

ICS 17.220
CCS A 56

JJF

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

JJF 1886-2020

**Calibration Specification for Electric Field Probes
(English Translation)**

Issued on: November 26, 2020

Implemented on: May 26, 2021

Issued by: State Administration for Market Regulation

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Introduction

This specification is based on JJF 1071-2010 "Rules for the Compilation of National Metrology and Calibration Specifications" and JJF 1059.1-2012 "Evaluation and Expression of Measurement Uncertainty" was compiled:

This specification refers to IEEEStd1309-2013 9kHz~40GHz electromagnetic field probe

and sensor (antenna except External) Calibration
(Calibration of Electromagnetic Field Sensors and Probes (Excluding Antennas) from 9 kHz to 40 GHz):

This specification is released for the first time:

Calibration specification for electric field probe

1 Scope

This specification applies to the calibration of electric field probes in the frequency range of 10 MHz to 18 GHz:

2 Reference documents IEC Std 1309-2013 9 kHz~40 GHz electromagnetic field probe and sensor (except antenna) calibration [Calibration of Electromagnetic Field Sensors and Probes (Excluding Antennas) from 9 kHz to 40 GHz]:

For dated reference documents, only the dated version applies to this specification; for undated references the latest version (including all amendments) is applicable to this specification:

3 Terms and definitions

3.1 Microtransverse electromagnetic wave chamber μ transverse electromagnetic mode cell
Microtransverse electromagnetic wave chamber (μ transverse electromagnetic mode cell, hereinafter referred to as μ TEM Cell) it is a specially designed tiny transverse electromagnetic wave chamber with a symmetrical structure: The outer shell is two aluminum shells tightened with screws:

The inner plate adopts brass plate: μ TEM Cell can still generate a calculable standard field strength at frequencies up to 1 GHz, Used to calibrate a sufficiently small field probe that does not exceed the size of its uniform zone:

3.2 gigahertz transverse electromagnetic wave chamber
gigahertz transverse electromagnetic mode cell Gigahertz transverse electromagnetic mode cell (gigahertz transverse electromagnetic mode cell, hereinafter referred to as GTEM Cell) consists of a tapered, asymmetrical rectangular coaxial line, similar to the input part of TEM Cell Extended structure: Reasonably choose the cross-sectional size so that the characteristic impedance along the length of the cell remains at 50 ohm: GTEM Cell has a larger operating space than TEM Cell:

3.3 Site voltage standing wave ratio the site voltage standing wave ratio is in the microwave anechoic chamber, the electric field probe is placed at the reference point, along the same transmitting antenna the polarization and position of the electric field probe are changed in the direction of the main axis to produce the same standard field:

The large dispersion determines the site voltage standing wave ratio:

3.4 Isotropy

Isotropy characterizes the response of the field probe with the measurement angle, and the polarization and propagation direction of the incident field:

Irrelevant: Isotropy is when the direction of the field probe is changed according to the calibration requirements, the highest indication value of the field probe under constant field strength is the ratio of the lowest indicated value, usually expressed in decibels:

4 overview

The electric field probe is usually composed of three parts: field sensor, detector and high resistance transmission line:

figure 1: The field sensor is used to detect the field component of a certain position in space, and the detected signal can display the field strength after processing

Numerical value: