



**International
Standard**

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 930
MHz**

*Technologies de l'information — Méthodes d'essai de conformité
du dispositif d'identification de radiofréquence —*

*Partie 6: Méthodes d'essai pour des communications d'une
interface d'air à 860 MHz et jusqu'à 930 MHz*

**Third edition
2025-11**

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO/IEC 18047-6:2025](https://standards.iteh.ai/catalog/standards/iso/9e0ce128-1ca0-4cd9-8b94-12b0f6f3f31c/iso-iec-18047-6-2025)

<https://standards.iteh.ai/catalog/standards/iso/9e0ce128-1ca0-4cd9-8b94-12b0f6f3f31c/iso-iec-18047-6-2025>



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms, definitions, symbols and abbreviated terms	2
3.1 Terms and definitions	2
3.2 Symbols	2
3.3 Abbreviated terms	3
4 Default conditions applicable to the test methods	3
4.1 Test environment	3
4.2 Pre-conditioning	3
4.2.1 General	3
4.2.2 Default tolerance	3
4.2.3 Noise floor at test location	3
4.2.4 Total measurement uncertainty	4
5 Setup of test equipment	4
5.1 Setup of test equipment for interrogator tests	4
5.1.1 General	4
5.1.2 Sense antenna	4
5.1.3 Test apparatus and test circuits for ISO/IEC 18000-61, ISO/IEC 18000-62 and ISO/IEC 18000-64 interrogator	4
5.2 Setup of test equipment for tag tests	5
5.2.1 General	5
5.2.2 Test apparatus and test circuits for ISO/IEC 18000-61, ISO/IEC 18000-62 and ISO/IEC 18000-64 tags	6
6 Conformance tests for ISO/IEC 18000-61	7
6.1 Functional tests of interrogator	7
6.1.1 Interrogator modulation test	7
6.1.2 Interrogator demodulation and turn-around time	8
6.2 Functional tests of tag	9
6.2.1 Tag demodulation and turn-around time	9
6.2.2 Tag backscatter	10
6.2.3 Tag response time	11
6.2.4 Tag bit rate	12
6.2.5 Tag state storage time	13
7 Conformance tests for ISO/IEC 18000-62	13
7.1 Functional tests of interrogator	13
7.1.1 Interrogator modulation test	13
7.1.2 Interrogator demodulation and turn-around time	14
7.2 Functional tests of tag	15
7.2.1 Tag demodulation and turn-around time	15
7.2.2 Tag backscatter	16
7.2.3 Tag response time	17
7.2.4 Tag bit rate	18
7.2.5 Tag state storage time	19
8 Conformance tests for ISO/IEC 18000-64	20
8.1 Functional tests of interrogator	20
8.1.1 Interrogator modulation test	20
8.1.2 Interrogator demodulation and data decoding	20
8.2 Functional tests of tag	22
8.2.1 General	22
8.2.2 Data encoding	23

ISO/IEC 18047-6:2025(en)

8.2.3	Link bits.....	24
8.2.4	Tag timing parameters.....	25
8.2.5	Tag bit rate.....	27
8.2.6	Tag multi-page timing.....	27
8.2.7	Tag LBT.....	28
Annex A	(normative) Test measurement site	29
Annex B	(normative) Command coding for conformance tests for the different types of ISO/ IEC 18000-6	40
Annex C	(normative) Technical performance of the generic electronic test instruments	41
Annex D	(normative) Tag emulator	42
Annex E	(informative) Measurement examples	44
Bibliography		46

iTeh Standards (<https://standards.iteh.ai>) Document Preview

[ISO/IEC 18047-6:2025](https://standards.iteh.ai/catalog/standards/iso/9e0ce128-1ca0-4cd9-8b94-12b0f6f3f31c/iso-iec-18047-6-2025)

<https://standards.iteh.ai/catalog/standards/iso/9e0ce128-1ca0-4cd9-8b94-12b0f6f3f31c/iso-iec-18047-6-2025>

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.

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).

ISO and IEC draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO and IEC take no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO and IEC had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents and <https://patents.iec.ch>. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

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*.

This third edition cancels and replaces the second edition (ISO/IEC 18047-6:2017), which has been technically revised.

The main changes are as follows:

- tests related to ISO/IEC 18000-63 have been removed from this document since these tests are described in ISO/IEC 18047-63;
- the frequency range has been changed from 860 MHz to 960 MHz to 860 MHz to 930 MHz, as all applicable global radio regulations are within this frequency range.

A list of all parts in the ISO/IEC 18047 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.

Introduction

The ISO/IEC 18000 series defines the air interfaces for radio frequency identification (RFID) devices used in item management applications. ISO/IEC 18000-61, ISO/IEC 18000-62, ISO/IEC 18000-63 and ISO/IEC 18000-64 define the air interface for RFID devices operating at frequencies from 860 MHz to 930 MHz.

The ISO/IEC 18047 series provides test methods for conformance to the various parts of the ISO/IEC 18000 series.

Each part of the ISO/IEC 18047 series contains all measurements required to be made on a product in order to establish whether it conforms to the corresponding part of the ISO/IEC 18000 series.

NOTE Test methods for interrogator and tag performance are covered by the ISO/IEC 18046 series.

[Clause 6](#) describes all necessary conformance tests for ISO/IEC 18000-61.

[Clause 7](#) describes all necessary conformance tests for ISO/IEC 18000-62.

[Clause 8](#) describes all necessary conformance tests for ISO/IEC 18000-64.

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[ISO/IEC 18047-6:2025](https://standards.iteh.ai/catalog/standards/iso/9e0ce128-1ca0-4cd9-8b94-12b0f6f3f31c/iso-iec-18047-6-2025)

<https://standards.iteh.ai/catalog/standards/iso/9e0ce128-1ca0-4cd9-8b94-12b0f6f3f31c/iso-iec-18047-6-2025>

Information technology — Radio frequency identification device conformance test methods —

Part 6:

Test methods for air interface communications at 860 MHz to 930 MHz

1 Scope

This document specifies test methods for determining the conformance of radio frequency identification (RFID) devices (tags and interrogators) for item management with the specifications given in ISO/IEC 18000-61, ISO/IEC 18000-62 and ISO/IEC 18000-64. However, this document does not apply to the testing of conformance with regulatory or similar requirements.

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

The interrogator and tag conformance parameters in this document are the following:

- type-specific conformance parameters including nominal values and tolerances;
- parameters that apply directly affecting system functionality and inter-operability.

Parameters that are already included in regulatory test requirements are not included in this document.

Unless otherwise specified, the tests in this document are intended to be applied exclusively to RFID tags and interrogators defined in ISO/IEC 18000-61, ISO/IEC 18000-62 and ISO/IEC 18000-64.

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 18000-61:2012, *Information technology — Radio frequency identification for item management — Part 61: Parameters for air interface communications at 860 MHz to 960 MHz Type A*

ISO/IEC 18000-62:2012, *Information technology — Radio frequency identification for item management — Part 62: Parameters for air interface communications at 860 MHz to 960 MHz Type B*

ISO/IEC 18000-64, *Information technology — Radio frequency identification for item management — Part 64: Parameters for air interface communications at 860 MHz to 960 MHz Type D*

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