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

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# INFORMATION TECHNOLOGY – HOME ELECTRONIC SYSTEM (HES) ARCHITECTURE –

## Part 2-1: Introduction and device modularity

### FOREWORD

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International Standard ISO/IEC 14543-2-1 was prepared by subcommittee 25: Interconnection of information technology equipment, of ISO/IEC joint technical committee 1: Information technology.

ISO/IEC 14543-2-1 cancels and replaces ISO/IEC TR 14543-1 and ISO/IEC TR 14543-2, published in 2000. It constitutes a complete revision of the principles outlined in ISO/IEC TR 14543-1 and ISO/IEC TR 14543-2 and provides the specifications essential for an international standard.

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 title page.

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

## INTRODUCTION

Various electrically controlled devices are used in homes and similar environments for many different applications. Examples of such applications are lighting, heating, food preparation, washing, energy management, water control, fire alarms, blinds control, different forms of security control and entertainment (audio and video).

When several such devices are able to interwork via a common internal network (in this document called a home network), the resulting total system is called a home control system. When a home control system follows all the specifications in the ISO/IEC HES Standards, it is called a Home Electronic System (HES).

Three different classes of HES are defined. Class 1 has transport capabilities for telecontrol applications only. Class 2 includes Class 1, but also supports switched medium bandwidth data channels. Class 3 includes Classes 1 and 2 and, in addition, supports high bandwidth switched data channels.

A home network may be based on one or more different media (for example power line, balanced cables, infrared or radio) and may also be connected to outside networks (for example telephone, cable television, power and alarm networks).

The implementation of a specific Home Electronic System will typically be assembled by a consumer by adding one application at a time, starting from single applications like lighting control, security control or audio and video control, to develop into an integrated multi-application system. The cost of adding an application depends on whether rewiring of the house is needed and whether existing cables and prefitted ducts or other media can be used. Hence the HES standards and supplementary technical reports will also give guidance to architects and builders as well as to users on how to share such resources.

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

Part 2-1:	<i>Introduction and device modularity</i>
Part 3-1:	<i>Communication layers – Application layer for network based control of HES Class 1</i>
Part 3-2:	<i>Communication layers – Transport, network and general parts of data link layer for network based control of HES Class 1</i>
Part 3-3:	<i>User process for network based control of HES Class 1 (under consideration)</i>
Part 3-4:	<i>System management – Management procedures for network based control of HES Class 1 (under consideration)</i>
Part 3-5:	<i>Media and media dependent layers – Power line for network based control of HES Class 1 (under consideration)</i>
Part 3-6:	<i>Media and media dependent layers – Twisted pair for network based control of HES Class 1 (under consideration)</i>
Part 3-7:	<i>Media and media dependent layers – Radio frequency for network based control of HES Class 1 (under consideration)</i>
Part 4:	<i>Home and building automation in a mixed-use building (technical report)</i>
Part 5-1:	<i>Intelligent grouping and resource sharing for HES Class 2 and Class 3 – Core protocol</i>
Part 5-2:	<i>Intelligent grouping and resource sharing for HES Class 2 and Class 3 – Device certification</i>
	<i>Additional parts may be added later.</i>

ISO/IEC 18012, “Guidelines for product interoperability,” specifies how applications can co-operate across different protocols. To facilitate interoperability of various protocols, amendments to published standards may be needed.

# INFORMATION TECHNOLOGY – HOME ELECTRONIC SYSTEM (HES) ARCHITECTURE –

## Part 2-1: Introduction and device modularity

### 1 Scope

This part of ISO/IEC 14543 specifies the general features and architecture of the HES.

The object is to

- define new terms for use in the ISO/IEC 14543 series,
- give general information and advice on the required HES features and its architecture,
- specify the HES model,
- specify the basic functional structure of an HES with its interfaces.

### 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 7498-1, *Information technology – Open systems interconnection – Basic Reference Model – Part 1: The Basic Model*.

ISO/IEC 10192-1, *Information technology – Home electronic system (HES) interfaces – Part 1: Universal interface class 1*