



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

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**

车辆、船和内燃机 无线电骚扰特性 用于保护车载接收机的限值 and 测量方法

(English Translation)

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Bibliography

Foreword

This document was issued on 13 July 2018 by the State Administration for Market Regulation and the Standardization Administration of China, and has applied since 1 February 2019.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer, customer or inspection body applies.

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. The following technical changes have been made with respect to GB/T 18655-2010:

- the charging modes of electric and hybrid vehicles are added;
- ALSE performance validation procedure is added;
- the test methods for shielded power supply systems for high voltage networks in electric and hybrid vehicles are added.

This standard is modified in relation to CISPR 25: 2016 Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of on-board receivers.

The technical deviations, together with their justifications, between this standard and CISPR 25: 2016 are detailed as follows:

- terms 3.1, 3.2, 3.3, 3.7, 3.10, 3.12, 3.14, 3.19, 3.20, 3.21 and 3.23 are deleted since they have been listed in GB/T 4365-2003 and GB/T 29259-2012;
- According to the actual use of the carrier frequency of the on-board receiver in China, the following adjustments have been in this standard with respect to the service/frequency range in CISPR25: 2016:
 - the TV Band I is adjusted to 48.5MHz~72.5MHz from 41MHz~88MHz;
 - the TV Band III is adjusted to 174MHz~223MHz from 174MHz~230MHz;

- the TV Band IV/V is adjusted to 470MHz~566MHz and 606MHz~806MHz from 468MHz~944MHz;
- the DTTV band is adjusted to 470MHz~566MHz and 606MHz~806MHz from 470MHz~770MHz;
- the RKE band is adjusted to 314MHz~316MHz from 300MHz~330MHz;
- the RKE band is adjusted to 430MHz~440MHz from 420MHz~450MHz;
- the EGSM/GSM900 band is adjusted to 930MHz~960MHz from 925MHz~960MHz;
- the GSM1800 (PCN) band is adjusted to 1805MHz~1850MHz from 1803MHz~1882MHz;
- the 3G/IMT2000 band is adjusted to 1880MHz~1920MHz from 1900MHz~1992MHz;
- the 3G/IMT2000 band is adjusted to 2110MHz~2170MHz from 2108MHz~2172MHz;
- the CB band (originally 26MHz~28MHz), GSM800 band (originally 860MHz~895MHz) and GSM1900 band (originally 1850MHz~1990MHz) are deleted;
- BDS, with B1I Beidou civil band of 1553MHz~1569MHz, is added;
- according to the principles of different test setups of inverter and charger, Figure I.3 in CISPR25: 2016 is divided into Figure I.3 and Figure I.4, Figure I.6 is divided into Figure I.7 and Figure I.8 and Figure I.9 is divided into Figure I.11 and Figure I.12;
- considering the actual situation in China, the informational Annex K "Items under consideration" is deleted.

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

The previous editions of standard replaced by this standard are as follows:

- GB18655-2002 and GB/T18655-2010.

Introduction

This standard is designed to protect on-board receivers from disturbances produced by conducted and radiated emissions arising in a vehicle.

Test procedures and limits given are intended to provide preventive control of vehicle radiated emissions, as well as component/module conducted/radiated emissions of long and short duration. To accomplish this end, this standard:

- establishes a test method for measuring the electromagnetic emissions from the electrical system of a vehicle;
- sets limits for the electromagnetic emissions from the electrical system of a vehicle;
- establishes test methods for testing on-board components and modules independent from

the vehicle;

- sets limits for electromagnetic emissions from components to prevent objectionable disturbance to on-board receivers;
- classifies automotive components by disturbance duration to establish a range of limits.

Note: component tests are not intended to replace vehicle tests. Exact correlation between component and vehicle test performance is dependent on component mounting location, harness length, routing and grounding, as well as antenna location. Components may be evaluated with component testing prior to actual vehicle availability.

1 Scope

This standard contains limits and procedures for the measurement of radio disturbances in the frequency range of 150kHz~2500MHz. This standard applies to any electronic/electrical component intended for use in vehicles, trailers and devices. Refer to International Telecommunications Union (ITU) publications and the actual application conditions in China for details of frequency allocations. The limits are intended to provide protection for receivers installed in a vehicle from disturbances produced by components/modules in the same vehicle. The method and limits for a complete vehicle (whether connected to the power mains for charging purposes or not) are in Clause 5 and the methods and limits for components/modules are in Clause 6. Only a complete vehicle test may 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 guidance in determining whether this standard is applicable to particular 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 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.

Since the mounting location, vehicle body construction and harness design may affect the coupling of radio disturbances to the on-board receiver, Clause 6 of this standard defines