BUREAU OF INDIAN STANDARDS
DRAFT FOR COMMENTS ONLY

Draft Indian Standard

Concentrator Photovoltaic (CPV) Modules and Assemblies – Design Qualification And Type Approval

(*Second Revision*)

(ICS 27.160)

Solar Photovoltaic Energy Systems Sectional Committee, ETD 28

Last date for comments- 30 06 2024

NATIONAL FOREWORD

This draft Indian Standard (Second Revision) which is Identical with IEC 62108: 2022 'Concentrator Photovoltaic (CPV) Modules and Assemblies – Design Qualification and Type Approval' issued by the International Electrotechnical Commission (IEC) will be adopted by the Bureau of Indian Standards on the recommendation of the Solar Photovoltaic Energy Systems Sectional Committee and approval of the Electrotechnical Division Council.

This Standards was originally Published in 2015 and Subsequently Revised in 2019. The first revision was based on IEC 62108: 2016. The second revision of this standard has been undertaken to align it with the latest version of IEC 62108: 2022.

The text of the IEC Standard has been approved as suitable for publication as an Indian Standard without deviations. Certain conventions are, however, not identical to those used in Indian Standards. Attention is particularly drawn to the following:

a) Wherever the words 'International Standard' appears referring to this standard, they should be read as 'Indian Standard'.

b) Comma (,) has been used as a decimal marker, while in Indian Standards the current practice is to use a point (.) as the decimal marker.

In this adopted standard, reference appears to International Standards for which Indian Standards also exists. The corresponding Indian Standards, which are to be substituted, are listed below along with their degree of equivalence for the editions indicated:

International Standard	*Corresponding Indian Standard*	*Degree of Equivalence*
IEC 60529, Degrees of protection provided by enclosures (IP Code)	IS/IEC 60529 : 2001 Degrees of protection provided by enclosures (IP Code)	Identical
IEC 60664-1:2020, Insulation coordination for equipment within low-voltage supply systems – Part 1: Principles, requirements and tests	IS 15382 (Part 1) : 2022 / IEC 60664-1: 2020 Insulation Coordination for Equipment Within Low-Voltage Systems Part 1 Principles Requirements and Tests *(Second Revision)*	Identical
IEC 60721-2-1, Classification of environmental conditions – Part 2-1: Environmental conditions appearing in nature – Temperature and humidity	IS 13736 (Part 2/Sec 1) : 2020 / IEC 60721-2-1 : 2013 Classification of Environmental Conditions Part 2 Environmental Conditions Appearing in Nature Section 1 Temperature and humidity (*First Revision*)	Identical
IEC 60904-1: 2020, Photovoltaic devices – Part 1: Measurement of photovoltaic current-voltage characteristics	IS 12762 (Part 1) : 2010 / IEC 60904-1 : 2006 Photovoltaic devices: Part 1 measurement of photovoltaic current - Voltage characteristics (*First Revision*)	Identical
IEC 60904-1-1:2017, Photovoltaic devices – Part 1-1: Measurement of current-voltage characteristics of multi-junction photovoltaic (PV) devices	IS 12762 (Part 1/Sec 1) : 2020 / IEC 60904-1-1 : 2017 Photovoltaic Devices Part 1 Measurement of Current-Voltage Characteristics Section 1 Multi-junction PV devices	Identical
IEC TS 60904-1-2:2019, Photovoltaic devices – Part 1-2: Measurement of current-voltage characteristics of bifacial photovoltaic (PV) devices	IS 12762 (Part 1/Sec 2) : 2020 / IEC TS 60904-1-2 : 2019 Photovoltaic Devices Part 1 Measurement of Current-voltage Characteristics Section 2 Bi-facial photovoltaic (PV) devices	Identical
IEC 60904-2:2015, Photovoltaic devices – Part 2: Requirements for photovoltaic reference devices	IS 12762 (Part 2) : 2018 / IEC 60904-2 : 2015 Photovoltaic devices: Part 2 Requirements for photovoltaic reference devices (*Second Revision*)	Identical
IEC 60904-3:2019, Photovoltaic devices – Part 3: Measurement principles for terrestrial photovoltaic (PV) solar devices with reference spectral irradiance data	IS 12762 (Part 3) : 2020 / IEC 60904-3 : 2019 Photovoltaic Devices Part 3 Measurement Principles for Terrestrial Photovoltaic PV Solar Devices with Reference Spectral Irradiance Data (*Third Revision*)	Identical
IEC 60904-4:2019, Photovoltaic devices – Part 4: Photovoltaic reference devices – Procedures for establishing calibration	IS 12762 (Part 4) : 2014 / IEC 60904-4 : 2009 Photovoltaic devices: Part 4 reference solar devices - Procedures for establishing calibration traceability	Identical

traceability		
IEC 60904-5:2011, Photovoltaic devices – Part 5: Determination of the equivalent cell temperature (ECT) of photovoltaic (PV) devices by the open-circuit voltage method	IS 12762 (Part 5) : 2014 / IEC 60904-5 : 2011 Photovoltaic devices: Part 5 determination of the equivalent cell temperature (ECT) of photovoltaic (PV) devices by the open - Circuit voltage method (*First Revision*)	Identical
IEC 60904-7:2019, Photovoltaic devices – Part 7: Computation of the spectral mismatch correction for measurements of photovoltaic devices	IS 12762 (Part 7) : 2023 / IEC 60904-7 : 2019 Photovoltaic Devices Part 7: Computation of the Spectral Mismatch Correction For Measurements of Photovoltaic Devices (*First Revision*)	Identical
IEC 60904-8:2014, Photovoltaic devices – Part 8: Measurement of Spectral Responsivity Of A Photovoltaic (PV) Device	IS 12762 (Part 8) : 2018 / IEC 60904-8 : 2014 Photovoltaic Devices: Part 8 Measurement of Spectral Responsivity of A Photovoltaic (PV) Device (*First Revision*)	Identical
IEC 60904-8-1:2017, Photovoltaic devices – Part 8-1: Measurement of Spectral Responsivity Of Multi-Junction Photovoltaic (PV) Devices	IS 12762 (Part 8/Sec 1) : 2020 / IEC 60904-8-1 : 2017 Photovoltaic Devices Part 8 Measurement of Spectral Responsivity of a Photovoltaic (PV) Device Section 1 Multi-junction (PV) devices	Identical
IEC 61140: 2016, Protection against electric shock – Common Aspects For Installation And Equipment	IS 9409 : 2023 / IEC 61140 : 2016 Protection Against Electric Shock — Common Aspects for Installation and Equipment (*First Revision*)	Identical
IEC 61215-1:2021, Terrestrial Photovoltaic (PV) Modules – Design Qualification And Type Approval – Part 1: Test Requirements	IS 14286 (Part 1) : 2019 / IEC 61215-1 : 2016 Terrestrial Photovoltaic (PV) Modules — Design Qualification and Type Approval Part 1 Test Requirements (*Second Revision*)	Identical
IEC 61215-2:2021, Terrestrial photovoltaic (PV) Modules – Design Qualification And Type Approval – Part 2: Test procedures	IS 14286 (Part 2) : 2019 / IEC 61215-2 : 2016 Terrestrial Photovoltaic (PV) Modules — Design Qualification and Type Approval Part 2 Test Procedures (*Second Revision*)	Identical
IEC TS 61836:2016, Solar Photovoltaic Energy Systems – Terms, Definitions And Symbols	IS 12834 : 2023/ IEC TS 61836 : 2016 Solar Photovoltaic Energy Systems — Terms, Definitions and Symbols (*Second Revision*)	Identical
IEC 61853-1:2011, Photovoltaic (PV) Module Performance Testing And	IS 16170 (Part 1) : 2014 / IEC 61853-1 : 2011 Photovoltaic (PV) Module Performance Testing and Energy Rating	Identical

Energy Rating – Part 1: Irradiance And Temperature Performance Measurements And Power Rating	Part 1 Irradiance and Temperature Performance Measurements and Power Rating	
IEC 61853-3:2018, Photovoltaic (PV) module performance testing and energy rating – Part 3: Energy rating of PV modules	IS 17614 (Part 5) : 2021 / ISO 5667-5 : 2006 Water Quality — Sampling Part 5 Guidance on Sampling of Drinking Water from Treatment Works and Piped Distribution Systems	Identical
IEC 62670-1, Photovoltaic concentrators (CPV) – Performance testing – Part 1: Standard conditions	IS 16662 (Part 1) : 2017 / IEC 62670-1 : 2013 Photovoltaic Concentrators (CPV) — Performance Testing Part 1 Standard Conditions	Identical
IEC 62670-3:2017, Photovoltaic concentrators (CPV) – Performance testing – Part 3: Performance measurements and power rating	IS 16662 (Part 3) : 2018 / IEC 62670-3 : 2017 Photovoltaic Concentrators (CPV) — Performance Testing Part 3 Performance Measurements and Power Rating	Identical
IEC 62790:2020, Junction boxes for photovoltaic modules – Safety requirements and tests	IS 16911 : 2023 / IEC 62790 : 2020 Junction Boxes for Photovoltaic Modules — Safety Requirements and Tests (*First Revision*)	Identical
IEC 62852:2014, Connectors for DC-application in photovoltaic systems – Safety requirements and tests	IS 16781 : 2018 / IEC 62852 : 2014 Connectors for d.c. Application in Photovoltaic Systems — Safety Requirements and Tests	Identical

The technical committee has reviewed the provision of the following International Standard referred in this adopted standard and has decided that it is acceptable for use in conjunction with this standard:

International Standard	*Title*
IEC 61210:2010	Connecting devices – Flat quick-connect terminations for electrical copper conductors – Safety requirements
IEC 61853-2:2016	Photovoltaic (PV) module performance testing and energy rating – Part 2: Spectral responsivity, incidence angle and module operating temperature measurements

Only English language text has been retained while adopting it in this Indian Standard, and as such the page numbers given here are not the same as in the International Standard.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated expressing the result of a test, shall be rounded off in accordance with IS 2:2022 ‘Rules for rounding off numerical values (*second revision*)’. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

NOTE — The technical content of their document has not been enclosed as there are identical with the corresponding IEC standards for details, please refer the corresponding IEC 62108: 2022 or kindly

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