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

GB/T 17625.8-2025

**Electromagnetic compatibility-Limits - Part 8: Limits for harmonic
currents produced by equipment connected to public low-voltage
systems with input current > 16 A and ≤ 75 A per phase**

(English Translation)

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1 Scope

This document relates to the limits for harmonic currents injected into the public power supply system. The limits given in this document apply to electrical and electronic equipment with a rated input current greater than 16 A and less than or equal to 75 A per phase, intended to be connected to public low-voltage AC distribution systems of the following types.

- a) nominal voltage up to 220 V, single-phase, two-wire or three-wire system;
- b) nominal voltage up to 380 V, three-phase, three-wire or four-wire system;
- c) nominal frequency 50 Hz.

The limits given in this document (see Chapter 5) apply to equipment connected to 220 V/380 V, 50 Hz systems; equipment connected to other power distribution systems is not included in this scope.

Note 1: Limits applicable to other systems will be added in a future edition of this document.

Note 2: In the harmonic current requirements of the facility, equipment with a rated input current exceeding 75 A per phase is considered. See IEC TR 61000-3-6 and IEC TR 61000-3-14.

This document applies to equipment intended to be connected to low-voltage public power supply systems, but not to equipment intended to be connected to private low-voltage systems only interfacing with medium-voltage or high-voltage public power supply systems.

Note 3: The scope of this document is limited to equipment connected to public low-voltage systems, because the emissions of equipment installed in private low-voltage systems will be controlled at the medium-voltage point of common coupling using the procedures specified in IEC TR 61000-3-6 and/or through an agreement between the power supply company and the user. It is expected that operators of private systems will manage the electromagnetic compatibility environment in a manner that ensures compliance with the requirements of IEC TR 61000-3-6 and/or the contractual agreements.

Note 4: If the equipment is intended to be connected only to private systems, the manufacturer shall specify this in the product documentation.

Note 5: Similar to professional equipment with an input current per phase less than or equal to 16 A but not conforming to the limits and requirements specified in

GB 17625.1-2022, equipment with an input current per phase greater than 16

A and not conforming to the requirements and limits of this document is permitted to be connected to certain types of low-voltage power supply systems. See Appendix C.

Note 6: The limits in this document do not apply to standalone harmonic filters.

This document defines.

- a) equipment requirements and emission limits;
- b) methods for type tests and simulations.

Tests carried out according to this document are type tests of complete pieces of equipment.

Conformity with this document can also be determined by proven simulation methods.

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 4365-2024, Electrotechnical terminology - Electromagnetic compatibility

Note: There is no technical difference between the referenced content of GB/T 4365-2024 and the referenced content of IEC 60050-161.1990+Amd1.1997+Amd2.1998.

GB 17625.1-2022, Electromagnetic compatibility - Limits - Part 1.Limits for harmonic current emissions (equipment input current ≤ 16 A per phase) (IEC 61000-3-2.2020, MOD)

Note: There is no technical difference between the referenced content of GB 17625.1-2022 and the referenced content of IEC 61000-3-2.2018+Amd1.2020.

IEC 60038, IEC standard voltages

Note: GB/T 156-2017, Standard voltages (IEC 60038.2009, MOD)

IEC 61000-2-2, Electromagnetic compatibility (EMC) - Part 2-2.Environment -

Compatibility levels for low-frequency conducted disturbances and signaling in public low-voltage power supply systems

Note: GB/T 18039.3-2017, Electromagnetic compatibility - Environment -

Compatibility levels for low-frequency conducted disturbances and signalling in public low-voltage power supply systems (IEC 61000-2-2.2002, IDT)

IEC 61000-2-4, Electromagnetic compatibility (EMC) - Part 2-4.Environment -

Compatibility levels in power distribution systems in industrial locations for low- frequency conducted disturbances

Note: GB/T 18039.4-2017, Electromagnetic compatibility - Environment -

Compatibility levels in industrial plants for low-frequency conducted disturbances (IEC 61000-2-4:2002, IDT)

IEC 61000-4-7, Electromagnetic compatibility (EMC) - Part 4-7. Testing and measurement techniques - General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto

Note: GB/T 17626.7-2017, Electromagnetic compatibility - Testing and measurement techniques - General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto (IEC 61000-4-7:2009, IDT)

3 Terms and definitions

For the purposes of this document, the following terms and definitions, as well as those given in GB/T 4365-2024, apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses.

3.1

total harmonic current; THC

The root mean square value of the harmonic current components of orders 2 ~ 40.

4.1 Determination of reference current

The average root-mean-square value of the input current shall be measured using the harmonic current averaging method specified in 4.2.2. Except for dimmers, the measurement shall be performed under the conditions specified in 7.4. For dimmers, the average root-mean-square value of the input current shall be determined with the dimmer set to its maximum conduction angle.

The manufacturer may specify any root-mean-square current value within $\pm 10\%$ of the actual measured value as the reference current value for the original manufacturer's conformity assessment test. Both the measured and specified current values specified in this clause shall be recorded in the test report.

For emission tests other than the original manufacturer's conformity assessment test, the reference current value shall be determined as follows. If, during these emission tests, the average of the root-mean-square values of the input current obtained by measurement (measured in accordance with this clause) is not less than 90% and not greater than 110% of the current value specified by the manufacturer in the test report (see 4.2.6), then the reference current value is equal to the specified value. If the new measured value exceeds the tolerance zone of the specified value, then the reference current is equal to the new measured value.