

ICS 33.100
CCS M 04



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

GB 13615-2009

Replacing GB 13615-1992

**Electromagnetic environment protection requirements for earth
stations**

地球站电磁环境保护要求

(English Translation)

Issued on: May 5, 2009

Implemented on: July 1, 2010

Issued by: Standardization Administration of China

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Foreword

All the technical contents of this standard is mandatory.

This standard replaces GB 13615-1992 "earth station electromagnetic environment protection requirements." this standard compared with GB 13615-1992 main changes are as follows.

- Modify and update the present standard of normative references;
- Revised technical requirements to allow interference values;
- Revised Appendix B, Appendix D and Appendix E;
- Added Appendix C.

This standard is part of the relevant Recommendation ITU interference on synchronous satellite earth station and space station allows other networks Recommended value.

This standard Annex A, Annex B is normative appendix, Appendix C, Appendix D, Annex E

and Annex F is informative appendix.

This standard by the National Standardization Technical Committee on Radio Interference (SAC/TC79) and focal points.

This standard was drafted. SRMC.

1 Scope

This standard specifies the earth station electromagnetic interference environment allowed values and interference level calculation methods.

This standard specifies the earth station electromagnetic environment testing methods.

This standard applies to working frequency of 1GHz ~ 40GHz synchronous satellite communication earth station, as well as synchronous meteorological satellite earth station to the coast Ball stand.

2 Normative references

The following documents contain provisions which, through reference in this standard and become the standard terms. For dated references, subsequent Amendments (not including errata content) or revisions do not apply to this standard, however, encourage the parties to the agreement are based on research Whether the latest versions of these documents. For undated reference documents, the latest versions apply to this standard.

GB 4824-2004 industrial, scientific and medical (ISM) radio-frequency equipment - Electromagnetic disturbance characteristics - Limits and methods of measurement (CISPR11.

2003, IDT)

GB/T 6113.204 radio disturbance and immunity measuring apparatus and methods - Part 2-4. Radio disturbance and anti-Immunity measuring interference measurement method (GB/T 6113.204-2008, CISPR16-2-4.2003, IDT) GB/T 7615-1987 master antenna television system antenna section GB 50016-2006 architectural design code for fire protection

3 Terms and Definitions

The following terms and definitions apply to this standard.

Since one or more emission, radiation, induction or a combination thereof unwanted energy reception in a radio communication system to produce a shadow Sound, its performance is degraded, misunderstood, or loss of information, if the existence of such unwanted energy, the result of the above consequences can be avoided.

4 Sources of interference

4.1

digital microwave radio relay system interference.

4.2

from all other network earth station and space station interference.

4.3

radar, radio, television, mobile communications and other radio transmitters of the same frequency, harmonics and spurious emission interference.

4.4

industrial, scientific and medical equipment, radiation interference.

5.1 Interference from the digital radio-relay system allows values

When the earth station and digital radio-relay systems share the same frequency band, radio relay systems caused by the 8-bit PCM telephone Satellite Suppose the fixed service interference reference channel digital output terminal shall comply with the following possible values.

- a) 20% or more for any month period, any of 10min RF interference generated power should not exceed the equivalent of 1×10^{-6} average error ratio Bit rate demodulator input terminal 10% of the total noise power;
- b) more than 0.03% of any month period, any 1min RF interference caused by power shall not exceed the average bit error rate 1×10^{-4} ;
- c) within 0.005% of any month's time, the average bit error rate 1s any RF interference caused by power should not exceed 1×10^{-3} .

5.2 interfering earth stations and geostationary satellites space station from all other networks allowable value in the following work on the same 15GHz band fixed-satellite service networks from all other networks earth stations and space station transmitters yield the total amount of interference generated interference into the 8-bit PCM telephone fixed-satellite service system shall comply with the following possible values.

- a) the network does not implement the band frequency reuse of more than 20% for any month period, the 10min average interference noise power Level should not exceed the equivalent of generating average bit error rate should not exceed 1×10^{-6} bit error rate of the demodulator input of the total noise power 25%;
- b) the implementation of the network band frequency reuse, more than 20% of any month of the time, 10min average interference noise power level does not it should produce more

than the equivalent of the average bit error rate should not exceed 1×10^{-6} bit error rate of the demodulator input of the total noise power 20%;

c) in any month more than 20% of the time, resulting in falls and any other by a transmitter 8 to the fixed-satellite service networks Especially PCM telephone systems 10min average maximum interference power level should not exceed the equivalent of 1×10^{-6} to generate bit error rate Demodulator input terminal 6% of the total noise power.

5.3 with radio transmitters from other business radar, radio, television, mobile communication, frequency, harmonics and spurious emission interference values when the earth station and other business systems share the same frequency band in the communication direction fixed-satellite service earth stations, allows any month dry Disturbing deterioration should not exceed the corresponding error performance index 10%, of which part of the amount of deterioration caused by interference from the fixed service shall not exceed 89%, the amount of deterioration in radar, radio, television, mobile communications, and other major businesses from common frequency caused by not more than 10% from its all He amount of deterioration due to interference sources should not exceed 1%.

5.4 interference from radar, radio, television and mobile communication system according to the allowable value 5.4.1 interference from radar systems fall into synchronous meteorological satellite earth station receiver input interference signal peak level should be higher than normal access Received signal level is low 10dB.

5.4.2 interference from radar systems fall coast earth station interfering signal at the receiver input signal level should peak level than normal reception Level low 10dB.

5.4.3 emission interference from AM, FM radio and television broadcast channels 1 to 5, the electric field strength in a satellite communication system earth station should not Greater than 125dB ($\mu\text{V/m}$).

5.4.4 Harmonic emission interference from television broadcasts, falling synchronous meteorological satellite earth station receiver input interference signal level should be higher than the positive Chang received signal level low 25dB.

5.4.5 emission interference from short-wave broadcasting, satellite communication systems in the electric field strength of the earth station should not exceed 105dB ($\mu\text{V/m}$).

5.4.6 harmonic emission of interference from the mobile communication system, falling synchronous meteorological satellite earth station interfering signal at the receiver input level should Lower than the normal reception signal 25dB.

5.5 Radiated interference from industrial, scientific and medical equipment to allow values

5.5.1 300MHz frequency band from radiation interference less industrial, scientific and