

**Industrial communication networks - Wireless
communication network and communication profiles -
WirelessHART™**

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EESTI STANDARDI EESSÕNA**NATIONAL FOREWORD**

See Eesti standard EVS-EN 62591:2016 sisaldab Euroopa standardi EN 62591:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 62591:2016 consists of the English text of the European standard EN 62591:2016.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 16.09.2016.	Date of Availability of the European standard is 16.09.2016.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

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ICS 25.040.40, 35.100.05

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English Version

Industrial communication networks - Wireless communication
network and communication profiles - WirelessHART(tm)
(IEC 62591:2016)

Réseaux de communication industriels - Réseau de
communications sans fil et profils de communication -
WirelessHART(tm)
(IEC 62591:2016)

Industrielle Kommunikationsnetze - Drahtlose
Kommunikationsnetze und Kommunikationsprofile -
WirelessHART(tm)
(IEC 62591:2016)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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European foreword

The text of document 65C/835/FDIS, future edition 2 of IEC 62591, prepared by SC 65C "Industrial networks" of IEC/TC 65 "Industrial process measurement, control and automation" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62591:2016.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2017-03-16
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2019-09-16

This document supersedes EN 62591:2010.

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In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61158-6-9:2014	NOTE	Harmonized as EN 61158-6-9:2014.
IEC 62657-2:2013	NOTE	Harmonized as EN 62657-2:2013.
IEC 62657-2:2013	NOTE	Harmonized as EN 62657-2:2013.

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 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61158-1	2014	Industrial communication networks - Fieldbus specifications - Part 1: Overview and guidance for the IEC 61158 and IEC 61784 series	EN 61158-1	2014
IEC 61158-2	-	Industrial communication networks - Fieldbus specifications - Part 2: Physical layer specification and service definition	EN 61158-2	-
IEC 61158-3-20	2014	Industrial communication networks - Fieldbus specifications - Part 3-20: Data- link layer service definition - Type 20 elements	EN 61158-3-20	2014
IEC 61158-4-20	2014	Industrial communication networks - Fieldbus specifications - Part 4-20: Data- link layer protocol specification - Type 20 elements	EN 61158-4-20	2014
IEC 61158-5-20	2014	Industrial communication networks - Fieldbus specifications - Part 5-20: Application layer service definition - Type 20 elements	EN 61158-5-20	2014
IEC 61158-6-20	2014	Industrial communication networks - Fieldbus specifications - Part 6-20: Application layer protocol specification - Type 20 elements	EN 61158-6-20	2014
IEC 61784-1	2014	Industrial communication networks - Profiles -- Part 1: Fieldbus profiles	EN 61784-1	2014
IEC 61784-2	-	Industrial communication networks - Profiles - Part 2: Additional fieldbus profiles for real-time networks based on ISO/IEC 8802-3	EN 61784-2	-
ISO/IEC 7498-1	-	Information technology - Open Systems Interconnection - Basic Reference Model: The Basic Model	-	-
ISO/IEC 7498-3	-	Information technology - Open Systems Interconnection - Basic Reference Model: Naming and addressing	-	-
ISO/IEC 8824	series	Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation	-	series
ISO/IEC 8859-1	-	Information technology - 8-bit single-byte coded graphic character sets - Part 1: Latin alphabet No.1	-	-
ISO/IEC 9545	-	Information technology - Open Systems Interconnection - Application layer structure	-	-

ISO/IEC 10731	-	Information technology - Open Systems Interconnection - Basic Reference Model - Conventions for the definition of OSI services	-
IEEE 802.15.4e	2012	IEEE Standard for Local and metropolitan area networks--Part 15.4: Low-Rate Wireless Personal Area Networks (LR-WPANS) Amendment 1: MAC sublayer	-
IEEE Std 802-2001	2002	IEEE Standard for Local and Metropolitan Area Networks: Overview and Architecture	-
IEEE std 802.15.4-2011	2011	IEEE Standard for Local and metropolitan area networks--Part 15.4: Low-Rate Wireless Personal Area Networks (LR-WPANS)	-
ISO/IEC/IEEE 60559	-	Information technology - Microprocessor Systems - Floating-Point arithmetic	-

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INTRODUCTION

This International standard provides the specification, definitions, and profile for a Wireless communication network. It supplements IEC 61158-5-20, IEC 61158-6-20 where some services and commands are specified and it supplements IEC 61784-1 where a Communication Profile CP 9/1, universal command, is specified.

This document follows the structure and conventions of IEC 61158 series (for example separation of DL-service definitions and DL-protocol specification) and conventions of IEC 61784-1. IEC 61158 series specify different communication networks. These are structured in different Types. The Type 20 is assigned to technologies of Hart™¹ Communication Foundation (HCF). For other assignments of Type numbers see IEC 61158-1.

IEC 61784-1, and IEC 61784-2 provide Communication Profile Families (CPF), and, within a family, one to n Communication Profiles. The assigned CPF number for technologies of the HCF is CPF 9. For other assignments of CPF numbers see IEC 61158-1.

A new project number IEC 62591 was assigned to the Type 20 enhancements and the associated CP 9/2, so that this document contains the Type 20 specific equivalent to the IEC 61158 series and of CPF 9 specific profile using the same conventions as used in IEC 61784-1. The equivalent of 4 Type specific subparts and the profile are organized in this document in different clauses.

The Type 20 protocol supports two way digital communications for process measurement and control devices. Applications include remote process variable interrogation, cyclical access to process data, parameter setting and diagnostics. This document defines the specification that comprises the Type 20 field communications protocol for wireless devices. Specification of the Type 20 protocol is based largely on the OSI 7-layer Communication Model.

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of patents concerning the claims of the patents listed below given in the normative clauses.

US 8676219 [HCF]	Combined Wired and Wireless Communications with Field Devices in a Process Control Environment
US 8798084 [HCF]	Increasing Reliability and Reducing Latency in a Wireless Network
US 8325627 [HCF]	Adaptive Scheduling in a Wireless Network
US 8660108 [HCF]	Synchronizing Timeslots in a Wireless Communication Protocol
US 8169974 [HCF]	Suspending Transmissions in a Wireless Communication Network
US 8670746 [HCF]	Enhancing Security in a Wireless Network
US 8670749 [HCF]	Enhancing Security in a Wireless Network
US 8451809 [HCF]	Wireless Gateway in a Process Control Environment Supporting a Wireless Communication Protocol
US 8570922 [HCF]	Efficient Addressing in Wireless HART Protocol
US 8942219 [HCF]	Support for Network Management and Device Communications in a Wireless Network

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US 8406248 [HCF]	Priority Based Scheduling and Routing in a Wireless Network
US 8892769 [HCF]	Routing Packets on a Network Using Directed Graphs
US 8230108 [HCF]	Routing Packets on a Network Using Directed Graphs
US 8356431 [HCF]	Scheduling Communication Frames in a Wireless Network

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