ISO/IEC 15416:2000-08 (E)

Information technology - Automatic identification and data capture techniques - Bar code print quality test s pecification; Linear symbols

Contents

Page

Foreword vi

Introduction vii

1 Scope 1

2 Normative references 1

3 Terms and definitions 1

4 Symbols and abbreviated terms 3
4.1 Abbreviations 3
4.2 Symbols 3

5 Measurement methodology 4
5.1 General requirements 4
5.2 Reference reflectivity measurements 5
5.2.1 Measurement wavelength(s) 5
5.2.2 Measuring aperture 5
5.2.3 Optical geometry 6
5.2.4 Inspection band 7
5.2.5 Number of scans 7
5.3 Scan reflectance profile 7
5.4 Scan reflectance profile assessment parameters 8
5.4.1 Element determination 9
5.4.2 Edge determination 9
5.4.3 Decode 10
5.4.4 Symbol contrast (SC) 10
5.4.5 Minimum reflectance (Rmin) 10
5.4.6 Edge contrast (EC) 10
5.4.7 Modulation (MOD) 10
5.4.8 Defects 10
5.4.9 Decodability 10
5.4.10 Quiet zone check 11

6 Symbol grading 12
6.1 Scan reflectance profile grading 12
6.1.1 Decode 12
6.1.2 Reflectance parameter grading 12
6.1.3 Decodability 13
6.2 Expression of symbol grade 13

7 Substrate characteristics 13

Annex A (normative) Decodability 14

A.1 Two-width symbologies 14
A.2 Edge to similar edge decodable symbologies ((n, k) symbologies) 14

Annex B (normative) Example of symbol quality grading 16

B.1 Individual scan reflectance profile grading 16
B.2 Overall symbol grade 17

Annex C (informative) Symbol grading flowchart 18

Annex D (informative) Substrate characteristics 19

D.1 Substrate opacity 19
D.2 Gloss 19
D.3 Over-laminate 19
D.4 Static reflectance measurements 19
D.4.1 Prediction of Symbol Contrast (SC) 20
D.4.2 Prediction of Minimum Edge Contrast (ECmin) and Modulation (MOD) 20
D.4.3 Acceptability of measured and derived values 22

Annex E (informative) Interpretation of the scan reflectance profile and profile grades 23

E.1 Significance of scan reflectance profiles 23
E.2 Interpretation of results 23
E.3 Matching grades to applications 24
E.4 Alphabetic grading 25

Annex F (informative) Guidance on selection of light wavelength 26

F.1 Light sources 26
F.2 Effect of variations in wavelength 27

Annex G (informative) Guidance on number of scans per symbol 28

Annex H (informative) Example of verification report 29

Annex I (informative) Comparison with traditional methodologies 30

I.1 Traditional methodologies 30
I.2 Correlation of Print Contrast Signal with symbol contrast measurements 30
I.3 Guidance on grading for applications also specifying PCS 31

Annex J (informative) Process control requirements 32

J.1 Process control for repetitive printing 32
J.2 Number of scans 32
J.3 Bar width deviation 33
J.3.1 Two-width symbologies 33
J.3.2 (n, k) symbologies 33
J.3.3 Average bar width gain/loss 33

Bibliography 34