

ICS 33.100  
CCS V 06

**MH**

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

**MH/T 4046-2017**

---

**Civil Airport and Ground Aviation Radio Station (Station)  
Electromagnetic Environment Test Specification  
(English Translation)**

**Issued on: June 6, 2017**

**Implemented on: September 1, 2017**

---

**Issued by: Civil Aviation Administration of China**

## Table of Contents

Foreword

1 Scope

2 Normative references

3 Terms and definitions

4 Basic requirements

5 Test frequency band

6 Test location

7 Test report

Appendix A (Normative Appendix) Maximum allowable interference field strength or power

Appendix B (Normative Appendix) Radio test frequency bands corresponding to terrestrial aviation radio stations (stations)

Appendix C (informative appendix) related calculation formula

Appendix D (informative appendix) Test report template and writing instructions

### Foreword

This standard was drafted in accordance with the rules given in GB/T 1.1-2009.

This standard was proposed and interpreted by the Air Traffic Control Industry Management Office of the Civil Aviation Administration of China.

This standard was approved by the Aircraft Airworthiness Certification Department of the Civil Aviation Administration of China.

This standard is under the jurisdiction of the China Academy of Civil Aviation Science and Technology.

Drafting organizations of this standard. Air Traffic Control Industry Management Office of Civil Aviation Administration of China, Civil Aviation Data Communication Co., Ltd., Beijing Airlines Day university.

### 1 Scope

This standard specifies the basic requirements for electromagnetic environment testing of civil airports and ground aviation radio stations (stations), test frequency bands, test locations and Test report requirements.

This standard applies to the testing and evaluation of the electromagnetic environment of civil airports and ground aviation radio stations (stations).

## 2 Normative references

The following documents are indispensable for the application of this document. For dated reference documents, only the dated version applies to this article Pieces. For undated references, the latest version (including all amendments) applies to this document.

"ITU Spectrum Monitoring Manual"

## 3 Terms and definitions

The following terms and definitions apply to this document.

Maximum permitted interference field strength in order to ensure the normal operation of the radio station (station), it is converted to the maximum permissible interference signal field strength at the antenna port.

Maximum permitted interference power in order to ensure the normal operation of the radio station (station), the maximum allowable interference signal is converted to the antenna port (that is, received by the isotropic antenna).

No. power.

The sensitivity of the testing system when the output signal-to-noise ratio of the test system receiver is 3 dB, the minimum signal field strength or power that can be measured at the system receiving antenna port.

The location of the radio station the geographic location of the radio station (station) antenna expressed in WGS-84 coordinates.

### 4.1 Test time

#### 4.1.1

The test of the same frequency band should include at least the period of 7.00 to 19.00, and the interval between the two tests should be no more than 2 h.

#### 4.1.2

The maintenance period of high-power transmitting equipment such as radio and television signal transmitting equipment should be avoided.

### 4.2 Test system

#### **4.2.1**

The test system is mainly composed of antennas, radio frequency cables, receiving equipment (measurement receivers or spectrum analyzers, etc.), computers, filters, it is composed of auxiliary equipment such as attenuator and amplifier. The system connection is shown in Figure 1. The system connection should be safe and reliable, and the equipment should be placed stably and firmly.

Grounding is required and the power supply is properly connected.

#### **4.2.2**

It shall meet the requirements of "ITU Spectrum Monitoring Manual" and be within the validity period of metrological verification (calibration).

#### **4.2.3**

The sensitivity of the test system should be at least 6 dB better than the maximum permissible interference field strength (or power) of the tested frequency band.

### **4.3 Detection method**

#### **4.3.1**

If the ground aeronautical radio station (station) corresponding to the frequency band to be measured is in pulse mode, the peak or quasi-peak detection mode Measure the frequency band to be measured.

#### **4.3.2**

If the ground aeronautical radio station (station) corresponding to the frequency band to be measured is in continuous wave mode, the root mean square or average detection method should be used.

Type to measure the frequency band to be measured.

### **4.4 Test antenna**

#### **4.4.1**

The polarization mode of the test antenna should be consistent with the actual antenna polarization mode of the ground aeronautical radio station (station).

#### **4.4.2**

The working frequency band of the test antenna should completely include the radio frequency band corresponding to the ground aeronautical radio station (station).

## **4.5 IF bandwidth or resolution bandwidth**

### **4.5.1**

When using a measurement receiver, the IF bandwidth used for the test should not be less than the reference bandwidth listed in Appendix A.

### **4.5.2**

When using a spectrum analyzer, the resolution bandwidth used in the test should be less than 1/2 of the reference bandwidth listed in Appendix A.

### **4.5.3**

The test result should be converted to the reference bandwidth.

## **5 Test frequency band**

### **5.1**

For new (relocation) civil airports, at least the following radio frequency bands corresponding to ground aviation radio stations (stations) should be tested.

--Communication station. VHF station;

--Navigation station. heading beacon station, glide beacon station, omnidirectional beacon station, rangefinder station;

--Monitoring system. secondary radar or broadcast automatic related monitoring system.

In addition to the above-mentioned ground aeronautical radio stations (stations), if other ground aeronautical radio stations (stations) are planned to be built, their corresponding wireless Electric frequency band.

### **5.2**

Reconstruction (expansion) of civil airports should at least test the ground aviation radio stations (stations) that are planned to be built or to be changed.

The corresponding radio frequency band.

### **5.3**

Ground aeronautical radio stations (stations) newly built or changed radio stations (stations) should test their corresponding radio frequency bands.

### **5.4**

Refer to Appendix B for the test frequency bands corresponding to ground aeronautical radio stations (stations).