SLOVENSKI STANDARD
oSIST prEN IEC 62657-4:2019

01-september-2019

Industrijska komunikacijska omrežja - Brezžična komunikacijska omrežja - 4. del: Upravljanje soobstoja s centraliziranim usklajevanjem brezžičnih aplikacij

Industrial communication networks - Wireless communication networks - Part 4: Coexistence management with central coordination of wireless applications

Réseaux de communication industriels - Réseaux de communication sans fil - Partie 4: Gestion de coexistence avec coordination centralisée des applications sans fil

Ta slovenski standard je istoveten z: prEN IEC 62657-4:2019

ICS:

25.040.40	Merjenje in krmiljenje industrijskih postopkov	Industrial process measurement and control
35.110	Omreževanje	Networking

oSIST prEN IEC 62657-4:2019 en,fr,de

65C/967/CDV

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: **IEC 62657-4 ED1**	
DATE OF CIRCULATION: **2019-07-19**	CLOSING DATE FOR VOTING: **2019-10-11**
SUPERSEDES DOCUMENTS: **65C/916/CD,65C/927B/CC**	

IEC SC 65C : INDUSTRIAL NETWORKS	
SECRETARIAT: France	SECRETARY: Ms Valérie DEMASSIEUX
OF INTEREST TO THE FOLLOWING COMMITTEES: SC 3D	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☐ SAFETY	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

Attention IEC-CENELEC parallel voting

The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting.

The CENELEC members are invited to vote through the CENELEC online voting system.

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

Industrial communication networks - Wireless communication networks - Part 4: Coexistence management with central coordination of wireless applications

PROPOSED STABILITY DATE: 2024

NOTE FROM TC/SC OFFICERS:

NC comments on this CDV will be resolved during the next SC65C/WG17 meeting provisionally scheduled on October 28th-30th, 2019 in Frankfurt (Germany) (to be confirmed)

CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INDUSTRIAL COMMUNICATION NETWORKS –
WIRELESS COMMUNICATION NETWORKS –

Part 4: Coexistence management with central coordination of wireless applications

FOREWORD

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International Standard IEC 62657-4 has been prepared by subcommittee 65C: Industrial networks, of IEC technical committee 65: Industrial-process measurement, control and automation.

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

FDIS	Report on voting
65C/XX/FDIS	65C/XX/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.

206 The committee has decided that the contents of this publication will remain unchanged until
207 the stability date indicated on the IEC web site under "http://webstore.iec.ch" in the data
208 related to the specific publication. At this date, the publication will be

209 • reconfirmed,
210 • withdrawn,
211 • replaced by a revised edition, or
212 • amended.

213

214 The National Committees are requested to note that for this publication the stability date
215 is 2024.

216 THIS TEXT IS INCLUDED FOR THE INFORMATION OF THE NATIONAL COMMITTEES AND WILL BE DELETED
217 AT THE PUBLICATION STAGE.

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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.

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220 # INTRODUCTION

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

226

INDUSTRIAL COMMUNICATION NETWORKS – WIRELESS COMMUNICATION NETWORKS –

Part 4: Coexistence management with central coordination of wireless applications

1 Scope

This International Standard 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 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;
- CC functions that coordinate legacy and new wireless communication systems.

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

IEC 62657-2, *Industrial communication networks – wireless communication networks – Part 2: Coexistence management*

3 Terms, definitions, abbreviated terms and acronyms

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

3.1 Terms and definitions from IEC 62657-2

For the purposes of this document, the following terms as defined in IEC 62657-2 apply:

– antenna
– automation application
– bandwidth

- center frequency
- coexistence (wireless communication coexistence)
- coexistence assessment
- coexistence planning
- coexistence management
- communication load
- duty cycle
- dwell time
- frequency band
- frequency channel
- lower cut-off frequency
- mechanisms for adaptivity
- plant
- power spectral density
- radio channel
- signal to interference and noise ratio
- received signal strength indication
- receiver sensitivity
- transfer interval
- wireless application
- wireless communication
- wireless communication application
- wireless communication solution
- wireless communication system
- wireless device
- wireless network
- total radiated power
- upper cut-off frequency

3.2 Additional terms and definitions

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
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

3.2.3
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

3.2.4
logical link
application oriented communication relationship which enables the transmission of user data between one logical end point of the reference interface in a source device and one logical end point of the reference interface in a target device

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

[SOURCE: Article 1 of the ITU Radio Regulations, #1.169 and the FCC 47 CFR 15.3]

3.2.8
service flow
QoS parameters for the PDUs that are exchanged on a connection, and provides a mechanism for upstream and downstream QoS management

3.2.9
service flow identifier
SFID
unique identifier for a service flow dealing with how higher layer packets/application sessions are mapped to their QoS requirements and scheduling constraints

3.2.10
master station
data station that has been designated by the control station to ensure data transfer to one or more slave stations

Note 1 to entry: At a given instant, there can be only one master station on a data link.

[SOURCE: IEV ref 721-19-12]

3.2.11
slave station
data station that is selected by a master station to receive data

[SOURCE: IEV ref 721-19-13]

3.3 Abbreviated terms and acronyms

ACRM	Application communication requirements management
AFH	Adaptive frequency hopping
AL	Application layer
CC	Central coordination
CCP	Central coordination point
CONF	Confirmation
CS	Convergence sublayer

C-SAP	Control service access point
CMWCA	CCP managed wireless communication application
CMWD	CCP managed wireless device
DAA	Detect and avoid
DAR	Detect and reduce
DAS	Detect and suppress
EIRP	Equivalent isotropic radiated power
HMI	Human machine interface
ID	Identifier
IETF	Internet engineering task force
IND	Event notification
IP	Internet protocol
ISM	Industrial, scientific and medical
MAC	Medium access
MLME	Medium access layer management entity
MRM	Medium resource management
M-SAP	Management service access point
PE	Policy engine
PHY	Physical layer
PLC	Programmable logic controller
PLME	Physical layer management entity
PSD	Power spectral density
QoS	Quality of service
RF	Radio frequency
REQ	Request
RES	Response to the request message
RSSI	Received signal strength indication
SAP	Service access point
SDU	Service data units
SFID	Service flow identifier
SINR	Signal to interference and noise ratio
SSF	Spectrum sensing function
SSN	Spectrum sensing node
SSS	Spectrum sensing system
TRP	Total radiated power
WCA	Wireless communication application

WIA	Wireless industrial automation
QoS	Quality of service
RSSI	Received signal strength indication
WCA	Wireless communication application
WCD	Wireless communication device
WCS	Wireless communication system
WCSDCC	Wireless communication system and device configuration and control
WCSDS	Wireless communication system and device subscription
WSAN	Wireless sensor actor network

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