



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

GB/T 21437.3-2021

**Road vehicles - Test method of electrical disturbances from conduction
and coupling - Part 3: Electrical transient transmission by capacitive
and inductive coupling via lines other than supply lines**

Issued on: December 31, 2021

Implemented on: July 1, 2022

Issued by: SAMR; SAC

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020

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

This document is Part 3 of GB/T 21437 "Road vehicles - Test method of electrical disturbances from conduction and coupling". The following Parts of GB/T 21437 has been released.

- 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 21437.3-2012 "Road vehicles - Test method of electrical disturbances from conduction and coupling - Part 3. Electrical transient transmission by capacitive and inductive coupling via lines other than supply lines". Compared with GB/T 21437.3-2012, except for structural adjustment and editorial changes, the main technical changes are as follows.

- SIMPLIFY the Scope; MOVE the relevant content into 4.1 (see Chapter 1, 4.1; Chapter 1 of the 2012 edition);
- In the Scope of application of the standard, DELETE the "42 V" electrical system (see Chapter 1; Chapter 1 of the 2012 edition);
- CHANGE the thickness of the grounding plate, from "minimum 1 mm" to "minimum 0.5 mm" (see 4.3; 3.3 of the 2012 edition);
- In the CCC test, CHANGE that "the length of the tested wiring harness shall not exceed 2 m" into that "the total length of the tested wiring harness is mm" (see 4.5.4; 3.4.2 of the 2012 edition);
- In the DCC test, CHANGE that "the length of the wire harness shall be between **1000 mm and 2000 mm**" into that **"the length of the wire harness shall be** mm" (see 4.6.4; 3.4.3 of the 2012 edition);
- In the ICC test, CHANGE "Test harness (length $\leq$ 2 m)" into that "The length of the harness shall be mm" (see 4.7.3; 3.4.4 of the 2012 edition);
- ADD the specific method and schematic diagram of DCC level calibration (see 4.6.3);

- ADD the specific method and schematic diagram of ICC method level calibration (see 4.7.2; 3.4.4 of the 2012 edition);
- CHANGE the test arrangement of DCC method, respectively giving different arrangement methods of fast pulse and slow pulse (see 4.6.4; 3.4.3 of the 2012 edition);
- CHANGE the fast pulse from "fast pulse a, b" into "fast pulse 3a, 3b"; MAKE appropriate adjustment of the pulse parameters t_r and t_d , to be consistent with pulses 3a and 3b in GB/T 21437.2 (see 5.3.3; 4.3.2 of the 2012 version);
- For the slow pulse, CHANGE it from "slow pulse - positive pulse, negative pulse" into "slow pulse - positive pulse 2a, negative pulse 2a"; MAKE appropriate adjustment of the parameters t_r , t_1 , to be consistent with the pulse 2a in GB/T

21437.2 (see 5.3.2; 4.3.3 of the 2012 edition).

This document modifies and adopts ISO 7637-3:2016 "Road vehicles - Electrical disturbances from conduction and coupling - Part 3. Electrical transient transmission by capacitive and inductive coupling via lines other than supply lines".

The technical differences, between this document and ISO 7637-3:2016, as well as the reasons, are as follows.

- MODIFY and SIMPLIFY the Scope, clarifying the electrical/electronic components for vehicles of categories M, N, O, L;
- USE the normative reference GB/T 21437.1 to replace ISO 7637-1 (see Chapter 3), to adapt to the technical conditions in China and increase operability;
- USE the normative reference GB/T 21437.2 to replace ISO 7637-2 (see 4.5.2, 5.2, 5.3.1), to adapt to the technical conditions in China and increase operability;
- DELETE the "4.7.2 Generator verification" in ISO 7637-3:2016, which does not conform to Chinese expression habits and has no substantial content; POSTPONE the subsequent clauses accordingly;
- USE the normative reference GB/T 33014.4 to replace ISO 11452-4 (see 4.7.3), to adapt to the technical conditions in China and increase operability;

The following editorial changes have been made to this document.

- COMBINE the descriptions of the two sub-graphs in Figure 3; CHANGE "2" to "2a", "4" to "4a", "6" to "6a", "7" to "8" in Figure 3a); CHANGE "2" to "2b", "4" to "4b", "6" to "6b" in Figure 3b);
- ADJUST the title and numbering of Figures 4 and 5;
- COMBINE the descriptions of the two sub-graphs in Figure 4; CHANGE "9" to "9a" in Figure 4a); CHANGE "9" to "9b" in Figure 4b);
- COMBINE the descriptions of the two sub-graphs in Figure 5; CHANGE "9" to "10" in Figure 5a); CHANGE the footnotes "a, b" to "b, c" in Figure 5b);
- Table 4 is not mentioned in the main text of ISO 7637-3:2016, which is supplemented in 5.3.2;
- STANDARDIZE the headers of Table 4 and Table 5;
- The main text of ISO 7637-3:2016 does not mention Appendix A; in this document, ADD "Appendix A -- Examples of calibration fixtures" in 4.7;
- DELETE and ADJUST some repeated or redundant notes in Appendix B. PROVIDE notes for Category 1, Category 2, Category 3 of Appendix B, to facilitate understanding and use.

Please note that some content of this document may be patented. The issuing agency of this document assumes no responsibility for identifying patents.

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

This document shall be under the jurisdiction of the National Automotive Standardization Technical Committee (SAC/TC 114).

This document was first published in 2012. This is the first revision.

1 Scope

This document specifies a bench test method, for the immunity of electrical/electronic components to electrical transients, which are coupled to non-power lines.

2 Normative references

The contents of the following documents constitute essential provisions of this