveau van de Original Equipment Manufacturer (OEM).

Voor sommige voertuigtypen zijn er meer veiligheidsvoorzieningen verplicht, met name voor grotere voertuigen en voertuigen met een grotere dode hoek.

GSR – Waarom worden systemen verplicht?

De EU erkent dat er enorme vooruitgang is geboekt op het gebied van voertuigveiligheid, wat aanzienlijk heeft bijgedragen tot de algemene daling van het aantal verkeersdoden en ernstig gewonden.

De EU heeft ambitieuze plannen om het aantal verkeersdoden en -gewonden verder terug te dringen en wil dat er meer wordt gedaan om deze cijfers te verminderen.

Deze voorschriften worden van kracht in 2022 voor nieuwe voertuigregistraties en in 2024 voor nieuwe voertuighomologaties

GSR – Waarom moeten deze systemen een typegoedkeuring hebben?

De GSR vereist dat de veiligheidsoplossingen voor voertuigen

worden gemonteerd via typegoedkeuringsmethoden

om een consistent installatieniveau te garanderen

dat op herhaalbare en meetbare wijze kan worden beoordeeld.

Advanced Driver Assistance Technologies ADAS Regulation Applicable Dates

GSR Requirement	Comment	2022 New Type Approvals	2024 All New Registrations	2026	2029
Intelligent speed assist	Vehicle feature	✓	✓		
Alcolock interlock	Interface only	✓	✓		
Driver drowsiness & attention warning	Can be achieved w/o cameras	✓	✓		
Advanced driver distraction warning	CMS Opportunity		✓ type approv	✓new reg	
Emergency stop signal	Vehicle feature	✓	✓		
Reversing detection R158	AI CMS / Radar	✓	✓		
Event data recorder R160	Vehicle feature			✓type approv	✓new reg
Pedestrian & Cyclist warning MOIS R159	AI CMS/Radar	✓	✓		
Blind spot information (active) R151	CMS/Radar	✓	✓		
Indirect vision (passive)	Vehicle feature	✓	✓		
Tyre Pressure Monitoring System TPMS	FMS Opportunity	✓	✓		

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Welke verorderingen via Brigade?

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GSR requirements / UNECE Regulation

The truck strategy review in 2020 identified these requirements as of relevance to Brigade

GSR	Required New model/New Vehicle	UNECE or other	Comment
Intelligent speed assistance	22/24		
Alcohol interlock installation	22/24	EN 50436:2016	
Driver drowsiness and attention warning	22/24		
Advanced driver distraction warning:	24/26		
Reversing detection:	22/24	R158	VRU proximity
Event data recorder:	22/24 M1 & N1 vehicles or 26/29 all vehicles	R160	
Pedestrian and cyclist collision warning	22/24	R159	MOIS
Blind spot information systems: BSIS	22/24	R151	
Indirect vision systems:	-/22	R46	
Audible warnings:	-/22	R28	
Lane departure warning	-/22	R130 + R157	

R151 - Blind Spot Information System (BSIS)

M2, M3, N2, N3

R158 - Reversing Information System (REIS)

M2, M3, N2, N3

R159 - Moving Off Information System (MOIS)

M2, M3, N2, N3

2019/2144 - Intelligent Speed Assist (ISA)

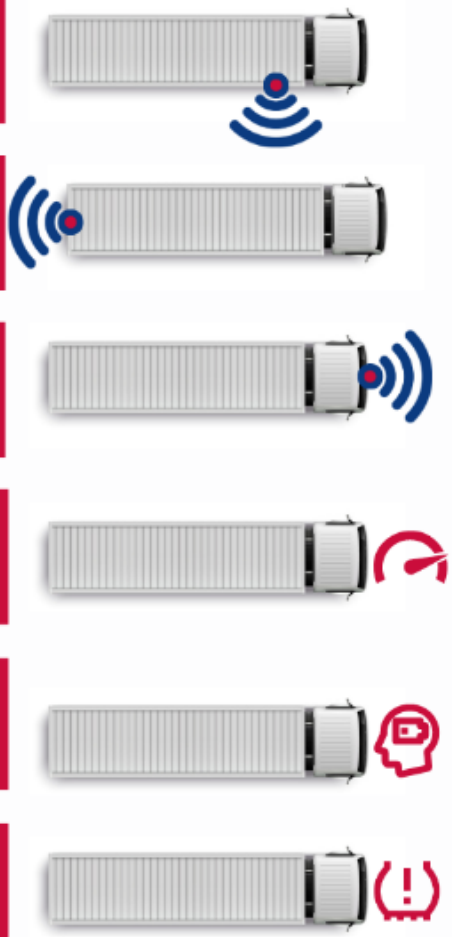
M2, M3, N2, N3

2019/2144 - Driver Drowsniess & Alertness Warning (DDAW)

M2, M3, N2, N3

R64 - Tire Pressure monitoring system (TPMS)

M2 - M3 - N2 - N3 - O3 - O4



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2024 - Nieuw geregistreerde voertuigen

2022 - nieuwe voertuig homologatie

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Vereisten van de verorderingen

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Lane Departure Warning System LDWS - R130

1. Working Speed is above 65 kph
2. Active once crossing lane by 0.3 meters (drift rate 0.1m to 0.8m per second)
3. Working temperature 0 to 45c
4. Yellow warning when not active
5. Lane departure warnings should be noticeable by the driver by at least 2 warnings

   example - acoustic and haptic

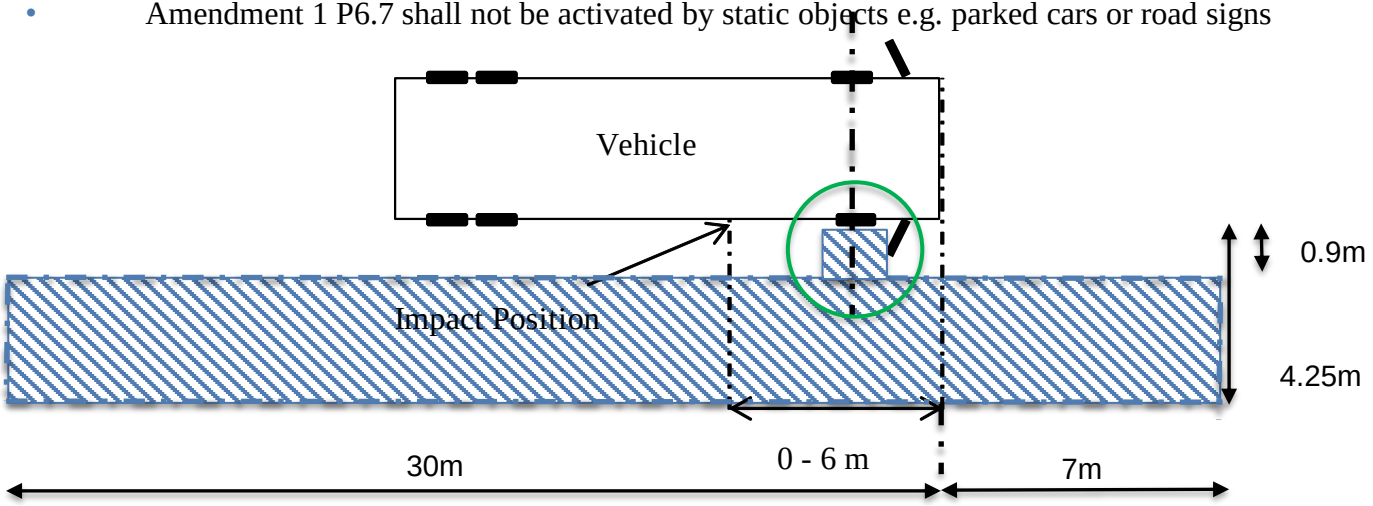
   (a) One warning must have spatial indication about the direction of the vehicle

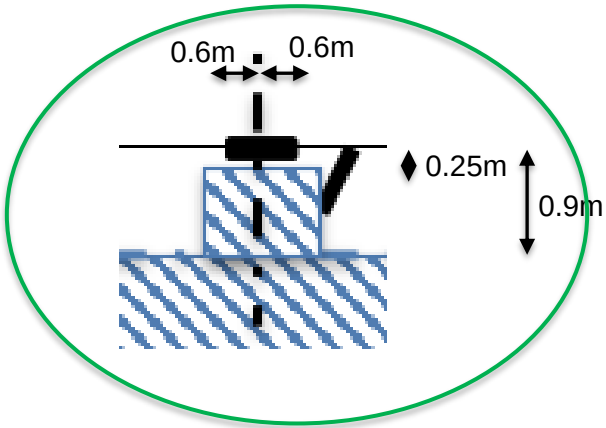
   (b) Where an optical signal is used for the lane departure it may use the failure warning signal

Blind Sport Information System BSIS – R151

Vehicles N2, N3 over 12te and at manufacturers' request to N2 <8te and M2, M3

- Shall operate at speeds up to 30kph
- 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 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 if a bicycle is 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 m 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."
- Amendment 1 P6.7 shall not be activated by static objects e.g. parked cars or road signs

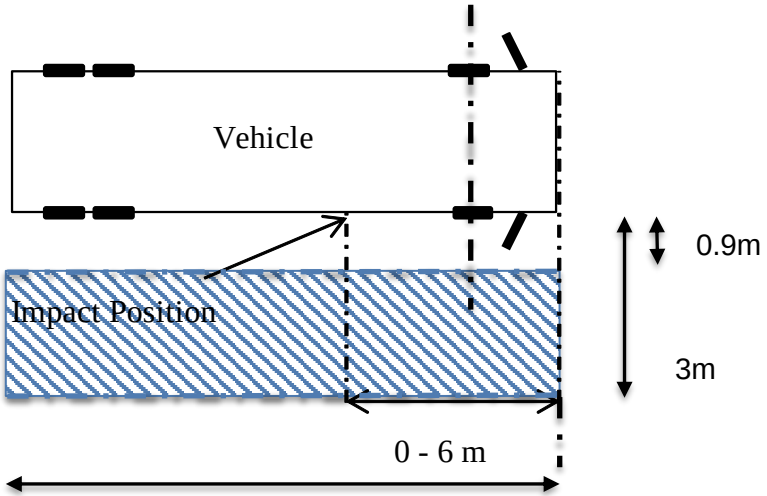




Blind Sport Information System BSIS – R151

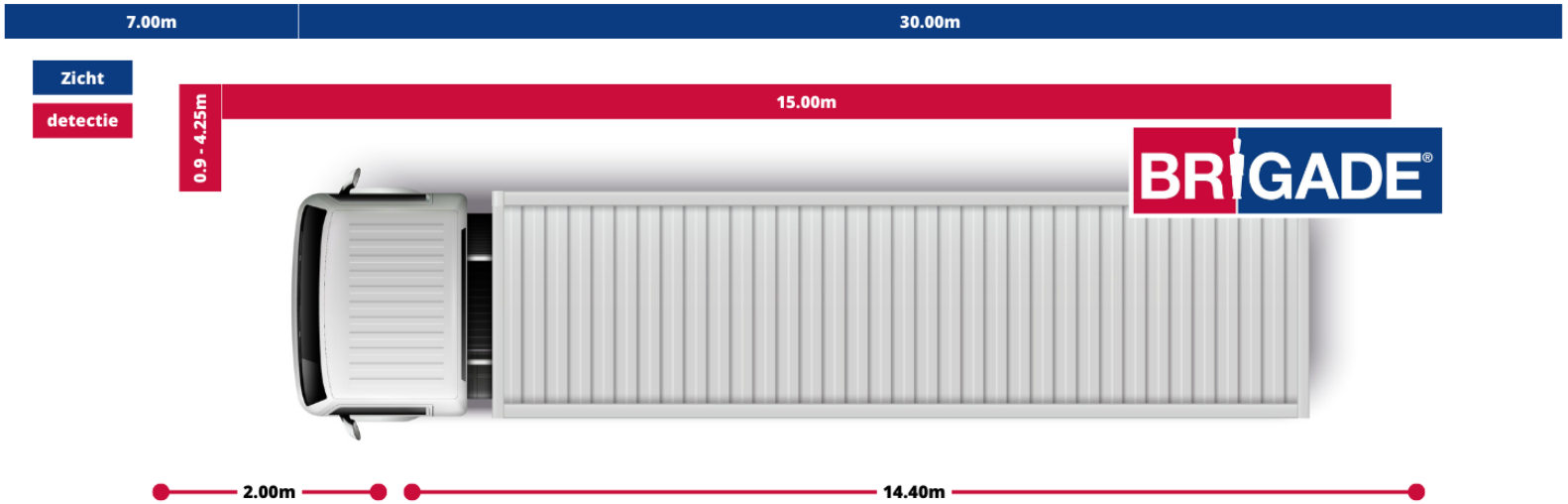
Vehicles N2 less than 8te

Vehicles of categories N2 with a technically permissible maximum mass not exceeding 8 tonnes and M2 are deemed to meet the requirements of paragraph 6.6. if the Blind Spot Information signal has been activated when the bicycle target is entering longitudinally forward from the rear into a zone adjacent to the vehicle. The zone shall cover a lateral separation between bicycle and vehicle of 0.9 to 3.0 meters and from the vehicle front right corner to the rear of the vehicle. In such case the activation shall occur before the entire bicycle target has entered the zone."



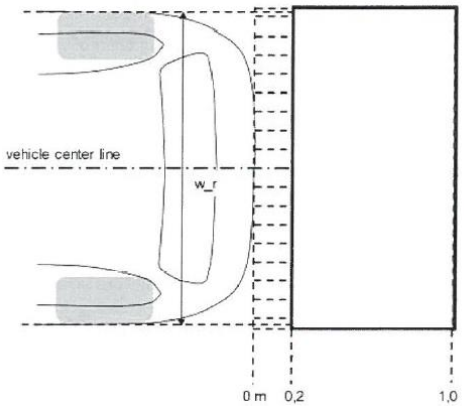
Blind Sport Information System BSIS – R151

- Systeem bewaakt de dode hoek aan de bijrijderskant van het voertuig om aanrijdingen met fietsers te voorkomen
- Voor voertuigen van de klassen M2, M3, N2 en N3
- Voor voertuigen met rechtse/linkse besturing
- Bij gebruik van het voertuig tussen 0 en 30 km/u
- BSIS informeert de bestuurder over een fietser in de dode hoek via een optisch, akoestisch, haptisch of gecombineerd signaal.



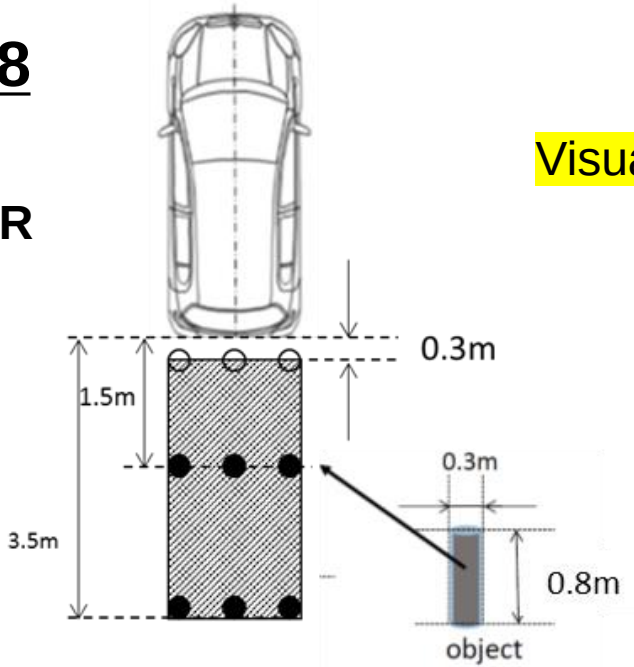
Reversing detection - REIS - R158

Detection



OR

Visual

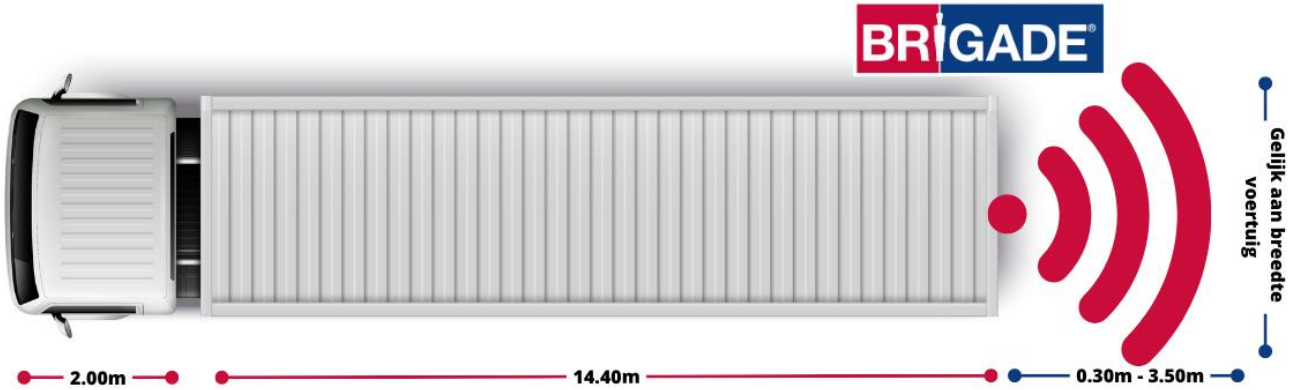


UN Regulation No. 158 on reversing motion (improving drivers' awareness of vulnerable road users behind vehicles when reversing) introduces requirements for cars, vans, buses and trucks (**vehicles categories M and N**) to detect objects behind the vehicle that are at least 80 cm tall and 30 cm wide in an area ranging from 20 cm to 1 meter behind the vehicle.

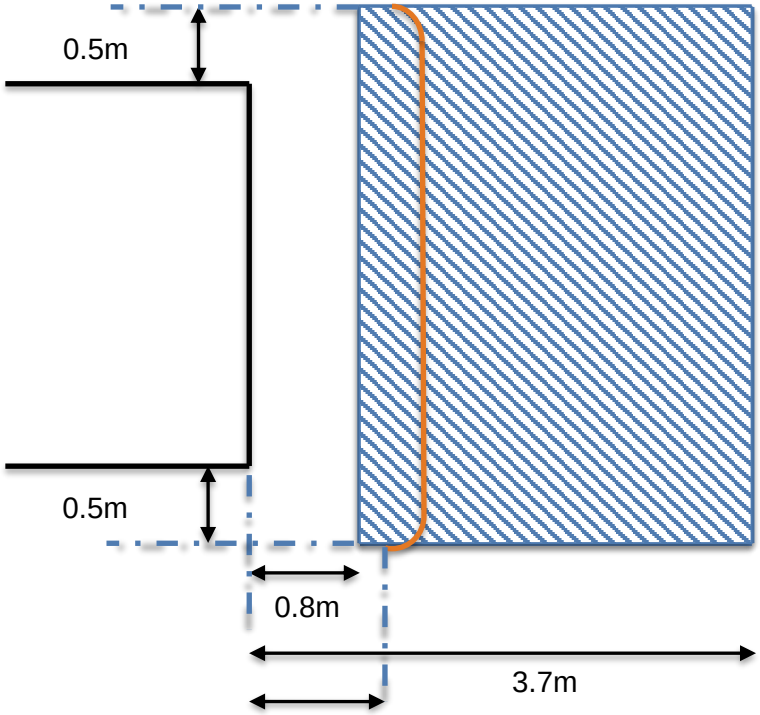
Two main technologies are used: ultra-sonic sensors and rear-view cameras. In the case of cameras, the Regulation establishes the requirement to ensure visibility of the area from 30 cm to 3.5 meters behind the vehicle.

Reversing information system REIS – R158

- Het systeem bewaakt de achterkant van het voertuig om botsingen tijdens het achteruitrijden te voorkomen.
- Voor voertuigen van de klassen M2, M3, N2 en N3
- Geactiveerd bij het kiezen van de achteruitversnelling
- Detectie van 30cm tot 3,5m achter het voertuig
- Opsporing van dezelfde breedte als het voertuig
- REIS informeert de bestuurder over een object bij achteruitrijden via een akoestisch, optisch of haptisch signaal.



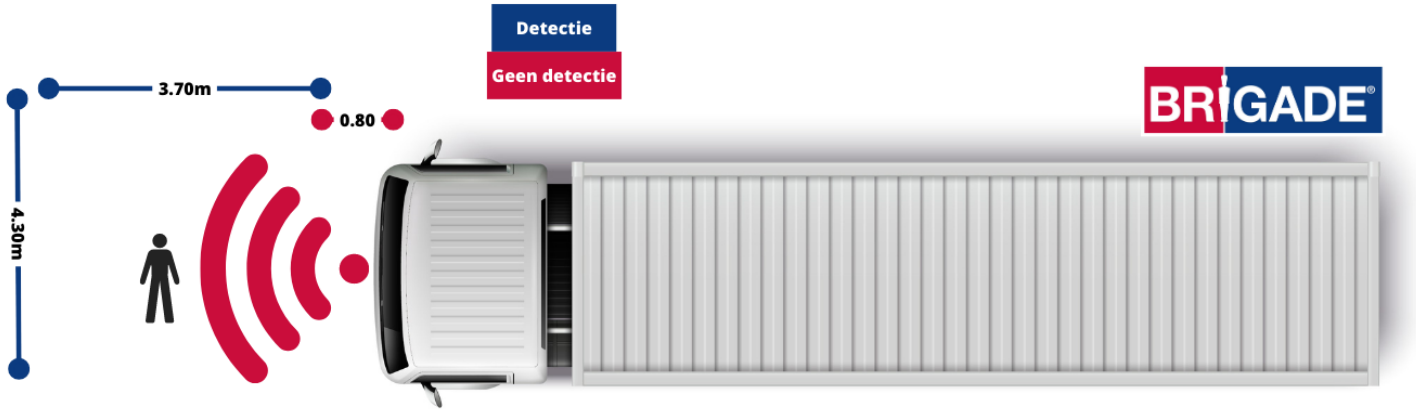
Moving Off Information System MOIS – R159



- Applies to vehicle M2,M3, N2,N3 from rest up to 10kph, at any light level above 15 Lux. It shall give a warning if not active after 15s from start up. It shall give visual plus audible and/or haptic warning. Working 0deg to 45deg C
- "Maximum forward separation plane" means the plane perpendicular to the longitudinal plane of the vehicle representing the greatest forward separation distance that the MOIS is required to detect the presence of a VRU. The distance of this plane from the vehicle front shall be selected as either 3.7 m or the most forward point of the blind spot boundary at the manufacturer’s choosing, and shall be no less than 1.0 m.
- 2.26. "Minimum forward separation plane" means the plane perpendicular to the longitudinal plane of the vehicle representing the shortest forward separation distance that the MOIS is required to detect the presence of a VRU. The distance of this plane from the vehicle front shall be 0.8 m.
- 2.27. "Nearside separation plane" means the plane parallel to the longitudinal plane of the vehicle and located 0.5 m outboard from the nearside vehicle plane.
- 2.28. "Offside separation plane" means the plane parallel to the longitudinal plane of the vehicle and located 0.5 m outboard from the offside vehicle plane.

Moving Off Information System MOIS – R159

- Het systeem bewaakt de dode hoek vooraan en voorkomt aanrijdingen met voetgangers of fietsers
- Voor voertuigen van de klassen M2, M3, N2 en N3
- Bij gebruik van het voertuig tussen 0 en 10 km/u
- MOIS informeert de bestuurder over een fietser of voetganger in de dode hoek via een optisch, akoestisch, haptisch of gecombineerd signaal.
- Detectie van 80 cm tot 3,7 m vóór het voertuig (4,5 m in totaal)
- De minimumdetectiebreedte moet 4,3 m bedragen



Reverse Alarms

- Proposal for a new UN Regulation on Reverse Warning
- The regulation has been published yet. It will probably be published this Autumn. The phase in date probably (2024/6)
-
- There are two parts to the standard; alarm performance and on vehicle test.
- We can only comment on the alarm performance for compliance. There are two options (alarm ratings at 1m):

1. Fixed output with one or more levels
    1. Low 62 – 77 dBA
    2. Normal 77 – 92 dBA
    3. High 97 – 112 dBA
2. Smart, against fixed ambient (in brackets)
    1. 45 – 73 dBA (45 dBA)
    2. 78 – 89 dBA (60 dBA)
    3. 98 – 109 dBA (80 dBA)

On vehicle tests will verify if the alarm complies and the dBA will be determined by the type of alarm and where the alarm is installed.

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Welke producten voldoen ?

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Current & Pipeline Products (Preferred solutions)

It should be possible to use the following of our existing products to satisfy some of these regulations. Subject to:

- Detail engineering evaluation for Camera FOV or Backscan / Backsense Alarm signals.
- Component Assessment by “Competent Technical Authority” to the component requirements

Regulation/Requirement	Product Technology
R130 Lane Departure Warning	MDR + ADAS AI cameras Dec 23 potential solution
R151 BSIS	Side Radar Project Q2/Q3 2023, Exploring new systems for alternative AI CMS solution for Q3 23. UDS possible for class M2 < 8te
R158 Reversing Detection or Vision System	BN360, BE-8xx, VBV-7xx Backsense / UDS OSD / UDS CAN AI Camera
R159 MOIS	UDS Frontscan/Cornerscan (limited to short blind spot vehicles) AI camera with R151 combo Potential multiple 77GHz radar solution