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

GB/T 18805-2026

Replacing GB/T 18805-2002

Commodity bar code printability test

商品条码印刷适性试验

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Foreword

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01 State Administration for Market Regulation The State Administration for Standardization issued a statement.

1.Scope This document specifies the technical requirements, test conditions, and test record requirements for printability testing of commodity barcodes, describing... Test methods for printability of one-dimensional barcodes and two-dimensional barcodes. This document applies to barcode printing suitability testing to determine the bar width or module adjustment amount of barcode film or barcode digital image.

4.1.1 One-dimensional barcode symbol level printability specification

4.1.1.1 EAN-13 symbol grade printability specification The EAN-13 symbol grade printability gauge has magnification factors M of 0.80, 0.85, 0.90, 1.00, and

1.10 respectively, with a stripe width adjustment amount of... 0, a specific set of barcode symbols arranged as shown in Figure

1.If barcode film is used, the barcode symbols should conform to... The relevant technical requirements in Chapter 5 of GB/T 26227-2010.

4.1.1.2 GS1-128 Symbol Grade Printability Specification The GS1-128 grade printability gauge has X dimensions of 0.170mm, 0.250mm, 0.330mm, and 0.495mm respectively. A specific set of barcode symbols, each 0.660mm in diameter and with a width adjustment of 0, is arranged as shown in Figure

2.If barcode film is used, the bars... The code symbols shall comply with the relevant technical requirements in Chapter 5 of GB/T 26227-2010.

4.1.2 Printability gauge for spacing between one-dimensional barcode symbols The one-dimensional barcode symbol spacing printing adaptability gauge consists of a set of adaptability strips, each

0.254 mm wide and 5 mm long, arranged at different spacings. The standard pattern is shown in Figure

3.In the figure, A~K (A'~K') represent 11 fitness levels, and the data on the right shows the spacing between the bars for each level. Dimensions, in millimeters. If a film pattern is used, the substrate and optical density should conform to section

5.1 of GB/T 26227-2010, respectively. The relevant technical requirements in

4.2 QR code symbol printing suitability specification The QR code symbol printing suitability gauge only has a gap level printing suitability gauge. The QR code symbol gap level printing suitability gauge consists of a set of... A standard pattern composed of squares with lines 0.381mm wide, arranged at varying intervals. The center square is 1.143mm x 1.143mm. The dark-colored square modules, from the inside out, have side length gaps of 0.560mm, 0.458mm, and 0.356mm for adjacent squares. The gap sizes are 0.254mm, 0.203mm, 0.152mm, 0.102mm, 0.051mm, and 0.025mm, as shown in Figure

4.The gap dimensions and their corresponding... The grades are shown in Table

1.If a film pattern is used, the substrate and optical density should comply with 5.1, 5.2, and 5.3 of GB/T 26227-2010, respectively.

5.8 Related technical requirements.

6.1.1 Test method for printability of EAN-13 symbol rulers

6.1.1.1 Plate making and printing Place the symbol grade printability ruler at the corner of other printed films or digital images to assemble the plate. During plate making, the ruler should be positioned... Place it parallel or perpendicular to the printing direction. Print under conditions specified in Chapter 5.

6.1.1.2 Sampling 6.1.1.2.1 Sampling Size For each printing condition, the printability

specification should specify a batch size of no less than 50 pieces. The sampling rate for each printing condition should be... The number of samples is 5. 6.1.1.2.2 Sampling Method Based on the trial print run, discard the first 10% of samples after printing begins and the last 10% before printing ends, and randomly select from the remaining samples.

6.1.1.3 Detection 6.1.1.3.1 Testing Equipment The testing equipment shall meet the measurement conditions specified in GB/T 18348. 6.1.1.3.2 Detection Method Select a sample of 5 barcode symbols with a magnification factor of

0.80 and parallel (or perpendicular) to the printing direction. Take each symbol from this group. At the midpoint of the barcode symbol's height, use an instrument conforming to 6.1.1.3.1 to measure the actual dimensional deviation of each bar of the barcode symbol. $V(i,j)$, where i is the sample number, with values from 1 to 5; j is the number of each barcode symbol, with values from 1 to 5.

30.If an inspected device refuses inspection, select a sample with a magnification factor of 0.85 that is parallel (or perpendicular) to the printing direction. If a set of barcode symbols with a magnification factor of

0.85 also results in rejection by the testing equipment, then each sample should be selected. A group of barcode symbols with a magnification factor of

0.90 and parallel (or perpendicular) to the printing direction, and so on.

6.1.1.4 Determine the strip width adjustment amount

6.1.1.5 Determine the minimum magnification factor (Mimin) 6.1.1.5.1 Determine the minimum magnification factor (Mimin) for each sample. Determine the minimum magnification factor for each sample by following these steps.

6.1.2.2 Detection 6.1.2.2.1 Testing Equipment The testing equipment shall meet the measurement conditions specified in GB/T 18348. 6.1.2.2.2 Detection Method Select a sample of 5 barcode symbols with an X dimension of

0.170 mm that is parallel (or perpendicular) to the printing direction. Take the barcode symbol from this group. The actual dimensional deviation of each bar in the vertical direction of each code symbol is measured using an instrument conforming to 6.1.2.2.1 at the midpoint of the vertical direction. $V(i,j)$, the total width of the barcode characters W_{bk} , and the distance e_l between two adjacent left or right edges of the barcode characters, where i is the sample value. The barcode is numbered as follows: $i = 1, 2, 3, 4, 5$; $j = 1, 2, 3, 7$; $k = k$. The barcode character is numbered, k takes values of 1, 2, 12; l is the number of each similar edge in the barcode symbol, l takes values of 1, 2, 12.

4.If the tested equipment refuses inspection, select a sample with an X dimension of 0.250mm that is parallel (or perpendicular) to the printing direction. If a set of barcode symbols with an X dimension of 0.250mm is selected, and the selected set of barcode

symbols is also rejected by the inspection equipment, then the correct barcode symbol should be selected. Select a group of barcode symbols from each sample whose X dimension is

0.330 mm and which is parallel (or perpendicular) to the printing direction, and so on.

6.1.2.4 Determine the minimum X dimension (Ximin) 6.1.2.4.1 Determine the maximum and minimum deviations (Wbmax and Wbmin) of the total barcode character width for each sample. Follow these steps to determine the maximum and minimum deviation of the total barcode character width for each sample.

6.2 Test Method for Printability of One-Dimensional Barcode Gap Scale

6.2.1 Plate making, printing and sampling The requirements for plate making, printing, and sampling of the printability test of one-dimensional barcode gap grading rulers and one-dimensional barcode symbol grading printing. The requirements for plate making, printing, and sampling are the same for the suitability test of the printing compatibility of the compatibility gauge.

6.2.2 Determination of Suitability Grade for Individual Samples Use a magnifying glass of at least 10x to examine each group of fitness strips in the sample one by one, and find the fitness strips where they begin to make contact with each other. The level is the fitness level of the sample. When determining suitability levels, accidental defects are not considered. 50% or more of the section along the line length is completely seamless. Touching each other is considered as the lines being in contact. Suitability ratings are usually a range; for example, in a sample, suitability ratings A through D are all clearly defined. If the ink just begins to fill the gaps between the E-F suitability strips and the G-K suitability strips are completely filled with ink, then the printability grade range is E-F. Grade; it can also be a level, such as a sample where the suitability strips for grades A to D are all clear, and the gaps between the suitability strips for grades E to K are completely filled with ink. In this case, the printability rating should be set to D.

6.2.3 Determination of the overall fitness level of the sample Based on the fitness level assessment results of a single sample, a fitness level that can be achieved when three or more samples are taken from the sampling quantity is considered to be... The fitness level of the overall sample.

6.2.4 Pre-determination of magnification factor and strip width adjustment amount Based on the determined overall suitability level of the sample, the magnification factor M and other design parameters of the barcode film under these printing conditions are determined according to Appendix A. Strip width adjustment amount BWA.

6.2.5 Validation and verification tests and corrections Use the results from

6.2.4 to create a verification barcode film or barcode digital image. Use this film or digital