



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

GB/T 24807-2021

**Electromagnetic compatibility for lifts, escalators and moving
walks - Emission**

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1 Scope

This document specifies the electromagnetic disturbance emission limits and test conditions for lifts, escalators, and moving walks to be permanently installed in buildings. However, when wireless and television receiving equipment is used within the distances specified in Table 1, these limits may not provide complete protection against disturbances.

This document does not apply to devices manufactured before the date of implementation of this document.

2 Normative references

The following documents are essential to the application of this document. For the dated documents, only the versions with the dates indicated are applicable to this document;

for the undated documents, only the latest version (including all the amendments) is applicable to this standard.

GB 4343.1-2018 Electromagnetic compatibility requirements for household appliances, electric tools and similar apparatus -- Part 1: Emission (CISPR 14-1:2011, IDT)

GB 4824 Industrial, scientific and medical equipment -- Radio-frequency disturbance characteristics -- Limits and methods of measurement (GB 4824-2019, CISPR 11:2016, 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 17799.3 Electromagnetic compatibility (EMC) -- Generic standards -- Emission standard for residential, commercial and light-industrial environments (GB 17799.3-2012, IEC 61000-6-3:2011, IDT)

GB 17799.4 Electromagnetic compatibility (EMC) -- Generic standards -- Emission standard for industrial environments (GB 17799.4-2012, IEC 61000-6-4:2011, IDT)

of operation that produces the maximum emission. The emission shall be maximized by changing the position of the test sample in the test facility.

4.1.2 For each function of an apparatus or an assembly of apparatus, it is not always possible to measure the emission. In this case, the most unfavorable phase of operation in normal operating mode shall be selected.

4.1.3 If any other conditions are not specified in the referenced standard, the test shall be carried out within the temperature, humidity, air pressure, and operating range of power supply voltage specified by the manufacturer, and under a combination of single environmental conditions.

4.1.4 For each test, measurements shall be made under well-defined and reproducible conditions. During the measurement, the configuration and operating mode shall be accurately recorded.

4.2 Radiated and conducted RF emissions

4.2.1 The test, test method, test characteristics, and test arrangement shall meet the requirements of GB 4824.

4.2.2 The accompanying cable or any other cable whose length may exceed 5 m shall be connected to the relevant port through a sample with a length of at least 5 m in order to test the radiated emission.

4.2.3 If an apparatus has many similar ports or many similarly connected ports, a sufficient number of ports shall be selected in order to simulate actual operating conditions and ensure that all different types of terminals are included.

4.2.4 Measurements shall be made at the enclosure ports (radiated), AC main power, and machine/motor ports (conducted) of an apparatus or an assembly of apparatus.

4.3 Voltage fluctuation and flicker The test, test method, test characteristics, and test arrangement shall comply with the provisions of GB/T 17625.7.

4.4 Main power harmonics Calculations or measurements, test methods, test characteristics, and test arrangements shall comply with the requirements of IEC 61000-3-12.

Before the implementation of harmonic measurement, the system shall be stabilized in the normal state specified by the manufacturer.

Calculations or measurements shall be made under load conditions greater than or equal to the reference current in 6.7.2.

5 Applicability of the test

5.1 The suitability of tests for assessing emission levels depends on the type, configuration, port, technology, and operating conditions of the apparatus or the assembly of apparatus.

5.2 Consider the electrical characteristics and use of a specific apparatus or assembly of apparatus to determine whether some tests are appropriate, necessary or not. If inappropriate or unnecessary, the decision and justification for not conducting the test shall be recorded.

5.3 If the applied method deviates from the test methods specified in 4.2.1, 4.3, and 4.4, then the reason for the deviation shall be explained and recorded.

5.4 The provisions of Class A in CISPR 32 apply to wired network ports.

6 Emission limits

6.1 Enclosure port (radiated)

The level of electromagnetic emission measured at each enclosure port (radiated) of the apparatus or the assembly of apparatus shall not exceed the limits specified in Table 1.

These limits values are not applicable to measurements in the field.

6.2 AC main power port (conducted)

6.2.1 For an apparatus or an assembly of apparatus with a voltage RMS value of less than 1000 V, the electromagnetic emission level measured at each AC main power port (conducted) shall not exceed the limits specified in Table 2. As described in 6.4, the emission caused by different ratios of impulse noises corresponds to different limits.

6.2.2 For a three-phase system with a voltage RMS value of 660 V and below, the harmonic emission level measured at each AC main power port (conducted) shall not exceed the limits specified in Table 4, Table 5, Table 6, and Table 7.

For a single-phase system with a voltage RMS value of 220 V and below, the harmonic emission level measured at each AC main power port (conducted) shall not exceed the limits specified in Table 7.

6.3 Output power port (conducted)

The electromagnetic emission level (conducted) at each machine/motor port of the apparatus or the assembly of apparatus shall not exceed the limits specified in Table 3.

If the shielding terminals and shielding lines used to machine/motor ports (conducted) harmonic emission level measured at each AC main power port (conducted) shall not exceed the limits specified in Table 4, Table 5, Table 6, and Table 7.

For the single-phase system with a voltage RMS value not exceeding 220 V, the harmonic emission level measured at each AC main power port (conducted) shall not exceed the limits specified in Table 7.

6.6.2 The limits in Table 4, Table 5, and Table 6 apply to a three-phase balanced system (equipment) or a hybrid system (equipment) in any of the following situations:

a) The maximum 3rd harmonic current of the hybrid equipment is less than 5% of the reference current; or b) There is an agreement in the manufacture of hybrid equipment to separate three-phase balanced loads and single-phase or phase-to-phase loads when measuring the source current; when measuring, the current of the equipment component being measured shall be the same as that under normal operating conditions. In this case, the relevant limits shall apply respectively to single-phase, phase-to-phase loads, and three-phase balanced loads. Table 4, Table 5, or Table 6 applies to the current of the three-phase balanced load (even if the rated current of the three-phase balanced load is less than or equal to 16 A per phase). Table 7 is applicable to the current of single-phase or phase-to-phase load, but if the rated current of single-phase or phase-to-phase load is less than or equal to 16 A, the relevant limits of single-phase or phase-to-phase load in GB 17625.1 may be used instead of the limits specified in Table 7.

6.6.3 The limits in Table 5 apply to three-phase balanced systems (equipment) if any of the following conditions are met:

a) During the entire test observation period, the 5th harmonic current and the 7th harmonic current are both less than 5% of the reference current;

Note 1: This condition is usually achieved by a system whose maximum power load is supported by a three-phase 12-pulse system (equipment).

b) The design of the equipment makes the phase angle of the 5th harmonic current change with time without a priority value, and can be any value in the entire $[0^\circ, 360^\circ]$ interval;

Note 2: This condition is usually achieved by a system (equipment) whose maximum electrical load is supported by a three-phase rectifier consisting of a fully controlled thyristor bridge.

c) During the whole test observation period, the phase angle of the 5th harmonic current related to the fundamental-wave phase voltage (see 3.16 in IEC 61000-3-12:2011) is within $90^\circ \sim 150^\circ$.

Note 3: This condition is usually achieved by a system (equipment) whose maximum electrical load is supported by a three-phase uncontrollable rectifier bridge and a capacitive