

STN	Priemyselné komunikačné siete Rádiové komunikačné siete Časť 2: Manažérstvo koexistencie	STN EN 62657-2 18 4020
------------	---	--

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

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 12/17

Obsahuje: EN 62657-2:2017, IEC 62657-2:2017

Oznámením tejto normy sa od 15.06.2020 ruší
STN EN 62657-2 (18 4020) z októbra 2015

125820

Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2018
Podľa zákona č. 264/1999 Z. z. o technických požiadavkách na výrobky a o posudzovaní zhody a o zmene a doplnení niektorých zákonov v znení neskorších predpisov sa slovenská technická norma a časti slovenskej technickej normy môžu rozmnožovať alebo rozširovať len so súhlasom slovenského národného normalizačného orgánu.

EUROPEAN STANDARD

EN 62657-2

NORME EUROPÉENNE

EUROPÄISCHE NORM

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

EN 62657-2:2017**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

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
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.



INTERNATIONAL STANDARD

NORME INTERNATIONALE



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

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



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2017 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
 3, rue de Varembe
 CH-1211 Geneva 20
 Switzerland

Tel.: +41 22 919 02 11
 Fax: +41 22 919 03 00
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 corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

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 also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing 20 000 terms and definitions in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

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: csc@iec.ch.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

65 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.



INTERNATIONAL STANDARD

NORME INTERNATIONALE



**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

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	10
2 Normative references	10
3 Terms, definitions, abbreviated terms and conventions.....	10
3.1 Terms and definitions.....	10
3.2 Abbreviated terms.....	21
3.3 Conventions.....	22
4 Coexistence concept in industrial automation	22
4.1 Overview.....	22
4.2 Objective	24
4.3 Necessity to implement a coexistence management.....	26
4.4 Interference potential.....	28
4.5 Ancillary conditions	29
4.6 Requirements to wireless devices for support of coexistence management	30
4.7 Concepts	30
4.7.1 Manual coexistence management	30
4.7.2 Automated non-collaborative metrics-based coexistence management	31
4.7.3 Automated collaborative metrics-based coexistence management	31
4.8 Best practices to achieve coexistence.....	32
4.9 Coexistence conceptual model.....	34
4.10 Coexistence management and selection of a wireless solution.....	36
4.11 Coexistence management system.....	38
5 Coexistence management parameters	38
5.1 General.....	38
5.1.1 Definition and usage of parameters	38
5.1.2 Physical link	38
5.2 Adjacent channel selectivity.....	38
5.3 Antenna gain	39
5.4 Antenna radiation pattern.....	39
5.5 Antenna type	39
5.6 Availability	39
5.7 Bandwidth.....	40
5.8 Bit rate of physical link.....	40
5.9 Centre frequency	40
5.10 Characteristic of the area of operation	40
5.11 Communication load	40
5.12 Cut-off frequency	42
5.13 Data throughput.....	43
5.14 Device type information	43
5.15 Distance between wireless devices	43
5.16 Duty cycle.....	44
5.17 Dwell time.....	46
5.18 Equivalent isotropic radiated power.....	47
5.19 Equivalent radiated power.....	47
5.20 Frequency band	47

5.21	Frequency channel	47
5.22	Frequency hopping procedure	48
5.23	Future expansion plan	48
5.24	Geographical dimension of the plant	48
5.25	Infrastructure device	48
5.26	Initiation of data transmission	48
5.27	ISM application	49
5.28	Length of user data per transfer interval.....	49
5.29	Limitation from neighbours of the plant	49
5.30	Maximum number of retransmissions	49
5.31	Mechanism for adaptivity	49
5.32	Medium access control mechanism	50
5.33	Modulation	50
5.34	Natural environmental condition	50
5.35	Network topology	50
5.36	Packet loss rate	51
5.37	Position of wireless devices	51
5.38	Power spectral density	51
5.39	Purpose of the automation application	52
5.40	Receiver blocking	52
5.41	Receiver input level	52
5.42	Receiver sensitivity	53
5.43	Regional radio regulations	53
5.44	Relative movement	53
5.45	Response time	53
5.46	Security level	54
5.47	Spatial coverage of the wireless communication network	54
5.48	Spurious response	54
5.49	Total radiated power	54
5.50	Transfer interval.....	54
5.51	Transmission gap.....	55
5.52	Transmission time.....	56
5.53	Transmitter output power	59
5.54	Transmitter sequence	59
5.55	Transmitter spectral mask.....	60
5.56	Update time	60
5.57	Wireless device density	61
5.58	Wireless communication network density	61
5.59	Wireless technology or standard	62
6	Coexistence management information structures	62
6.1	General.....	62
6.2	General plant characteristic	63
6.3	Application communication requirements	64
6.3.1	Overview	64
6.3.2	Requirements influencing the characteristic of wireless solutions	65
6.3.3	Performance requirements.....	66
6.4	Characteristic of wireless system type and wireless device type	66
6.4.1	Overview	66
6.4.2	Wireless system type.....	67

6.4.3	Wireless device type.....	67
6.5	Characteristic of wireless solution.....	70
6.5.1	Overview.....	70
6.5.2	Characteristic of a wireless network solution.....	70
6.5.3	Characteristic of a wireless device solution.....	71
7	Coexistence management process.....	72
7.1	General.....	72
7.1.1	Overview.....	72
7.1.2	Documentation.....	72
7.1.3	Suitable documentation method.....	75
7.1.4	Application of tools.....	76
7.2	Establishment of a coexistence management system.....	76
7.2.1	Nomination of a coexistence manager.....	76
7.2.2	Responsibility of a coexistence manager.....	77
7.2.3	Support by radio experts.....	77
7.2.4	Training.....	77
7.3	Maintaining coexistence management system.....	78
7.4	Phases of a coexistence management process.....	78
7.4.1	Investigation phase.....	78
7.4.2	Planning phase.....	81
7.4.3	Implementation phase.....	83
7.4.4	Operation phase.....	84
8	Coexistence parameter templates.....	86
	Bibliography.....	90
	Figure 1 – Issues of consideration.....	25
	Figure 2 – Applications using frequency spectrum.....	26
	Figure 3 – Progression of expense to achieve coexistence corresponding to the application classes.....	30
	Figure 4 – Separation of wireless systems according to frequency and time.....	33
	Figure 5 – Coexistence conceptual model.....	35
	Figure 6 – Flow chart of the coexistence conceptual model.....	36
	Figure 7 – Selection of a wireless system in the coexistence management process.....	37
	Figure 8 – Communication load in case of two wireless devices.....	41
	Figure 9 – Communication load in the case of several wireless devices.....	42
	Figure 10 – Cut-off frequencies derived from maximum power level.....	43
	Figure 11 – Distance of the wireless devices.....	44
	Figure 12 – Duty cycle.....	45
	Figure 13 – Maximum dwell time.....	46
	Figure 14 – Power spectral density of an IEEE 802.15.4 system.....	52
	Figure 15 – Communication cycle, application event interval and machine cycle.....	55
	Figure 16 – Minimum transmission gap.....	56
	Figure 17 – Example of the density functions of transmission time.....	57
	Figure 18 – Example of the distribution functions of transmission time.....	58
	Figure 19 – Transmitter sequence.....	59
	Figure 20 – Transmitter spectral mask of an IEEE 802.15.4 system.....	60

Figure 21 – Example of distribution functions of the update time	61
Figure 22 – Principle for use of coexistence parameters	63
Figure 23 – Parameters to describe the general plant characteristic	63
Figure 24 – Parameters to describe application communication requirements	65
Figure 25 – Parameters to describe wireless network type and device type	66
Figure 26 – Power spectral density and transmitter spectral mask of a DECT system	68
Figure 27 – Medium utilization in time and frequency of a DECT system	68
Figure 28 – Parameters to describe a wireless solution.....	70
Figure 29 – Relations of the documents in a coexistence management system specification.....	75
Figure 30 – Planning of a wireless system in the coexistence management process	82
Figure 31 – Implementation and operation of a wireless system in the coexistence management process.....	85
Table 1 – Example of a classification of application communication requirements	24
Table 2 – Application profile dependent observation time values.....	45
Table 3 – Parameter options for frequency channel	48
Table 4 – List of parameters used to describe the general plant characteristic	64
Table 5 – List of parameters used to describe the requirements influencing the characteristic of wireless solutions.....	65
Table 6 – List of parameters used to describe performance requirements	66
Table 7 – List of parameters used to describe the wireless system type.....	67
Table 8 – List of parameters used to describe the transmitter of a wireless device type	69
Table 9 – List of parameters used to describe the receiver of a wireless device type	69
Table 10 – List of parameters used to describe a wireless network solution	70
Table 11 – List of parameters used to describe the transmitter of a wireless device solution.....	71
Table 12 – List of parameters used to describe the receiver of a wireless device solution.....	72
Table 13 – Template used to describe the general plant characteristic.....	86
Table 14 – Template used to describe the application communication requirements	87
Table 15 – Template used to describe the wireless system type	87
Table 16 – Template used to describe a wireless device type	88
Table 17 – Template used to describe the wireless network solution.....	88
Table 18 – Template used to describe a wireless device solution.....	89
Table 19 – Template used to describe an ISM application.....	89

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 predictable 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.

INDUSTRIAL COMMUNICATION NETWORKS – WIRELESS COMMUNICATION NETWORKS –

Part 2: Coexistence management

1 Scope

This document:

- specifies the fundamental assumptions, concepts, parameters, and procedures for wireless communication coexistence;
- specifies coexistence parameters and how they are used in an application requiring wireless coexistence;
- provides guidelines, requirements, and best practices for wireless communication's availability and performance in an industrial automation plant; it covers the life-cycle of wireless communication coexistence;
- helps the work of all persons involved with the relevant responsibilities to cope with the critical aspects at each phase of life-cycle of the wireless communication coexistence management in an industrial automation plant. Life-cycle aspects include: planning, design, installation, implementation, operation, maintenance, administration and training;
- provides a common point of reference for wireless communication coexistence for industrial automation sites as a homogeneous guideline to help the users assess and gauge their plant efforts;
- deals with the operational aspects of wireless communication coexistence regarding both the static human/tool-organization and the dynamic network self-organization.

This document provides a major contribution to national and regional regulations. It does not exempt devices from conforming to all requirements of national and regional regulations.

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 62657-1:—⁴, *Industrial communication networks – Wireless communication networks – Wireless communication requirements and spectrum considerations*

IEC 62443 (all parts), *Industrial communication networks – Network and system security*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN