

Proposal for amendments to Regulation No. 46

List of contents, Annexes amend to read:

“

12 Test methods and safety provisions for CMS of Classes I to IV

13 Test Methods and Safety Provisions for Sonar Systems “

Insert a new Annex 13, to read:

“ Annex 13 Test Methods and Safety Provisions for Sonar Systems

1. System activation

The system shall be activated when the reverse gear is selected.

2. Driver interface and information presentation strategy

2.1. Audible information

When an object is detected in the rear horizontal area as described in paragraph 5.1. below, audible information in accordance with **ISO 15006** shall be given.

In presenting audible information, the distance may be identified at two or more levels. These zones may be indicated by changing the frequency of intermittent sound, and faster intermittent sound or continuous sound shall be used as the distance becomes closer.

2.2. Duration of signalling

Signalling for an object shall last as long as the object is detected and shall end when the object is no longer detected or when the system is deactivated.

To reduce the driver's discomfort, the audible signal can be automatically suspended temporarily after a certain time set by the manufacturer has elapsed, provided that the system remains to be activated. If, while the audible signal is automatically suspended temporarily, the distance to the object becomes short, the audible signal shall be automatically resumed. If the distance to the object becomes long, the audible signal may remain suspended.

3. General test conditions

The test object shall be as per Clause 7.1 of ISO 17386 :2010. During testing, the wind speed must not exceed 1 m/s. The temperature shall be $20 \pm 5^\circ\text{C}$ and the humidity shall be $60 \pm 25\%$. There shall be no rain or snow. The test shall be performed on a flat, dry asphalt or concrete surface. The test must not be affected by the reflection of sound waves or electromagnetic waves from any walls, auxiliary testing equipment or any other objects in the environment.

4. Dynamic performance of object detection

4.1. Detection latency

The detection latency as measured according to paragraph 4.2. must not exceed 0.6 s.

4.2. Detection latency test method

4.2.1. Test conditions

The testing environment and test object shall be as per paragraph 3 of this Annex. The test object shall be located in the detectable grids within the rear horizontal area in paragraph 5 of this Annex. The test vehicle in the initial state shall be with the detection system being activated and shall be in a parking condition. Here, parking condition means the P (park) position being selected in the case of vehicles equipped with automatic transmissions, whereas it means the neutral gear being selected and the parking brake being engaged in the case of vehicles equipped with manual transmissions.

4.2.2. Test procedures

(1) With the vehicle being in the initial state, locate the test object behind the vehicle and select the reverse gear. In the case of vehicles equipped with manual transmissions, release the parking brake after selecting the reverse gear.

(2) Measure the elapsed time (detection latency) from the moment at which the reverse gear is selected to the moment at which the audible warning starts. In the case of vehicles equipped with manual transmissions, the detection latency shall be the elapsed time from the moment at which the parking brake is released to the moment at which the audible warning starts.

5. Rear horizontal area detection rate

5.1. Monitoring area

The maximum detection distance in Clauses 5.4.2 and 5.4.3 of ISO 17386 :2010 shall be [1.0] m (Class R2).

5.2. Minimum detection rate

The minimum detection rate required for the rear horizontal area shall be as follows:

- 90% for A1 as defined in Clause 5.4.3 of ISO 17386 :2010;
- 87% for the rear-2 range in A2 as defined in Clause 5.4.3 of ISO 17386 :2010.

There must be no undetected hole larger than a square consisting of two-by-two grids.

Here, the rear horizontal area test procedures shall be as per Clause 7.3 of ISO 17386 :2010.

6. Self-test capabilities and failure indication

As per Clause 5.5 of ISO 17386 :2010.

7. Operation with trailers

As per Clause 5.6 of ISO 17386 :2010. “
