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Part 1: Interference rejection performance test method between a tag as defined in ISO/IEC 18000-63 and a heterogeneous wireless system

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Contents

Page

Foreword ..... **iv**
Introduction ..... **v**
1 Scope **1**
2 Normative references **1**
3 Terms and definitions **1**
4 Symbols and abbreviated terms **1**
5 Conditions applicable to the test methods **2**
5.1 Test environment 2
5.2 Radio frequency (FR) environment 2
5.3 Pre-conditioning 2
5.4 Default tolerance 2
5.5 Total measurement uncertainty 3
5.6 Test result reporting 3
5.7 Test mounting material 3
5.8 Test communication parameters 3
6 Test set-up **3**
6.1 DUT placement 3
6.2 Test setup for tag's R_X sensitivity power measurement under non-interference environment 3
6.2.1 Test apparatus and test circuits 3
6.2.2 Setup of the devices 4
6.2.3 Antenna polarization and requirements 4
6.3 Test setup for tag's R_X sensitivity power measurement under interference environment 5
6.3.1 Sub-1GHz wireless communications technologies 5
6.3.2 Setup of the devices 5
6.3.3 Antenna polarization and requirements 6
7 Test procedure **7**
7.1 General description 7
7.2 Tag's R_X sensitivity power measurement under non-interference environment 7
7.2.1 Purpose 7
7.2.2 Test procedure 7
7.3 Tag's R_X sensitivity power measurement under interference environment 8
7.3.1 Purpose 8
7.3.2 Test procedure 8
7.4 Test report 9
Bibliography **13**

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

A list of all parts in the ISO/IEC 23200 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

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Introduction

This document provides test procedures and method to evaluate the impact on tag as defined in ISO/IEC 18000-63 of interference generated by other wireless systems. The interference rejection test method of this document is different to ISO/IEC 18046-3:2012, 8.8. This document covers interference effect between the tags and heterogeneous wireless system, while ISO/IEC 18046-3 covers interference effect between tags and homogeneous wireless systems.

Ultra-high-frequency (UHF) radio frequency identification (RFID) is a wireless technology that connects billions of everyday items to the Internet of Things (IoT), enabling consumers and businesses to identify, locate, authenticate, and engage each item. IoT applications require a data connection between the physical and digital world, and UHF RFID is the ideal technology to bridge these realms with the ability to bring low cost, unique identification to everyday items. Low-power wide-area networks (LPWAN) operate at long read ranges of 2 km to 3 km. While LoRaWan devices have a very slow data-transfer rate, they are useful for transmitting sensor data. For example, LoRaWAN, WiFi-Halow (802.11ah), Sigfox, NB-IoT, WB-IoT, and LTE-M are representative technologies.

The frequencies used by LoRaWAN systems differ by region and country, as do the frequency bands designated for UHF RFID systems. In particular, LoRaWAN and RFID systems use different power levels and heterogeneous protocols in shared frequency bands. They are susceptible to interference generated by other wireless systems. This harsh signal propagation environment combined with interference from coexisting wireless technologies can lead to a degradation of the performance or even application failures. To evaluate possible interference on UHF RFID systems, industrial stakeholders make a constructive discussion on how to overcome interference problems.

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Information technology — Radio frequency identification for item management —

Part 1: Interference rejection performance test method between a tag as defined in ISO/IEC 18000-63 and a heterogeneous wireless system

1 Scope

This document defines a test method to evaluate the interference rejection performance of tags covered by ISO/IEC 18000-63 and a heterogeneous wireless system using different access technologies, e.g. radio frequency identification and cell phone network.

It specifies the general requirements and test requirements.

The test method in this document makes it possible to compare the relative interference rejection performance among tags under a single wireless interference environment. In addition, this document can be used in a benchmarking test according to requirements in a given application or service.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 19762, *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions provided in ISO/IEC 19762 apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Symbols and abbreviated terms

ANT_{TX}	T_X interrogator antenna in the bistatic test set-up
ANT_{RX}	R_X interrogator antenna in the bistatic test set-up
ANT_{TRX}	interrogator antenna in the monostatic test set-up
ANT_{INT}	antenna connected to the radio frequency interference source
CW	continuous wave

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