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

WS/T 543.6-2017

**Resident health card technical specifications - Part 6: Testing
requirements of user card and terminal products
(English Translation)**

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Foreword

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

WS/T 543 "Technical Specifications for Resident Health Cards" is divided into 6 parts.

- Part 1: General provisions;
- Part 2: Technical Specifications of User Card;
- Part 3: User Card Application Specification;
- Part 4: User card command set;
- Part 5: Terminal technical specifications;
- Part 6: User card and terminal product testing specifications;

This part is part 6 of WS/T 543.

The main drafting units of this section. National Health and Family Planning Commission Statistical Information Center, Liaoning Provincial Health Information Center, Henan Provincial Health and Family Planning Commission Planning Information Center, Foshan Municipal Health and Family Planning Bureau, Inner Mongolia Autonomous Region Health Information Center

1 Scope

This part of WS/T 543 stipulates the resident health card user card and terminal product testing specifications, including resident health card user card chip, COS, the testing environment, testing content, and testing methods of relevant technical indicators for card packaging and reading and writing terminal equipment.

This part is applicable to the design, manufacturing, management, issuance, and application system development related to the user card and terminal application of the resident health card Development, integration and testing.

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 document.

For undated references, the latest version (including all amendments) applies to this document.

GB 4943 Safety of Information Technology Equipment GB/T 2423.1 Environmental testing of electrical and electronic products Part 2: Test method Test A. Low temperature GB/T 2423.2 Environmental testing of electrical and electronic products Part 2: Test method Test B. High temperature GB/T 14916 Identification card physical characteristics GB/T 16649.1 Identification Card IC Card with Contacts Part 1 Physical Characteristics GB/T 17554.1 Identification Card Test Method Part 1: General Characteristic Test GB/T 17625.1 Harmonic current limit emitted by low-voltage electrical and electronic equipment (equipment input capacitance per phase $\leq 16A$) GB/T 18239 General Specification for Integrated Circuit (IC) Card Reader

3 Testing environment

Unless otherwise specified, the physical, electrical, and logical characteristics test should be performed in an environment with a temperature of $23^{\circ}C \pm 3^{\circ}C$ and a relative humidity of 40% to 60%.

Row. Unless otherwise specified, the sample to be tested should be placed in the test environment for 24 hours before testing.

4.1 Single test

The user card is encapsulated by a chip, a chip operation system (COS) and a card. Therefore, for each order the test requirements for all items are shown in Table 1.

4.2.1 User Card

The user card testing items and requirements are shown in Table 2.

5.1.1 Test purpose

Verify that the working temperature of the IC card meets the requirements.

5.1.2 Testing requirements

Under the condition of 0°C~50°C, the card should work normally without deformation and no obvious change in appearance.

5.1.3 Detection method

- The upper limit test of working temperature should be carried out in accordance with "Test Bd" or "Test Bb" in GB/T 2423.2, and the test time is 2 hours;
- The test of the lower limit of working temperature should be carried out in accordance with "Test Ad" or "Test Ab" in GB/T 2423.1, and the test time is 2 hours;

5.2.1 Test purpose

Verify that the IC card's printing pattern and text position, printing color difference, and printing fastness meet the requirements.

5.2.2 Testing requirements

- The position of the printed pattern and text should meet the relevant requirements of WS 543.2;
- Bar code and magnetic stripe should be able to be read correctly;
- The color difference between the test sample card and the standard sample card $\Delta E \leq 5.00$;
- After 200 cycles of abrasion test, visually inspect the image, color, and characters of the card, and there should be no obvious changes.

5.2.3 Detection method

Use relevant testing equipment for testing.

5.3.1 Test purpose

Verify that the randomness of the random number generated by the user card random number generator meets the relevant security requirements.

5.3.2 Testing requirements

The randomness of the random number should conform to the frequency test, intra-block frequency test, run-length test, NIST SPECIAL PUBLICATION 800-22 Longest run test in a block, binary matrix test, discrete Fourier transform test, non-overlapping template matching test, overlapping template matching test, MAURER'S general statistical test, linear complexity test, continuous test, approximate entropy test, cumulative sum test, random drift test, random 15 requirements such as machine drift and variation test.

5.3.3 Detection method

Analyze the random number generated by the IC card.

5.4.1 Basic requirements

To ensure the correctness of the user card function and the safety of its use, the user card COS function should comply with WS 543.2, WS 543.3, According to the requirements of WS 543.4, the carrier should be a chip that has been filed with the National Health and Family Planning Commission.

?Access. See WS 543.2 for the user card file structure.

5.4.2.1 Reading card identification data area information

--Test purpose. verify that the user card can complete the basic data area of the card (MF\DDF1\EF05, MF\DDF1\EF06, MF\DDF1\EF07 and MF\DDF1\EF08).

--Testing requirements. It should meet the relevant requirements of 6.1.1 in WS 543.3-2017.

--Detection method. According to the process description in 6.1.1 of WS 543.3-2017, perform the card basic data area (MF\DDF1\EF05, MF\DDF1\EF06, MF\DDF1\EF07 and MF\DDF1\EF08) data read.

5.4.2.2 Write card identification data area information

--Test purpose. verify that the user card can complete the information update of the card's basic data area (MF\DDF1\EF07 and MF\DDF1\EF08) new.

--Testing requirements. It shall meet the relevant requirements of 6.1.2 in WS 543.3-2017.

--Detection method. According to the process description in 6.1.2 of WS 543.3-2017, perform the card basic data area (MF\DDF1\EF07 and MF\DDF1\EF08) data update.

5.4.2.3 Reading card identification data area information (read DF01 application data)

--Test purpose. verify that the user card can complete the identification data area