

UNECE R10.08 - immunity related function and annex 6 test cycle proposal

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OBJECT: text proposal related to doc IWG-EMC-47-18e (FR) Annex 6 and immunity related function updates.

Next to proposal IWG-EMC-47-18e, hereafter the associated proposal of modification of R10.08

Immunity related unction (clause 2.12)

2.12. "Immunity related functions" are the following functions; this list is not exhaustive and shall be adapted to the technical evolution of vehicle/technology:

(a) Functions related to the direct control of the vehicle:

(i) By degradation or change in: e.g. engine, gear, brake, suspension, active steering, speed limitation devices;

(ii) By affecting driver's position: e.g. seat or steering wheel positioning;

(iii) By affecting driver's visibility: e.g. dipped beam, windscreen wiper, indirect vision systems, blind spot systems, **rear view camera systems, front and lateral view camera systems, moving off information systems.**

(b) Functions related to driver, passenger and other road user protection:

(i) E.g. airbag and safety restraint systems, emergency calling systems;

(c) Functions which, when disturbed, cause confusion to the driver or other road users:

(i) Optical disturbances: incorrect operation of e.g. direction indicators, stop lamps, end outline marker lamps, rear position lamp, light bars for emergency system, wrong information from warning indicators **or TPMS function**, lamps or displays related to functions in subparagraphs (a) or (b) which might be observed in the direct view of the driver;

(ii) Acoustical disturbances: incorrect operation of e.g. anti-theft alarm, horn.

(d) Functions related to vehicle data bus functionality:

(i) By blocking data transmission on vehicle data bus-systems, which are used to transmit data, required to ensure the correct functioning of other immunity related functions.

(e) Functions which when disturbed affect vehicle statutory data: e.g. tachograph, odometer;

(f) *Functions* related to charging mode when coupled to the power grid:

(i) For vehicle test: by leading to unexpected vehicle motion;

(ii) For ESA test: by leading to an incorrect charging condition (e.g. over-current, over-voltage).

Annex 6 (clause 2.1.1.2)

2.1.1.2. Basic vehicle conditions

Basic vehicle conditions

The paragraph defines minimum test conditions (as far as applicable) and failure criteria for vehicle immunity tests. Other vehicle systems, which can affect immunity related functions, shall be tested in a way to be agreed between manufacturer and Technical Service.

"50 km/h mode" vehicle test conditions	Failure criteria
Vehicle speed 50 km/h (respectively 25 km/h for L1, L2 vehicles) ± 20 per cent (vehicle driving the rollers). If the vehicle is equipped with a cruise control system ⁽¹⁾ , it shall be used to maintain the required constant vehicle speed and maintained without any deactivation.	Speed variation greater than ± 10 per cent of the nominal speed. In case of automatic gearbox: change of gear ratio inducing a speed variation greater than ± 10 per cent of the nominal speed. <u>no change of state of the immobilizer and/or device to prevent unauthorized use.</u>
Dipped beams ON (manual mode)	Lighting OFF (front light and rear light)

Specific warning (e.g Rotating/flashing light, signaling bar, siren...) ON	Specific warning OFF
Cluster operate in normal mode	Unexpected warning <u>of telltales related to immunity related functions</u> Inconsistent variation of the odometer
Rear view system <u>(internal and external)</u>	Unexpected movement of rear-view mirror Loss or freezing of the display (CMS) <u>Change of state of display (ON/OFF)</u>
Front wiper ON (manual mode) maximum speed	Complete stop of front wiper
Direction indicator on driver's side ON	Frequency change (lower than 0.75 Hz or greater than 2.25 Hz). Duty cycle change (lower than 25 per cent or greater than 75 per cent).
Adjustable suspension in normal position	Unexpected significant variation
Driver's seat and steering wheel in medium position	Unexpected variation greater than 10 per cent of total range
Alarm unset	Unexpected activation of alarm
Horn OFF	Unexpected activation of horn
Airbag and safety restraint systems operational with inhibited passenger airbag if this function exists	Unexpected activation
Automatic <u>doors openings</u> closed	Unexpected opening
Adjustable endurance brake lever in normal position	Unexpected activation
Brake pedal not depressed	Unexpected activation of brake and unexpected activation of stop lights
<u>Automatic gearbox in Driving mode</u>	<u>change of gear mode of the gearbox</u>
<u>Tachograph operating</u>	<u>Recording of data with error (check the difference between beginning and of test, shall be less than 6 km)</u>

<u>Blindspot detection operating</u>	<u>modification of the function state (e.g. unexpected desactivation)</u> <u>unexpected alert of the function.</u>
<u>lane departure warning system enabled.</u>	<u>modification of the function state (e.g. unexpected desactivation).</u> <u>Unexpected alert of the function (seat, turnwheel, cluster, ...).</u>
ADS shall be operational ⁽¹²⁾	ADS does not remain in a failure safe mode or expected failure operational mode
<u>(1): Due to issues caused by the EMC laboratory environment, it may not be possible to activate automatic cruise control of the vehicle, in this case use non adaptive cruise control.</u> <u>(2): ADS are turned on by the driver but some or all ADS functions may revert to a mode where system is monitoring sensors but is not actively 'driving' the vehicle due to plausibility issues caused by the EMC laboratory environment.</u>	

"Brake mode" vehicle test conditions	Failure criteria
Vehicle in a state that allows the braking system to operate normally, parking brake released, vehicle speed 0 km/h. Brake pedal depressed to activate the brake function and the stop lights without any dynamic cycle.	Stop lights inactivated during mode Brake warning light ON with loss of brake function.
Day running light (DRL) ON	DRL inactivated during mode
ADS shall be operational ⁽¹⁾	ADS does not remain in a failure safe mode or expected failure operational mode
<u>Airbag and safety restraint systems operational with non-inhibited passenger airbag</u>	<u>unexpected activation</u>
<u>Detection of pedestrian and cyclists while moving Off information system enabled</u>	<u>modification of the function state (e.g. unexpected desactivation).</u> <u>Unexpected alert of the function.</u>

<u>System for taking control of throttle pedal in case of accelerating by error instead of breaking enabled</u>	<u>change in the engine speed / torque applied to wheels</u> <u>unexpected alert of the function.</u>
<u>Vehicle in front drive, with the Front and Lateral View Camera System enabled.</u>	<u>modification of the function state (e.g. unexpected desactivation).</u> <u>Unexpected alert of the function.</u> <u>Freezing of Front and/or lateral view camera systems</u>
<i>(1): ADS are turned on by the driver but some or all ADS functions may revert to a mode where system is monitoring sensors but is not actively 'driving' the vehicle due to plausibility issues caused by the EMC laboratory environment.</i>	

...

<u>"Speed limit ⁽¹⁾" vehicle test conditions</u>	<u>Failure criteria</u>
<u>Speed limit feature activated pushing the throttle pedal to reach a speed above the limit if the feature would not be activated</u>	<u>Speed exceedance of the limit.</u>
<u>(1) speed limit feature for cycle test condition is the one covered by UNECE R89</u>	

<u>"Rear gear ⁽¹⁾" vehicle test conditions</u>	<u>Failure criteria</u>
<u>Vehicle in rear drive, with the feature enabled</u>	<u>modification of the function state (e.g. unexpected desactivation).</u> <u>Unexpected alert of the function.</u> <u>Freezing of rear-view systems (only if no redundancy with a standard mirror).</u>
<u>(1) this test condition applies only when the vehicle is equipped with a devices for reversing motion and motor vehicles with regard to the driver's awareness of vulnerable road users behind vehicles covered by UNECE R158</u>	

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