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INTERNATIONAL ELECTROTECHNICAL COMMISSION

INDUSTRIAL COMMUNICATION NETWORKS – WIRELESS COMMUNICATION NETWORK –

Part 2: Coexistence management

FOREWORD

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- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

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

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
65C/645/DTS	65C/661A/RVC

Full information on the voting for the approval of this technical specification can be found in the report on voting indicated in the above table.

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 networks – Wireless communication network,* 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

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

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 several network solutions, each with different performance characteristics and functional capabilities, matching diverse application requirements. Industrial automation applications covering different industrial applications such as process automation, factory automation, water/waste water treatments and other industrial applications up to power generation and power distributions applications, require different behaviours of wireless networks as, for example, in telecommunications, or for commercial items such as remote controls or toys. These requirements will be specified in the future IEC 62657-1.

In industrial premises, a lot of different wireless communication networks have to operate together such as IEC 62591 [9] (WirelessHART®[1])[2] and future IEC 62601[10][3] (WIA-PA), both using IEEE 802.15.4 for the process applications and such as IEC 61784-1 [5] and IEC 61784-2 [6] CPs using IEEE 802.11 [12] and IEEE 802.15.1 [13] for factory automation applications with different wireless communication systems. Different to wired fieldbuses, wireless communication interfaces can interfere with others on the same premises or in the same environment, disturbing each other. Therefore, it is not tolerable to have multiple wireless communication networks in the same facility or environment without a predictable assuredness of coexistence.

The IEC 62657 series has two parts:

– Part 1: Wireless communication requirements and spectrum considerations

– Part 2: Coexistence management

Future IEC 62657-1 [11] provides requirements for regulators in order to obtain additional dedicated and worldwide unique spectrum and its standardized usage. It is intended to facilitate harmonization of future adjustments to the international, national and local regulations.

This part of IEC 62657, which is a technical specification, 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 behaviours of wireless devices to build wireless networks matching the application requirements.

This specification 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.

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1 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.

2 Figures in square brackets refer to the bibliography.

3 To be published.

INDUSTRIAL COMMUNICATION NETWORKS – WIRELESS COMMUNICATION NETWORK –

Part 2: Coexistence management

1 Scope

This part of IEC 62657, which is a technical specification, specifies the fundamental assumptions, concepts, parameters, and procedure for wireless communication coexistence.

This specification provides guidelines, requirements, and best practices for wireless communications' availability and performance, covering the life cycle of wireless communication coexistence to help the work of all persons involved with the relevant responsibilities to cope with the critical aspects in each phase of wireless communication coexistence management in an automation plant.

Additionally this specification 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. Life cycle aspects include: planning, designing, installation, implementation, operation, maintenance, administration and training.

This specification deals with the operational aspects of wireless communication coexistence regarding both the static human/tool-organization and the dynamic network self-organization.

This technical specification specifies coexistence parameters and how they are used in an application requiring wireless coexistence.

NOTE Measurement methods of parameters could be the subject of a later edition.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61804-3, *Function blocks (FB) for process control – Part 3: Electronic Device Description Language (EDDL)*

IEEE 802.15.4, *IEEE Standard for Local and metropolitan area networks – Part 15.4: Low-Rate Wireless Personal Area Networks (LR-WPANs)*