



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

GB/T 21437.1-2021

**Road vehicles - Test method of electrical disturbances from
conduction and coupling - Part 1: Definitions and general
considerations**

Issued on: December 31, 2021

Implemented on: July 1, 2022

Issued by: SAMR; SAC

Table of Contents

Foreword...	3
Introduction...	5
1 Scope...	6
2 Normative references...	6
3 Terms and definitions...	6
4 General description of GB/T 21437...	7
5 General test conditions...	8
Annex A (normative) Functional characteristic state classification (FPSC)...	10
Bibliography...	11

Foreword

This document was drafted in accordance with the rules given in GB/T 1.1-2020

"Directives for standardization - Part 1.Rules for the structure and drafting of standardizing documents".

This document is Part 1 of GB/T 21437 "Road vehicles - Test method of electrical disturbances from conduction and coupling". GB/T 21437 has issued the following parts.

- Part 1.Definitions and general considerations;
- Part 2.Electrical transient conduction along supply lines only;
- Part 3.Electrical transient transmission by capacitive and inductive coupling via lines other than supply lines.

This document replaces GB/T 21437.1-2008 "Road vehicles - Electrical disturbances from conduction and coupling -Part 1.Definitions and general considerations".

Compared with GB/T 21437.1-2008, in addition to structural adjustments and editorial modifications, the main technical changes in this document are as follows.

- Added GB/T 29259 as a reference; Deleted the duplicate terms and definitions with GB/T 29259 (see Chapter 3);

- Added general test conditions (see Chapter 5);
- Added functional characteristic state classification (FPSC) (see Annex A).

The modification of this document adopts ISO 7637-1.2015 "Road vehicles - Electrical disturbances from conduction and coupling - Part 1. Definitions and general considerations".

The technical differences between this document and ISO 7637-1.2015 and the reasons are as follows.

- To maintain the unity of the expression and understanding of the functional characteristic status classification (FPSC) among the electromagnetic immunity series standards, it is changed to refer to Annex A of GB/T 33014.1-2016;
- Change the normative reference "IEC 60050-151" in Chapter 3 of ISO 7637-1.2015 to "GB/T29259", so as to avoid repetition; Deleted the terms and definitions in ISO 7637-1.2015 that are repeated with GB/T 29259.

Attention is drawn to the possibility that some of the elements of this Standard may be the subject of patent rights. The issuing authority shall not be held responsible for identifying any or all such patent rights.

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

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

The drafting organizations of this document. China Automotive Technology and Research Center Co., Ltd., SAIC Volkswagen Co., Ltd., Xiangyang Daan Automotive Testing Center Co., Ltd., Changchun Automotive Testing Center Co., Ltd., China Electronics Standardization Institute, China Automotive Engineering Research Institute Co., Ltd., Industry and Information The Fifth Research Institute of Electronics of the Ministry of Chemical Industry, Suzhou Test Electronic Technology Co., Ltd., Great Wall Motor Co., Ltd., Zhengzhou Yutong Bus Co., Ltd., Shanghai Automotive Group Co., Ltd. Technology Center, Hangzhou Yuanfang Electromagnetic Compatibility

Technology Co., Ltd., Geely Automobile Research Institute (Ningbo) Co., Ltd., Shanghai Automotive Commercial Vehicle Technology Center, Shanghai Electrical Apparatus Research Institute, Aodeke Motor Vehicle Parts Testing (Taizhou) Co., Ltd., SAIC-GM-Wuling Automobile Co., Ltd., Ningbo CTI Testing Technology Co., Ltd., Brilliance Automobile Group Holdings Co., Ltd., Nanjing Automotive Engineering Research Institute, Anhui Jianghuai Automobile Group Co., Ltd., Guangjiayuan Weikai (Shanghai) Testing Technology Co., Ltd., Shanghai Motor Vehicle Testing and Certification Technology Research Center Co., Ltd., Dekai Certification Services (Suzhou) Co., Ltd.

Main drafters of this document. Xu Xiuxiang, Liu Xin, Liu Xinliang, Yang Xiaosong, Lu Gang, Cui Qiang, Huang Xuemei, Mi Jincai, Hu Xiaojun, Kang Lanying, Lu Changjun, Xiao Jing, Li Qian, An Xin, Shen Xiaobin, Liu Yuan, Sun Chengming, Deng Fuqi, Bai Yunfei, Li Jiabo, Yang Heqing, Li Xingyu, Wang Yiwei, Wang Xiaodi, Li Qiankun.

This document was issued in 2008 for the first time. This is the first revision.

1 Scope

This document specifies the test conditions, functional characteristic state classification for electrical transient conducted emissions and immunity tests of electrical/electronic components.

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/T 29259, Road vehicle - Electromagnetic compatibility terminology

3 Terms and definitions

For the purposes of this document, the terms and definitions defined in GB/T 29259 as well as the followings apply.

the probe used for high current injection that couples the slow transient test pulses to the test signal line, without the need for electrical connection to the circuit terminals or any other part of the test device

4 General description of GB/T 21437

GB/T 21437 is concerned with electrical transient disturbances in road vehicles and trailers, involving transient emissions, conduction of electrical transients along cables and potential susceptibility of electrical/electronic components to electrical transients. Parts of GB/T 21437 give test methods and procedures, test instruments and limits for electrical disturbances of electrical/electronic components caused by conduction and coupling. T

5 General test conditions

Unless otherwise specified, the following test conditions apply to all parts of GB/T 21437.

The ambient temperature during the test shall be $(23 \pm 5)^{\circ}\text{C}$.

The supply voltage during the test is.

Annex A

(normative)

Functional characteristic state classification (FPSC)

The functional characteristic status classification (FPSC) is according to Annex A of GB/T 33014.1-2016.

.....