SLOVENSKI STANDARD
SIST EN IEC 62787:2021

01-junij-2021

Koncentratorske fotonapetostne (CPV) sončne celice in sestavi celic na nosilcu (CoC) - Opredelitev zanesljivosti

Concentrator photovoltaic (CPV) solar cells and cell-on-carrier (COC) assemblies - Reliability qualification

Ta slovenski standard je istoveten z: EN IEC 62787:2021

ICS:

27.160	Sončna energija	Solar energy engineering

SIST EN IEC 62787:2021 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 62787

March 2021

ICS 27.160

English Version

Concentrator photovoltaic (CPV) solar cells and cell on carrier (CoC) assemblies - Qualification (IEC 62787:2021)

Cellules solaires photovoltaïques à concentration (PVC) et ensembles de cellules sur support (CoC) - Qualification (IEC 62787:2021)

Konzentrator-Photovoltaik(CPV)- Solarzellen und - Anordnungen von Solarzellen auf Trägern (CoC) (IEC 62787:2021)

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CENELEC

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN IEC 62787:2021 E

European foreword

The text of document 82/1818/FDIS, future edition 1 of IEC 62787, prepared by IEC/TC 82 "Solar photovoltaic energy systems" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 62787:2021.

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) 2021-12-10
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2024-03-10

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

Endorsement notice

The text of the International Standard IEC 62787:2021 was approved by CENELEC as a European Standard without any modification.

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

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

Publication	Year	Title	EN/HD	Year
IEC 60721-2-1	2013	Classification of environmental conditions - Part 2-1: Environmental conditions appearing in nature - Temperature and humidity	EN 60721-2-1	2014
IEC 60749-3	2017	Semiconductor devices - Mechanical and climatic test methods - Part 3: External visual examination	EN 60749-3	2017
IEC 60749-6	2017	Semiconductor devices - Mechanical and climatic test methods - Part 6: Storage at high temperature	EN 60749-6	2017
IEC 60749-14	2003	Semiconductor devices - Mechanical and climatic test methods - Part 14: Robustness of terminations (lead integrity)	EN 60749-14	2003
IEC 60749-21	2011	Semiconductor devices - Mechanical and climatic test methods - Part 21: Solderability	EN 60749-21	2011
IEC 60749-22	2002	Semiconductor devices - Mechanical and climatic test methods - Part 22: Bond strength	EN 60749-22	2003
IEC 60904-1-1	2017	Photovoltaic devices - Part 1-1: Measurement of current-voltage characteristics of multi-junction photovoltaic (PV) devices	EN 60904-1-1	2017
IEC 61000-4-2	2008	Electromagnetic compatibility (EMC) - Part 4-2: Testing and measurement techniques - Electrostatic discharge immunity test	EN 61000-4-2	2009

Publication	Year	Title	EN/HD	Year
IEC 61193-2	2007	Quality assessment systems - Part 2: Selection and use of sampling plans for inspection of electronic components and packages	EN 61193-2	2007
IEC/TS 61836	2016	Solar photovoltaic energy systems - Terms, definitions and symbols	-	-
IEC 62108	2016	Concentrator photovoltaic (CPV) modules and assemblies - Design qualification and type approval	EN 62108	2016
IEC 62137-1-2	2007	Surface mounting technology - Environmental and endurance test methods for surface mount solder joint - Part 1-2: Shear strength test	EN 62137-1-2	2007
IEC 62670-1	2013	Photovoltaic concentrators (CPV) - Performance testing - Part 1: Standard conditions	EN 62670-1	2014
IEC/TS 62789	2014	Photovoltaic concentrator cell documentation	-	-
IEC 63202-2	-	Photovoltaic cells - Part 2: Electroluminescence image for crystalline silicon solar cells	-	-
ECSS-E-ST-20-08C Rev.1	2012	Space engineering - Photovoltaic assemblies and components - Part 7.5.8: Coating adherence (CA)	EN 16603-20-08	2014
MIL.ST-883-K	-	Test Method Standard - Microcircuits Method 2019.9 Die shear strength	-	-

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INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Concentrator photovoltaic (CPV) solar cells and cell on carrier (CoC) assemblies – qualification

Cellules solaires photovoltaïques à concentration (PVC) et ensembles de cellules sur support (CoC) – Qualification

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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CONCENTRATOR PHOTOVOLTAIC (CPV) SOLAR CELLS AND CELL ON CARRIER (CoC) ASSEMBLIES – QUALIFICATION

FOREWORD

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International Standard IEC 62787 has been prepared by subcommittee 82: Solar photovoltaic energy systems.

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

FDIS	Report on voting
82/1818/FDIS	82/1834/RVD

Full information on the voting for the approval of this International Standard 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 document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

IMPORTANT – The "colour inside" logo on the cover page of this document 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.

CONCENTRATOR PHOTOVOLTAIC (CPV) SOLAR CELLS AND CELL ON CARRIER (CoC) ASSEMBLIES – QUALIFICATION

1 Scope

This document specifies the minimum requirements for the qualification of concentrator photovoltaic (CPV) cells and Cell on Carrier (CoC) assemblies for incorporation into CPV receivers, modules and systems.

The object of this qualification standard is to determine the optoelectronic, mechanical, thermal, and processing characteristics of CPV cells and CoCs to show that they are capable of withstanding assembly processes and CPV application environments. The qualification tests of this document are designed to demonstrate that cells or CoCs are suitable for typical assembly processes, and when properly assembled, are capable of passing IEC 62108.

This document defines qualification testing for two levels of concentrator photovoltaic device assembly:

a) cell, or bare cell; and

b) cell on carrier (CoC).

NOTE Note that a variety of alternate names are used within the industry, such as solar cell assembly, receiver, etc.

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 60721-2-1:2013, *Classification of environmental conditions – Part 2-1: Environmental conditions appearing in nature – Temperature and humidity*

IEC 60749-3:2017, *Semiconductor devices – Mechanical and climatic test methods – Part 3: External visual examination*

IEC 60749-6:2017, *Semiconductor devices – Mechanical and climatic test methods – Part 6: Storage at high temperature*

IEC 60749-14:2003, *Semiconductor devices – Mechanical and climatic test methods – Part 14: Robustness of terminations (lead integrity)*

IEC 60749-21:2011, *Semiconductor devices – Mechanical and climatic test methods – Part 21: Solderability*

IEC 60749-22:2002, *Semiconductor devices – Mechanical and climatic test methods – Part 22: Bond strength*

IEC 60904-1-1:2017, *Photovoltaic devices – Part 1-1: Measurement of current-voltage characteristics of multi-junction photovoltaic (PV) devices*