ISO/IEC 18047-6:2017-10 (E)

Information technology - Radio frequency identification device conformance test method s - Part 6: Test methods for air interface communications at 860 MHz to 960 MHz

Contents

Page

Foreword vi

Introduction vii

1 Scope 1

2 Normative references 1

3 Terms, definitions, symbols and abbreviated terms 2

4 Default conditions applicable to the test methods 3
4.1 Test environment 3
4.2 Pre-conditioning 3
4.2.1 General 3
4.2.2 Default tolerance 3
4.2.3 Noise floor at test location 3
4.2.4 Total measurement uncertainty 3

5 Setup of test equipment 4
5.1 Setup of test equipment for interrogator tests 4
5.1.1 General 4
5.1.2 Sense antenna 4
5.2 Setup of test equipment for tag tests 5
5.2.1 General 5

6.1 Functional tests of interrogator 6
6.1.1 Interrogator modulation test 6
6.1.2 Interrogator demodulation and turn-around time 7
6.2 Functional tests of tag 8
6.2.1 Tag demodulation and turn-around time 8
6.2.2 Tag backscatter 8
6.2.3 Tag response time 9
6.2.4 Tag bit rate 10
6.2.5 Tag state storage time 10

7.1 Functional tests of interrogator 11
7.1.1 Interrogator modulation test 11
7.1.2 Interrogator demodulation and turn-around time 12
7.2 Functional tests of tag 12
7.2.1 Tag demodulation and turn-around time 12
7.2.2 Tag backscatter 13
7.2.3 Tag response time 14
7.2.4 Tag bit rate 15
7.2.5 Tag state storage time 15

8.1 Functional tests of interrogator 16
8.1.1 Interrogator data encoding 16
8.1.2 Interrogator RF envelope parameters 17
8.1.3 Interrogator RF power-up and power-down parameters 18

8.1.4 Interrogator preamble parameters 19
8.1.5 Interrogator link timing T2 20
8.1.6 Interrogator link timing T3 21
8.1.7 Interrogator link timing T4 22

8.2 Functional tests of tag 23
8.2.1 Tag frequency range 23
8.2.2 Tag demodulation capability 24
8.2.3 Tag duty cycle 25
8.2.4 Tag preamble 26
8.2.5 Tag link frequency tolerance and variation 28
8.2.6 Tag link timing T1 29
8.2.7 Tag link timing T2 30
8.2.8 Tag link timing T5 31
8.2.9 Tag link timing T6 32
8.2.10 Tag link timing T7 33
8.2.11 Tag state diagram 34
8.2.12 Tag backscatter (optional) 36
8.3 Additional protocol related tests 37
8.3.1 Memory overruns 37
8.3.2 Kill command 38
8.3.3 Unauthorized Write command 38
8.3.4 Optional commands and features 39

9.1 Functional tests of interrogator 42
9.1.1 Interrogator modulation test 42
9.1.2 Interrogator demodulation and data decoding 42
9.2 Functional tests of tag 44
9.2.1 General 44
9.2.2 Data encoding 45
9.2.3 Link bits 46
9.2.4 Tag timing parameters 46
9.2.5 Tag bit rate 47
9.2.6 Tag multi-page timing 48
9.2.7 Tag LBT 48

10.1 Tag functional tests 49
10.1.1 Battery-assisted passive tag persistence time test 49

passive (BAP) 50

11.1 Functional tests of interrogator 50
11.1.1 Interrogator RF envelope parameters 50
11.1.2 Interrogator activation minimum dwell time, TA 51
11.1.3 Interrogator link timing T2 52
11.1.4 Interrogator link timing T3 54
11.1.5 Interrogator link timing T4 55
11.2 Functional tests of tag 56
11.2.1 Tag demodulation capability 56
11.2.2 Tag link frequency tolerance and variation 57
11.2.3 Tag link timing T1 58
11.2.4 Tag link timing T2 59
11.2.5 Tag activation time maximum, TA 60
11.2.6 Tag stateful hibernate timer 61

12.1 Tag functional tests 63
12.1.1 Simple sensor test 63

13 Full-function sensor test 64
13.1 Purpose 64
13.2 Procedure 64
13.2.1 General 64

Annex A (informative) Test measurement site 65

Annex B (normative) Command coding for conformance tests for the different types of ISO/ IEC 18000-6 77

Annex C (normative) Technical performance of the generic electronic test instruments 78

Annex D (normative) Tag emulator 79

Annex E (informative) Measurement examples 81

Bibliography 82