

Proposal for draft amendments to UN Regulation No. 28

The text reproduced below was prepared by the experts from the Russian Federation in order to upgrade the content of UN Regulation No. 28. The modifications to the current text are marked in bold for new and strikethrough for deleted characters.

I. Proposal

Contents, Paragraph 7., amend to read:

7. Modification of the type of ~~the~~ audible warning device **and extension of approval**

Paragraph 15 Contents amend to read:

15. Modification of ~~the type of the audible warning device~~ **vehicle type and extension of approval**

Paragraph 1.1, amend to read:

- “1.1. audible warning devices (AWD), ^{4/} supplied with direct or alternating current or compressed air, which are intended for fitting to motor vehicles of categories ~~L₃~~₃, to ~~L₅~~₅, M and N, excluding mopeds (categories ~~L₁~~₁ and ~~L₂~~₂) ~~2/”~~”

Paragraph 1.2, amend to read:

- “1.2. ~~audible signals~~ ~~3./~~ of motor vehicles listed in 1.1. **with regard to their audible signals”**

Paragraph 2, amend to read:

“For the purpose of this Regulation, ~~audible warning devices~~ (AWD) ~~of of~~ different "types" shall be understood to mean devices essentially different from ~~one another~~ with respect to such matters as:

- 2.1. 'audible warning device' means a device emitting an acoustic signal the operation of which is intended to give warning of the presence of or a manoeuvre by a vehicle in a dangerous road traffic situation;
- 2.1.1. a device consisting of several sound emission orifices that are excited by a single power source shall be considered to be an audible warning device;
- 2.1.2. an audible warning device consisting of several components each emitting an acoustic signal and operating simultaneously as a result of actuation by a single control shall be considered to be a single audible warning device;”

Paragraph 2.3, amend to read:

¹ As indicated in the Consolidated Resolution on the Construction of Vehicles (R.E.3), document ECE/TRANS/WP.29/78/Rev.3, para. 2.

- “2.3. For the purposes of this Regulation, audible warning devices of different "types" shall be understood to mean devices essentially different from one another with respect to such matters as:
- 2.3.1. trade name or mark, commercial description;
 - 2.3.2. principles of operation;
 - 2.3.3. type of electrical supply (direct or alternating current);
 - 2.3.4. outer shape of case;
 - 2.3.5. shape and dimensions of diaphragm(s);
 - 2.3.6. shape or kind of sound outlet(s);
 - 2.3.7. rated sound frequency or frequencies;"
 - 2.3.8. rated supply voltage;
 - 2.3.9. for devices supplied directly from an external compressed air source, rated operating pressure.

Paragraph 4., amend to read:

- “4.1. Audible warning devices and each component audible warning system excluding mounting accessories, shall bear:
- 4.1.1. The trade name or mark of the manufacturer of the system or its components;
 - 4.1.2. The commercial description given by the manufacturer.
- 4.2. The approval mark and the additional symbol shall be shown on the main body of the audible warning device according paragraph 5.5.
- 4.3. Such markings shall be clearly legible and indelible.”

Paragraph 5.5.1, Footnote, amend to read:

“The distinguishing numbers of the Contracting Parties to the 1958 Agreement are reproduced in Annex 3 to Consolidated Resolution on the Construction of Vehicles (R.E.3), document ECE/TRANS/WP.29/78/Rev.3.”

Add new paragraph 6.1.1., to read:

- “6.1.1. The type approval tests shall be carried out on two samples of each type submitted by the manufacturer for approval; both the samples shall be subjected to all the tests and must conform to the technical specifications laid down.”

Paragraph 6.2.1, amend to read:

- “6.2.1. The warning device should, preferably, be tested in an anechoic ~~environment~~ **chamber**. Alternatively, it may be tested in a semi-anechoic chamber or in an open space². In this case, precautions shall be taken to avoid reflections from the ground within the measuring area (for instance by erecting a set of absorbing

² The site may take the form, for instance, of an open space of 50 meters radius, the central part of which must be practically horizontal over a radius of at least 20 meters, the surface being of concrete, asphalt or a similar material, which must not be covered with powdery snow, tall weeds, or loose soil or cinders. The measurements shall be made on a clear day. No-one other than the observer reading the instrument shall remain near the audible warning device or the microphone, since the presence of spectators may affect the readings of the instrument to a considerable extent, if they are near the audible warning device or the microphone. Any peak which appears to be unrelated to the general sound level shall be disregarded in the reading.

screens). Compliance with the spherical divergence to a limit of 1 dB within a hemisphere of not less than 5 m radius, up to the maximum frequency to be measured, especially in the measuring direction and at the height of the apparatus and the microphone, shall be checked.

The ambient noise level shall be at least 10 dB lower than the sound pressure level to be measured.

The device to be tested and the microphone shall be placed at the same height. This height shall be ~~between 1.15 and 1.25~~ **1.20 ± 0.05** m. ~~The axis of maximum sensitivity of the microphone shall coincide with the direction of the maximum sound level of the device~~

The microphone shall be so placed that its diaphragm is at a distance of **2.00 ± 0.02** m from the plane of the sound outlet of the device. **The microphone must be positioned facing the front surface of the warning device in the direction in which the subjective sound level is at a maximum.**

In the case of devices with several outlets, the distance shall be determined in relation to the plane of the nearest outlet to the microphone."

Paragraph 6.2.2, amend to read:

“6.2.2. Measuring instruments

6.2.2.1. Acoustic measurements

~~6.2.2. The measurements of the sound pressure levels shall be made with a class 1 precision sound level meter conforming to the specifications of IEC Publication No. 651, first edition (1979).~~

~~All measurements shall be made using the time constant “F”. The measurement of the over-all sound pressure level shall be made using the weighting curve A.~~

The apparatus used for measuring the sound level shall be a precision sound-level meter or equivalent measurement system meeting the requirements of class 1 instruments (inclusive of the recommended windscreen, if used). These requirements are described in "IEC 61672-1:2002: Precision sound level meters", second edition, of the International Electrotechnical Commission (IEC).

Measurements shall be carried out using the "fast" response of the acoustic measurement instrument and the "A" weighting curve also described in "IEC 61672-1:2002". When using a system that includes a periodic monitoring of the A-weighted sound pressure level, a reading should be made at a time interval not greater than 30 ms.

The spectrum of the sound emitted shall be measured according to the Fourier transform of the acoustic signal. Alternatively, one-third octave filters conforming to the specifications of ~~IEC Publication No. 225, first edition (1966)~~ **“IEC 61260-1:2014 Electroacoustics - Octave-band and fractional-octave-band filter”** may be used: in this case, the sound pressure level in the mid-band frequency 2,500 Hz shall be determined by adding the quadratic means of the sound pressures in the one-third mid-band frequencies 2,000, 2,500 and 3,150 Hz. In every case, only the Fourier transform method shall be regarded as a reference method."

The instruments shall be maintained and calibrated in accordance to the instructions of the instrument manufacturer.

6.2.2.2. Calibration of the entire Acoustic Measurement System for a Measurement Session

At the beginning and at the end of every measurement session the entire measurement system shall be checked by means of a sound calibrator that

fulfils the requirements for sound calibrators of at least precision Class 1 according to IEC 942:1988. Without any further adjustment the difference between the readings of two consecutive checks shall be less than or equal to 0.5 dB.

If this value is exceeded, the results of the measurements obtained after the previous satisfactory check shall be discarded.

6.2.2.3. Compliance with requirements

Compliance of the acoustic measurement instrumentation shall be verified by the existence of a valid certificate of compliance. These certificates shall be deemed to be valid if certification of compliance with the standards was conducted within the previous 12 month period for the sound calibration device and within the previous 24 month period for the instrumentation system. All compliance testing shall be conducted by a laboratory, which is authorized to perform calibrations traceable to the appropriate standards.

6.2.2.4. Instrumentation for other measurements

The voltage shall be measured with instrumentation having an accuracy of $[\pm 0.05]$ Volt or better.

The resistance shall be measured with instrumentation having an accuracy of $[\pm 0.01]$ Ohm or better.

The distance shall be measured with instrumentation having an accuracy $[\pm 5]$ mm or better.

The time shall be measured with instrumentation having an accuracy $\pm [0.02]$ second or better

The meteorological instrumentation used to monitor the environmental conditions during the test shall include the following devices, which meet at least the given accuracy:

- (a) Temperature measuring device, $[\pm 1^\circ]$ C;
- (b) Wind speed-measuring device, $\pm [1.0]$ m/s;
- (c) Barometric pressure measuring device, $[\pm 5]$ hPa;
- (d) A relative humidity measuring device, $[\pm 5]$ per cent.”

Paragraph 6.3.3, amend to read:

“6.3.3 The ambient temperature in the testing room shall be ~~23±7~~ between +15 and +30/C.”

Paragraph 13.4.1, amend to read:

13.4.1. A circle surrounding the letter "E" followed by the distinguishing number of the country which has granted approval³;

Paragraph 13.4.2, amend to read:

13.4.2. 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 13.4.1.

Paragraph 13.5., amend to read:

13.5. **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 5.4.1.**

³ The distinguishing numbers of the Contracting Parties to the 1958 Agreement are reproduced in Annex 3 to Consolidated Resolution on the Construction of Vehicles (R.E.3), document ECE/TRANS/WP.29/78/Rev.23.

need not be repeated; in such a case the regulation and approval numbers and the additional symbols of all the Regulations under which approval has been granted in the country which has granted approval under this Regulation shall be placed in vertical columns to the right of the symbol prescribed in paragraph 13.4.

Paragraph 14.3., amend to read:

14.3. The sound level pressure **and other** measurements shall be made in the conditions **and use device** specified in paragraph 6.2.2 of this Regulation."

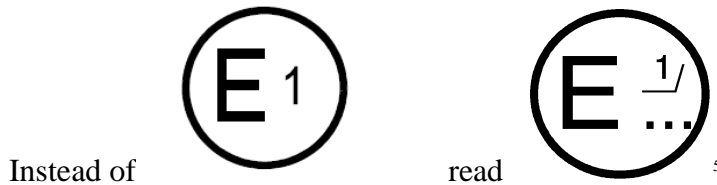
Paragraph 14.4., amend to read:

14.4. The sound pressure level of the device fitted on the vehicle shall be measured at a distance of 7.00 ± 0.10 m in front of the vehicle, the latter being placed on an open site⁴, on ground as smooth as possible, and with its engine stopped;

Paragraph 14.,5 amend to read:

14.5. The microphone of the measuring instrument shall be placed approximately (± 0.20 m) in the mean longitudinal plane of the vehicle;

Figure in Annex 1 and Annex 2 amend to read:



Paragraph 1,2,5 Annex 1 amend to read:

1. Trade name or mark of AWD
2. Type ~~or commercial description~~ of AWD (electro-pneumatic, electro-magnetic with resonator disc, electromagnetic horn, etc.) indicating whether it is a single tone or multiple tone warning device
5. Brief description of ~~warning devices~~ AWD (electro-pneumatic, electro-magnetic with resonator disc, electromagnetic horn, etc.) indicating whether it is a single-tone or multiple-tone warning device.

Figure in Annex 3(I) amend to read:

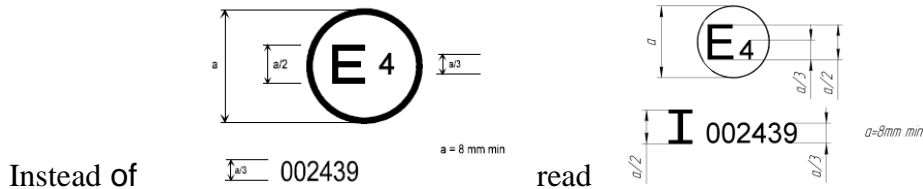
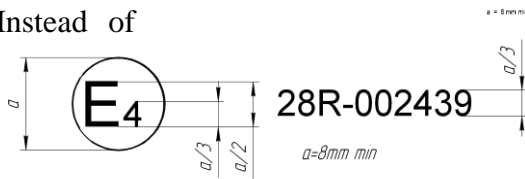


Figure in Annex 3(II) amend to read:

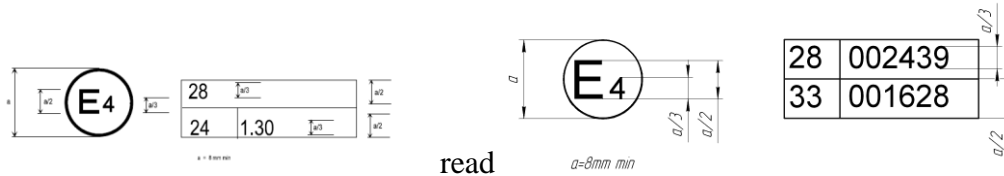
⁴ See paragraph 6.2.1., footnote ...
⁵ Distinguishing number of the country which has granted/extended/refused/withdrawn approval (see approval provisions in the Regulation).



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read



Instead of

read

II. Justification

Contents - paragraph 7 and paragraph 15

Suggestions make corrections to reflect early changes in the names of sections.

Paragraph 1.1.

The proposal is consistent with the present designation of vehicle categories.

Paragraph 1.2.

The proposal updates the subject of the Regulation.

Paragraph 2.

The proposal gives a more clear definition of audible warning devices.

Paragraph 4.

The proposal updates labeling requirements for audible warning devices.

Paragraph 6.1.1.

This paragraph provides for clarification on the number of tests.

Paragraph 6.2.1.

The proposal provides for clarification on test procedure and a place where the tests can be performed.

Paragraph 6.2.2.

The proposal specifies requirements to devices for noise measurement and requirements for the other measurement devices.

Paragraph 13.4.1., Paragraph 13.4.2., Paragraph 13.5.

The proposal specifies the type approval marking.

Paragraph 14.3., Paragraph 14.4, Paragraph 14.5.

The proposal clarifies the position of the measurement points.

Annexes 1, 2, 3.

The proposal updates the image of approval marks.
