ISO/IEC 14543-4-304

Edition 1.0 2026-06

INTERNATIONAL STANDARD

Information technology - Home Electronic System (HES) architecture - Part 4-304: Application protocol for electric vehicle supply equipment (EVSE) charger and dischargers and controllers

ICS 35.020

ISBN 978-2-8327-11345-7

ISO/IEC 14543-4-304: 2026-06(en)

IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
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 corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee, …). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

IEC Products & Services Portal - products.iec.ch
Discover our powerful search engine and read freely all the publications previews, graphical symbols and the glossary. With a subscription you will always have access to up to date content tailored to your needs.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 500 terminological entries in English and French, with equivalent terms in 25 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

CONTENTS

Information technology - Home Electronic System (HES) architecture - Part 4-304: Application protocol for electric vehicle supply equipment (EVSE) charger and dischargers and controllers

FOREWORD

1) 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.
2) 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 National bodies.
3) IEC and ISO documents have the form of recommendations for international use and are accepted by IEC and ISO National bodies in that sense. While all reasonable efforts are made to ensure that the technical content of IEC and ISO documents is accurate, IEC and ISO cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
4) In order to promote international uniformity, IEC and ISO National bodies undertake to apply IEC and ISO documents transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC and ISO document and the corresponding national or regional publication shall be clearly indicated in the latter.
5) IEC and ISO do not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC and ISO marks of conformity. IEC and ISO are not responsible for any services carried out by independent certification bodies.
6) All users should ensure that they have the latest edition of this document.
7) No liability shall attach to IEC and ISO or their directors, employees, servants or agents including individual experts and members of its technical committees and IEC and ISO National 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, use of, or reliance upon, this ISO/IEC document or any other IEC and ISO documents.
8) Attention is drawn to the Normative references cited in this document. Use of the referenced publications is indispensable for the correct application of this document.
9) IEC and ISO draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). IEC and ISO take no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, IEC and ISO had not received notice of (a) patent(s), which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at https://patents.iec.ch and www.iso.org/patents. IEC and ISO shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 14543-4-304 has been prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
JTC1-SC25/3322/CDV	JTC1-SC25/3347/RVC

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

The language used for the development of this International Standard is English.

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 website and ISO website.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1, available at www.iec.ch/members_experts/refdocs and www.iso.org/directives.

INTRODUCTION

The ISO/IEC 14543 series provides networking capability for a wide range of appliances, equipment, sensors, etc. in the home, including lighting, heating, and cooling. This part of ISO/IEC 14543 specifies the detailed procedures and behaviours of both electric vehicle supply equipment (EVSE) charger and dischargers and controllers at the application level of communications based on ISO/IEC 14543-4-3. This document specifies the message structure, sequences, and protocol of the application layer for networked enhanced control devices (NECDs) used in the Home Electronic System (HES). 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 involving EVSE charger and dischargers and related devices.

Figure 1 shows the relationship between IEC 62394, ISO/IEC 14543-4-3 and ISO/IEC 14543-4-304. ISO/IEC 14543-4-3 specifies the message structure, sequences and protocol for general-purpose communications used 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. IEC 62394 specifies the detailed lists of control commands on NECD objects (see ISO/IEC 14543-4-3). Annex A shows terms and NECD protocol frame format on ISO/IEC 14543-4-3 and IEC 62394.

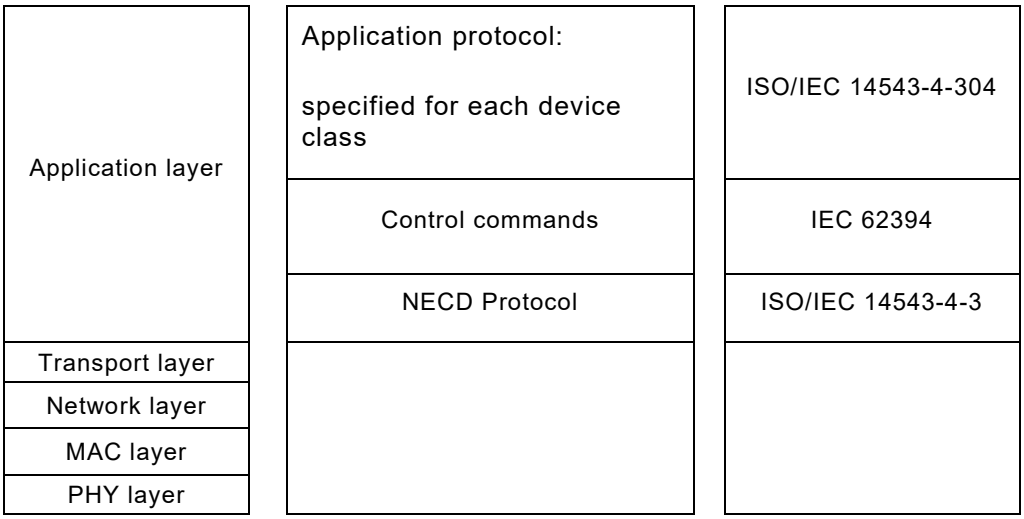

Figure 1 – Relationship between IEC 62394, ISO/IEC 14543-4-3, and ISO/IEC 14543-4-304

ISO/IEC 14543-4-3 is a general-purpose communications specification that applies to a variety of devices. ISO/IEC 14543-4-3 is the basis for this document, which specifies detailed procedures and behaviours for pre-packaged system solutions that include EVSE charger and dischargers and related devices. The procedures and behaviours specified in this document can be used for energy flow inside a home or energy flow between the grid and a home.

In order to enhance interoperability, it is important to specify how to implement ISO/IEC 14543-4-3 for each device and controller at the application level such as command sequences, timeout requirements, required combinations of acceptable commands, minimum subset of IEC 62394 properties, etc.

This document applies to the communication link in yellow between charging station (EVSE charger and discharger) and energy management system (EMS) as shown in Annex B.

1 Scope

This part of ISO/IEC 14543 specifies an application-layer protocol important for ensuring interoperability among the products of various manufacturers regarding communications between electric vehicle supply equipment (EVSE) charger and dischargers and controllers. It uses the network enhanced communications device (NECD) protocol specified in ISO/IEC 14543-4-3. This protocol is based on 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.

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

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*

Bibliography

IEC 62196-3, *Plugs, socket-outlets, vehicle connectors and vehicle inlets - Conductive charging of electric vehicles - Part 3: Dimensional compatibility requirements for DC and AC/DC pin and contact-tube vehicle couplers*

IEC 63380-1:2025, *Standard interface for connecting charging stations to local energy management systems - Part 1: General requirements, use cases and abstract messages*

IEC 63402-1, *Energy efficiency - Customer energy management systems - Part 1: General requirements and architecture*

ISO/IEC 14543-4-302:2023, *Information technology - Home electronic system (HES) architecture - Part 4-302: Application protocols for electrical storage systems and controllers*

ISO/IEC 15045 (all parts), *Information technology - Home Electronic System (HES) gateway*

ISO/IEC 15067-3, *Information technology - Home Electronic System (HES) application model - Part 3: Model of an energy management system for HES*

ISO/IEC 18012 (all parts), *Information technology - Home Electronic System (HES) - Guidelines for product interoperability*

ISO/IEC 18012-3, *Information technology - Home Electronic System (HES) - Guidelines for product interoperability - Part 3: Lexicon*