



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

GB/T 18655-2025

Replacing GB/T 18655-2018

**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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Foreword

This document was issued on 28 February 2025 by the State Administration for Market Regulation and the Standardization Administration of the People's Republic of China.

It replaces GB/T 18655-2018, Vehicles, boats and internal combustion engines - Radio disturbance characteristics - Limits and methods of measurement for the protection of on-board receivers, which had replaced GB/T 18655-2010.

Classification: CCS L 06, electromagnetic compatibility.

1 Scope

This document contains limits and procedures for the measurement of radio disturbances in the frequency range of 150 kHz to 5 925 MHz. It is applicable to vehicles, boats, trailers, internal combustion engine driven equipment and any electronic or electrical component intended for use in vehicles, boats, trailers and combustion engine driven equipment. The details of frequency distribution refer to International Telecommunication Union (ITU) publications and to practical applications in China.

The limits are intended to provide protection for on-board receivers installed in a vehicle from disturbances produced by components or modules in the same vehicle. The receiver types to be protected are, for example, broadcast receivers for sound and television, land mobile radio, radio telephone, amateur and citizens' radio, satellite navigation (Beidou, GPS and the like), Wi-Fi, V2X and Bluetooth.

This document does not include protection of electronic control systems from radio frequency emissions or from transient or pulse-type voltage fluctuations; those subjects are covered by other publications.

The limits are recommended and subject to modification as agreed between the vehicle manufacturer and the component supplier. The document is also applicable to parts and equipment that vehicle manufacturers and component and equipment suppliers add and connect to the vehicle harness or to an on-board power connector after delivery of the vehicle.

It defines test methods for use by vehicle manufacturers and suppliers, to assist in the design of vehicles and components and to ensure controlled levels of on-board radio frequency emissions.

The emission requirements are not intended to be applicable to the intentional transmissions from a radio transmitter as defined by the ITU, including their spurious emissions. This exclusion applies only to emissions generated by intentional transmitters which are coupled to the wiring harness of the equipment under test as radiated emissions during the test setup; it does not apply to conducted transmissions on frequencies

intentionally produced by the radio part of the equipment under test. Annex A gives the suitability inspection process.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions 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 1002 Single phase plugs and socket-outlets for household and similar purposes - Types, basic parameters and dimensions; GB/T 2099.1 Plugs and socket-outlets for household and similar purposes - Part 1: General requirements; GB/T 4365-2024 Electrotechnical terminology - Electromagnetic compatibility; GB/T 6113.101 Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-1: Measuring apparatus.

GB/T 6113.102-2018 Specification for radio disturbance and immunity measuring apparatus and methods - Part 1-2: Coupling devices for conducted disturbance measurements; GB/T 9254.1-2021 Information technology equipment, multimedia equipment and receivers - Electromagnetic compatibility - Part 1: Emission requirements; GB/T 19596-2017 Terminology of electric vehicles; GB/T 29259-2012 Road vehicle - Electromagnetic compatibility terminology; GB/T 44119 Measurement method of antenna factor for 1 m method radiated disturbance.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in GB/T 4365-2024, GB/T 19596-2017 and GB/T 29259-2012 and the following apply.

3.1

antenna matching unit

device used to form or realize impedance matching with a measuring instrument of 50 ohm impedance within the antenna measurement frequency range [GB/T 29259-2012, 3.66].

3.2

artificial mains network; AMN

network that provides a defined impedance to the equipment under test at radio frequencies, couples the disturbance voltage to the measuring receiver and decouples the test circuit from the power supply. There are two basic types, the V-network, which couples the unsymmetrical voltages, and the delta-network, which couples the symmetric and the asymmetric voltages separately.

3.3

artificial network; AN

network inserted in the power line or signal or load lead of the apparatus to be tested which provides, in a given frequency range, a specified load impedance for the measurement of disturbance voltages and which can isolate the apparatus from the supply or from the signal sources and loads in that frequency range [GB/T 29259-2012, 3.52, modified].

3.4

asymmetric artificial network; AAN

network used to measure or inject asymmetric, that is common mode, voltages on unshielded symmetric signal lines - telecommunication lines for example - while rejecting the symmetric, differential mode, signal.

3.5

bandwidth

of an equipment, the width of a frequency band over which a given characteristic of an equipment or transmission channel does not differ from its reference value by more than a specified amount or ratio; of a signal, the width of the frequency band outside which the level of any spectral component does not exceed a specified percentage of a reference level [GB/T 29259-2012, 3.18].

3.6

boat

vessel intended to be used on the surface of water, its length being no greater than 15 m [GB 14023-2012, 3.2].

3.7

bonded

grounding connection with a DC resistance not exceeding 2.5 milliohm which provides the lowest possible impedance, in resistance and inductance, between two metallic parts. A low current, 100 mA or less, four-wire milliohm meter is recommended for this measurement.

3.8

broadband emission

emission which has a bandwidth greater than that of a particular measuring equipment or receiver; an emission with a pulse repetition rate lower than the bandwidth of the measuring instrument can also be considered a broadband emission [GB/T 29259-2012, 3.22].

3.9

charging mode

method for connecting an electric vehicle to the supply network so as to supply power to the vehicle; modes 1 to 4 are also suitable for charging and discharging [GB/T