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

GB/T 18039.4-2017

**Electromagnetic compatibility -- Environment -- Compatibility
levels in industrial plants for low-frequency conducted
disturbances**

(English Translation)

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Foreword

Electromagnetic Compatibility - Environment currently consists of the following parts:

---GB/Z 18039.1 Electromagnetic Compatibility - Environment - Classification of
Electromagnetic Environments

---GB/Z 18039.2 Electromagnetic Compatibility - Environment - Assessment of the
Emission Levels in the Power Supply of Industrial Plants as regards Low-frequency

Conducted Disturbances

---GB/T 18039.3 Electromagnetic Compatibility - Environment - Compatibility Levels for Low-frequency Conducted Disturbances and Signaling in Public Low-voltage Power Supply Systems

---GB/T 18039.4 Electromagnetic Compatibility - Environment - Compatibility Levels in Industrial Plants for Low-frequency Conducted Disturbances

---GB/Z 18039.5 Electromagnetic Compatibility - Environment - Electromagnetic Environment for Low-frequency Conducted Disturbances and Signaling in Public Power Supply Systems

---GB/Z 18039.6 Electromagnetic Compatibility - Environment - Low Frequency Magnetic Fields in Various Environments

---GB/Z 18039.7 Electromagnetic Compatibility - Environment - Voltage Dips and Short Interruptions on Public Electric Power Supply Systems with Statistical Measurement Results

---GB/T 18039.8 Electromagnetic Compatibility - Environment - Description of HEMP Environment - Conducted Disturbance

---GB/T 18039.9 Electromagnetic Compatibility - Environment - Compatibility Levels for Low-frequency Conducted Disturbances and Signaling in Public Medium-voltage Power Supply Systems

This is Part 4 of Electromagnetic Compatibility - Environment.

This Part was drafted in accordance with the rules provided in GB/T 1.1-2009.

This Part serves as a replacement of GB/T 18039.4-2003 Electromagnetic Compatibility - Environment - Compatibility Levels in Industrial Plants for Low-frequency Conducted Disturbances.

In comparison with GB/T 18039.4-2003, the main technical changes are as follows:

---The references to IEC 60050-101, IEC 60050-551 and IEC 61000-2-12 are added (see Chapter 2);

---The definition of "total disturbance level" is deleted; the definitions of "electromagnetic

"disturbance", "disturbance level", "planning level", "fundamental frequency", "fundamental component", "harmonic frequency", "harmonic component", "interharmonic frequency", "inter-harmonic component", "total harmonic distortion", "voltage unbalance", "voltage deviation", "voltage dip" and "transient overvoltage" are added (see Chapter 3);

---The relevant description of electromagnetic environment classification is modified (see Chapter 4);

---In terms of compatibility levels, the general description, and the description of compatibility levels regarding voltage deviation, voltage unbalance, power-frequency variation, harmonics and inter-harmonics are modified; the description of compatibility levels regarding voltage components at higher frequencies, transient overvoltage and d.c. component is added (see Chapter 5);

---The illustration of interharmonic compatibility levels is added (see Figure 1 of Chapter 6);

---The explanations and examples for interharmonics are added (see Appendix A);

---The production and mitigation methods for interharmonics and voltage components at higher frequencies are added (see Appendix C).

This Part uses the translation method in the equivalent adoption of IEC 61000-2-4:2002 Electromagnetic Compatibility (EMC) - Part 2-4: Environment - Compatibility Levels in Industrial Plants for Low-frequency Conducted Disturbances.

The Chinese documents that have consistent correspondence with the international documents

normatively cited in this Part are as follows:

---GB/T 4365-2003 Electrotechnical Terminology - Electromagnetic Compatibility (IEC 60050(161):1990, IDT)

---GB/T 18039.3-2017 Electromagnetic Compatibility - Environment - Compatibility Levels for Low-frequency Conducted Disturbances and Signaling in Public Low-voltage Power Supply Systems (IEC 61000-2-2:1990, IDT)

---GB/T 18039.9-2013 Electromagnetic Compatibility - Environment - Compatibility

Levels for Low-frequency Conducted Disturbances and Signaling in Public Medium-voltage Power Supply Systems (IEC 61000-2-12:2003, IDT)

Electromagnetic Compatibility - Environment -

Compatibility Levels in Industrial Plants for Low-frequency
Conducted Disturbances

1 Scope

This Part of GB/T 18039 is concerned with conducted disturbances in the frequency range from

0 kHz to 9 kHz. It gives numerical compatibility levels for industrial and non-public power

distribution systems.

This Part is applicable to AC 50 Hz low-voltage and medium-voltage power supply systems.

Power supply systems on ships, aircraft, offshore platforms and railways are not included.

The compatibility levels specified in this Part apply at the in-plant point of coupling (IPC). At the power input terminals of equipment receiving its supply from the above systems, the severity levels of the disturbances can, for the most part, be taken to be the same as the levels

at the in-plant point of coupling. In some situations, this is not so, particularly in the case of a

long feeder dedicated to the supply of a particular load, or in the case of a disturbance generated

or amplified within the installation of which the equipment forms a part.

Compatibility levels are specified for electromagnetic disturbances of the types which can be

expected at any in-plant point of coupling (IPC) within industrial plants or other non-public networks, for guidance in

a) limits to be set for disturbance emission into industrial power supply systems (including the planning levels defined in 3.1.5);

NOTE 1 A very wide range of conditions is possible in the electromagnetic environments of