IEC 62657-4

Edition 2.0 2025-02

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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COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 25.040

ISBN 978-2-8327-0195-9

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INDUSTRIAL NETWORKS – COEXISTENCE OF WIRELESS SYSTEMS –

Part 4: Coexistence management with central coordination of wireless applications

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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

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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.

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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.

Sample Document

This document provides requirements for:

- determination of the coexistence state,
- automated coexistence management procedures,
- CC amendments for existing wireless communication solutions,
- CC functions that coordinate legacy and new wireless communication systems,
- CC sequences and message formats for data exchange.

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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

The following documents are referred to in the text in such a way that some or all of their content constitutes the 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 62657-2:2025, *Industrial networks – Coexistence of wireless systems – Part 2: Coexistence management*[1]

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

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]

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

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3 Terms, definitions, abbreviated terms and conventions

3.1 General

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- IEC Electropedia: available at https://www.electropedia.org/
- ISO Online browsing platform: available at https://www.iso.org/obp

3.2 Terms and definitions specific for this document

3.2.1
allocation
entry in the table of frequency allocations of a given frequency band for the purpose of its use by one or more radio communication services or the radio astronomy service under specified conditions

3.2.2
antenna
device designed to transmit or receive electromagnetic waves

3.2.3
coexistence distance
difference between the threshold value for the coexistence state and the actual value of the coexistence state function expressing the distance before reaching the coexistence state

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3.2.4
coexistence margin
difference between the actual value of the coexistence state function and the threshold for the coexistence state expressing the reserve before leaving the coexistence state

3.2.5
database service
service officially operated under the rules of the local regulatory authority that provides a list of available channels and possibly the maximum EIRP allowable on these channels based on queries containing the geolocation of the wireless regional area network (WRAN) devices

3.2.6
geolocation
process of acquiring the location data of a device, determining its latitude and longitude

3.2.7
harmful interference
any emission, radiation or induction that endangers the functioning of a radio navigation service or of other safety services or seriously degrades, obstructs, or repeatedly interrupts a radiocommunications service operating in accordance with the ITU and local regulations

3.2.8
incumbent radio system
wireless communication system that is not under the control of, and is not affected by, the coexistence manager

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