ISO/IEC 10373-6:2016-07 (E)

Identification cards - Test methods - Part 6: Proximity cards

Contents

Page

Foreword v

1 Scope 1

2 Normative references 1

3 Terms, definitions, symbols and abbreviated terms 2
3.1 Terms and definitions 2
3.2 Symbols and abbreviated terms 3

4 Default items applicable to the test methods 5
4.1 Test environment 5
4.2 Pre-conditioning 5
4.3 Default tolerance 5
4.4 Spurious inductance 6
4.5 Total measurement uncertainty 6

5.1 Minimum requirements for measurement instruments 6
5.1.1 Oscilloscope 6
5.2 Calibration coils 6
5.2.1 Size of the calibration coil card 6
5.2.2 Thickness and material of the calibration coil card 7
5.2.3 Coil characteristics 7
5.3 Test PCD assembly 7
5.3.1 Test PCD antenna 8
5.3.2 Sense coils 9
5.3.3 Assembly of Test PCD 9
5.4 Reference PICC 10
5.4.1 Dimensions of the Reference PICC 10
5.4.2 Reference PICC construction 10
5.4.3 Reference PICC resonance frequency tuning 12
5.5 EMD test setup 13
5.5.1 General description 13
5.5.2 Computation of power versus time 13
5.5.3 Noise floor precondition test 14

6.1 PCD tests 14
6.1.1 Alternating magnetic field 14
6.2 PICC tests 15
6.2.1 Alternating magnetic field 15
6.2.2 Static electricity test 16
6.3 PXD tests 17

7.1 PCD tests 18
7.1.1 PCD field strength 18
7.1.2 Void 19
7.1.3 Void 19
7.1.4 Modulation index and waveform 19
7.1.5 Load modulation reception 20
7.1.6 PCD EMD immunity test 21
7.1.7 PCD EMD recovery test 22
7.2 PICC tests 23

7.2.1 PICC transmission 23
7.2.2 PICC EMD level and low EMD time test 25
7.2.3 PICC reception 26
7.2.4 PICC resonance frequency (informative) 27
7.2.5 PICC maximum loading effect 28
7.3 Test methods for bit rates of 3fc/4, fc, 3fc/2 and 2fc from PCD to PICC 29
7.4 PXD tests 29

8.1 PCD tests 29
8.2 PICC tests 29
8.3 PXD tests 29
8.3.1 PCD and PICC Modes 29
8.3.2 Automatic mode alternation 29

Annex A (normative) Test PCD antennas 34

Annex B (informative) Test PCD Antenna tuning 43

Annex C (normative) Sense coil 45

Annex D (normative) Reference PICCs 48

Annex E (normative) Modulation index and waveform analysis tool 56

Annex F (informative) Program for the evaluation of the spectrum 111

Annex G (normative) Additional PICC test methods 117

Annex H (normative) Additional PCD test methods 179

Annex I (normative) High bit rate selection test methods for PCD 218

Annex J (informative) Program for EMD level measurements 232

Annex K (normative) Test methods for bit rates of 3fc/4, fc, 3fc/2 and 2fc from PCD to PICC 245

Annex L (normative) Frame with error correction test methods 331

Bibliography 340