
**Information technology — Real-time
locating system (RTLS) device
conformance test methods — Test
methods for air interface communication
at 2,4 GHz**

*Technologies de l'information — Méthodes d'essai de conformité du
dispositif des systèmes de localisation en temps réel (RTLS) —
Méthodes d'essai pour la communication d'interface d'air à 2,4 GHz*

Withhold

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.

Withdrawn



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2008

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

Contents

Page

| | |
|---|-----------|
| Foreword..... | iv |
| Introduction | v |
| 1 Scope | 1 |
| 2 Normative references | 1 |
| 3 Terms, definitions and abbreviated terms | 1 |
| 3.1 Terms and definitions..... | 1 |
| 3.2 Abbreviated terms | 2 |
| 4 Conformance tests for ISO/IEC 24730-2 | 2 |
| 4.1 General..... | 2 |
| 4.2 Default conditions applicable to the test methods | 2 |
| 4.2.1 Test environment | 2 |
| 4.2.2 Default tolerance..... | 3 |
| 4.2.3 Noise floor at test location..... | 3 |
| 4.2.4 Total measurement uncertainty | 3 |
| 4.3 Tag DSSS RF transmission tests..... | 3 |
| 4.3.1 General..... | 3 |
| 4.3.2 Test Objective | 4 |
| 4.3.3 Test procedure | 4 |
| 4.3.4 Test measurements and requirements..... | 4 |
| 4.3.5 Test report | 5 |
| 4.4 Receiver DSSS RF tests..... | 5 |
| 4.4.1 General..... | 5 |
| 4.4.2 Test objective | 5 |
| 4.4.3 Test procedure | 5 |
| 4.4.4 Test measurements and requirements..... | 6 |
| 4.4.5 Test report | 7 |
| 4.5 Tests for optional air interfaces..... | 7 |
| 4.5.1 Tag optional OOK/FSK RF tests..... | 7 |
| 4.5.2 Tag optional magnetic receiver test | 9 |
| 4.5.3 Optional exciter magnetic transmitter test | 11 |
| 4.5.4 Tag system response timing | 13 |
| Annex A (informative) RF Test measurement site | 15 |
| Annex B (normative) Message formats for tests | 16 |
| Annex C (normative) Technical requirements of measurement antenna and vector signal analyzer | 18 |
| Annex D (normative) Technical requirements of the arbitrary waveform generator and magnetic coil | 19 |
| Annex E (informative) Configuration file for the Agilent E4438C | 20 |
| Annex F (normative) High SNR demodulation of ISO/IEC 24730-2 DSSS BPSK signals..... | 31 |
| Annex G (normative) High SNR demodulation of ISO/IEC 24730-2 OOK signals..... | 32 |

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 24769, which is a Technical Report of type 3, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 31, *Automatic identification and data capture techniques*.

Introduction

ISO/IEC 24730 defines the air interfaces and an application programming interface for Real Time Locating Systems (RTLS) devices used in asset management applications.

This Technical Report contains all measurements required to be made on a product in order to establish whether it conforms to ISO/IEC 24730-2.

Test methods for measuring performance of equipment compliant with ISO/IEC 24730-2 are given in ISO/IEC TR 24770.

Withdrawn

Information technology — Real-time locating system (RTLS) device conformance test methods — Test methods for air interface communication at 2,4 GHz

1 Scope

This Technical Report defines the test methods for determining the conformance of 2,4 GHz real-time locating system (RTLS) tags with the specifications given in the corresponding parts of ISO/IEC 24730-2, but does not apply to the testing of conformity with regulatory or similar requirements.

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

The RTLS tag conformance parameters included in this document include the mandatory direct sequence spread spectrum (DSSS) 2,4 GHz radio frequency beacon. It also includes the optional on-off keyed, frequency shift keyed (OOK/FSK) short range radio frequency link and the optional magnetic air interface

Unless otherwise specified, the tests in this Technical Report apply exclusively to RTLS tags defined in ISO/IEC 24730-2.

2 Normative references

The following referenced documents are indispensable for the application 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 19762-1, *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary — Part 1: General terms relating to AIDC*

ISO/IEC 19762-3, *Information technology — Automatic identification and data capture (AIDC) techniques — Harmonized vocabulary — Part 3: Radio frequency identification (RFID)*

ISO/IEC 24730-2, *Information technology — Real-time locating systems (RTLS) — Part 2: 2,4 GHz air interface protocol*