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Information technology — Radio frequency identification for item management — Methods for localization of RFID tags

Technologies de l'information — Identification par radiofréquence (RFID) pour la gestion d'objets — Méthodes pour la localisation d'étiquettes RFID



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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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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.

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

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.

Introduction

Technology progress continuously achieves longer read ranges for RFID and in particular UHF RFID. With increasing communication ranges, the actual possible location of a tag around an interrogator gets larger and larger and there is often demand for more precise details on the tag location around the interrogator.

This document addresses tag localization by additionally superimposing a wideband localization signal to the communication between interrogator and tag.

In order to ensure interoperable systems, this document addresses the physical layer, logical layer and details on systems.

The International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) draw attention to the fact that it is claimed that compliance with this document may involve the use of patents, including concerning "Method and System for Locating Objects" given in [6.1](#) and [6.2](#).

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Information technology — Radio frequency identification for item management — Methods for localization of RFID tags

1 Scope

This document defines how to use the RFID air interface standards of the ISO/IEC 18000 series that are based on backscatter technology for localization of RFID tags, specifically tags which are ISO/IEC 18000-4, ISO/IEC 18000-61, ISO/IEC 18000-62, ISO/IEC 18000-63 and ISO/IEC 18000-64 compliant.

This document specifies the physical and logical requirements for localization. The system comprises interrogators, also known as readers, and tags, also known as labels. An interrogator receives information from a tag by transmitting a modulated RF signal to the tag and the tag responds by modulating the reflection coefficient of its antenna, thereby backscattering an information signal to the interrogator. The modulated RF signal for data exchange is based on the relevant part of the ISO/IEC 18000 series and, in addition, there is a superimposed modulated RF signal with the same or different carrier frequency intended for localization. This document describes the signals required for localization, the method to derive localization information from the signals received by the interrogator and the requirements onto tags and interrogators.

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 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*

ISO/IEC 18047-6, *Information technology — Radio frequency identification device conformance test methods — Part 6: Test methods for air interface communications at 860 MHz to 960 MHz*

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