SLOVENSKI STANDARD
SIST EN 62657-2:2017

01-december-2017

Nadomešča:
SIST EN 62657-2:2015

Industrijska komunikacijska omrežja - Brezžična komunikacijska omrežja - 2. del: Upravljanje soobstoja (IEC 62657-2:2017)

Industrial communication networks - Wireless communication networks - Part 2: Coexistence management (IEC 62657-2:2017)

Industrielle Kommunikationsnetze - Funk-Kommunikationsnetze - Teil 2: Koexistenz-Management (IEC 62657-2:2017)

Réseaux de communication industriels - Réseaux de communication sans fil - Partie 2: Gestion de coexistence (IEC 62657-2:2017)

Ta slovenski standard je istoveten z: **EN 62657-2:2017**

ICS:

25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control
35.110	Omreževanje	Networking

SIST EN 62657-2:2017 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62657-2

July 2017

ICS 25.040.40; 33.040; 35.100

Supersedes EN 62657-2:2015

English Version

Industrial communication networks - Wireless communication networks - Part 2: Coexistence management (IEC 62657-2:2017)

Réseaux de communication industriels - Réseaux de communication sans fil - Partie 2: Gestion de coexistence (IEC 62657-2:2017)

Industrielle Kommunikationsnetze - Funk-Kommunikationsnetze - Teil 2: Koexistenz-Management (IEC 62657-2:2017)

This European Standard was approved by CENELEC on 2017-06-15. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Ref. No. EN 62657-2:2017 E

European foreword

The text of document 65C/861/FDIS, future edition 2 of IEC 62657-2, 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 62657-2:2017.

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)	2018-03-15
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2020-06-15

This document supersedes EN 62657-2:2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 62657-2:2017 was approved by CENELEC as a European Standard without any modification.

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

IEC 61158 Series	NOTE	Harmonized as EN 61158 Series.
IEC 61360 Series	NOTE	Harmonized as EN 61360 Series.
IEC 61784-1	NOTE	Harmonized as EN 61784-1.
IEC 61784-2	NOTE	Harmonized as EN 61784-2.
IEC 61918	NOTE	Harmonized as EN 61918.
IEC 62591	NOTE	Harmonized as EN 62591.
IEC 62601	NOTE	Harmonized as EN 62601.
IEC 62734	NOTE	Harmonized as EN 62734.
IEC 62890	NOTE	Harmonized as EN 62890.

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

Publication	Year	Title	EN/HD	Year
IEC 62657-1	2017	Industrial communication networks - Wireless communication networks - Part 1: Wireless communication requirements and spectrum considerations	EN 62657-1	201X [1]
IEC 62443	Series	Industrial communication networks - Network and system security	EN 62443	Series [1]

[1] At draft stage.

IEC 62657-2

Edition 2.0 2017-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Industrial communication networks – Wireless communication networks – Part 2: Coexistence management

Réseaux de communication industriels – Réseaux de communication sans fil – Partie 2: Gestion de coexistence

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 25.040.40; 33.040; 35.100

ISBN 978-2-8322-4214-8

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

____

INDUSTRIAL COMMUNICATION NETWORKS – WIRELESS COMMUNICATION NETWORKS –

Part 2: Coexistence management

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.

2) The formal decisions or agreements of IEC 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 National Committees.

3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC 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 National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.

5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.

6) All users should ensure that they have the latest edition of this publication.

7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees 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 IEC Publication or any other IEC Publications.

8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.

9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 62657-2 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation.

This second edition cancels and replaces the first edition published in 2013. This edition constitutes a technical revision.

This second edition includes the following significant technical changes with respect to the previous edition:

a) update of the normative references, terms, definitions, symbols and abbreviations;

b) addition of terms;

c) checking of the life-cycle terms of this document versus the terms used in IEC 62890:—[1] and addition of explanations;

d) addition and modification of text to make the text more readable;

e) alignment of some definitions and specifications of coexistence parameters in order to facilitate their future inclusion in the IEC Common Data Dictionary (IEC CDD) maintained by the IEC.

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

FDIS	Report on voting
65C/861/FDIS	65C/873/RVD

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

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

A list of all the parts of the IEC 62657 series, under the general title *Industrial communication networks – Wireless communication networks,* can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

[1] Under preparation. Stage at the time of publication: IEC/AFDIS 62890:2017.

INTRODUCTION

The overall market for wireless network solutions spans a range of diverse applications, with differing performance and functional requirements. Within this overall market, the industrial automation domain could include:

- process automation, covering for example the following industry branches:
  - oil and gas, refining,
  - chemical,
  - pharmaceutical,
  - mining,
  - pulp & paper,
  - water & wastewater,
  - steel
- electric power such as:
  - power generation (for example wind turbine),
  - power transmission and distribution (grid),
- factory automation, covering for example the following industry branches:
  - food and beverage,
  - automotive,
  - machinery,
  - semiconductor.

Industrial automation requirements for wireless networks are different from those of, for example, the telecommunications, commercial and consumer markets. These industrial automation requirements are identified and provided in IEC 62657-1.

Industrial premises may contain a variety of wireless network technologies and other sources of radio frequency emissions.

This document is intended for designers and persons responsible for production and process plants, system integrators and mechanical engineers having to integrate and start up wireless systems in machines and plants, and producers of industrial wireless solutions. In particular, it is intended to motivate exchange of information between automation and radio engineers.

Many wireless industrial automation applications are also located in physical environments over which the operator/owner can exert control. That is, within a physical facility where the presence and operation of all radio frequency emitting devices are under the control of a single entity. This allows wireless management strategies to be employed which are not feasible for equipment installed in public or other unmanaged areas.

In industrial automation, many different wireless networks may operate in the same premises. Examples of these networks are IEC 62591 [8][2] (WirelessHART®[3]), IEC 62601 [9] (WIA-PA) and IEC 62734 [10] (ISA100.11a); all these networks use IEEE 802.15.4 [19] for the process automation applications. Other examples of wireless networks are specified in IEC 61784-1 [4] and IEC 61784-2 [5] CPs that use IEEE 802.11 [17] and IEEE 802.15.1 [18] for factory automation applications. Different to wired fieldbuses, the wireless communication devices can interfere with others on the same premises or environment, disturbing each other. Other sources of radio frequency energy in these bands, often at high energy levels, include radio-frequency process heating, plastic welding, plasma lamps, and microwave irradiation devices.

Clearly, without a means to manage the coexistence of these varied emitters, it would be problematic to ensure that wireless networks meet the time-criticality and other performance requirements of industrial automation.

The IEC 62657 series has two parts:

- Part 1: Wireless communication requirements and spectrum considerations
- Part 2: Coexistence management

IEC 62657-1 provides general requirements for industrial automation and spectrum considerations that are the basis for industrial communication solutions. This document specifies the coexistence management of wireless devices to ensure predicable performance. It is intended to facilitate harmonization of future adjustments to international, national, and local regulations.

This document provides the coexistence management concept and process. Based on the coexistence management process, a predictable assuredness of coexistence can be achieved for a given spectrum with certain application requirements. This document describes mechanisms to manage the potential mutual interference that might occur due to the operation of multiple wireless devices in a plant.

This document provides guidance to the users of wireless networks on selection and proper use of wireless networks. To provide suitable wireless devices to the market, it also serves vendors in describing the behaviours of wireless devices to build wireless networks matching the application requirements.

This document is based on analyses of a number of International Standards, which focus on specific technologies. The intention of this standard is not to invent new parameters but to use already defined ones and to be technology independent.

---

2 Numbers in square brackets refer to the bibliography.

3 WirelessHART is the registered trade name of the FieldComm Group, see www.fieldcommgroup.org. This information is given for the convenience of users of this document and does not constitute an endorsement by IEC of the product named. Equivalent products may be used if they can be shown to lead to the same results.