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Part 2: Interference rejection performance test method between an Interrogator as defined in ISO/IEC 18000-63 and a heterogeneous wireless system

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Foreword

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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 website.

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.

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Introduction

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 (LoRaWAN) 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 systems performance or even application failures.

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Information technology — Radio frequency identification for item management —

Part 2: Interference rejection performance test method between an Interrogator as defined in ISO/IEC 18000-63 and a heterogeneous wireless system

1 Scope

This document specifies a test method to evaluate the interference rejection performance of UHF RFID interrogators covered by ISO/IEC 18000-63, and specifies the general requirements and test requirements of that test method.

NOTE The interference rejection test method of this document is different to the one in ISO/IEC 18046-3:2020, 8.5. This document covers interference effects between the tags and a heterogeneous (diverse content) wireless system. ISO/IEC 18046-3 covers interference effect between tags and homogeneous (same content) wireless systems.

This test method enables the comparison of the relative interference rejection performance among UHF RFID interrogators 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*

ISO/IEC 18046-2:2020, *Information technology — Radio frequency identification device performance test methods — Part 2: Test methods for interrogator performance*

ISO/IEC 18000-63, *Information technology — Radio frequency identification for item management — Part 63: Parameters for air interface communications at 860 MHz to 960 MHz Type C*

3 Terms and definitions

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

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

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

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

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