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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 41971-2022

Agricultural and forestry tractors - Measurement of noise emitted when in motion

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foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1.Structure and Drafting Rules of Standardization Documents"

drafted.

This document is modified and adopted ISO 7216.2015 "Measurement of Dynamic Noise of Agriculture and Forestry Tractors".

The technical differences between this document and ISO 7216.2015 and their reasons are as follows.

--- Change "agricultural tractor" to "agricultural and forestry tractor" (see 3.1), consistent with the terminology used in this document;

--- In the "Terms and Definitions" chapter, "uncounterweight tractor mass" is deleted, the term is not used in this document;

--- Delete the force measurement unit and allowable error in Table 1, this item is not used in this document;

--- Increase the speed measurement unit and allowable error (see Table 1), the tractor driving speed has an impact on dynamic noise;

--- Replaced IEC 61672-1 with the normatively cited GB/T 3785.1, GB/T 15173 replaced IEC 60942 (see 5.1,

5.2), in order to adapt to the technical conditions of our country and increase the operability;

--- Added the specific requirements for the acoustic calibrator to calibrate the acoustic measurement system (see 5.2) to ensure the accuracy of the measurement;

--- Increase the temperature and wind speed regulations for measuring environmental conditions (see 6.2.1) to ensure the operability and accuracy of the measurement;

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--- Added provisions for the driving state of the tractor (see 8.1) to facilitate the test operation;

--- Added provisions for engine calibration power and maximum idle speed (see 8.2) to ensure the operability and accuracy of measurement;

--- Added the provisions for the highest gear of the tractor (see 8.3) to ensure the operability of the measurement;

--- Added the record of tractor speed and engine speed (see 9.2), which helps to better characterize the operation of the tractor during the test

state;

--- Increase the provisions when the tractor does not reach the maximum speed when driving between the AA line and the BB line (see 9.3) to ensure that the test

Quantitative operability and accuracy;

--- Changed the processing provisions of the measurement results (see 10.2) to ensure the accuracy and scientificity of the measurement results.

The following editorial changes have been made to this document.

--- Replaced ISO 6814 with GB/T 19365 cited for information (see Chapter 1);

--- Added an example of the content of the brief description of the silencing system [see 11e)] to ensure the repeatability of the test measurement;

--- Deleted Appendix A (informative) introduction to the maintenance organization.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

1 Scope

This document specifies the dynamic noise measurement method of A-weighted sound pressure level of agricultural and forestry tractors, and the operation of dynamic noise measurement of agricultural and forestry tractors

conditions to ensure that the measured result is a realistic and repeatable maximum noise.

This document applies to agricultural and forestry tractors equipped with elastic tires or rubber tracks. This document does not apply to special forestry machinery, such as

GB/T 19365 defined transport aircraft, skidders, etc. and agricultural and forestry tractors equipped with steel tracks.

Note. The acoustic environment required by this measurement method can only be an open space.

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2 Normative references

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, dated citations

documents, only the version corresponding to that date applies to this document; for undated references, the latest edition (including all amendments) applies to

this document.

GB/T 3785.1 Electroacoustic Sound Level Meter Part 1.Specification (GB/T 3785.1-2010, IEC 61672-1..2002, IDT)

GB/T 15173 Electroacoustic Acoustic Calibrator (GB/T 15173-2010, IEC 60942.2003, IDT)

3 Terms and Definitions

The following terms and definitions apply to this document.

3.1

Wheeled or tracked with at least two axles, specially designed for towing agricultural trailers and towing, propulsion, carrying and driving capable of being dismantled

Self-propelled agricultural vehicle for unloading agricultural and forestry implements from the loading platform.

Note. The maximum design speed of agricultural vehicles is not less than 6km/h, and can be equipped with one or more seats.

4 Measurement units and allowable errors

The measurement units and allowable errors of this document are shown in Table 1.

Table 1 Measurement units and allowable errors

Project unit tolerance

Speed r/min +/-0.5%

Time s +/-0.2

Distance m or mm +/-0.5%

Mass kg +/-0.5%

Atmospheric pressure kPa +/-0.2

Tire pressure kPa +/-5%

Speed km/h +/-1%

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