IEC 62657-3

Edition 1.0 2022-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

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Industrial networks – Coexistence of wireless systems – Part 3: Formal description of the automated coexistence management and application guidance

Réseaux industriels – Coexistence des systèmes sans fil – Partie 3: Description formelle de la gestion automatisée de la coexistence et recommandations d'application

IEC 62657-3:2022-05(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INDUSTRIAL NETWORKS – COEXISTENCE OF WIRELESS SYSTEMS –

Part 3: Formal description of the automated coexistence management and application guidance

FOREWORD

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

Draft	Report on voting
65C/1165/FDIS	65C/1171/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/standardsdev/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 "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

The intended audience for the IEC 62657 series is shown in Table 1.

Table 1 – Audience of the IEC 62657 series

Audience	Part 1 Wireless requirements	Part 2 Coexistence management	Part 3 Architecture and use	Part 4 Central coordination
1. Regulator	✓	—	—	—
2. IA expert	✓	—	—	—
3. Plant owner	—	✓	✓	—
4. Device manufacture	—	✓	✓	✓
5. System integrator	✓	✓	✓	✓
Key: ✓ = applies especially to the audience #; — = should be read by everybody				

This document is aimed at plant owners that are operating industrial wireless solutions, manufacturers of industrial wireless devices, as well as wireless system integrators and operators.

Plant owners need to understand the nature of the coexistence state with respect to wireless automation systems. Also, they need to make sure that all impacts to the industrial wireless application systems represented by parameters are taken into account. This document provides them the information needed to understand coexistence management parameters and each relationship for a reliable plant operation.

Device manufacturers should provide quantitative parameters on their wireless device and system to manage the coexistence of the wireless industrial application based on IEC 62657-2. This document defines related parameters and interfaces of devices for automatic coexistence management.

System integrators should, in collaboration with the plant owner and device manufacturers, design, implement, and manage the wireless industrial automation systems throughout the plant lifecycle. This document provides essential parameters and interfaces for coexistence management for system integrators.

A consideration of this document is to outline the features of automated collaborative coexistence management to develop solutions with, for example, a central coordination point (CCP), with a software-defined networking approach for flexible use of frequency spectrum or using a global navigation satellite system (GNSS) for location-based use of frequency spectrum.

Figure 1 shows the relation between the parts of the IEC 62657 series.

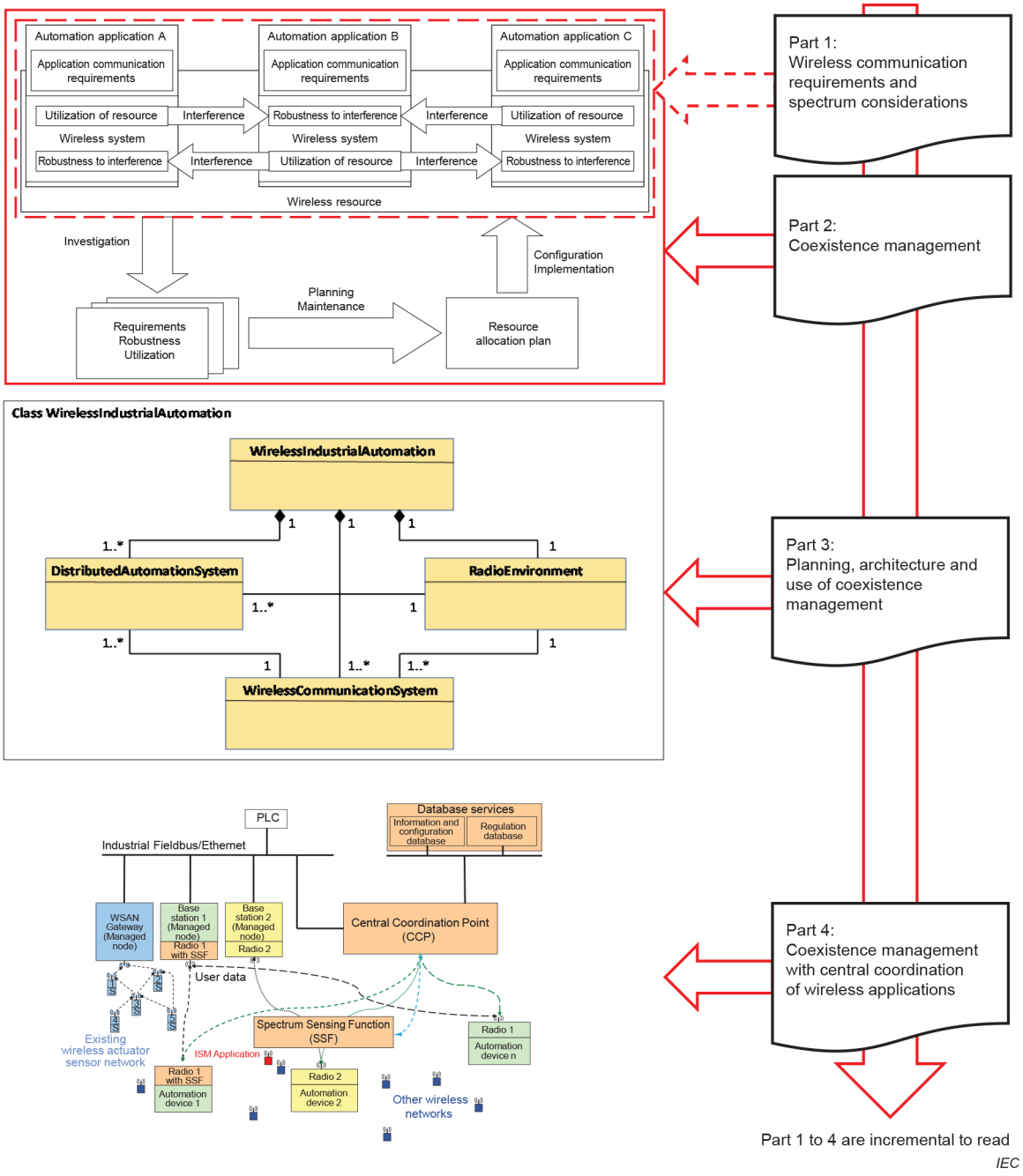

Figure 1 – Relation between the parts of the IEC 62657 series

INDUSTRIAL NETWORKS – COEXISTENCE OF WIRELESS SYSTEMS –

Part 3: Formal description of the automated coexistence management and application guidance

1 Scope

This part of IEC 62657 specifies a general model approach for automated coexistence management and provides application guidance. This document provides the usage of related parameters and interfaces to establish and to maintain functions for automatic coexistence management. This document specifies an abstract description of the system elements, properties, interfaces and relationships between influencing parameters and characteristic parameters specified in IEC 62657-1 and IEC 62657-2.

NOTE IEC 62657-4 specifies the central coordination point approach as one example of the usage of the formal description of this document.

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 61784-3, *Industrial communication networks – Profiles – Part 3: Functional safety fieldbuses – General rules and profile definitions*

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

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

IEC 62657-4:—[2], *Industrial networks – Coexistence of wireless systems – Part 4: Coexistence management with central coordination of wireless applications*

3 Terms, definitions and abbreviated terms

3.1 General

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

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

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

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1 Under preparation. Stage at the time of publication: IEC FDIS 62657-2:2022.

2 Under preparation. Stage at the time of publication: IEC FDIS 62657-4:2022.