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Specifications for radio disturbance and immunity measuring equipment and methods of measurement - Part 4-2: Uncertainty, statistics and limit value modeling Uncertainties of measuring equipment and facilities

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1 Scope

This document specifies the application of measuring equipment and equipment for compliance determination of the equipment under test (EUT) in accordance with the CISPR disturbance limits.

Applied Uncertainty (MIU) method. When the measurement results and conclusions are affected by the uncertainties of the measuring equipment and facilities used for testing, this The content of the document is also related to the electromagnetic compatibility test.

Note. According to IEC guideline 107, CISPR16-4-2 is the basic EMC standard used by the product committee of IEC. As stated in IEC Guide 107, production It is the product committee's responsibility to determine the applicability of this EMC standard. For a specific category of products, CISPR and its sub-technical committees (corresponding to national SAC/TC79 technical committee and its subcommittees) in cooperation with these technical committees and product committees on the applicability of this document do. The above technical committees and product committees correspond to relevant domestic product technical committees.

The appendix of this document gives background information on the magnitude of MIU to

be considered in deriving the UCISPR values in Chapters 4 through 9, providing Initial and further information on MIU requirements, and valuable background information on how individual uncertainties are considered in the measurement chain material. However, the purpose of the appendix is not for users of this document to use it as a user's manual when performing uncertainty calculations or to leave it untouched.

Copy it. Therefore, in order to make a correct estimate of the uncertainty in practice, one can use the data in the reference literature or other widely used Approved documents.

Measuring equipment specifications are given in CISPR16-1 (all parts), measurement methods are included in CISPR16-2 (all parts), relevant More detailed information and background material on CISPR and radio disturbances are given in CISPR 16-3, general knowledge about uncertainties, statistical Statistics and limit value modeling are included in CISPR16-4 (all parts).

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references For documents, only the version corresponding to the date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to this document.

3.1 Terms and Definitions

ISO /IEC Guide 98-3 and ISO /IEC Guide 99 define and the following terms and definitions apply to this document.

4.1 General

When judging the compliance of the EUT based on the disturbance limits, the uncertainties introduced by the measuring equipment and facilities given in this chapter shall be taken into account.

fixed degree.

For testing laboratories, each measurement uncertainty component in Chapters 5 to 9 should be considered to assess the MIU of each measurement item. to all The estimated value xi of each input quantity in the column should be evaluated for its standard uncertainty u(xi) (expressed in dB) and sensitivity coefficient ci. measured estimate The combined standard uncertainty uc(y) of the value y should be calculated according to formula (1).

4.2 Conformity assessment

The compliance determination for the disturbance limit value shall be carried out in the following manner.

If Ulab is less than or equal to UCISPR in Table 1, then.

--- If the measured disturbance level does not exceed the specified disturbance limit, it is judged to be in compliance;

--- If the measured disturbance level exceeds the specified disturbance limit, it is determined to be non-compliant.

If Ulab is greater than UCISPR in Table 1, then.

--- If the measured disturbance level plus (Ulab-UCISPR) does not exceed the disturbance limit value, it is judged to be in compliance;

--- If the measured disturbance level plus (Ulab-UCISPR) exceeds the disturbance limit, it is determined to be non-compliant.

Note. For the conformity assessment procedure specified in this article, the measured disturbance levels and disturbance limits are expressed in logarithmic units, for example, dB (uV/m).

5.1.1 Measurands for power port conducted disturbance measurement using V-AMN

V. Asymmetrical voltage measured at the EUT port of the AMN with respect to the reference ground plane, in decibel microvolts [dB(uV)].

5.1.2 Signs of specific input quantities for power port conducted disturbance measurement using V-AMN

FAMN. AMN voltage division coefficient, the unit is decibel (dB);

deltaFAMNf. the correction of the frequency interpolation error of the voltage division factor (VDF) of AMN, the unit is decibel (dB);

deltaDmains. Correction of errors caused by AC power and other power disturbances, in decibels (dB);

deltaVenv. the correction of the impact on the environment, in decibels (dB);

deltaZAMN. Correction for unsatisfactory AMN impedance, in decibels (dB).

5.1.3 Input quantities to be considered in the measurement of conducted disturbances at power ports using V-AMN

--- The reading of the receiver;

--- The attenuation introduced by the connection between the AMN and the receiver;

---AMN's VDF;

--- Frequency interpolation of VDF of AMN;

---Inputs related to the receiver.

* Accuracy of receiver sine wave voltage, * the pulse magnitude response of the receiver, * The receiver impulse response varies with the repetition rate, * The noise floor of the receiver;

---The impact of the mismatch between the receiver port of the AMN and the receiver;

--- Impedance of AMN;

--- The impact of disturbances generated by laboratory AC power or other power sources;

---Environmental influence.

5.2.1 Measurands for power port conducted disturbance measurement using VP

V. Asymmetrical voltage measured when 1500ohm is loaded at the EUT power port relative to the reference ground, the unit is decibel micro Volt [dB(uV)].

5.2.2 Signs of specific input quantities for power port conducted disturbance measurements using VP

FVP. VDF of the voltage probe, in decibels (dB);

deltaFVPf. Correction of the VDF frequency interpolation error of the voltage probe, the unit is decibel (dB);

deltaDmains. the correction of the error caused by the power supply disturbance, the unit is decibel (dB);

deltaVenv. the correction of the impact on the environment, in decibels (dB);

deltaZVP. Correction for the unsatisfactory impedance of the voltage probe, the unit is decibel (dB);

deltaZmains. Correction for errors caused by source impedance when compared to AMN, in decibels (dB).

5.2.3 Input quantities to be considered for power port conducted disturbance measurement using VP

--- The reading of the receiver;

--- The attenuation introduced by the connection between the VP and the receiver;