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REDLINE VERSION

Industriella nätverk för datatrafik – Trådlös kommunikation – Del 2: Hantering för samexistens

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

En så kallad ”Redline version” (RLV) innehåller både standarden som fastställts som SEK-publikation och en ändringsmarkerad IEC-standard. Alla tillägg och borttagningar sedan den tidigare utgåvan av IEC-standardens är markerade med färg. Med en RLV sparar du mycket tid när du ska identifiera och bedöma aktuella ändringar i standarden. SEK Svensk Elstandard kan bara ge ut RLV i de fall den finns tillgänglig från IEC.



IEC 62657-2

Edition 4.0 2025-02
REDLINE VERSION

INTERNATIONAL STANDARD

**Industrial networks – Coexistence of wireless systems –
Part 2: Coexistence management**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 25.040.40, 33.040, 35.100

ISBN 978-2-8327-0228-4

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL NETWORKS –
COEXISTENCE OF WIRELESS SYSTEMS –****Part 2: Coexistence management****FOREWORD**

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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 62657-2:2022. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

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

This fourth edition cancels and replaces the third edition published in 2022. This edition constitutes a technical revision.

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

- a) 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;
- b) alignment of some definitions and specifications to be consistent with the new IEC 62657-3 and IEC 62657-4;
- c) edition 3 of this document was published in June 2022. Some comments were made in the last development stages of this document asking for explanations on how the parts of the IEC 62657 series were structured and how they were related to each other. Resolution of these comments was deferred until a next edition, which means this edition.

The text of this International Standard is based on the following documents:

Draft	Report on voting
65C/1329/FDIS	65C/1337/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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

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

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

The overall market for wireless communication 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 and paper,
 - water and 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 communication systems 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 can contain a variety of wireless communication technologies and other sources of radio 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 the 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 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 communication systems can operate in the same premises. Examples of these communication systems are IEC 62591 [1]¹ (WirelessHART^{®2}), IEC 62601 [2] (WIA-PA) and IEC 62734 [3] (ISA100.11a). All these communication systems use IEEE 802.15.4 [4] for the process automation applications. Other examples of wireless communication systems are specified in the IEC 61784-1 series [5] and IEC 61784-2 series [6] CP that use IEEE 802.11 [7] and IEEE 802.15.1 [8] 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 energy in these bands, often at high energy levels, include radiated 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 systems meet the time-criticality and other performance requirements of industrial automation.

This document describes the management of independent radio sources that use the same transmission medium. The management within a wireless communication system is not the subject of this document. It is assumed that the standard of a wireless system regulates it, for example by a medium access control mechanism.

The IEC 62657 series has four parts:

- Part 1: Wireless communication requirements and spectrum considerations,
- Part 2: Coexistence management,
- Part 3: Formal description of the automated coexistence management and application guidance,
- Part 4: Coexistence management with central coordination of wireless applications.

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 principles to manage the potential mutual interference that ~~might~~ could occur due to the operation of multiple wireless devices in a plant.

This document provides guidance to the users of wireless systems on selection and proper use of wireless systems. To provide suitable wireless devices to the market, it also serves vendors in describing the behaviours of wireless devices to build wireless systems 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 document is not to invent new parameters but to use already defined ones and to be technology independent.

¹ Numbers in square brackets refer to the Bibliography.

² 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 NETWORKS – COEXISTENCE OF WIRELESS SYSTEMS –

Part 2: Coexistence management

1 Scope

This part of IEC 62657

- 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.~~

This document provides a major contribution to national and regional regulations by supporting to fulfil the requirements using coexistence management.

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 62443 (all parts), ~~Industrial communication networks – Network and system security~~
Security for industrial automation and control systems

IEC 62657-1:2017, *Industrial communication networks – Wireless communication networks – Wireless communication requirements and spectrum considerations*

IEC 62657-3:2022, *Industrial networks – Coexistence of wireless systems – Part 3: Formal description of the automated coexistence management and application guidance*

IEC 62657-4:—, *Industrial networks – Coexistence of wireless systems – Part 4: Coexistence management with central coordination of wireless applications*³

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Industriella nätverk för datatrafik – Trådlös kommunikation – Del 2: Hantering för samexistens

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

Som svensk standard gäller europastandarden EN IEC 62657-2:2025. Den svenska standarden innehåller den officiella engelska språkversionen av EN IEC 62657-2:2025.

Nationellt förord

Europastandarden EN IEC 62657-2:2025

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 62657-2, Fourth edition, 2025 - Industrial communication networks - Wireless communication networks - Part 2: Coexistence management**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN IEC 62657-2, utg 3:2022 med eventuella tillägg, ändringar och rättelser gäller ej fr o m 2028-04-30.

ICS 25.040.40; 33.040.00; 35.100.00

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Postadress: Box 1042, 172 21 Sundbyberg
Telefon: 08 - 444 14 00.
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SEK Svensk Elstandard

Box 1042
172 21 Sundbyberg
Tel 08-444 14 00
elstandard.se

English Version

Industrial networks - Coexistence of wireless systems - Part 2:
Coexistence management
(IEC 62657-2:2025)

Réseaux industriels - Coexistence des systèmes sans fil -
Partie 2: Gestion de coexistence
(IEC 62657-2:2025)

Industrielle Kommunikationsnetze - Koexistenz von
Funksystemen - Teil 2: Koexistenzmanagement
(IEC 62657-2:2025)

This European Standard was approved by CENELEC on 2025-03-21. 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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.



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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

The text of document 65C/1329/FDIS, future edition 4 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 IEC 62657-2:2025.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2026-04-30 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2028-04-30 document have to be withdrawn

This document supersedes EN IEC 62657-2:2022 and all of its amendments and corrigenda (if any).

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.

Any feedback and questions on this document should be directed to the users' national committee. A complete listing of these bodies can be found on the CENELEC website.

Endorsement notice

The text of the International Standard IEC 62657-2:2025 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 standard indicated:

IEC 62591:2016	NOTE	Approved as EN 62591:2016 (not modified)
IEC 62601	NOTE	Approved as EN 62601
IEC 62734:2014	NOTE	Approved as EN 62734:2015 (not modified)
IEC 61784-1 series	NOTE	Approved as EN IEC 61784-1 series
IEC 61784-2 series	NOTE	Approved as EN IEC 61784-2 series
IEC 60050 series	NOTE	Approved as EN IEC 60050 series ¹
IEC 62890:2020	NOTE	Approved as EN IEC 62890:2020 (not modified)
IEC 61918:2018	NOTE	Approved as EN IEC 61918:2018 (not modified) +A11:2019
IEC 61158-2:2023	NOTE	Approved as EN IEC 61158-2:2023 (not modified)
IEC 61360 series	NOTE	Approved as EN 61360 series

¹ Under preparation. Stage at the time of publication: prEN IEC 60050 series.

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where 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 62443	series	Security for industrial automation and control systems	EN IEC 62443	series
IEC 62657-1	2017	Industrial communication networks - Wireless communication networks - Part 1: Wireless communication requirements and spectrum considerations	EN 62657-1	2017
IEC 62657-3	2022	Industrial communication networks - Coexistence of wireless systems - Formal description of the automated coexistence management and application guidance	EN IEC 62657-3	2022
IEC 62657-4	2025	Industrial networks - Coexistence of wireless systems - Part 4: Coexistence management with central coordination of wireless applications	EN IEC 62657-4	2025



IEC 62657-2

Edition 4.0 2025-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Industrial networks – Coexistence of wireless systems –
Part 2: Coexistence management**

**Réseaux industriels – Coexistence des systèmes sans fil –
Partie 2: Gestion de coexistence**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
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INTERNATIONALE

ICS 25.040.40, 33.040, 35.100

ISBN 978-2-8327-0193-5

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**INDUSTRIAL NETWORKS –
COEXISTENCE OF WIRELESS SYSTEMS –****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.
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IEC 62657-2 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation. It is an International Standard.

This fourth edition cancels and replaces the third edition published in 2022. This edition constitutes a technical revision.

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

- a) 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;

- b) alignment of some definitions and specifications to be consistent with the new IEC 62657-3 and IEC 62657-4;
- c) edition 3 of this document was published in June 2022. Some comments were made in the last development stages of this document asking for explanations on how the parts of the IEC 62657 series were structured and how they were related to each other. Resolution of these comments was deferred until a next edition, which means this edition.

The text of this International Standard is based on the following documents:

Draft	Report on voting
65C/1329/FDIS	65C/1337/RVD

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

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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

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

- reconfirmed,
- withdrawn, or
- revised.

INTRODUCTION

The overall market for wireless communication 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 and paper,
 - water and 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 communication systems 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 can contain a variety of wireless communication technologies and other sources of radio 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 the 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 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 communication systems can operate in the same premises. Examples of these communication systems are IEC 62591 [1]¹ (WirelessHART^{®2}), IEC 62601 [2] (WIA-PA) and IEC 62734 [3] (ISA100.11a). All these communication systems use IEEE 802.15.4 [4] for the process automation applications. Other examples of wireless communication systems are specified in the IEC 61784-1 series [5] and IEC 61784-2 series [6] CP that use IEEE 802.11 [7] and IEEE 802.15.1 [8] 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 energy in these bands, often at high energy levels, include radiated 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 systems meet the time-criticality and other performance requirements of industrial automation.

This document describes the management of independent radio sources that use the same transmission medium. The management within a wireless communication system is not the subject of this document. It is assumed that the standard of a wireless system regulates it, for example by a medium access control mechanism.

The IEC 62657 series has four parts:

- Part 1: Wireless communication requirements and spectrum considerations,
- Part 2: Coexistence management,
- Part 3: Formal description of the automated coexistence management and application guidance,
- Part 4: Coexistence management with central coordination of wireless applications.

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 principles to manage the potential mutual interference that could occur due to the operation of multiple wireless devices in a plant.

This document provides guidance to the users of wireless systems on selection and proper use of wireless systems. To provide suitable wireless devices to the market, it also serves vendors in describing the behaviours of wireless devices to build wireless systems 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 document is not to invent new parameters but to use already defined ones and to be technology independent.

¹ Numbers in square brackets refer to the Bibliography.

² 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 NETWORKS – COEXISTENCE OF WIRELESS SYSTEMS –

Part 2: Coexistence management

1 Scope

This part of IEC 62657

- 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 by supporting to fulfil the requirements using coexistence management.

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 62443 (all parts), *Security for industrial automation and control systems*

IEC 62657-1:2017, *Industrial communication networks – Wireless communication networks – Wireless communication requirements and spectrum considerations*

IEC 62657-3:2022, *Industrial networks – Coexistence of wireless systems – Part 3: Formal description of the automated coexistence management and application guidance*

IEC 62657-4:—, *Industrial networks – Coexistence of wireless systems – Part 4: Coexistence management with central coordination of wireless applications*³

³ Under preparation. Stage at the time of publication: IEC/FDIS 62657-4:2024.