GB

NATIONAL STANDARD OF THE

PEOPLE'S REPUBLIC OF CHINA

ICS 33.100
L 06

GB/T 18655-2018

Replacing GB/T 18655-2010

Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of on-board receivers

Issued on: July 13, 2018 **Implemented on: February 1, 2019**

Issued by: State Administration for Market Regulation;

Standardization Administration of the PRC.

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Foreword

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

This Standard replaces GB/T 18655-2010 “Vehicles boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of on-board receivers”. As compared with GB/T 18655-2010, the main technical changes are as follows:

- ADD charging mode for electric and hybrid vehicles;

- ADD ALSE performance validation method;

- ADD the test method for shielded high voltage power supply systems in electric and hybrid vehicles.

This Standard uses redraft law to modify and adopt CISPR 25:2016 “Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of on-board receivers”.

Technical differences in this Standard compared to CISPR 25:2016 and their causes are as follows:

- DELETE the terms 3.1, 3.2, 3.3, 3.7, 3.10, 3.12, 3.14, 3.19, 3.20, 3.21, and 3.23 in the international standard, as these terms haven been listed in GB/T 4365-2003 and GB/T 29259-2012;

- According to the actual use of the carrier frequency of on-board receivers in China, this Standard adjusts the service/frequency range in CISPR 25:2016 as follows:

  - ADJUST the Band I of TV frequency band. The previous frequency band is 41 MHz ~ 88 MHz, and is adjusted to 48.5 MHz ~ 72.5 MHz;

  - ADJUST the Band III of TV frequency band. The previous frequency band is 174 MHz ~ 230 MHz, and is adjusted to 174 MHz ~ 223 MHz;

  - ADJUST the Band IV/V of TV frequency band. The previous frequency band is 468 MHz ~ 944 MHz, and is adjusted to 470 MHz ~ 566 MHz, 606 MHz ~ 806 MHz;

  - ADJUST the Band DTTV. The previous frequency band is 470 MHz ~ 770 MHz, and is adjusted to 470 MHz ~ 566 MHz, 606 MHz ~ 806 MHz;

  - ADJUST the Band RKE. The previous frequency band is 300 MHz ~

330 MHz, and is adjusted to 314 MHz ~ 316 MHz;

- ADJUST the Band RKE. The previous frequency band is 420 MHz ~ 450 MHz, and is adjusted to 430 MHz ~ 440 MHz;
- ADJUST the Band EGSM/GSM 900. The previous frequency band is 925 MHz ~ 960 MHz, and is adjusted to 930 MHz ~ 960 MHz;
- ADJUST the Band GSM 1800 (PCN). The previous frequency band is 1803 MHz ~ 1882 MHz, and is adjusted to 1805 MHz ~ 1850 MHz;
- ADJUST the Band 3G/IMT 2000. The previous frequency band is 1900 MHz ~ 1992 MHz, and is adjusted to 1880 MHz ~ 1920 MHz;
- ADJUST the Band 3G/IMT 2000. The previous frequency band is 2108 MHz ~ 2172 MHz, and is adjusted to 2110 MHz ~ 2170 MHz;
- DELETE the Band CB, the previous frequency band is 26 MHz ~ 28 MHz; Band GSM 800, the previous frequency band is 860 MHz ~ 895 MHz; Band GSM 1900, the previous frequency band is 1850 MHz ~ 1990 MHz;
- ADD BDS, B1I Beidou civil band 1553 MHz ~ 1569 MHz;

- According to the principle of different test arrangements of inverter and charger, SPLIT Figure I.3 of CISPR 25:2016 into Figure I.3 and Figure I.4; SPLIT Figure I.6 into Figure I.7 and Figure I.8; and SPLIT Figure I.9 into Figure I.11 and Figure I.12;

- Considering the actual situation in China, DELETE the informative annex K “Items under consideration”.

This Standard was proposed by and shall be under the jurisdiction of National Technical Committee 79 on Radio Jamming of Standardization Administration of China (SAC/TC 79).

Drafting organizations of this Standard: China Automotive Technology and Research Center Co., Ltd., Shanghai Electrical Apparatus Research Institute (Group) Co., Ltd., Changchun Automotive Test Center Co., Ltd., CATARC Automotive Test Center (Tianjin) Co., Ltd., National Institute of Metrology, China, The State Radio Monitoring Center Testing Center, Nanjing Rongce Testing Technology Co., Ltd., National Automobile Quality Supervision and Test Center (Xiangyang), China Electronics Standardization Institute of Ministry of Industry and Information Technology, BMW Brilliance Automotive Ltd., Tianjin Internal Combustion Engine Research Institute, China Automotive Engineering Research Institute Co., Ltd., BYD Auto Industry Co., Ltd., Shanghai Motor

Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of on-board receivers

1 Scope

This Standard contains limits and procedures for the measurement of radio disturbances in the frequency range of 150 kHz to 2 500 MHz. This Standard applies to any electronic/electrical component intended for use in vehicles, trailers and devices. REFER to International Telecommunications Union (ITU) publications and their practical applications in China for details of frequency allocations in this Standard. The limits are intended to provide protection for receivers installed in a vehicle from disturbances produced by components/modules in the same vehicle. The methods of measurement and limits for a complete vehicle (whether connected to the power mains for charging purposes or not) are given in Clause 5. The methods of measurement and limits for components/modules are given in Clause 6. Only a complete vehicle test can be used to determine the component compatibility with respect to a vehicle's limit.

The receiver types to be protected are, for example, broadcast receivers (sound and television), land mobile radio, radio telephone, amateur, citizens' radio, Satellite Navigation (Beidou, GPS, etc.), Wi-Fi and Bluetooth. For the purpose of this Standard, a vehicle is a machine, which is self-propelled by an internal combustion engine, electric means, or both. Vehicles include (but are not limited to) passenger cars, trucks, agricultural tractors and snowmobiles. Annex A provides flow-chart in determining whether this Standard is applicable to particular device or equipment.

This Standard does not include protection of electronic control systems from radio frequency (RF) emissions or from transient or pulse-type voltage fluctuations. These subjects are included in other publications of the Standardization Administration.

The limits in this Standard are recommended and subject to modification as agreed between the vehicle manufacturer and the component supplier. This Standard is also intended to be applied by manufacturers and suppliers of components and equipment which are to be added and connected to the vehicle harness or to an on-board power connector after delivery of the vehicle.

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