SLOVENSKI STANDARD
SIST EN 62920:2017/A1:2021

01-december-2021

Fotonapetostni energetski sistemi - Zahteve EMC in preskusne metode za opremo močnostnih pretvornikov - Dopolnilo A1

Photovoltaic power generating systems - EMC requirements and test methods for power conversion equipment

Photovoltaische Stromerzeugungssysteme - EMV-Anforderungen und Prüfverfahren für Leistungsumrichter

Systèmes de production d'énergie photovoltaïque - Exigences de CEM et méthodes d'essai pour les équipements de conversion de puissance

Ta slovenski standard je istoveten z: **EN 62920:2017/A1:2021**

ICS:

27.160	Sončna energija	Solar energy engineering
33.100.01	Elektromagnetna združljivost na splošno	Electromagnetic compatibility in general

SIST EN 62920:2017/A1:2021 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 62920:2017/A1

October 2021

ICS 27.160

English Version

Photovoltaic power generating systems - EMC requirements and test methods for power conversion equipment (IEC 62920:2017/A1:2021)

Systèmes de production d'énergie photovoltaïque - Exigences de CEM et méthodes d'essai pour les équipements de conversion de puissance (IEC 62920:2017/A1:2021)

Photovoltaische Stromerzeugungssysteme - EMV-Anforderungen und Prüfverfahren für Leistungsumrichter (IEC 62920:2017/A1:2021)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Ref. No. EN 62920:2017/A1:2021 E

European foreword

The text of document 82/1835/FDIS, future IEC 62920/A1, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 62920:2017/A1:2021.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2022-04-15
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-10-15

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Endorsement notice

The text of the International Standard IEC 62920:2017/A1:2021 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 62109-1:2010	NOTE	Harmonized as EN 62109-1:2010 (not modified)
IEC 62933-1:2018	NOTE	Harmonized as EN IEC 62933-1:2018 (not modified)

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

AMENDMENT 1
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Photovoltaic power generating systems – EMC requirements and test methods for power conversion equipment

Systèmes de production d'énergie photovoltaïque – Exigences de CEM et méthodes d'essai pour les équipements de conversion de puissance

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FOREWORD

This amendment has been prepared by the IEC technical committee 82: Solar photovoltaic energy systems.

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

FDIS	Report on voting
82/1835/FDIS	82/1874/RVD

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

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC website 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.

INTRODUCTION

Replace the existing text of the Introduction with the following:

Background

Power conversion equipment (PCE) is indispensable for solar photovoltaic power energy systems in order to convert the DC electric power energy generated by solar photovoltaic panels into AC or DC electric power, and to feed the AC power energy into the AC mains network or loads. PCE consists of DC to DC, DC to AC or AC to DC converters and forms systems with or without DC-coupled electrical energy storage devices.

Manufacturers of PCE ensure the performance and reliability of PCE. Electromagnetic compatibility (EMC) is one aspect of performance which must be ensured wherever PCE is used in or exposed to an electromagnetic environment.

IEC Guide 107 specifies that TC 77 and CISPR, which are called EMC committees, have responsibility for the development of basic, product family and generic standards on EMC requirements, and product committees must use the emission limits developed by EMC committees and must refer to basic immunity standards for the specification of test techniques.

However, when the EMC standards which are developed by TC 77 and CISPR are not considered suitable for a particular product or electromagnetic environment, product committees must seek their assistance and advice for any change in the emission limits and/or measurement requirements. Product committees are responsible for selecting the appropriate immunity test items and levels for their products as well as for defining the relevant performance criteria for the evaluation of the immunity test results. Consequently, product committees, such as TC 22, TC 26, TC 9, and TC 69, have their own EMC standard to define EMC requirements and test methods for their particular types of products.

TC 82 also has the responsibility to consider EMC requirements for PCE applying to the solar photovoltaic power energy systems, and TC 82 has taken action as follows to develop its own product EMC standards:

a) selection of the immunity test items in accordance with EMC environments for the solar photovoltaic power energy systems,

b) supplement of generic standards with a detailed description of test conditions and test set up,

c) development of the conditional limits and alternative test methods in terms of installation environmental and operational conditions, and

d) development of appropriate requirements and test method for high power equipment.

In 2017, TC82 published IEC 62920 (Ed.1.0). By taking into account the latest market needs, IEC 62920:2017 (Ed.1.0) has covered the above mentioned items and presents the minimum EMC requirements for PCE applying to solar photovoltaic power energy systems.

Purpose of the maintenance of a product EMC standard

Following the state of the art technology as well as the latest market needs, users of standards recognize the improvement of product EMC standards. The maintenance of product standards is also one of important activities for product committees.

IEC 62920:2017 (Ed.1.0) is amended to extend the scope of IEC 62920:2017 (Ed.1.0) by taking into account the following technical items.

– DC to DC power conversion equipment used in photovoltaic power energy systems.

– Electrical energy storage devices connected to DC power ports of PCE used in photovoltaic power energy systems.

Furthermore, IEC 62920:2017 (Ed.1.0) is amended to cover the latest options of measurement distance of radiated disturbances by taking the latest updates of CISPR 16-1-4 and CISPR 16-2-3 into consideration to adapt it to different sizes of products.

1 Scope

Replace the existing first paragraph with the following:

This document specifies electromagnetic compatibility (EMC) requirements for power conversion equipment (PCE) (e.g. DC to DC, DC to AC and AC to DC) for use in photovoltaic (PV) power systems with or without DC-coupled electrical energy storage devices.

3 Terms and definitions

Replace the existing terms and definitions with the following:

3.1
photovoltaic power generating system
PV system
electric power generating system which uses the photovoltaic effect to convert solar power into electricity

3.2
power conversion equipment
PCE
electrical device converting one form of electrical power to another form of electrical power with respect to voltage, current, frequency, phase and the number of phases

[SOURCE: IEC 62109-1:2010, 3.66, modified – The definition has been rephrased, and the note has been deleted.]

3.3
photovoltaic module
PV modules
complete and environmentally protected assembly of interconnected photovoltaic cells

[SOURCE: IEC TS 61836:2016, 3.1.48.7, modified – The note has been deleted.]

3.4
electrical energy storage devices
ESS

devices that are able to absorb electrical energy, to store it for a certain amount of time and to release electrical energy during which energy conversion processes may be included

[SOURCE: IEC 62933-1:2018, 3.1, modified – The example and the note have been deleted.]

3.5
port
particular interface of the PCE with the external electromagnetic environment

Note 1 to entry: See Figure 1 for examples of ports.

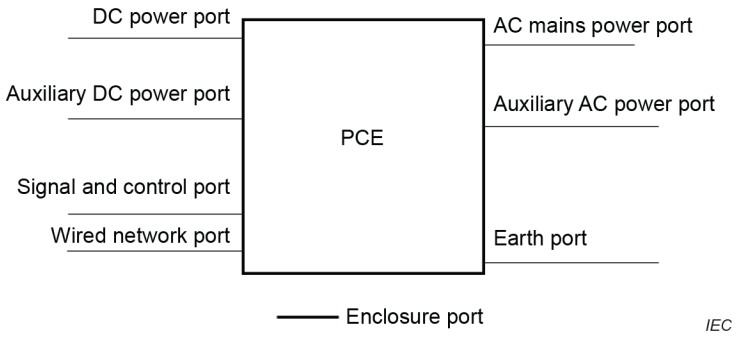

Figure 1 – Example of ports

3.6
enclosure port
physical boundary of the PCE product which electromagnetic fields may radiate through or impinge on

3.7
AC mains power port
port used to connect to a public low voltage AC mains power distribution network or other low voltage AC mains installation

3.8
auxiliary AC power port
additional low voltage AC power port for purposes other than feeding in AC power

3.9
DC power port
port used to connect a local low voltage DC power generating system or electrical energy storage devices

3.10
auxiliary DC power port
additional low voltage DC power port for purposes other than supplying DC power for the DC to AC conversion or electrical energy storage devices

3.11
signal and control port
port intended for the interconnection of components of PCE, or between PCE and local auxiliary equipment, and used in accordance with relevant functional specifications

Note 1 to entry: Examples include RS-232, Universal Serial Bus (USB), high-definition multimedia interface (HDMI), IEEE standard 1394 (“Fire Wire”) and control pilot.

3.12
wired network port
point to connection for voice, data and signalling transfers intended to interconnect widely dispersed systems by direct connection to a single-user or multi-user communication network

Note 1 to entry: Examples include CATV, PSTN, ISDN, xDSL, LAN and similar networks. These ports can support screened or unscreened cables and can also carry AC or DC power where this is an integral part of the telecommunication specification.

3.13
high power electronic equipment and system
one or more power conversion equipment with a combined rated power greater than 75 kVA, or a system containing such equipment

3.14
low voltage
LV
set of voltage levels used for the distribution of electricity and whose upper limit is generally accepted to be 1 000 V AC or 1 500 V DC

3.15
high voltage
HV
a) in a general sense, the set of voltage levels in excess of low voltage

b) in a restrictive sense, the set of upper voltage levels used in power system for bulk transmission of electricity

[SOURCE: IEC 60050-601:1985, 601-01-27]

3.16
medium voltage
MV
any set of voltage levels lying between low and high voltage

[SOURCE: IEC 60050-601:1985, 601-01-28, modified – The note has been deleted.]

3.17
small equipment
equipment including its cables fits in an imaginary cylindrical test volume of 1,5 m in diameter and 1,5 m in height (to ground plane) to be measured at a measurement distance of 3 m at an OATS/SAC

3.18
medium equipment
equipment including its cables fits in an imaginary cylindrical test volume of 2 m in diameter and 2 m in height (to ground plane) to be measured at a measurement distance of 5 m at an OATS/SAC

3.19
type test
test of one or more equipment made to a certain design to show that the design meets certain specifications

3.20
residential environment
environment characterized by the fact that the product is directly (not via external transformer) connected to a public low voltage AC mains power distribution network or other low voltage AC mains installation

3.21
non-residential environment
environment characterized by a separate power network, supplied from a dedicated power transformer or a high- or medium-voltage transformer

3.22
PCE-MV
PCE including a medium voltage transformer

3.23
artificial mains network
AMN
network that provides a defined impedance to the equipment under test (EUT) at radio frequencies, couples the disturbance voltage to the measuring receiver and decouples the test circuit from the low voltage AC mains supply

3.24
artificial DC network
DC-AN
artificial network used for defined termination of the EUT's port under test also providing the necessary decoupling from conducted disturbances originating from the laboratory low voltage DC power source