



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

GB/T 24338.6-2018

**Railway applications -- Electromagnetic compatibility -- Part 5:
Emission and immunity of fixed power supply apparatus and
systems**

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Foreword

GB/T 24338 "Railway applications - Electromagnetic compatibility" consists of the following parts.

- Part 1. General;
- Part 2. Emission of the whole railway system to the outside world;
- Part 3-1. Rolling stock - Train and complete vehicle;
- Part 3-2. Rolling stock - Apparatus;
- Part 4. Emission and immunity of the signalling and telecommunications apparatus;
- Part 5. Emission and immunity of fixed power supply apparatus and systems.

This Part is Part 5 of GB/T 24338.

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

This Part replaces GB/T 24338.6-2009 "Railway applications - Electromagnetic compatibility - Part 5. Emission and immunity of fixed power supply installations and apparatus". As compared with GB/T 24338.6-2009, the main technical changes are as follows.

- MODIFY Chapter 2 "Normative references" (SEE Chapter 2; Chapter 2 of the 2009 version);

- ADD the requirement of frequency range 5100 MHz ~ 6000 MHz of radio frequency electromagnetic field immunity test (SEE Table 1);
- DELETE the requirement of limits for magnetic field emission of 9 kHz ~

0.15 MHz, because there are few sensitive apparatus operating in this

frequency band and the measurement repeatability is poor (SEE Appendix A of the 2009 version);

- DELETE "Apparatus powered by railway traction system power supply" (SEE 7.2 of the 2009 version);
 - MODIFY the description of test severity in Table 1 ~ Table 6 (SEE Table 1 ~ Table 6; Table 1 ~ Table 6 of the 2009 version);
 - MODIFY the test level of "RF electromagnetic field radiation of digital mobile
 - ? REPLACE IEC 61000-4-8 with GB/T 17626.8 identical to the international standard;
 - ? REPLACE IEC 61000-4-12 with GB/T 17626.12 identical to the international standard;
 - ? REPLACE IEC 61000-6-4 with GB 17799.4 identical to the international standard;
 - ? REPLACE IEC 62236-1 with GB/T 24338.1 which uses the international standard by modification;
 - ? REPLACE IEC 62236-2 with GB/T 24338.2 which uses the international standard by modification;
 - ? DELETE CISPR 22;
 - ? ADD references to GB/T 4365, GB/T 17625.7, GB/T 17625.8.
 - DELETE the definitions of "port" and "enclosure port", and ADD the definitions of "long bus", "3 m zone", and "10 m zone", to clarify concepts and improve the standard's enforceability (SEE Chapter 3).
- This Part also makes the following editorial changes.
- CHANGE the international standard's name "Railway applications -

Electromagnetic compatibility - Part 5. Emission and immunity of fixed power supply installations and apparatus" to "Railway applications - Electromagnetic compatibility - Part 5. Emission and immunity of fixed power supply apparatus and systems".

- MODIFY the number of chapter-clause. CHANGE Chapter 5 to Chapter 4; CHANGE Chapter 6 to Chapter 5; CHANGE Chapter 7 to Chapter 6. MOVE the previous Chapter 4 content to Section 5.1 of Chapter 5. ADD headings of 5.1 and 5.2.
- DELETE the inclusion of items of test configurations in Table 1 ~ Table 6, because they are duplicated with the basic standards and the text has explained that test configurations are shown in the basic standards.
- MODIFY the order of performance criteria and remarks in Table 1 ~ Table 6.
- CHANGE the note form in Table 1 ~ Table 6 to footnote.
- DELETE the description of emission limits in the figure in Appendix A, to avoid misunderstanding as limit requirements.

Railway applications - Electromagnetic compatibility -
Part 5. Emission and immunity of fixed power supply
apparatus and systems

1 Scope

This Part of GB/T 24338 specifies the electromagnetic emission and immunity requirements for fixed power supply electronic and electrical apparatus and systems in the railway system, including the apparatus's power supply, the apparatus's own protection control circuits, as well as substations, autotransformers, booster transformers, substation switch cabinets, local electrical switches, and other trackside apparatus.

This Part does not apply to filters of which the operating voltage is the traction power supply voltage (e.g., filters for harmonic suppression or power factor

compensation). Usually the filter requires a separate enclosure and access regulations. If there is electromagnetic emission limit requirement, it will be specified in the electronic apparatus standard.

The limits of this Standard also do not apply to telecommunications signals intended to generate intentional emissions.

The frequency range considered in this Part is 0 GHz ~ 400 GHz. The frequency without requirements does not need to be tested.

This Part applies to fixed power supply electronic and electrical apparatus and systems in the railway system, including.

- Apparatus for powering the railway system in substations;
- Trackside control and rectifying apparatus, including devices for power factor compensation;
- Power supply contact network along the track other than the current collector and associated return conductor, including high voltage power supply system in the substation used to convert traction voltage in railway system;
- Trackside auxiliary power supply apparatus, including power supply to freight marshalling stations, repair stations, and stations;

to conditional connection (GB/T 17625.2-2007, IEC 61000-3-3.2005, IDT)

GB/T 17625.7 Electromagnetic compatibility - Limits - Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems for equipment with rated current ≤ 75 A and subject to conditional connection (GB/T 17625.7-2013, IEC 61000-3-11.2000, MOD)

GB/T 17625.8 Electromagnetic compatibility - Limits - Limits for harmonic currents produced by equipment connected to public low-voltage systems with input current >16 A and ≤ 75 A per phase (GB/T 17625.8-2015, IEC 61000-3-12.2004, IDT)

GB/T 17626.2 Electromagnetic compatibility (EMC) - Testing and