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Information technology – Home Electronic System (HES) architecture – Part 4-301: Application protocols for home air conditioners and controllers

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CONTENTS

FOREWORD 4
INTRODUCTION 5
1 Scope 6
2 Normative references 6
3 Terms, definitions and abbreviated terms 6
3.1 Terms and definitions 6
3.2 Abbreviated terms 8
4 Conformance 9
5 Connection configuration 9
6 Application layer 10
6.1 General 10
6.2 NECD objects 10
6.3 NECD services 10
6.4 Object-specific NECD properties 11
6.5 Application operation 12
6.5.1 General 12
6.5.2 Continuous requests 12
6.5.3 Response wait timer value for controllers 12
6.5.4 Resending a frame 13
6.5.5 Processing object property counter 13
6.5.6 Property values of write requests 13
7 Normal operation 13
7.1 General 13
7.2 Start-up operation 14
7.2.1 General 14
7.2.2 Start-up processing of NECD nodes 14
7.2.3 Search processing 15
7.2.4 Obtaining NECD attribute information 15
7.2.5 Obtaining home air conditioner attribute information 16
7.3 Periodical operation 16
7.4 Occasional operation 16
7.4.1 General 16
7.4.2 Obtaining home air conditioner status 16
7.4.3 Controlling home air conditioners 17
7.5 Operation during fault status 18
8 Remote control 19
8.1 General 19
8.2 Processes to be carried out by controllers on remote control 19
9 Considerations on controllers 22
9.1 General 22
9.2 Restrictions by home air conditioner implementations 22
9.3 Processable number of object property counter 24
9.4 Status synchronization by controllers (periodical operation) 24
9.5 Reading fault status 26

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Annex A (informative) Terms and NECD frame format on ISO/IEC 14543-4-3 and IEC 62394 27
A.1 Terms correspondence between ISO/IEC 14543-4-3 and IEC 62394 27
A.2 NECD frame format 27

Figure 1 – Relationship between IEC 62394, ISO/IEC 14543-4-3 and ISO/IEC 14543-4-301 ... 5
Figure 2 – Connection configurations 9
Figure 3 – Assumed network stack 10
Figure 4 – Example of normal operation sequences 14
Figure 5 – Example of sequence for obtaining NECD attribute information 15
Figure 6 – Sequence to obtain status of home air conditioners 17
Figure 7 – Sequence to control home air conditioners 18
Figure 8 – Remote control 19
Figure 9 – Remote control sequence (properties are written one by one) 21
Figure 10 – Remote control sequence (properties are written in a batch) 22
Figure 11 – Status synchronization flow by controllers 25
Figure 12 – Obtaining detailed fault status information 26
Figure A.1 – NECD frame format 28

Table 1 – NECD objects 10
Table 2 – NECD services 11
Table 3 – NECD properties of device object (super class) 11
Table 4 – NECD properties of device object 12
Table 5 – Response wait timer value for controllers 12
Table A.1 – Terms correspondence table between ISO/IEC 14543-4-3 and IEC 62394 27

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INFORMATION TECHNOLOGY – HOME ELECTRONIC SYSTEM (HES) ARCHITECTURE –

Part 4-301: Application protocols for home air conditioners and controllers

FOREWORD

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International Standard ISO/IEC 14543-4-301 has been 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 and ISO websites.

The text of this document is based on the following documents:

CDV	Report on voting
JTC1-SC25/2929/CDV	JTC1-SC25/2952/RVC

Full information on the voting for the approval of this document can be found in the report on voting indicated in the above table.

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

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INTRODUCTION

This document specifies the message structure, sequences and protocol of the application layer for networked enhanced control devices used in the Home Electronic System. Some services are targeted for communications between devices. Other services are exclusively reserved for management purposes. Some services can be used for both management and run-time communications. This document is applicable for energy management services, mobile access, remote appliance maintenance services, home healthcare services, home security services and comfort control.

This document specifies the detailed procedures and behaviours of both home air conditioners and controllers at the application level communication based on ISO/IEC 14543-4-3.

Figure 1 shows the relationship between IEC 62394, ISO/IEC 14543-4-3 and ISO/IEC 14543−4−301. The existing ISO/IEC 14543-4-3 specifies the message structure, sequences and protocol for a general-purpose communication for use in network enhanced control devices of the Home Electronic System (HES) Class 1. ISO/IEC 14543-4-3 provides the common interfaces for the use-level process and the services such as energy management, remote maintenance, and other services for easily building a system consisting of multi-vendor devices and equipment. The existing IEC 62394 specifies the detailed lists of control commands on NECD objects. Annex A shows terms and NECD frame format on ISO/IEC 14543-4-3 and IEC 62394.

Since ISO/IEC 14543-4-3 is a general-purpose communication specification that applies to a variety of devices, it does not focus on the detailed procedures and behaviours for each device such as a home air conditioner.

In order to enhance interoperability, it is necessary to specify how to implement ISO/IEC 14543−4-3 for each device or controller at the application level: command sequences, timeout requirements, required combinations of acceptable commands, etc.

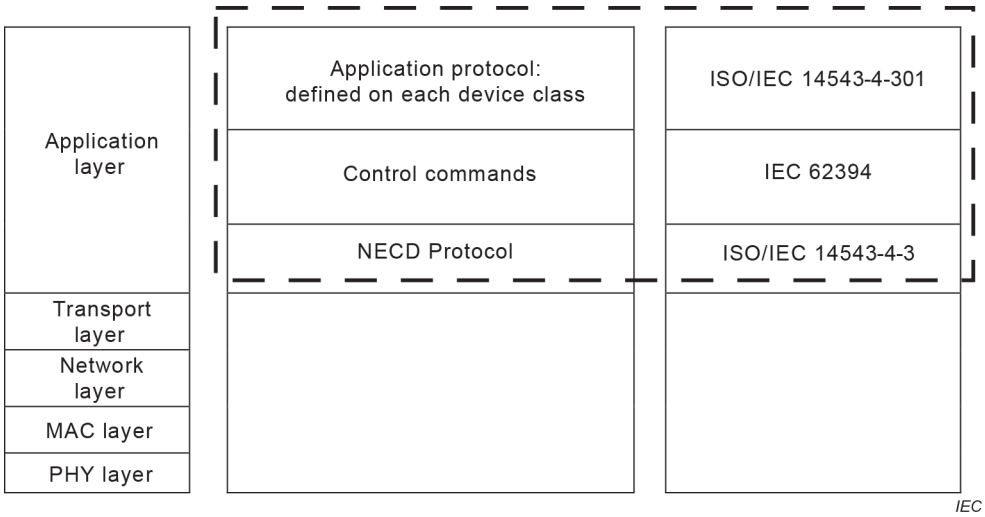

Figure 1 – Relationship between IEC 62394, ISO/IEC 14543-4-3 and ISO/IEC 14543-4-301

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INFORMATION TECHNOLOGY – HOME ELECTRONIC SYSTEM (HES) ARCHITECTURE –

Part 4-301: Application protocols for home air conditioners and controllers

1 Scope

This part of ISO/IEC 14543 specifies an application-layer protocol necessary for ensuring interoperability among the products of various manufacturers regarding communications between home air conditioners and controllers, using a protocol called network enhanced communications device (NECD) as specified in ISO/IEC 14543-4-3. This protocol is based on user datagram protocol (UDP) using IPv4 or IPv6 (TCP is optional).

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

ISO/IEC 14543-4-3, *Information technology – Home Electronic System (HES) architecture – Part 4-3: Application layer interface to lower communications layers for network enhanced control devices of HES Class 1*

IEC 62394, *Service diagnostic interface for consumer electronics products and networks – Implementation for ECHONET*