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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 62657-2:2015. Den svenska standarden innehåller den officiella engelska språkversionen av EN 62657-2:2015.

Nationellt förord

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English Version

**Industrial communication networks - Wireless communication
networks - Part 2: Coexistence management
(IEC 62657-2:2013 , modified)**

Réseaux de communication industriels - Réseaux de
communication sans fil - Partie 2: Gestion de coexistence
(IEC 62657-2:2013 , modifiée)

Industrielle Kommunikationsnetze - Funk-
Kommunikationsnetze - Teil 2: Koexistenz-Management
(IEC 62657-2:2013 , modifiziert)

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Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This document (EN 62657-2:2015) consists of the text of IEC 62657-2:2013 prepared by SC 65C "Industrial networks" of IEC/TC 65 "Industrial-process measurement, control and automation", together with the common modifications prepared by CLC/TC 65X "Industrial-process measurement, control and automation".

The following dates are fixed:

- latest date by which the document has to be implemented at national level (dop) 2016-03-16
by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2018-03-16

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The text of the International Standard IEC 62657-2:2013 was approved by CENELEC as a European Standard with agreed common modifications.

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INDUSTRIAL COMMUNICATION NETWORKS – WIRELESS COMMUNICATION NETWORKS –

Part 2: Coexistence management

FOREWORD

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

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

FDIS	Report on voting
65C/736/FDIS	65C/740/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 first edition cancels and replaces IEC/TS 62657-2, published in 2011.

The main changes with respect to the TS are:

- a) updated the normative references, terms, definitions, symbols, abbreviations;
- b) corrected spelling;
- c) changed figures to make them consistent with the text and vice versa;
- d) added and modified text to make the text more readable.

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

A list of all 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 web site 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.

INTRODUCTION

The market is in need of network solutions, each with different performance characteristics and functional capabilities, matching diverse application requirements. Industrial automation applications cover different industrial application domains like:

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

Industrial automation applications require behaviors of wireless communication networks that are different from those that are used for example in telecommunications or for commercial like a remote control or toy. These industrial automation requirements are identified and provided in IEC/TS 62657-1.

In industrial automation, many different wireless communication networks may operate in the same premises. Examples of these networks are IEC 62591 [6]¹ (WirelessHART^{®2}), IEC 62601 [7] (WIA-PA) and IEC/PAS 62734 [9] (ISA100.11a); all these networks use IEEE 802.15.4 [18] for the process automation applications. Other examples of wireless networks are specified in IEC 61784-1 [3] and IEC 61784-2 [4] CPs that use IEEE 802.11 [14] and IEEE 802.15.1 [16] for factory automation applications. Different to wired fieldbuses, the wireless communication interfaces can interfere with others on the same premises or environment, disturbing each other. Therefore, without a predictable assuredness of coexistence, it could be problematic to have multiple wireless communication networks in the same facility or environment, especially because the time-criticality, the safety and the security of the operation may not be ensured in such an environment.

This part of the IEC 62657 addresses the coexistence management for a predictable assuredness of coexistence.

¹ Figures in square brackets refer to the Bibliography.

² WirelessHART is the registered trade name of the HART Communication Foundation. 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.

The IEC 62657 series has two parts:

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

IEC/TS 62657-1 [8] provides general requirements of industrial automation and spectrum considerations that are the basis for industrial communication solutions. This second part of IEC 62657 specifies the coexistence management with a predictable assuredness of coexistence. It is intended to facilitate harmonization of future adjustments to international, national, and local regulations.

This Part 2 of IEC 62657 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 Part 2 of IEC 62657 provides guidance to the users of wireless communication networks on selection and proper use of wireless communication networks. To provide suitable wireless devices to the market, it also serves vendors in describing the behaviors of wireless devices to build wireless communication networks matching the application requirements.

This Part 2 of IEC 62657 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.

INDUSTRIAL COMMUNICATION NETWORKS – WIRELESS COMMUNICATION NETWORKS –

Part 2: Coexistence management

1 Scope

This Part 2 of IEC 62657

- specifies the fundamental assumptions, concepts, parameters, and procedure 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 Part 2 of IEC 62657 will provide a major contribution to national and regional regulations. It does not exempt devices to conform to all requirements of national and regional regulations.

EXAMPLE 1 This Part 2 of IEC 62657 could be listed as a harmonized standard in the Official Journal of the European Union (OJEU) to address the requirements of the European R&TTE directive, Article 3.2 [20], in addition to other applicable harmonized standards.

EXAMPLE 2 This Part 2 of IEC 62657 could be listed in the Korean Enforcement Decree of the Radio Regulation Law, Article 18 [21].

2 Normative references

None