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Information technology — Radio frequency identification device conformance test methods —

Part 3: Test methods for air interface communications at 13,56 MHz

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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 or www.iec.ch/members_experts/refdocs).

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This document was prepared by Technical Committee ISO/IEC JTC1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

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Introduction

ISO/IEC 18000 defines the air interfaces for radio frequency identification (RFID) devices used in item management applications. ISO/IEC 18000-3 defines the air interface for these devices operating in the 13,56 MHz industrial, scientific, and medical (ISM) band and used in these applications.

Each part of ISO/IEC 18047 contains all measurements required to be made on a product in order to establish whether it conforms to the corresponding part of ISO/IEC 18000. For ISO/IEC 18047-3, each product should be assessed following either the procedure defined for ISO/IEC 18000-3 Mode 1, for Mode 2 or for Mode 3.

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Information technology — Radio frequency identification device conformance test methods —

Part 3: Test methods for air interface communications at 13,56 MHz

1 Scope

This document defines test methods for determining the conformance of radio frequency identification devices (tags and interrogators) for item management with the specifications given in ISO/IEC 18000-3. It does not apply to the testing of conformity with regulatory or similar requirements.

The test methods intend to verify the mandatory functions, and any optional functions which are implemented. This can, in appropriate circumstances, be supplemented by further, application-specific functionality criteria that are not available in the general case.

This document includes the following interrogator and tag conformance parameters:

— mode-specific conformance parameters including nominal values and tolerances;

— parameters that apply directly affecting system functionality and inter-operability.

This document does not include the following:

— parameters that are already included in regulatory test requirements;

— high-level data encoding conformance test parameters (these are specified in ISO/IEC 15962).

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 18000-3, *Information technology — Radio frequency identification for item management — Part 3: Parameters for air interface communications at 13,56 MHz*

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

3 Terms, definitions, symbols and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given 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 https://www.electropedia.org/

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3.1.1
loading effect
change in interrogator antenna current caused by the presence of tag(s) in the field due to the mutual coupling modifying the interrogator antenna resonance and quality factor

3.2 Symbols and abbreviated terms

ar	reference tag width
ASK	amplitude shift keying
asp	air spacing
br	reference tag height
ca	calibration coil width
cb	calibration coil height
co	calibration coil corner radius
dis	distance between test interrogator antenna and sense coils
DUT	device under test
fc	frequency of the operating field
fs	frequency of sub-carrier
H_{max}	maximum field strength of the interrogator antenna field
H_{min}	minimum field strength of the interrogator antenna field
ISM	industrial scientific and medical
lx	length of test interrogator assembly connection cable
lya	test interrogator and sense coil PCB width
lyb	test interrogator and sense coil PCB height
lyd	test interrogator coil diameter
lyw	test interrogator coil track width
nr	number of turns of reference tag
oa	calibration coil outline width
ob	calibration coil outline height
PCB	printed circuit board
rs	sense coil corner radius
sa	sense coil width
sb	sense coil height
sr	reference tag track spacing

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