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KOMMUNIKATSIOONIVÕRK. OSA 3-4: KOOSSEISU  
ETHERNET VÕRK**

**Electronic railway equipment - Train communication  
network (TCN) - Part 3-4: Ethernet Consist Network  
(ECN)**

EVS

**EESTI STANDARDI EESSÕNA****NATIONAL FOREWORD**

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ICS 45.060

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ICS 45.060

English Version

**Electronic railway equipment - Train communication network  
(TCN) - Part 3-4: Ethernet Consist Network (ECN)  
(IEC 61375-3-4:2014)**

Matériel électronique ferroviaire - Réseau embarqué de  
train (TCN) - Partie 3-4: Réseau Ethernet de Rame (ECN)  
(CEI 61375-3-4:2014)

Elektronische Betriebsmittel für Bahnen - Zugbus - Teil 3-4:  
ECN - Ethernet-Zugverband-Netzwerk  
(IEC 61375-3-4:2014)

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## Foreword

The text of document 9/1873/FDIS, future edition 1 of IEC 61375-3-4, prepared by IEC/TC 9 "Electrical equipment and systems for railways" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61375-3-4:2014.

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- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-04-23

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## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61076-2-101	-	Connectors for electronic equipment - Product EN 61076-2-101 requirements - Part 2-101: Circular connectors - Detail specification for M12 connectors with screw-locking		-
IEC 61076-3-104	-	Connectors for electronic equipment - Product EN 61076-3-104 requirements - Part 3-104: Detail specification for 8-way, shielded free and fixed connectors for data transmissions with frequencies up to 1000 MHz		-
IEC 61156-6	-	Multicore and symmetrical pair/quad cables for digital communications - Part 6: Symmetrical pair/quad cables with transmission characteristics up to 1 000 MHz - Work area wiring - Sectional specification		-
IEC 61375-1	-	Electronic railway equipment - Train communication network (TCN) - Part 1: General architecture	EN 61375-1	-
IEC 61375-2-1	-	Electronic railway equipment - Train communication network (TCN) - Part 2-1: Wire Train Bus (WTB)	EN 61375-2-1	-
IEC 61375-2-5	-	Electronic railway equipment - Train backbone - Part 2-5: Ethernet Train Backbone	EN 61375-2-5	-
IEC 62439 series	-	High availability automation networks	EN 62439 <sup>1)</sup>	-
ISO/IEC 7498 series	-	Information technology - Open Systems Interconnection - Basic Reference Model: The Basic Model		-
ISO/IEC 8824 series	-	Information technology - Open Systems Interconnection - Specification of Abstract Syntax Notation One (ASN.1)		-
ISO/IEC 11801	-	Information technology - Generic cabling for customer premises		-

<sup>1)</sup> EN 62439 is superseded by EN 62439-6:2010, which is based on IEC 62439-6:2010.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEEE 802.3	-	IEEE Standard for Information technology - Telecommunications and information exchange between systems - Local and metropolitan area networks - Specific requirements - Part 3: Carrier Sense Multiple Access with Collision Detection (CSMA/CD) - Access Method and Physical Layer Specifications	-	-
IEEE 802.1Q	-	IEEE Standard for Local and Metropolitan Area Networks: Virtual Bridged Local Area Networks	-	-
IEEE 802.1D	-	IEEE Standard for Local and Metropolitan Area Networks - Media Access Control (MAC) Bridges	-	-
ANSI/TIA/EIA 568-B.1	2001	Commercial Building Telecommunications Cabling Standard - Part 1: General requirements	-	-
ANSI X3.263	1995	EN-Information Technology - Fibre Distributed - Data Interface (FDDI) - Token Ring Twisted Pair Physical Layer Medium Dependent (TP-PMD)	-	-

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## INTRODUCTION

This part of IEC 61375 series of international standards specifies the Consist Network based on Ethernet technology, i.e. the Ethernet Consist Network (ECN) within the TCN architecture as defined in IEC 61375-1, and End Devices which can attach to the ECN. In addition gateway services between Train Backbone and ECN are specified.

The general architecture of the TCN (see IEC 61375-1) defines a hierarchical structure with two levels of networks, Train Backbone(s) and Consist Network(s). This hierarchical structure specifies Consist Networks based on different technologies such as MVB, CANopen and ECN interfacing one Train Backbone. ECNs based on different design and implementation may be interfaced to the same Train Backbone reaching the result that the Train Backbone ensures interoperability between Consist Networks with different implementations.

The common part, consisting of Clauses 1 to 4, defines requirements and specifications which are common to all ECN implementations and End Devices and gateways.

The common part defines

- the data communication interface of End Devices connected to the ECN,
- functions and services provided by the ECN to End Devices,
- the gateway functions for data transfer between Train Backbone and the ECN, and
- performances of the ECN.