18047-4

First edition 2004-11-15

Information technology — Radio frequency identification device conformance test methods —

Part 4: Test methods for air interface communications at 2,45 GHz

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

Partie 4: Méthodes d'essai pour les communications d'une interface d'air à 2,45 GHz



Reference number ISO/IEC TR 18047-4:2004(E)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office Case postale 56 • CH-1211 Geneva 20 Tel. + 41 22 749 01 11 Fax + 41 22 749 09 47 E-mail copyright@iso.org Web www.iso.org Published in Switzerland

[©] ISO/IEC 2004

Contents

1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Symbols and abbreviations	2
5	Conformance tests for ISO/IEC 18000-4 — 2,45 GHz	2
5.1	Default items applicable to the test methods	2
5.1.1	Test environment	
5.1.2	Pre-conditioning	
5.1.3	Default tolerance	
5.1.4	Total measurement uncertainty	
5.2	Conformance tests for ISO/IEC 18000-4 Mode 2	
5.2.1	Test set-up and measurement equipment for Mode 2	3
5.2.1.1	Test set-up for interrogator testing	3
5.2.1.2	Test set-up for tag testing	
5.2.1.3	Test equipment	
5.2.2	Functional test – interrogator	5
5.2.2.1	Modulation	5
5.2.2.2	Operating frequency accuracy	6
5.2.3	Functional test – tag	7
5.2.3.1	Modulation	7
5.2.3.2	Coding	10
5.2.3.3	Sub-carrier frequency	10

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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

In exceptional circumstances, the joint technical committee may propose the publication of a Technical Report of one of the following types:

- type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;
- type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;
- type 3, when the joint technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC TR 18047-4, which is a Technical Report of type 2, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

ISO/IEC TR 18047 consists of the following parts, under the general title *Information technology* — *Radio frequency identification device conformance test methods*:

- Part 3: Test methods for air interface communications at 13,56 MHz
- Part 4: Test methods for air interface communications at 2,45 GHz

Test methods for air interface communications below 135 kHz, at 860 MHz to 960 MHz, and at 433 MHz will form the subjects of the future Parts 2, 6 and 7, respectively.

Introduction

ISO/IEC 18000-4 defines the air interface for radio frequency identification (RFID) devices operating in the 2,45 GHz Industrial, Scientific, and Medical (ISM) band used in item management applications. The purpose of this part of ISO/IEC TR 18047 is to provide a test method for ISO/IEC 18000-4.

This part of ISO/IEC TR 18047 contains all compliance measurements required to be fulfilled by a product in order to be compliant to 18000-4 Mode 2.