



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

GB/T 33014.4-2016

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

道路车辆 电气电子部件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(BCI)法

(English Translation)

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Foreword

GB/T 33014 "Road vehicles - Component test methods for electrical/electronic disturbances from narrowband radiated electromagnetic energy" consists of the following parts.

- Part 1: General;
- Part 2: Absorber-lined shielded enclosure;
- Part 3: Transverse electromagnetic (TEM) cell;
- Part 4: Bulk current injection (BCI);
- Part 5: Stripeline;
- Part 7: Direct radio frequency (RF) power injection;
- Part 8: Magnetic field immunity;
- Part 9: Portable transmitter simulation;
- Part 10: Conduction immunity method for extended audio range;
- Part 11: Reverberation chamber.

This Part is Part 4 of GB/T33014.

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

This Part uses the re-drafting method to modify and adopt ISO 11452-4:2005 "Road vehicles - Component test methods for electrical disturbances from narrowband radiated electromagnetic energy - Part 4: Bulk current injection (BCI)".

The technical differences between this Part and ISO 11452-4:2005 are as follows.

- PREPARE Clause 1 according to the provisions of GB/T 1.1-2009;
- REPLACE the reference standard ISO 11452-1 WITH GB/T 33014.1 modifying and adopting ISO 11452-1;
- The artificial network in Annex C of the original international standard references CISPR25, which is modified to the equivalent GB/T 33014.2.
- The artificial network in 7.2 of the original international standard references Annex C, which is changed to Annex A of GB/T 33014.2-2016 with equivalent contents, to avoid duplication of the same content and incomplete consistency of the original international standard;
- The remote/local grounding in 7.2 of the original international standard references Annex C, which is changed to Annex B of GB/T 33014.2-2016 with equivalent contents, to avoid duplication of the same content and incomplete consistency of the original international standard;
- ADD GB/T 33014.2 in the normative references;
- For consistency in understanding and presentation with Part 1, I, II, III, IV, V of Table C.1 (E.1 of the original text) are changed to L1, L2, etc., and I, II, III, etc. are understood as state I, II, III, etc.; The following editorial changes have been made in this Part.
- DELETE the foreword and introduction of the original international standard.
- DELETE Annex C and Annex D of the original international standard; CHANGE Annex E of the original international standard TO Annex C in this Part.

1 Scope

This Part of GB/T 33014 specifies the immunity test for electrical/electronic components to continuous electrical disturbances from narrowband radiated electromagnetic energy - bulk current injection (BCI).

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the dated edition cited applies. For undated references, the latest edition of the referenced document (including all amendments) applies.

GB/T 33014.1 Road vehicles - Component test methods for electrical/electronic

disturbances from narrowband radiated electromagnetic energy - Part 1: General (GB/T 33014.1-2016, ISO 11452-1:2005, MOD)

3 Terms and definitions

For the purposes of this document, the terms and definitions given in GB/T 33014.1 apply.

4 Test conditions

The applicable frequency range of the bulk current injection (BCI) test method is a direct function of the current probe characteristic, that is 1 MHz to 400 MHz. More than one type of current probe may be required.

5 Test location

The tests shall be performed in a shielded enclosure.

6 Test apparatus and instrumentation

The DUT shall be operated as required in the test plan by actuators that have a minimum effect on the electromagnetic characteristics, e.g. plastic blocks on the push-buttons, pneumatic actuators with plastic tubes.

Any electrical connection of monitoring equipment to the DUT may cause malfunctions of the DUT. Extreme care shall be taken to avoid such an effect.

7 Test set-up

Each DUT power supply lead shall be connected to the power supply through an AN.

Power supply is assumed to be negative ground. If the DUT utilizes a positive ground then the test set-ups shown in the figures need to be adapted accordingly. Power shall be applied to the DUT via a 5 μ H/50 ohm AN (see Annex A of GB/T 33014.2-2016).

8 Test methods

Prior to performing the tests, a test plan shall be generated which shall include the following contents.

The substitution method is based upon the use of forward power as the reference parameter for calibration and testing. The method is carried out in two phases.

A current measurement probe may be mounted between the current injection probe and the DUT.