INTERNATIONAL STANDARD ISO/IEC 16022:2006
TECHNICAL CORRIGENDUM 1

Published 2008-10-01

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION
INTERNATIONAL ELECTROTECHNICAL COMMISSION • МЕЖДУНАРОДНАЯ ЭЛЕКТРОТЕХНИЧЕСКАЯ КОМИССИЯ • COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

Information technology — Automatic identification and data capture techniques — Data Matrix bar code symbology specification

TECHNICAL CORRIGENDUM 1

Technologies de l'information — Techniques automatiques d'identification et de capture des données — Spécification de symbologie de code à barres Data Matrix

RECTIFICATIF TECHNIQUE 1

Technical Corrigendum 1 to ISO/IEC 16022:2006 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

Page 106, M.1.2

Replace list items b) to e) with the following:

b) For each modulation grade level apply the parameter grade overlay technique described in ISO/IEC 15415:

   1) For each side of the L (L1 and L2 in Figure M.1) and each quiet zone area (QZL1 and QZL2, adjacent to L1 and L2 respectively in Figure M.1), assume that all modules not achieving that grade or a higher grade are module errors, and derive a notional damage grade based on the grade thresholds shown in Table M.1. Take the lower of the modulation grade level and the notional damage grade.

   2) The grade for each segment shall be the highest resulting grade for all modulation grade levels.

ICS 01.080.50; 35.040 **Ref. No. ISO/IEC 16022:2006/Cor.1:2008(E)**

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c) Additionally, for both square and rectangular symbols with more than one data region, repeat steps a) and b) above where L1 and L2 start with the module in the quiet zone and end at the module in the clock track area of the same data region and QZL1 and QZL2 consist of the quiet zone adjacent to these L1 and L2 segments as defined like Figure M.1. In other words treat the lower left data region as if it were a symbol with a single data region. If this grade is lower than that obtained from L1, L2, QZL1, and QZL2 in steps a) and b) then replace the grade obtained in steps a) and b) with this grade.

d) Additionally, for segments L1 and L2, verify that all gaps are separated by at least four correct modules and that no gaps are wider than three modules; if this test fails, the grade obtained from the above steps shall be reduced to 0 at that modulation grade level.

Page 107, M.1.3

Replace the first paragraph with the following:

This section defines the measurement of damage to the internal alignment patterns (when present) and also external clock tracks and associated quiet zone areas. These tests are applied separately to each segment of the internal alignment patterns, the clock tracks, and associated quiet zone areas that bound the data region, or individual data regions of larger symbols. Each segment consists of a clock track portion and a solid area portion (which is part either of the quiet zone or of an internal alignment bar).

A clock track portion commences with a dark module in the L side or internal alignment bar perpendicular to it and continues to the light module preceding either the quiet zone or the next internal alignment bar.

A solid area portion with the alignment bar not adjacent to a quiet zone commences with the module adjacent to the first module of the associated clock track portion and continues to the module one past the last module of the associated clock track portion. Figure M.4 (a) illustrates the structures of these segments. The solid segments which correspond to portions of the external quiet zone are defined in this same way, as shown in Figure M.2.

A solid area portion with the alignment bar adjacent to a quiet zone commences with the module adjacent to the first module of the associated clock track portion and continues to the module adjacent to the last module of the associated clock track portion. Figure M.4 (b) illustrates the structures of these segments.

Page 107, M.1.3, Figure M.2

Insert the following note immediately above the figure title:

NOTE Figure M.2 depicts an internal alignment pattern segment which terminates at another internal alignment segment of the same color.

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Page 110, Figure M.4

Replace Figure M.4 with the following:

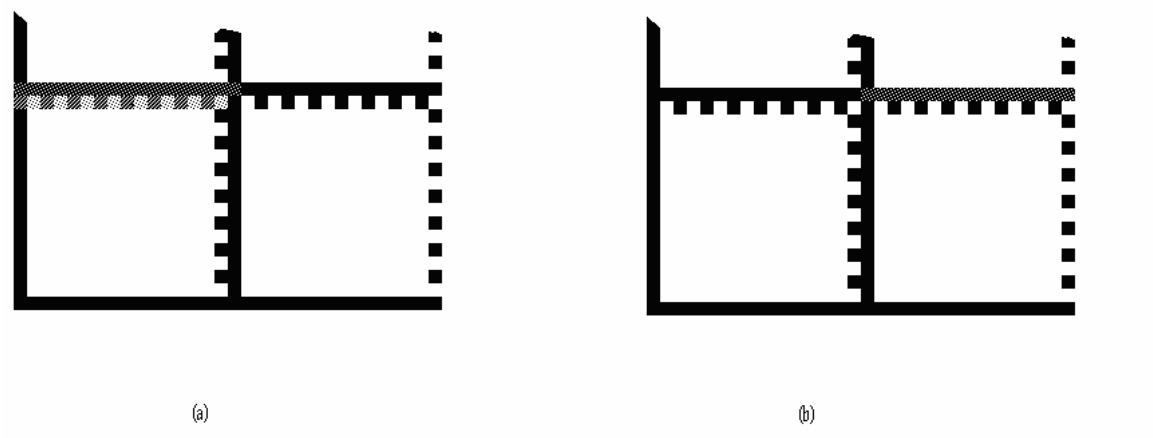

Figure M.4 — Internal alignment pattern segment which terminates at the external quiet zone

Pages 110-111, from EXAMPLE after Figure M.5 to Table M.5, inclusive

Replace with the following:



Figure M.6 — Example showing the 37 modules graded for an L side of a 36×36 module symbol

EXAMPLE Figure M.6 shows an example based on grading the L1 segment of a 36 × 36 symbol, with *SC* = 89 % and *GT* = 51 %. The reflectance and modulation values, and modulation grade, are shown in Table M.4 for module 0 to 36 in the segment. The extended module on the quiet zone adjacent to the L corner is indicated as module 0.

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Table M.4 — Example of modulation grading of 36-module segment

Module	**0**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**
Reflectance (%)	84	15	13	13	13	9	11	84	11	10
MOD	74	80	86	86	86	94	90	(74)	90	92
MOD Grade	**4**	**4**	**4**	**4**	**4**	**4**	**4**	**0**	**4**	**4**
Module		**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
Reflectance (%)		9	11	70	13	12	15	11	11	11
MOD		94	90	(42)	86	88	80	90	90	90
MOD Grade		**4**	**4**	**0**	**4**	**4**	**4**	**4**	**4**	**4**
Module		**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**
Reflectance (%)		27	11	14	10	12	50	12	11	14
MOD		54	90	83	92	88	2	88	90	83
MOD Grade		**4**	**4**	**4**	**4**	**4**	**0**	**4**	**4**	**4**
Module		**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**	**36**
Reflectance (%)		13	12	37	13	12	13	11	13	12
MOD		86	88	31	86	88	86	90	86	88
MOD Grade		**4**	**4**	**2**	**4**	**4**	**4**	**4**	**4**	**4**

NOTE Modules 0, 7 and 12 are clearly light; module 24, and to a lesser extent module 30, suffer from low modulation.

Based upon these values, the segment grading would be as shown in Table M.5.

Table M.5 — Example of grading segment

MOD grade level	No. of modules	Cum. No. Of modules	Remainder "damaged" modules	Damaged modules %	Notional damage grade	Lower of grade
4	33	33	4	10,8	2	2
3	0	33	4	10,8	2	2
2	1	34	3	8,1	3	2
1	0	34	3	8,1	3	1
0	3	37	0	0	4	0
Final Grade for segment – highest of last column						2

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