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**Electromagnetic compatibility -- Limits -- Signalling on  
low-voltage electrical installations -- Emission levels, frequency  
bands and electromagnetic disturbance levels**

电磁兼容 限值 低压电气设施上的信号传输 发射电平、频段和电磁骚扰电平

**(English Translation)**

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Electromagnetic compatibility limit Signal transmission on low-voltage electrical facilities  
Emission level, frequency band and electromagnetic disturbance level

### 1 Scope

This section applies to electrical equipment that uses 3kHz to 525kHz signals to transmit information on low-voltage electrical facilities.

Implementation includes both public power supply systems and user buildings.

This section specifies the frequency band, the limit of the terminal output voltage in the working frequency band, conduction and radiation for different applications (when appropriate) the limit of disturbance is also given in the measurement method.

This section specifies the disturbance limit in the frequency range from 3kHz to 400GHz.

This section does not specify the modulation method, coding method and functional characteristics of the signal.

This section does not include environmental requirements and tests.

**Note:** Compliance with this part does not mean that it is allowed to establish communication with facilities outside the user's building, or through a public power supply system that may not allow communication. Establish communication with other users.

### 3 overview

This section has two purposes.

---Prevent the power grid signal transmission equipment from interfering with radio communication service equipment and other equipment connected to the power grid;

---Limit the mutual interference between different power grid signal transmission equipment connected to the same power grid.

For the first purpose and above 150kHz, the maximum voltage limit of the output terminal of household appliances is determined by GB 4343.1-2009. Given, the maximum voltage limit of the output terminal of information technology equipment is given by GB 9254-2008. Although the above two limits are not specific the gate is suitable for power grid signal equipment, but they have been used as a reference for specifying the maximum output level in this section. However, it should be noted that the above the above-mentioned standards involve unintentional emission, and the power grid signal transmission belongs to intentional emission. Moreover, according to some signal transmission methods, the signal level it should be higher than the possible noise level to successfully achieve signal transmission.

Below 150kHz, there is no corresponding reference, the limit specified in this part is considered appropriate and in line with the International Electrotechnical Commission's wireless Principles of the Special Committee on Electrical Interference (CISPR). In any frequency band, another factor to consider is. In some countries, it may have been proposed the regulations for the maximum emission level of signal transmission should be followed.

For the second purpose, three types of technologies can be used to limit mutual interference between different signal transmission systems.

- a) Physical isolation, using filter isolation to limit the mutual interference of the transmission or differential signal injection system;
- b) For different applications, use allocated frequency bands to achieve isolation;
- c) In order to avoid contention for information resources, for different application situations, different and separate addressing mechanisms are used to reach a common agreement.

The International Telecommunication Union (ITU) Radio Regulations stipulate the frequency of radio communication services in the frequency range from 9kHz to 400GHz the basic principles of distribution and use, as well as the definition of communication services, the frequency allocation table is included in the rules. This section considers the frequency bands of different applications Allocation to avoid interference with radio communication services. However, in the case of actual harassment, additional preventive measures need to be taken.

ITU rules specify 3 areas, and the frequency allocation in these areas is different.

When the equipment within the scope of this part is used in a specific area, and its requirements are different from the limits stated in this part, it should be stated in the report Ming (as in Chapter 7). However, if this description is omitted, it does not mean that the specified frequency band, output voltage, Limits for conducted or radiated disturbance.

In the ITU1 zone, the AM broadcasting frequency band starts from 148.5kHz, and in order to optimize the use and consideration of the frequency band that allows power grid signal transmission Taking into account that there is no common agreement between the power supplier and the user for use1), all the provisions of this section are applicable, and the equipment needs to be considered Out-of-band emissions may fall in the frequency bands available to other devices in order to limit possible mutual interference.

1) The original information of the IEC standard. The member states of the European Committee for Electrotechnical Standardization (CENELEC) have adopted the above-mentioned b) technology and agreed to the supplier/user Use separate frequency bands.

2) IEC standard original information. In the United States, the Federal Communications Commission (FCC) allows AM broadcasting (535kHz~1705kHz band) to start at frequencies above for power grid signal transmission, although there are strict restrictions on the maximum output level, this is a special case and is not included in this section.

In ITU2 and ITU3, the AM broadcasting frequency bands start at 525kHz and 526.5kHz, respectively. Grid signal transmission assigned the frequency band is not used, the method used to limit mutual interference may be outside the scope of this section, especially the part that needs to specify the agreement. In these Region, Chapter 5 is not applicable. As for Chapter 7, the out-of-band emission of the frequency band used for power grid signal transmission may not be important because it cannot interfere with wireless Telecom business. However, the possible interference caused by the out-of-band emission to other equipment connected to the power grid should be considered. Therefore, it should comply with the provisions given in Chapter 6.

The relevant limit 2).

Unless permitted by regulations (see Chapter 9), common mode injection should not be