



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

GB/T 33012.4-2016

**Road vehicles -- Vehicle test methods for electrical
disturbances from narrowband radiated electromagnetic energy
-- Part 4: Bulk current injection (BCI)**

道路车辆 车辆对窄带辐射电磁能的抗扰性试验方法 第4部分：大电流注入法
(English Translation)

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Foreword

GB/T 33012 "Road vehicles - Vehicle test methods for electrical disturbances from narrowband radiated electromagnetic energy" consists of four parts.

- Part 1. General;
- Part 2. Off-vehicle radiation sources;
- Part 3. On-board transmitter simulation;
- Part 4. Bulk current injection (BCI).

This Part is Part 4 of GB/T 33012.

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

This Part uses the re-drafting method to amend and adopt ISO 11451-4:2006 "Road vehicles - Vehicle test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 4. Bulk current injection (BCI)".

Technical differences between this Part and ISO 11451-4:2006 and the causes are as follows.

- Clause 1 is normatively prepared according to the specifications of GB/T 1.1-2009;
- The normative reference ISO 11451-1:2001 is modified to GB/T 33012.1-2016 adopting ISO 11451-1:2005;

- ADD the clause of "Terms and definitions";
- In order to achieve the same understanding and presentation with Part 1, I, II, III, IV, V of Table A.1 are modified to L1, L2, etc., and I, II, III, etc. are understood as status I, II, III, etc. The following editorial modifications are also made in This Part.
- Clause 3 of the original international standard is modified to Clause 4;
- 4.3 of the original international standard is taken as a separate clause, i.e. Clause 6;
- Clause 4 of the original international standard is modified to Clause 5, and 4.2 is divided into two sections;
- Clause 5 of the original international standard is modified to Clause 7;

1 Scope

This Part of GB/T 33012 specifies the test conditions, test location, test equipment, stimulation and monitoring of vehicle, test set-up and test procedure for vehicle test methods for electrical disturbances from narrowband radiated electromagnetic energy - bulk current injection (BCI).

This Part applies to M, N and O vehicles (regardless of the vehicle power system, e.g. spark-ignition engine, diesel engine, electric motor).

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 33012.1-2016 Road vehicles - Vehicle test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 1: General principles and terminology (ISO 11451-1:2005 + A1. 2008, MOD)

3 Terms and definitions

For the purpose of this document, the terms and definitions given in GB/T 33012.1-2016 apply.

4 Test conditions

The applicable frequency range for this test method is 1 MHz to 400 MHz. The frequency range of the BCI test method is a direct function of the current probe characteristics. More than one type of current probe may be required to cover the applicable frequency range.

The users shall specify the test severity level(s) over the frequency range. Suggested

lowest forward power to the probe as the threshold of immunity even if this is found with the injection probe in different positions at different frequencies. A current measurement probe may optionally be mounted between the current injection probe and the DUT. It may provide extra useful information but it may also modify the test conditions. Where this probe is used, the measured current cannot be used to determine the performance of the DUT, but shall be retained and used during investigative work for the causes of events and the variances in test conditions after system modifications.

7.3.3 Closed-loop method

See Annex C for the current measurement probe calibration method.

The RF power to the current injection probe shall be increased until.

- the predetermined maximum test current level, measured using the current measurement probe, is reached, or
- the maximum forward power defined in the test plan to the injection probe is achieved.

Record the threshold of susceptibility of the DUT as a function of frequency.

7.4 Test report

When required in the test plan, a test report shall be submitted detailing information regarding the test equipment, test site, systems tested, frequencies, power levels, system interactions and any other relevant information regarding the test.