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

GB/T 18271.3-2017

**Process measurement and control devices -- General methods
and procedures for evaluating performance -- Part 3: Tests for
the effects of influence quantities**

(English Translation)

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Foreword

GB/T 18271 "Process measurement and control devices - General methods and procedures for evaluating performance" is currently planned to be issued as follows.

- Part 1.General considerations;
- Part 2.Tests under reference conditions;
- Part 3.Tests for the effects of influence quantities;
- Part 4.Evaluation report content.

This Part is Part 3 of GB/T 18271.

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

This Part replaces GB/T 18271.3-2000 "Process measurement and control devices - General methods and procedures for evaluating performance - Part

3 Tests for the effects of influence quantities". Compared with GB/T 18271.3-

2000, the main technical changes of this Part are as follows.

- UPDATE normative references (see Clause 2; Clause 2 of the 2000 edition);
- Delete the term "device under test" and definition (see 3.1 of the 2000 edition);
- ADD the term "type test" and definition (see 3.8);
- ADD the requirement that "A test is only to be performed if it is applicable to the Device Under Test (DUT). If the specification of the DUT states limits for the influence considered, these limits shall be noted and respected" (see 4.1);
- ADD general requirements for electromagnetic compatibility test (see 4.3);
- Modify the temperature range, temperature class, and typical service application in Table 1 "Ambient temperature test ranges" and add a note (see Table 1; Table 1 of the 2000 edition);
- Modify the typical application and the parameter of vibration levels in Table

2 "Vibration test levels" (see Table 2; Table 2 of the 2000 edition);

- Modify the test voltage and frequency values in "Supply voltage and frequency variations" (see 12.1; 12.1 of the 2000 edition);
- In "Short-term supply voltage interruptions", delete the requirements that "The a.c. power supply unit shall be interrupted for 1, 5, 10, and 25 cycle durations at the crossover point" and "In addition, random interruptions can also be used for at least 10 times each duration"; CHANGE to the provision that the tests shall be according to the requirements of 4.3; and, add the test parameters of power supply commutations-interruptions (see 4.3; 12.4

of the 2000 edition);

- Modify "Fast transient/burst immunity" test requirements; ADD the provision that the tests shall be according to the requirements of 4.3; CHANGE "severity level specified by the manufacturer" to "severity level according to Table 2 of GB/T 18268.1-2010"; and, add Table 5 "Burst characteristics" (see 12.5; 12.5 of the 2000 edition);
- Modify "Surge immunity" test requirements; ADD the provision that the tests shall be according to the requirements of 4.3; CHANGE "severity level specified by the manufacturer" to "severity level according to Table 2 of GB/T 18268.1-2010"; amend "Input level shall be maintained at a value that produces 50 % of the output signal" to "The device input shall be held constant at 50 %"; and, add Table 6 "Surge characteristics" (see 12.6; 12.6 of the 2000 edition);
- ADD the provision that the tests shall be according to the requirements of

4.3 to "Supply pressure interruptions" (see 12.9);

- ADD the test method of "Conducted radio frequency requirements" (see 12.10);
- Delete the provisions regarding "Common mode interference" and "Series mode interference" (see 13.1 and 13.2 of the 2000 edition);
- Modify the harmonic distortion test level in "Harmonic distortion effects" from 2 % and 10 % TO 2 %, 5 %, 10 %, and 20 % (see Clause 14; Clause

14 of the 2000 edition);

- ADD the provision that "Magnetic field effects" test shall meet the requirements of 4.3; CHANGE the test magnetic field strength from a uniform 400 A/m (r.m.s) to "according to the relevant standards for the environment in which it is located" (see Clause 15);
- Modify the title of Clause 16 from "Radiated electromagnetic interference" to "Electromagnetic field immunity test"; ADD a provision that the test field