ISO/IEC 14543-4-1

Edition 1.0 2008-05

INTERNATIONAL STANDARD

Information technology – Home electronic system (HES) architecture – Part 4-1: Communication layers – Application layer for network enhanced control devices of HES Class 1

ISO/IEC 14543-4-1:2008(E)

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland
Email: inmail@iec.ch
Web: www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

- Catalogue of IEC publications: www.iec.ch/searchpub
The IEC on-line Catalogue enables you to search by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, withdrawn and replaced publications.

- IEC Just Published: www.iec.ch/online_news/justpub
Stay up to date on all new IEC publications. Just Published details twice a month all new publications released. Available on-line and also by email.

- Electropedia: www.electropedia.org
The world's leading online dictionary of electronic and electrical terms containing more than 20 000 terms and definitions in English and French, with equivalent terms in additional languages. Also known as the International Electrotechnical Vocabulary online.

- Customer Service Centre: www.iec.ch/webstore/custserv
If you wish to give us your feedback on this publication or need further assistance, please visit the Customer Service Centre FAQ or contact us:

Email: csc@iec.ch
Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00

ISO/IEC 14543-4-1

Edition 1.0 2008-05

INTERNATIONAL STANDARD

Information technology – Home electronic system (HES) architecture – Part 4-1: Communication layers – Application layer for network enhanced control devices of HES Class 1

INTERNATIONAL ELECTROTECHNICAL COMMISSION

PRICE CODE XA

ICS 35.200

ISBN 2-8318-9816-1

CONTENTS

INFORMATION TECHNOLOGY – HOME ELECTRONIC SYSTEM (HES) ARCHITECTURE –

Part 4-1: Communication layers – Application layer for network enhanced control devices of HES Class 1

FOREWORD

1) ISO (International Organization for Standardization) and IEC (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. Their preparation is entrusted to technical committees; any ISO and IEC member body interested in the subject dealt with may participate in this preparatory work. International governmental and non-governmental organizations liaising with ISO and IEC also participate in this preparation.

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

3) The formal decisions or agreements of IEC and ISO on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC and ISO member bodies.

4) IEC, ISO and ISO/IEC publications have the form of recommendations for international use and are accepted by IEC and ISO member bodies in that sense. While all reasonable efforts are made to ensure that the technical content of IEC, ISO and ISO/IEC publications is accurate, IEC or ISO cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.

5) In order to promote international uniformity, IEC and ISO member bodies undertake to apply IEC, ISO and ISO/IEC publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any ISO/IEC publication and the corresponding national or regional publication should be clearly indicated in the latter.

6) ISO and IEC provide no marking procedure to indicate their approval and cannot be rendered responsible for any equipment declared to be in conformity with an ISO/IEC publication.

7) All users should ensure that they have the latest edition of this publication.

8) No liability shall attach to IEC or ISO or its directors, employees, servants or agents including individual experts and members of their technical committees and IEC or ISO member bodies for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication of, use of, or reliance upon, this ISO/IEC publication or any other IEC, ISO or ISO/IEC publications.

9) Attention is drawn to the normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

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

International Standard ISO/IEC 14543-4-1 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

The list of all currently available parts of the ISO/IEC 14543 series, under the general title *Information technology – Home electronic system (HES) architecture*, can be found on the IEC web site.

This International Standard has been approved by vote of the member bodies, and the voting results may be obtained from the address given on the second title page.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

INTRODUCTION

This part of ISO/IEC 14543 specifies the services and protocol of the application layer for usage in Home Electronic System. Some services are targeted to field level communication between devices. Other services are exclusively reserved for management purposes. Some services can be used for both management and run-time communication. This part of ISO/IEC 14543 is based on ECHONET [1].

ISO/IEC 14543 *Information technology – Home Electronic System (HES) architecture,* currently consists of 14 parts:

Part 2-1: *Introduction and device modularity*

Part 3-1: *Communication layers – Application layer for network based control of HES Class 1*

Part 3-2: *Communication layers – Transport, network and general parts of data link layer for network based control of HES Class 1*

Part 3-3: *User process for network based control of HES Class 1*

Part 3-4: *System management – Management procedures for network based control of HES Class 1*

Part 3-5: *Media and media dependent layers – Powerline for network based control of HES Class 1*

Part 3-6: *Media and media dependent layers – Twisted pair for network based control of HES Class 1*

Part 3-7: *Media and media dependent layers – Radio frequency for network based control of HES Class 1*

Part 4: *Home and building automation in a mixed-use building (technical report)*

Part 4-1: *Communication layers – Application layer for network enhanced control devices of HES Class 1 (this standard)*

Part 4-2: *Communication layers – Transport, network and general parts of data link layer for network enhanced control devices of HES Class 1*

Part 5-1: *Intelligent grouping and resource sharing for HES Class 2 and Class 3 – Core protocol (under consideration)*

Part 5-2: *Intelligent grouping and resource sharing for HES Class 2 and Class 3 – Device certification (under consideration)*

Additional parts are under preparation.

---

1 Echonet TM is the trade name of a product supplied by ECHONET Consortium. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC or ISO of the product named. Equivalent products may be used if they can be shown lo lead to the same results.

INFORMATION TECHNOLOGY – HOME ELECTRONIC SYSTEM (HES) ARCHITECTURE –

Part 4-1: Communication layers – Application layer for network enhanced control devices of HES Class 1

1 Scope

This part of ISO/IEC 14543 specifies the services and protocol of the application layer for usage in network enhanced home electronic system Class 1. It provides the services and the interface to the user process. This procedure is based on the services and the protocol is provided by the transport layer, network layer and data link layer as specified in ISO/IEC 14543-4-2.

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 14543-2-1, *Information technology – Home electronic system (HES) architecture – Part 2-1: Introduction and device modularity*

ISO/IEC 14543-4-2, *Information technology – Home electronic system (HES) architecture – Part 4-2: Communication layers – Transport, network and general parts of data link layer for network enhanced control devices of HES Class 1*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

For the purposes of this document the terms and definitions given in ISO/IEC 14543-2-1 and the following apply.

3.1.1
application data (ADATA)
data region for messages exchanged by communication middleware

NOTE Maximum size is 256 bytes.

3.1.2
application data counter (ADC)
indicates the size of the ADATA region

NOTE The size is variable in 1-byte increments.

3.1.3
application object (AOJ)
model of information to be disclosed to the network from information owned by the communications processing block, or an access procedure model

NOTE 1 The information or control target owned by each device is specified as a property and the operating method (setting, browsing) for this is specified as a service.

NOTE 2 AOJs are used when class or instance is not considered.