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

GB/T 23704-2017

Replacing GB/T 23704-2009

**Two-dimensional bar code symbol print quality test
(English Translation)**

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References

Foreword

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

This standard replaces GB/T 23704-2009 "automatic identification and data acquisition technology of information technology two-dimensional bar code symbol printing quality Test", and GB/T 23704-2009 compared to the main changes are as follows.

--- The standard name changed to "two-dimensional bar code symbol printing quality inspection";

--- Added ISO/IEC 19762, GB/T 18284, GB/T 21049, GB/T 35402, ISO/IEC 16022, ISO/IEC 16023 and ISO/IEC 24778 (see Chapter 2);

--- Added "Modulation and modulation ratio" terms and definitions (see 3.12);

--- By scanning a symbol to obtain the level of measurement, does not require symbols to be measured 5 times (see 7.4);

--- Increasing the contrast uniformity, the definition of modal modulation ratio parameters, an increase of "modular modulation ratio" "code modulation ratio" "symbol modulation ratio" "Modulo-Modulation Modulation Ratio of Modules", "Modulo Modulation Ratio of Codewords" and "Modulo Modulation Ratio of Signature" (see 7.8.4);

--- "For each parameter, the temporary parameter level of each codeword is the highest of the parameter levels obtained for all scans of that codeword." to "For each parameter, the temporary parameter level for each codeword is the highest for all parameters obtained by scanning the codeword value. "(See 6.2.5);

--- The proprietary parameters of each code system used for symbol ranking concerning DataMatrix codes and quick response matrix codes will not be described in detail, only Give the code standard that contains these parameters (see Appendix D);

--- Increase the "modal modulation ratio" "format information" "version information" quality parameters (see Appendix G).

This standard uses redrafted Law Amendment using ISO/IEC 15415:2011 "Information Technology Automatic Identification and Data Acquisition Technology Article Code symbol printed quality inspection specification two-dimensional symbols. " this standard and ISO/IEC 15415:2011 technical differences and the reasons are as follows.

--- On normative references, this standard made a technical difference with the adjustment to adapt to China's technical conditions, adjust the situation Concentration reflected in the second chapter "Normative references", the specific adjustments are as follows.

- Replacing ISO/IEC 15416 with GB/T 14258 modified to use international standards;
- GB/T 11186.2 modified to adopt international standards instead of ISO 7724-2:1984;
- Replacing ISO/IEC 19762-1 and ISO/IEC 19762-2 with the newly revised ISO/IEC 19762;
- Added GB/T 2828.1, GB/T 6378.1, GB/T 12905, GB/T 18284, GB/T 21049, GB/T 35402, ISO/IEC 16022, ISO/IEC 16023 and ISO/IEC 24778 (see Chapter 2).

--- Representation of the matrix two-dimensional bar code detection process (see 7.1);

--- Modify the level corresponding to each level of the table corresponding to the range of parameters, for example, will be in Table 2, the corresponding level 3 parameters Wai changed to $0.64 \leq CY < 0.71$, ISO/IEC 15415:2011 Table 2, with $\geq 64\%$ of the parameter range is not accurate (See Table 2, Table 3, Figure 2, Table 5, Table 6, Table 8, Table 9, Table 10, Table 11);

--- "Provisional codeword level for each parameter (modulation ratio, defect level and decodability) is the level of all the scans of that parameter Highest value "to" For each parameter, the temporary parameter level of each codeword is all the parameters obtained by scanning the codeword, etc.

Highest level "(see 6.2.5);

--- Added "Module Modulation Ratio" "Codeword modulation ratio" "Symbol modulation ratio" "Module of the school modulation ratio" "Codeword modulation ratio" and the notion of "symbolic modulo modulation" (see 7.8.4).

This standard also made the following editorial changes and structural adjustments.

--- Adjustments to the order of appendices in the ISO/IEC 15415:2011 standard, Appendix A to the appendix of ISO/IEC 15415:2011 D, Appendix B is Appendix F of ISO/IEC 15415:2011, Annex C is Appendix B of ISO/IEC 15415:2011, Appendix D is Appendix A of ISO/IEC 15415:2011, Appendix E is Appendix C of ISO/IEC 15415:2011, Appendix F is Annex E of ISO/IEC 15415:2011.

--- Added Appendix G (informative) "two-dimensional bar code symbol test report example." this standard by the National Logistics Information Management Standardization Technical Committee (SAC/TC267) and focal point.

This standard was drafted unit. China Article Coding Center, Shanghai Institute of Quality and Standardization Institute of Standardization, Fujian Province, the national bar code Quality Supervision and Inspection Center, Shandong Institute of Standardization, China Association for Automatic Identification Technology, Beijing Jiaotong University, Beijing Network Imagination technology hair Exhibition Co., Ltd.

Introduction

Bar code technology is based on the coding of graphics identification technology. According to the rules will be converted to a certain character size bar, empty or module array Bar code symbol graphics, this rule is called the code standard.

Bar code can be divided into one-dimensional bar code and two-dimensional bar code, two-dimensional bar code can be divided into layers (stacked) two-dimensional bar code and matrix two-dimensional bar code. A barcode that is formed by a combination of a one-dimensional barcode portion and a two-dimensional barcode portion and represents a set of information or related data is referred to as a composite code, where two the position of the dimension bar code part and the position of the one-dimensional bar code part maintain a specific relationship.

Layer-by-layer two-dimensional bar code symbol is a series of vertical lines formed by the rectangular symbol to represent a whole piece of data information. Each of them Consists of the symbolic characters that represent data and prefixes. Each symbol character has the characteristics of a one-dimensional bar code symbol character, and each line is also the same One-dimensional bar code symbol features. Therefore, each line can be read by one-dimensional scanning technology, but in the entire message sent to the application Before, the data in all the lines in the symbol must be read.

Matrix two-dimensional bar code symbol is usually a rectangular symbol of dark and light color modules, the center of the module is located at the intersection of the grid. for to read matrix two-dimensional bar code symbols, you need to know the coordinates of each module, symbols should be analyzed in two dimensions before decoding. point the code is a subset of the matrix two-dimensional bar code, a single point code module and other adjacent modules are not directly connected, separated by space between them.

Unless otherwise specified, the "symbol" in this standard refers to these two types of two-dimensional bar code symbols.

As a machine-readable data carrier, bar code symbols must be printed so that they can be read when used.

In order to objectively evaluate the quality of bar code symbols, bar code equipment manufacturing, bar code symbol production and use requires a common standard test rules as a basis for developing equipment, developing application standards or evaluating symbol quality. This standard can be used as bar code equipment, bar code symbol production and