# ISO/IEC 24753:2011-09 (E)

## Information technology - Radi o frequency identification (RFID) for item management - Application protocol: encoding and processing rules for sensors and batteries

## Contents

Page


Foreword ..... v

Introduction ..... vi

1 Scope ..... 1

2 Normative references ..... 1

3 Terms, definitions and abbreviations ..... 2
3.1 Terms and definitions ..... 2
3.2 Abbreviations ..... 3

4 Conformance ..... 3

5 Basic Model ..... 3
5.1 Logical interface model ..... 3
5.2 The sensor information model for full function sensors ..... 6
5.3 The sensor information model for simple sensors ..... 7

6 Real time clock (RTC) ..... 8
6.1 General requirements ..... 8
6.2 Presentation of time to the application ..... 8
6.3 Encoding of the time stamp ..... 8
6.4 Converting between the two time presentations ..... 8
6.5 Setting the RTC ..... 9
6.6 Time synchronisation ..... 9

7 Full function sensors ..... 10
7.1 General ..... 10
7.2 Sensor identifier ..... 11
7.3 Sensor characteristics record (Type 1) ..... 11
7.4 Sampling and configuration record ..... 11
7.5 Event administration record ..... 12
7.6 Event records ..... 12

8 Simple sensors ..... 13
8.1 General ..... 13
8.2 Implementations ..... 13
8.3 Record structures ..... 13
8.4 Memory mapped simple sensor ..... 15
8.5 Ported simple sensor ..... 16

9 Processing functional application commands and responses ..... 17
9.1 General ..... 17
9.2 Processing full function sensors functional application commands and responses ..... 17
9.3 Processing simple sensors functional application commands and responses ..... 36

10 Processing rules for full function sensors based on IEEE 1451.7 type 001 ..... 46
10.1 General ..... 46
10.2 1451.7 sensor ID - 64-bit unique sensor identifier ..... 47
10.3 Primary sensor characteristics TEDS (Type 1) ..... 47

10.4 Sampling and Configuration Record ..... 49
10.5 Event Administration Record ..... 51
10.6 Event records ..... 54

11 Processing rules for simple sensors ..... 61
11.1 General ..... 61
11.2 Read-Simple-Sensor-Data-Block processing ..... 61
11.3 Processing manufacturer data ..... 63
11.4 Processing calibration data ..... 65
11.5 Processing sample and configuration data ..... 66
11.6 Processing event time and observed data ..... 66
11.7 Processing time synchronisation data ..... 66
11.8 Encoding the Sample-And-Configuration data ..... 66
11.9 Decoding and processing the Sample-Counter value from the Event record ..... 67
11.10 Decoding observed data ..... 67

Annex B (informative) UTC time: useful information ..... 71

Bibliography ..... 73