

First edition
2016-01-15

**Information technology —
Telecommunications and information
exchange between systems —
Magnetic field area network (MFAN) —
Part 3:
Relay Protocol for Extended Range**

*Technologies de l'information — Téléinformatique — Réseau de zone
de champ magnétique (MFAN)*

Reference number
ISO/IEC 15149-3:2016(E)





COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2016, Published in Switzerland

All rights reserved. Unless otherwise specified, 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
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

This is a preview of "ISO/IEC 15149-3:2016". Click here to purchase the full version from the ANSI store.

Contents

	Page
Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	2
5 Overview	2
6 Network elements	2
6.1 General.....	2
6.2 Time element.....	2
6.2.1 Request period.....	3
6.2.2 Response period.....	3
6.2.3 Spontaneous period.....	3
6.3 Physical element.....	3
6.3.1 MFAN-C.....	4
6.3.2 MFAN-N.....	4
6.3.3 MFAN-R.....	4
6.4 Address element.....	4
6.4.1 Node ID.....	4
7 Network functions	5
7.1 General.....	5
7.2 Request period.....	5
7.3 Response period.....	5
7.4 Spontaneous period.....	5
8 Network status	5
8.1 General.....	5
8.2 Network configuration.....	5
8.3 Network association.....	5
8.4 Network disassociation.....	6
8.5 Network association check.....	6
8.6 Data transmission.....	6
8.7 Network release.....	6
8.8 MFAN device status.....	6
9 MAC layer frame format	6
9.1 General.....	6
9.2 Frame format.....	6
9.3 Frame type.....	6
9.4 Payload format.....	7
9.4.1 Request frame.....	7
9.4.2 Response frame.....	7
9.4.3 Response confirmation frame.....	8
9.4.4 Response confirmation block.....	9
10 MAC layer function	10
10.1 General.....	10
10.2 Repeater set-up.....	10
Bibliography	11

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.

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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

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

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 6, *Telecommunications and information exchange between systems*.

This first edition of ISO/IEC 15149-3, together with ISO/IEC 15149-1, ISO/IEC 15149-2, and ISO/IEC 15149-4, cancels and replaces ISO/IEC 15149:2011, which has been technically revised.

ISO/IEC 15149 consists of the following parts, under the general title *Information technology — Telecommunications and information exchange between systems*:

- *Part 1: Air Interface*
- *Part 2: In-Band Control Protocol for Wireless Power Transfer*
- *Part 3: Relay Protocol for Extended Range*
- *Part 4: Security Protocol for Authentication*

This is a preview of "ISO/IEC 15149-3:2016". [Click here to purchase the full version from the ANSI store.](#)

Introduction

This part of ISO/IEC 15149 provides protocols for magnetic field area networks (MFAN). MFAN can support the service based on wireless communication and wireless power transfer in harsh environments. MFAN is composed of four protocols; air interface, in-band control protocol, relay protocol and security protocol.

ISO/IEC 15149-1 specifies the physical layer and media access control layer protocols of wireless network over a magnetic field.

ISO/IEC 15149-2 specifies the control protocol for wireless power transfer based on magnetic field area network.

ISO/IEC 15149-3 specifies the relay protocol to extend effective network coverage of magnetic field area network.

ISO/IEC 15149-4 specifies the security protocol to authenticate nodes to communicate in magnetic field area network.