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Acoustic vehicle alerting system of electric vehicles running at low speed

[ECE-R138, Uniform provisions concerning the approval of Quiet Road Transport Vehicles with regard to their reduced audibility (QRTV), NEQ]

电动汽车低速提示音

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Standardization Administration of the People's Republic of China.

Foreword

This Standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This Standard used redrafting method to adopt ECE-R138 "Uniform provisions concerning the approval of Quiet Road Transport Vehicles with regard to their reduced audibility (QRTV)". The degree of consistency with ECER138 is non-equivalent.

This Standard was proposed by Ministry of Industry and Information Technology of the People's Republic of China.

This Standard shall be under the jurisdiction of National Technical Committee on Automobiles of Standardization Administration of China (SAC/TC 114).

The drafting organizations of this Standard: Handeli (Changzhou) Electronics Co., Ltd., China Automotive Technology Research Center Co., Ltd., Anhui Jianghuai Automobile Co., Ltd., BYD Auto Industry Co., Ltd., Ningbo Huifeng Juwei Technology Co., Ltd., Qufu Tianbo Auto Electric Co., Ltd., Chongqing Changan New Energy Automobile Co., Ltd., FAW-VW Automotive Co., Ltd., Shanghai Automotive Group Co., Ltd., Pan Asia Automotive Technology Center Co., Ltd., China First Automobile Co., Ltd., SAIC-GM-Wuling Automobile Co., Ltd., Guangzhou Automobile Toyota Motor Co., Ltd., BMW Brilliance Automotive Co., Ltd., Dongfeng Motor Group Co., Ltd., View Car Co., Ltd., Great Wall Motor Co., Ltd., FAW Haima Automobile Co., Ltd., Shanghai Goer Acoustics Electronics Co., Ltd.

Main drafters of this Standard: Wu Yifei, Liu Jiabin, Xu Jingo, Lu Chun, Xie Dongming, Gu Cansong, Xu Kai, Bao Yingchao, Kong Zhiqiang, Yuan Changrong, Tang Xiaohua, Xia Shidong, Gao Jiqiang, Pan Lei, Hui Zhoupeng, Yan Shijun, Wang Xiufeng, Li Wei, Nie Jiapeng, Tang Shuxian, Cao Liang, Li Rui, Xu Jianhua, Fan Ruhu, Han Song, Shen Xiaoxiang.

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1 Scope

This Standard specifies requirements and test methods for vehicle speed range, sound level limit, frequency requirements, sound type, and pause switch of acoustic vehicle alerting system of electric vehicles running at low speed (hereinafter referred to as "acoustic-alerting system").
This Standard is applicable to pure electric vehicles of the Category-M1 and N1 categories, hybrid electric vehicles with pure electric driving modes, and fuel cell electric vehicles.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.
GB 1495, Permissible noise limit emitted by power-driven vehicles
GB/T 3241-2010, Electroacoustics - Octave-band and fractional-octave-band filters
GB/T 3785.1-2010, Electroacoustics - Sound level meters - Part 1: Specifications
GB/T 12534, Motor vehicles - General rules of road test method
GB/T 15173-2010, Electroacoustics - Sound calibrators
GB/T 19596, Terminology of electric vehicles
GB 50800-2012, Technical code for anechoic and semi-anechoic rooms

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB/T 19596 as well as the followings apply.

3.1 acoustic vehicle alerting system; AVAS
a system for issuing a prompt sound to effectively transmit information to other road users when the noise value emitted by the vehicle is below a certain value

3.2 acoustic vehicle alerting system of electric vehicle running at low speed
a prompt sound from the vehicle's acoustic-alerting system when the speed of the electric vehicle is lower than a certain value

3.3 acoustic vehicle alerting system pause switch

a device for turning on/off the alerting on an electric vehicle

3.4 frequency shift
the change caused when prompt tone rate of electric vehicle driving at low speed varies as vehicle speed

3.5 front plane of the vehicle
a vertical plane tangent to the front edge of the vehicle

3.6 rear plane of the vehicle
a vertical plane tangent to the trailing edge of the vehicle

3.7 sound pressure level; SPL
the base 10 logarithm of the ratio of the square root sound pressure to the reference sound pressure multiplied by 20
NOTE: Expressed in decibels (dB).

3.8 weighted sound level
sound level measured by a weighted network filter

3.9 total sound level
according to a certain method of weighting, the parameters of the integrated sound strength that are consistent with the characteristics of the human auditory system are finally obtained; the range of sound frequencies covered is 20Hz~20kHz

Source reference

https://gbstandards.org/China_standards/GB/GB_T%2037153-2018.htm