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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

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National foreword

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A list of organizations represented on this committee can be obtained on request to its committee manager.

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Foreword

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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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