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Working Party on Noise (GRB)

Forty-fourth session

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Item 1.2.2. of the provisional agenda

PROPOSAL FOR DRAFT AMENDMENTS TO REGULATION No. 51

(Noise emissions)

Submitted by the expert from the International Organization for Standardization (ISO)

Note: The text reproduced below was prepared by the expert from ISO in order to align the stationary vehicle noise emission measurement provisions of the Regulation with those of ISO/DIS 5130 standard. The text is based on informal document No. GRB-43-2, distributed without an official symbol during the forty-third GRB session (ECE/TRANS/WP.29/GRB/41, para. 10). The modifications to the current text of the Regulation are marked in **bold** characters.

Note: This document is distributed to the Experts on Noise only.

A. BACKGROUND

As requested by GRB, ISO has revised the ISO 5130:1982 standard to reflect technical developments in motor vehicles. These changes reflect the development of engine protection systems, which require engine speed targets to be modified, and the development of additional exhaust tailpipe locations by manufacturers. The technical changes related to engine speed have previously been communicated and accepted by GRB.

B. PROPOSAL

Annex 3,

Paragraph 3.2.3., amend to read:

"3.2.3. Test site – local conditions (see appendix, figure 2)"

Paragraph 3.2.5.3.1.6., amend to read:

"3.2.5.3.1.6. For vehicles, **where the reference point of the exhaust pipe is not accessible, or located under the vehicle body, as shown in figure 2b and 2c, because of the presence of obstacles which form part of the vehicle (e. g. spare wheel, fuel tank, battery compartment), the microphone shall be located at least 0.2 m from the nearest obstacle, including the vehicle body, and its axis of maximum sensitivity must face the exhaust outlet from the position least concealed by the above-mentioned obstacles.**"

Insert a new paragraph 3.2.5.3.1.7., to read:

"**3.2.5.3.1.7. When several positions are possible, as shown in figure 2c, the microphone position giving the lowest value of d1 or d2 shall be used.**"

Note: Figures from 2a to 2d show examples of the position of the microphone, depending on the location of the exhaust pipe."

Paragraphs 3.2.6. to 3.2.6.2., amend to read:

"3.2.6. Results

3.2.6.1. **Measurements shall be made according to the microphone location(s) described in paragraph 3.2.5.3.1.**

3.2.6.2. **The maximum A-weighted sound pressure level indicated during the test shall be noted, mathematically rounded to the first significant figure before the decimal place.**"

Insert new paragraphs 3.2.6.3. to 3.2.6.5., to read:

- 3.2.6.3.** The test shall be repeated until three consecutive measurements at each outlet are obtained, which are within 2 dB of each other, allowing for deletion of non valid results.
- 3.2.6.4.** The result for a given outlet is the arithmetic average of the three valid measurements, mathematically rounded as given above and shall be reported as the A-weighted sound pressure level L_{Arep} .
- 3.2.6.5.** For vehicles equipped with multiple gas outlets, the sound pressure level reported L_{Arep} shall be for the outlet having the highest average sound pressure level."

Appendix, figures 1 and 2, amend to read:

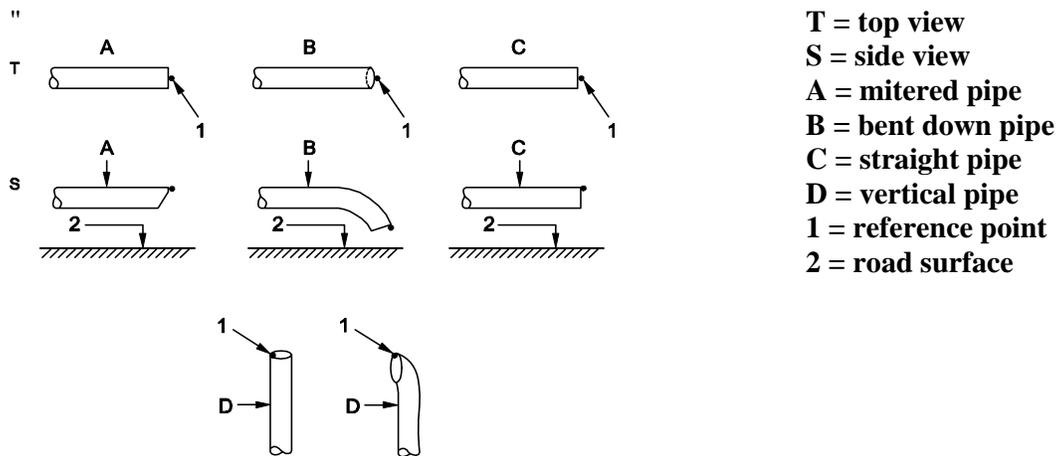


Figure 1: Reference point

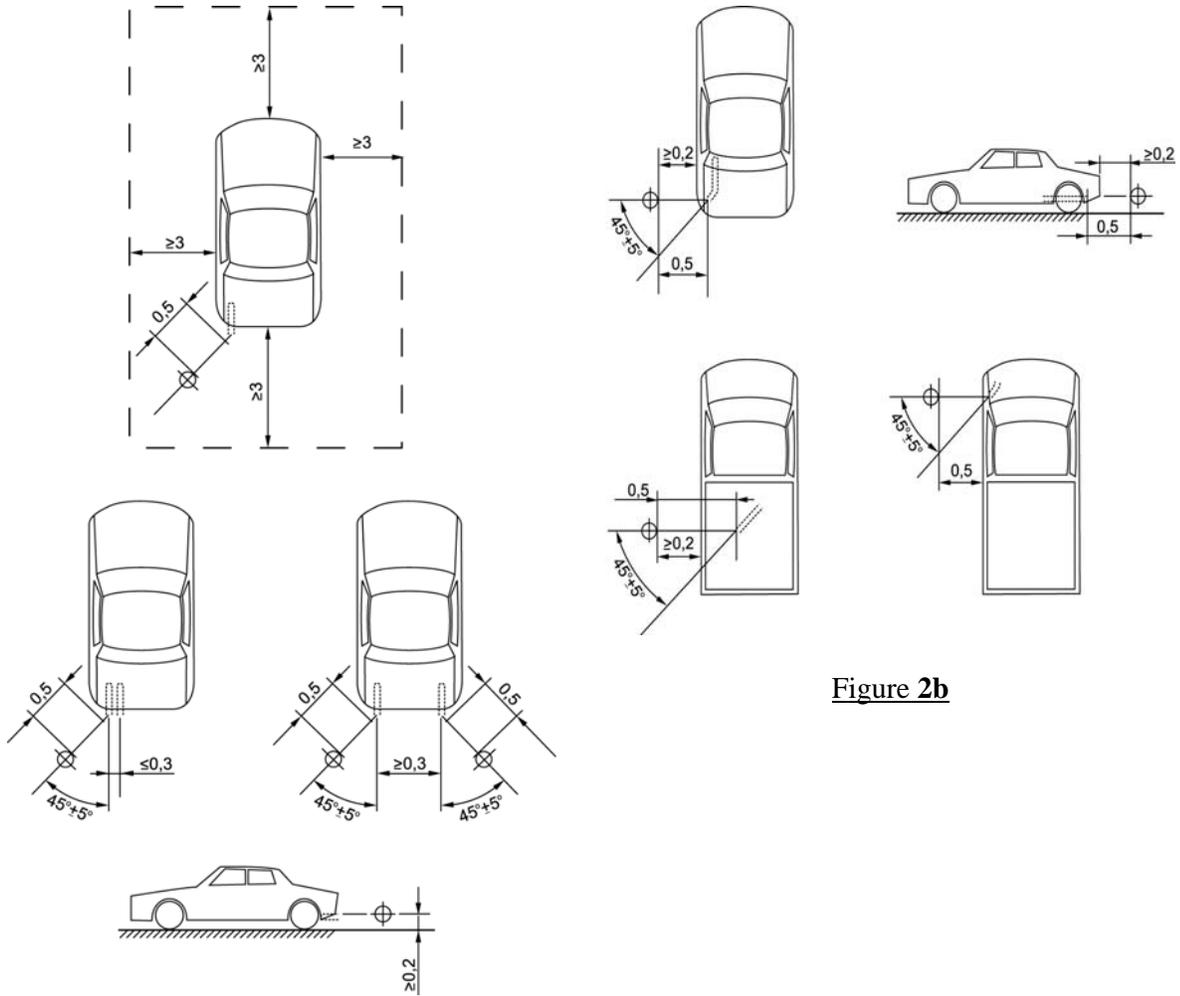


Figure 2a

Figure 2b

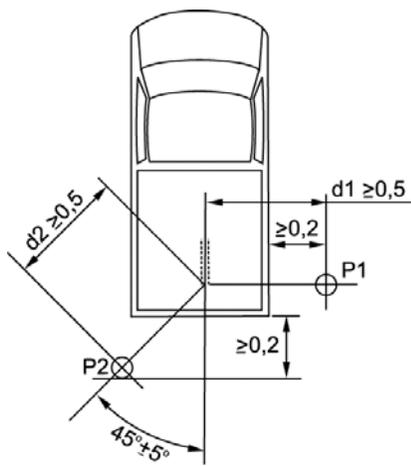


Figure 2c

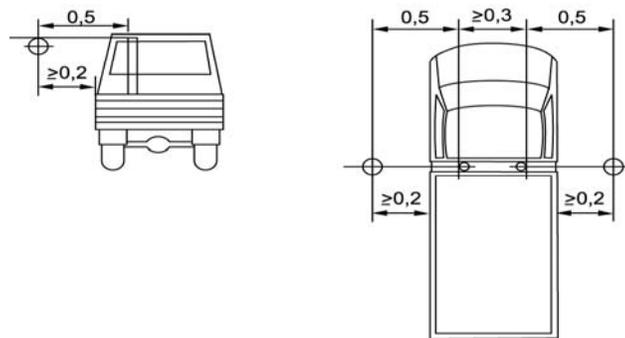


Figure 2d

"

C. JUSTIFICATION

Ad para. 3.2.3.

ISO proposes to insert a reference to the appendix.

Ad paras. 3.2.5.3.1.6. and 3.2.5.3.1.7.

The paragraphs contain measurement provisions for those vehicles (typically N category vehicles), which do not allow a microphone position according to the provisions of paragraph 3.2.5.3.1.2.

Ad paras. 3.2.6. to 3.2.6.5.

The text of these paragraphs aligns the provisions with ISO/DIS 5130. From a technical point of view, averaging the three valid results provides improved repeatability and lower variation of the final reported sound pressure level.

Ad appendix, figures 1 and 2,

ISO proposes to amend figures 1 and 2 in order to align them with ISO/DIS 5130.
