

STN	Parazitický komunikačný protokol pre vysokofrekvenčný bezdrôtový prenos energie	STN EN IEC 62980 37 9002
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Parasitic communication protocol for radio-frequency wireless power transmission

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 01/23

Obsahuje: EN IEC 62980:2022, IEC 62980:2022

136187

EUROPEAN STANDARD

EN IEC 62980

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2022

ICS 29.240.99

English Version

**Parasitic communication protocol for radio-frequency wireless
power transmission
(IEC 62980:2022)**

Protocole de communication parasite pour le transfert
d'énergie sans fil par rayonnement radiofréquence
(IEC 62980:2022)

Parasitäres Kommunikationsprotokoll für drahtlose
Hochfrequenz-Leistungsübertragung
(IEC 62980:2022)

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EN IEC 62980:2022 (E)**European foreword**

The text of document 100/3797/FDIS, future edition 1 of IEC 62980, prepared by IEC/TC 100 "Audio, video and multimedia systems and equipment" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62980:2022.

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Annex ZA (normative)

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NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 63006	2019	Wireless power transfer (WPT) - Glossary of terms	EN IEC 63006	2019
IEC/TR 63239	2020	Radio frequency beam wireless power transfer (WPT) for mobile devices	-	-



IEC 62980

Edition 1.0 2022-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Parasitic communication protocol for radio-frequency wireless power transmission

Protocole de communication parasite pour le transfert d'énergie sans fil par rayonnement radiofréquence





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IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
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IEC 62980

Edition 1.0 2022-09

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Parasitic communication protocol for radio-frequency wireless power transmission

Protocole de communication parasite pour le transfert d'énergie sans fil par rayonnement radiofréquence

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ICS 29.240.99

ISBN 978-2-8322-5700-5

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**PARASITIC COMMUNICATION PROTOCOL FOR
RADIO-FREQUENCY WIRELESS POWER TRANSMISSION**

FOREWORD

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IEC 62980 has been prepared by technical area 15: Wireless power transfer, of IEC technical committee 100: Audio, video and multimedia systems and equipment. It is an International Standard.

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

Draft	Report on voting
100/3797/FDIS	100/3818/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/publications.

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INTRODUCTION

This document provides a parasitic backscatter communication protocol for battery-free internet-of-things (IoT) devices and sensors for radio-frequency (RF) wireless power transmission (WPT) without additional infrastructure.

PARASITIC COMMUNICATION PROTOCOL FOR RADIO-FREQUENCY WIRELESS POWER TRANSMISSION

1 Scope

This document defines procedures for transferring power to non-powered IoT devices using the existing ISM band communication infrastructure and RF WPT and a protocol for a two-way, long-distance wireless network in which IoT devices and APs communicate using backscatter modulation of ISM-band signals. Three components are required for two-way, long-distance wireless communication using backscatter modulation of ISM-band signals:

- an STA that transmits wireless power and data packets to SSNs by forming ISM-band signal channels between HIE-APs,
- a battery-free SSN that changes the sensitivity of the channel signals received from the STA using backscatter modulation, and
- an HIE-AP that practically decodes the channel signals whose sensitivity was changed by the SSN.

In this document, the procedures for CW-type RF WPT using communication among these three components are specified based on application of the CSI or RSSI detection method of ISM-band communication.

This document proposes a convergence communication protocol than can deploy sensors, which can operate at low power (dozens of microwatts or less) without batteries, collect energy, and perform communication, to transmit power to SSNs using RF WPT based on parasitic communication. This method can be applied to application service areas such as domestic IoT, the micro-sensor industry, and industries related to environmental monitoring in the future.

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 63006:2019, *Wireless Power Transfer (WPT) – Glossary of terms*

IEC TR 63239:2020, *Radio frequency beam wireless power transfer (WPT) for mobile devices*

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