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## Information technology — Automatic identification and data capture techniques — QR Code 2005 bar code symbology specification

*Technologies de l'information — Techniques d'identification  
automatique et de capture des données — Spécification de la  
symbologie de code à barres QR Code 2005*

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## Contents

Page

Foreword.....	vi
Introduction .....	vi
1 Scope .....	1
2 Conformance .....	1
3 Normative references .....	1
4 Terms and definitions, mathematical and logical symbols, abbreviations and conventions .....	2
4.1 Terms and definitions.....	2
4.2 Mathematical and logical symbols.....	4
4.3 Abbreviations .....	4
4.4 Conventions .....	5
4.4.1 Module positions .....	5
4.4.2 Byte notation .....	5
4.4.3 Version references.....	5
5 Symbol description.....	5
5.1 Basic characteristics .....	5
5.2 Summary of additional features .....	7
5.3 Symbol structure .....	8
5.3.1 Symbol Versions and sizes .....	9
5.3.2 Finder pattern .....	16
5.3.3 Separator .....	17
5.3.4 Timing pattern .....	17
5.3.5 Alignment patterns .....	17
5.3.6 Encoding region.....	17
5.3.7 Quiet zone.....	17
6 Requirements .....	18
6.1 Encode procedure overview .....	18
6.2 Data analysis .....	20
6.3 Modes.....	20
6.3.1 Extended Channel Interpretation (ECI) mode .....	20
6.3.2 Numeric mode .....	20
6.3.3 Alphanumeric mode .....	20
6.3.4 Byte mode.....	20
6.3.5 Kanji mode.....	21
6.3.6 Mixing modes .....	21
6.3.7 Structured Append mode.....	21
6.3.8 FNC1 mode .....	21
6.4 Data encoding .....	22
6.4.1 Sequence of data .....	22
6.4.2 Extended Channel Interpretation (ECI) mode .....	23
6.4.3 Numeric mode .....	25
6.4.4 Alphanumeric mode .....	26
6.4.5 Byte mode.....	27
6.4.6 Kanji mode.....	29
6.4.7 Mixing modes .....	30
6.4.8 FNC1 modes .....	30
6.4.9 Terminator .....	32
6.4.10 Bit stream to codeword conversion.....	33
6.5 Error correction.....	37
6.5.1 Error correction capacity .....	37

This is a preview of "ISO/IEC 18004:2006". [Click here to purchase the full version from the ANSI store.](#)

6.5.2	Generating the error correction codewords.....	44
6.6	Constructing the final message codeword sequence.....	45
6.7	Codeword placement in matrix.....	46
6.7.1	Symbol character representation.....	46
6.7.2	Function pattern placement.....	46
6.7.3	Symbol character placement.....	47
6.8	Data masking.....	50
6.8.1	Data mask patterns.....	50
6.8.2	Evaluation of data masking results.....	53
6.9	Format information.....	55
6.9.1	QR Code symbols.....	55
6.9.2	Micro QR Code symbols.....	56
6.10	Version information.....	57
7	Structured Append.....	59
7.1	Basic principles.....	59
7.2	Symbol Sequence Indicator.....	59
7.3	Parity Data.....	60
8	Symbol printing and marking.....	60
8.1	Dimensions.....	60
8.2	Human-readable interpretation.....	60
8.3	Marking guidelines.....	61
9	Symbol quality.....	61
9.1	Methodology.....	61
9.2	Symbol quality parameters.....	61
9.2.1	Fixed pattern damage.....	61
9.2.2	Scan grade and overall symbol grade.....	61
9.2.3	Grid non-uniformity.....	61
9.3	Process control measurements.....	61
10	Decoding procedure overview.....	61
11	Reference decode algorithm for QR Code 2005.....	63
12	Autodiscrimination capability.....	69
13	Transmitted data.....	69
13.1	General principles.....	69
13.2	Symbology Identifier.....	69
13.3	Extended Channel Interpretations.....	69
13.4	FNC1.....	70
Annex A (normative) Error detection and correction generator polynomials.....		71
Annex B (normative) Error correction decoding steps.....		76
Annex C (normative) Format information.....		78
C.1	Error correction bit calculation.....	78
C.2	Error correction decoding steps.....	78
Annex D (normative) Version information.....		81
D.1	Error correction bit calculation.....	81
D.2	Error correction decoding steps.....	81
Annex E (normative) Position of alignment patterns.....		83
Annex F (normative) Symbology Identifier.....		85
Annex G (normative) QR Code 2005 print quality – symbology-specific aspects.....		86
G.1	Fixed Pattern damage.....	86
G.1.1	Features to be assessed.....	86
G.1.2	Fixed Pattern Damage grading.....	88
G.2	Grading of additional parameters.....	89
G.2.1	Grading of format information.....	89
G.2.2	Grading of version information (QR Code symbols).....	91

This is a preview of "ISO/IEC 18004:2006". [Click here to purchase the full version from the ANSI store.](#)

<b>G.3</b>	<b>Scan grade</b> .....	<b>91</b>
	<b>Annex H (informative) JIS8 and Shift JIS character sets</b> .....	<b>92</b>
	<b>Annex I (informative) Symbol encoding examples</b> .....	<b>94</b>
<b>I.1</b>	<b>General</b> .....	<b>94</b>
<b>I.2</b>	<b>Encoding a QR Code symbol</b> .....	<b>94</b>
<b>I.3</b>	<b>Encoding a Micro QR Code symbol</b> .....	<b>96</b>
	<b>Annex J (informative) Optimisation of bit stream length</b> .....	<b>98</b>
<b>J.1</b>	<b>General</b> .....	<b>98</b>
<b>J.2</b>	<b>Optimisation for QR Code symbols</b> .....	<b>99</b>
<b>J.3</b>	<b>Optimisation for Micro QR Code symbols</b> .....	<b>100</b>
<b>J.3.1</b>	<b>Optimisation principles</b> .....	<b>100</b>
<b>J.3.2</b>	<b>Capacity of Micro QR Code symbols</b> .....	<b>100</b>
	<b>Annex K (informative) User guidelines for printing and scanning of QR Code 2005 symbols</b> .....	<b>106</b>
<b>K.1</b>	<b>General</b> .....	<b>106</b>
<b>K.2</b>	<b>User selection of error correction level</b> .....	<b>106</b>
	<b>Annex L (informative) Autodiscrimination</b> .....	<b>108</b>
	<b>Annex M (informative) Process control techniques</b> .....	<b>109</b>
<b>M.1</b>	<b>Symbol Contrast</b> .....	<b>109</b>
<b>M.2</b>	<b>Assessing Axial Nonuniformity</b> .....	<b>109</b>
<b>M.3</b>	<b>Visual inspection for symbol distortion and defects</b> .....	<b>109</b>
<b>M.4</b>	<b>Assessing print growth</b> .....	<b>110</b>
	<b>Annex N (informative) Characteristics of Model 1 symbols</b> .....	<b>111</b>
<b>N.1</b>	<b>Model 1 QR Code symbols</b> .....	<b>111</b>
<b>N.1.1</b>	<b>Model 1 overall characteristics</b> .....	<b>111</b>
<b>N.1.2</b>	<b>Symbol versions and sizes</b> .....	<b>112</b>
<b>N.2</b>	<b>Detailed specifications</b> .....	<b>113</b>
	<b>Bibliography</b> .....	<b>114</b>

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## Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 18004 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

This second edition cancels and replaces the first edition (ISO/IEC 18004:2000), which has been technically revised.

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## Introduction

It is necessary to distinguish four technically different, but closely related members of the QR Code family, which represent an evolutionary sequence.

- QR Code Model 1 was the original specification for QR Code and is described in AIM International Symbology Specification 97-001.
- QR Code Model 2 was an enhanced form of the symbology with additional features (primarily the addition of alignment patterns to assist navigation in larger symbols), and was the basis of the first edition of ISO/IEC 18004.
- QR Code 2005 (the basis of this second edition of ISO/IEC 18004) is closely similar to QR Code Model 2 and, in its QR Code format, differs only in the addition of the facility for symbols to appear in a mirror image orientation, for reflectance reversal (light symbols on dark backgrounds) and the option for specifying alternative character sets to the default.
- The Micro QR Code format (also specified in this International Standard), is a variant of QR Code 2005 with a reduced number of overhead modules and a restricted range of sizes, which enables small to moderate amounts of data to be represented in a small symbol, particularly suited to direct marking on parts and components, and to applications where the space available for the symbol is severely restricted.

QR Code 2005 is a matrix symbology. The symbols consist of an array of nominally square modules arranged in an overall square pattern, including a unique finder pattern located at three corners of the symbol (in Micro QR Code symbols, at a single corner) and intended to assist in easy location of its position, size and inclination. A wide range of sizes of symbol is provided for, together with four levels of error correction. Module dimensions are user-specified to enable symbol production by a wide variety of techniques.

QR Code Model 2 symbols are fully compatible with QR Code 2005 reading systems.

Model 1 QR Code symbols are recommended only to be used in closed system applications and it is not a requirement that equipment complying with this International Standard should support Model 1. Since QR Code 2005 is the recommended model for new, open systems application of QR Code, this International Standard describes QR Code 2005 fully, and lists the features in which Model 1 QR Code differs from QR Code 2005 in Annex N.