IEC 62601

Edition 2.0 2015-12

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Industrial networks – Wireless communication network and communication profiles – WIA-PA

Réseaux industriels – Réseau de communications sans fil et profils de communication – WIA-PA

IEC 62601:2015-12(en-fr)

IEC Central Office
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INDUSTRIAL NETWORKS – WIRELESS COMMUNICATION NETWORK AND COMMUNICATION PROFILES – WIA-PA

FOREWORD

1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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International Standard IEC 62601 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial process measurement, control and automation.

This second edition cancels and replaces the first edition published in 2011. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- changed IEEE STD 802.15.4-2006 to IEEE STD 802.15.4-2011 and added common modification for IEEE STD 802.15.4-2011 MAC profile, PHY profile and IEEE STD 802.15.4-2011 related references;
- added common modifications for regional adoption and added Annex D and Annex E;

- deleted extended MAC management services and added two DLSL management services;
- added specific state machines for DLSL and NL;
- unified representation of frame format and packet format;
- changed format of definition of data types;
- added detailed description of technologies for clearer understanding;
- provided support for CCA modes 1, 2, and 3.

The reader's attention is drawn to the fact that Annex E lists all of the “in-some-country” clauses on differing practices of a less permanent nature relating to the subject of this standard.

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

FDIS	Report on voting
65C/821/FDIS	65C/833/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 publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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.

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INDUSTRIAL NETWORKS – WIRELESS COMMUNICATION NETWORK AND COMMUNICATION PROFILES – WIA-PA

1 Scope

This International Standard specifies the system architecture and the communication protocol of Wireless networks for Industrial Automation – Process Automation (WIA-PA) that is built on IEEE STD 802.15.4-2011.

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.

ISO/IEC 9899, *Information technology – Programming languages – C*

ISO 3166-1, *Codes for the representation of names of countries and their subdivisions – Part 1: Country codes*

IEEE STD 802.15.4-2011, *IEEE Standard for Local and metropolitan area networks – Part 15.4: Low-Rate Wireless Personal Area Networks (LR-WPANs)*

3 Terms, definitions and abbreviations

3.1 Terms and definitions

3.1.1
absolute timeslot number
number of timeslots from the start of the network, generally denoting the current timeslot

3.1.2
active leaving
process by which an online field device is allowed to leave the network through applying to its routing device or by which an online routing device is allowed to leave the network through applying to the gateway device

3.1.3
adaptive frequency hopping
change of communication channels according to actual condition of channels in every timeslot during the intra-cluster period of WIA-PA superframe

3.1.4
adaptive frequency switch
change of communication channels according to the actual condition of channels during the beacon frame and active period in a superframe cycle, and using different channels in different superframe cycles