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GB/T 17626.5-2019

Electromagnetic compatibility - Testing and measurement techniques - Surge immunity test

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Foreword

GB/T 17626 "Electromagnetic compatibility - Testing and measurement techniques" is divided into the following parts.

- Part 1.Overview of immunity tests;
- Part 2.Electrostatic discharge immunity test;
- Part 3.Radiated, radio-frequency, electromagnetic field immunity test;
- Part 4.Electrical fast transient/burst immunity test;
- Part 5.Surge immunity test;
- Part 6.Immunity to conducted disturbances, induced by radio-frequency fields;
- Part 7.General guide on harmonics and interharmonics measurements and instrumentation, for power supply systems and equipment connected thereto;
- Part 8.Power frequency magnetic field immunity test;
- Part 9.Pulse magnetic field immunity test;
- Part 10.Damped oscillatory magnetic field immunity test;

- Part 11.Voltage dips, short interruptions and voltage variations immunity tests;

- Part 12.Ring wave immunity test;

- Part 13.Harmonics and interharmonics including mains signalling at a.c. power port low frequency immunity test;

- Part 14.Voltage fluctuation immunity test;

- Part 15.Flickermeter - Functional and design specifications;

- Part 16.Test for immunity to conducted, common mode disturbances in the frequency range 0 Hz to 150 kHz;

- Part 17.Ripple on d.c. input power port immunity test;

- Part 18.Damped oscillatory wave immunity test;

- Part 20.Emission and immunity testing in transverse electromagnetic (TEM) waveguide;

- Part 21.Reverberation chamber test methods;

- Part 22.Radiated emissions and immunity measurements in fully anechoic rooms (FARs);

- Part 24.Test methods for protective devices for HEMP conducted disturbance;

- Part 27.Unbalance immunity test;

- Part 28.Variation of power frequency immunity test;

- Part 29.Voltage dips short interruptions and voltage variations on d.c. input power port immunity tests;

- Part 30.Power quality measurement methods;

- Part 34.Voltage dips, short interruptions and voltage variations immunity tests for equipment with mains current more than 16 A per phase.

This Part is Part 5 of GB/T 17626.

This Part is drafted in accordance with the rules given in GB/T 1.1-2009.

This Part replaces GB/T 17626.5-2008 "Electromagnetic compatibility - Testing

and measurement techniques - Surge immunity test". Compared with GB/T 17626.5-2008, the main technical changes are as follows.

- Delete some references (see Clause 2; Clause 2 of the 2008 edition);
- ADD 3 new definitions (see 3.1.6, 3.1.11, and 3.1.15) and modify 2 definitions (see 3.1.8, 3.1.14; 3.7, 3.15 of the 2008 edition);
- ADD abbreviations (see 3.2);
- ADD line-to-line and line-to-ground test levels (see Table 1; Table 1 of the 2008 edition);
- Modify the definitions of the waveform parameters 1.2/50 μs-8/20 μs (see Table 2; Table 2 of the 2008 edition);
- ADD description of calibration method for generator characteristics (see 6.2.3);
- Delete the description of 10/700 μs combination wave generator (see Clause 6; 6.2 of the 2008 edition);
- Modified the flowchart for selection of the coupling/decoupling network (see Figure 4; 6.3 of the 2008 edition);
- Modify the requirements for CDN for a.c./d.c. power supply; ADD the relationship between peak open-circuit voltage and peak short-circuit current of the CDN's EUT port (see 6.3.2; 6.3.1 of the 2008 edition);
- ADD calibration for CDN (see 6.4);
- Delete description of test setup for high-speed communication lines (see Clause 7; 7.5 of the 2008 edition);
- Delete description of test setup for applied potential difference (see Clause 7; 7.7 of the 2008 edition);
- Delete description of the operating condition of the EUT (see Clause 7; 7.8 of the 2008 edition);
- ADD special instructions for surge tests of ports connected to external communication cables. In particular, specify the technical parameters of the

10/700 μs combination wave generator (see Annex A; 6.2 of the 2008 edition);

- ADD mathematical modelling of surge waveforms (see Annex E);
- ADD measurement uncertainty considerations (see Annex F);
- ADD method of calibration of impulse measuring systems (see Annex G);
- ADD coupling/decoupling surges to lines rated above 200 A (see Annex H).

This Part, using the translation method, is identical to IEC 61000-4-5.2014 "Electromagnetic compatibility (EMC) - Part 4-5.Testing and measurement techniques - Surge immunity test".

China's documents which have a consistent correspondence with the international documents normatively referenced in this Part are as follows.

- GB/T 2900 (all parts) Electrotechnical terminology [IEC 60050 (all parts)].

The following editorial changes have been made in this Part.

- CHANGE the standard name to "Electromagnetic compatibility - Testing and measurement techniques - Surge immunity test";
- Amend the "open-circuit" in footnote a of Table 5 to "short-circuit";
- Amend the "line L2-to-line L3" in the title of Figure 7 to "line L3-to-line L2";
- Amend the connection point of the combination wave generator to the coupling network in Figure 9, Figure 10, and Figure A.4;
- Amend "as described in 7.6.2 and Figure 12" in 7.1 to "as described in 7.6 and Figure 12";
- Amend "Tw" in Figure E.2 to "T";
- Amend the "A reasonable estimate of alpha can be obtained as the arithmetic mean between the minimum... that appear in Table 1" in F.4.6 to "A reasonable estimate of alpha can be obtained as the arithmetic mean between the minimum... that appear in Table F.4";
- Amend "V'(tp)=0" in F.4.7 to "V'in(tp)=0".

This Part was proposed by and shall be under the jurisdiction of National