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

GB 13616-2009

Replacing GB 13616-1992

**Electromagnetic environment protection requirements for
digital radio-relay stations**

数字微波接力站电磁环境保护要求

(English Translation)

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Foreword

All the technical contents of this standard is mandatory.

This standard replaces GB 13616-1992 "microwave relay station electromagnetic environment protection requirements." this standard compared with GB 13616-1992 main changes are as follows.

- Changing the name of the standard;
- Updated the standard normative references;
- Update the technical requirements to allow interference values;
- The original Appendix A has been modified. changes A. 1, A. 3. Delete A. 2, modified as a new Appendix B;
- Appendix B of the original has been modified. rewritten B. 1, and as a new Appendix A; the original B. 1.3.4 modified the original B. 3 merge as a new Appendix C; delete the original B. 2;

--- Appendix C of the original has been modified, and the modification is to move the body;

--- Adds a new appendix. Appendix D.

The standard reference method and the corresponding calculation error related to the performance of assigned ITU Recommendation given in digital microwave radio relay system and other technical parameters, combined with the technical features of our current relevant industry technical specifications and digital microwave radio relay station.

Appendix A of this standard is a normative appendix, Appendix B, Appendix C, Appendix D and Appendix E is an informative annex.

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 digital microwave radio relay station electromagnetic interference environment to allow the value of the antenna in front of the clear zone requirements, and digital microwave relay station power Magnetic environmental testing methods.

This standard applies to working frequency of 1GHz ~ 40GHz horizon digital microwave radio relay transmission system station.

This standard does not apply to tropospheric scatter microwave stations.

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)

YD/T 5088-2005 SDH microwave relay systems engineering

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 as performance degradation, loss of information or misunderstanding, said the consequences if the existence of such unwanted energy, the result can be avoided.

4 Sources of interference

Digital microwave radio relay station may be subject to radio interference are.

- a) satellite communication systems transmit interference (including earth station and satellite launch);
- b) with microwave, radar, radio, television and other radio transmission frequency, harmonics and spurious emission interference;
- c) industrial, scientific and medical radio-frequency radiation interference device.

5 Allows interference value

5.1

digital microwave relay systems with other business systems to share frequency interference when the permissible value SDH microwave radio relay systems for each transmission channel group cluster group or groups over constant bit rate shared with other business systems with A band, the inter-provincial trunk, trunk province, local access and microwave transmission Microwave transmission in any of these four basic channels for each direction of transmission Ho month deterioration amount permissible interference from other services should not exceed 10% of the corresponding channel error performance indicators, from the fixed sector the amount of traffic caused by the deterioration of partial interference should not exceed 89%, the amount of deterioration in other major businesses from common frequency caused should not exceed 10% the amount of all other sources of interference from the deterioration caused by not more than 1%.

Note: The error performance indicators inter-provincial trunk, trunk province, local access and microwave transmission Microwave transmission channel based on the four basic YD/T 5088-2005.

5.2 Interference from geostationary satellite communication systems allow value

Synchronous satellites operating in the same frequency band with its emission interference from the Earth's surface (including emission reflection satellite), digital microwave relay the maximum interference power flux-density environment around the station, and under any conditions and modulation, shall not exceed the permissible values specified in Table 1.

Table 1 interference from geostationary satellite communication systems allow value

Band /

GHz

Reference bandwidth

The maximum interference power flux density /dB (W/m²) $\theta \leq 5^\circ$ $5^\circ \sim 6^\circ$ digital microwave radio relay station electromagnetic environment testing methods Digital microwave radio relay station electromagnetic environment testing methods, see Appendix A.

7 Front of the antenna Clearance Requirements

In front of digital microwave radio relay station antenna requires a certain open area (ie clear zone). Clearance requirements shown in Figure 1. In this range There should be no forest, high trees, buildings, metal structures and other inner circle.

D --- antenna opening surface diameter in m ($D \leq 4\text{m}$);

λ --- operating wavelength, the unit is m;

F1 --- first Fresnel zone radius.

1 antenna front clearance zone FIG F1 by the formula (1) to determine.

Where.

Note: digital microwave radio relay station other location requirements refer to Appendix E.

Appendix A

(Normative)

Digital microwave radio relay station electromagnetic environment testing methods A. 1 testing purposes Digital microwave radio relay station electromagnetic environment testing is to digital microwave radio relay station before the construction site, get to be selected at the radio station site no. intensity, orientation and polarization, etc., as the decision to work at the sites to be selected in the existence of the digital microwave radio relay station the impact of the radio signal reference.

A. 2 Test System

Composition test system (see Figure A.1).

- a) adapted to digital microwave band metered spectrum analyzer;
- b) digital microwave band directional antenna is suitable for testing;
- c) adapted to digital microwave frequency band RF connection cable (feeder);