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# INTERNATIONAL STANDARD

## Industrial networks – Coexistence of wireless systems – Part 4: Coexistence management with central coordination of wireless applications

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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# INDUSTRIAL NETWORKS – COEXISTENCE OF WIRELESS SYSTEMS –

## Part 4: Coexistence management with central coordination of wireless applications

## FOREWORD

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IEC 62657-4 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 second edition cancels and replaces the first 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) The data item (parameter) to be exchanged between CCP and CMWCA and CMWD to ensure interoperability between CCP providers and device providers.
b) The sequence of services conducted between CCP and CMWCA and CMWD are now defined. When the CCP providers and the device providers implement similar process, clearly defined sequence and unified execution specifications ensure interoperability as expected.
c) The message formats of sequence diagram to be exchanged between CCP and CMWCA and CMWD are defined. By defining the message formats, the hierarchical structure of each data (parameter), and implementing the same message format by the CCP provider and the device provider, enables to exchange data correctly and ensure interoperability.

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

| Draft | Report on voting |
|---|---|
| 65C/1330/FDIS | 65C/1338/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 parts in the IEC 62657 series, published 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,
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- revised.

# INTRODUCTION

The IEC 62657 series provides background, foundations, process and examples to achieve wireless coexistence. With a coexistence management process according to IEC 62657-2, a predictable assuredness of coexistence can be achieved for a given spectrum while ensuring that application requirements continue to be met. The present document provides an automated coexistence management.

# INDUSTRIAL NETWORKS – COEXISTENCE OF WIRELESS SYSTEMS –

## Part 4: Coexistence management with central coordination of wireless applications

## 1 Scope

This part of IEC 62657 specifies a concept and methods for central coordination (CC) of automation applications using wireless communications to extend the coexistence management according to IEC 62657-2. It establishes system elements, interfaces and relationships for a central coordination. Functions, data, and data exchange for assessing and maintaining the coexistence state are specified.

This document specifies the central coordination point (CCP) approach as one example of the usage of the formal description given in IEC 62657-3.

This document is applicable to develop, implement, or modify procedures or solutions.

This document provides requirements for automated coexistence management systems.

This document provides requirements for:

– determination of the coexistence state,
– automated coexistence management procedures,
– CC amendments for existing wireless communication solutions,
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This document is not restricted to a specific radio frequency range nor is it restricted to a specific wireless communication technology.

## 2 Normative references

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IEC 62657-2:2025, *Industrial networks – Coexistence of wireless systems – Part 2: Coexistence management*[1]

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

ISO/IEC 10731, *Information technology – Open Systems Interconnection – Basic Reference Model – Conventions for the definition of OSI services*

[1] Under preparation. Stage at the time of publication: IEC/FDIS 62657-2:2024.

IETF RFC 8259, Tim Bray, *The JavaScript Object Notation (JSON) Data Interchange Format*, available at RFC 8259 – The JavaScript Object Notation (JSON) Data Interchange Format (ietf.org) [viewed 2024-09-03]

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# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

## Industrial networks – Coexistence of wireless systems – Part 4: Coexistence management with central coordination of wireless applications

## Réseaux industriels – Coexistence des systèmes sans fil – Partie 4: Gestion de coexistence avec coordination centralisée des applications sans fil

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[1] Under preparation. Stage at the time of publication: IEC/FDIS 62657-2:2024.

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# RÉSEAUX INDUSTRIELS – COEXISTENCE DES SYSTÈMES SANS FIL –

## Partie 4: Gestion de coexistence avec coordination centralisée des applications sans fil

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L'IEC 62657-4 a été établie par le sous-comité 65C: Réseaux industriels, du comité d'études 65 de l'IEC: Mesure, commande et automation dans les processus industriels. Il s'agit d'une Norme internationale.

Cette deuxième édition annule et remplace la première édition parue en 2022. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

a) l'élément de données (paramètre) à échanger entre le CCP et la CMWCA et le CMWD pour assurer l'interopérabilité entre les fournisseurs de CCP et les fournisseurs d'appareils;

b) la séquence des services exécutés entre le CCP et la CMWCA et le CMWD est désormais définie. Lorsque les fournisseurs de CCP et les fournisseurs d'appareils mettent en œuvre un processus similaire, une séquence clairement définie et des spécifications d'exécution unifiées assurent l'interopérabilité comme prévu;

c) les formats de messages du diagramme de séquence à échanger entre le CCP et la CMWCA et le CMWD sont définis. En définissant les formats de messages, la structure hiérarchique de chaque donnée (paramètre) et la mise en œuvre du même format de message par le fournisseur de CCP et le fournisseur d'appareil permettent d'échanger les données correctement et d'assurer l'interopérabilité.

Le texte de cette Norme internationale est issu des documents suivants:

| Projet | Rapport de vote |
|---|---|
| 65C/1330/FDIS | 65C/1338/RVD |

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à son approbation.

La langue employée pour l'élaboration de cette Norme internationale est l'anglais.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2, il a été développé selon les Directives ISO/IEC, Partie 1 et les Directives ISO/IEC, Supplément IEC, disponibles sous www.iec.ch/members_experts/refdocs. Les principaux types de documents développés par l'IEC sont décrits plus en détail sous www.iec.ch/publications.

Une liste de toutes les parties de la série IEC 62657, publiées sous le titre général *Réseaux industriels – Coexistence des systèmes sans fil*, se trouve sur le site web de l'IEC.

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# INTRODUCTION

La série IEC 62657 donne des informations d'ordre général, des bases, des processus et des exemples permettant d'assurer la coexistence sans fil. Avec un processus de gestion de coexistence conforme à l'IEC 62657-2, une assurance prévisible de la coexistence peut être obtenue pour un spectre donné, tout en assurant le respect des exigences d'application. Le présent document fournit une gestion automatisée de la coexistence.

# RÉSEAUX INDUSTRIELS – COEXISTENCE DES SYSTÈMES SANS FIL –

## Partie 4: Gestion de coexistence avec coordination centralisée des applications sans fil

## 1 Domaine d'application

La présente partie de l'IEC 62657 spécifie un concept et des méthodes de coordination centrale (CC) des applications d'automatisation à l'aide de communications sans fil, afin d'étendre la gestion de coexistence selon l'IEC 62657-2. Elle établit les éléments de système, les interfaces et les relations permettant d'assurer une coordination centrale. Les fonctions, les données et l'échange de données pour l'évaluation et le maintien de l'état de coexistence sont spécifiés.

Le présent document spécifie l'approche du point de coordination central (CCP, *Central Coordination Point*) comme exemple d'utilisation de la description formelle donnée dans l'IEC 62657-3.

Le présent document vise à développer, mettre en œuvre ou modifier des procédures ou solutions.

Le présent document fournit les exigences relatives aux systèmes de gestion automatisée de la coexistence.

Il fournit les exigences relatives:

– à la détermination de l'état de coexistence;
– aux procédures de gestion automatisée de la coexistence;
– aux amendements de la coordination centrale pour les solutions de communication sans fil existantes;
– aux fonctions de coordination centrale qui coordonnent les systèmes de communication sans fil existants et nouveaux;
– aux séquences de coordination centrale et aux formats de messages pour l'échange de données.

Le présent document ne se limite pas à une plage de radiofréquences particulière ni à une technologie de communication sans fil spécifique.

## 2 Références normatives

Les documents suivants sont cités dans le texte de sorte qu'ils constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 62657-2:2025, *Réseaux industriels – Coexistence des systèmes sans fil – Partie 2: Gestion de coexistence*

ISO/IEC 10731, *Technologies de l'information – Interconnexion de systèmes ouverts (OSI) – Modèle de référence de base – Conventions pour la définition des services OSI*

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