

## Annex 1. CPV Standards and Specifications under development

<b>Standard or Technical specification</b>	<b>Main scope</b>
IEC 62108	<p>Equivalent to IEC 61215 for c-Si modules</p> <ul style="list-style-type: none"> <li>• Specifies minimum requirements for the design qualification and type approval of concentrator photovoltaic (CPV) modules and assemblies suitable for long-term operation in general open-air climates.</li> <li>• To determine the electrical, mechanical, and thermal characteristics of the CPV modules and assemblies and to show, as far as possible within reasonable constraints of cost and time, that the CPV modules and assemblies are capable of withstanding prolonged exposure.</li> </ul>
IEC 62670	<p>Performance Measurements and Power Rating - Irradiance and Temperature</p> <p>Defines two sets of measurements conditions, indoor (STC) and outdoor (SOC), all based in AM1.5D spectrum</p>
IEC 62688	<p>Fundamental construction and testing requirements for CPV modules and assemblies in order to provide safe electrical and mechanical operation during their expected lifetime.</p> <ul style="list-style-type: none"> <li>• Specific topics are provided to assess the prevention of electrical shock, fire hazards, and personal injury due to mechanical and environmental stresses.</li> <li>• Equivalent to IEC 61730 for flat plates.</li> <li>• Test sequence can be coordinated with the test sequence of 62108</li> <li>• Expected publication date: End of 2012.</li> </ul>
Energy rating	<p>Minimum requirements for evaluating the performance of CPV modules, arrays, assemblies or power plants based on total energy produced.</p> <ul style="list-style-type: none"> <li>• Six months or one year.</li> <li>• Based on direct energy measurement.</li> <li>• The energy measurement period may coincide with the Outdoor Exposure Test described in IEC 62108.</li> <li>• To be able to accurately predict the annual energy output of a CPV module or assembly in a “real world” situation, including typical changes in cell operating temperature, in solar spectrum, in atmospheric conditions,, typical soiling of the optics, and shading between individual system within a power plant.</li> </ul>
Plant acceptance	<p>Procedures to measure and evaluate the CPV power plant performance after its installation.</p> <ul style="list-style-type: none"> <li>• To provide the information to the customer about the real performance of the plant.</li> <li>• The method is based on actual acceptance procedures.</li> <li>• This technical specification is needed for evaluation and rating of CPV plants.</li> <li>• To be based on IEC 61829:1995 - Crystalline silicon PV array - On-site measurement of I-V characteristics, with appropriate changes for CPV</li> </ul>
Tracker specification	<p>Provides guidelines for the parameters to be specified for solar trackers for photovoltaic systems</p> <ul style="list-style-type: none"> <li>• Provides recommendations for measurement techniques.</li> <li>• To define the performance characteristics of trackers, and describe the methods to calculate and/or measure critical parameters.</li> <li>• Provides industry-wide definitions and parameters for solar trackers.</li> <li>• This specification will clarify terminology and definitions for trackers and provide examples of measurement techniques</li> </ul>
CPV cell specification and qualification	<p>The objective of a bare cell specification is to provide a common set of product qualification tests and performance parameters for bare solar cells intended for CPV applications.</p> <ul style="list-style-type: none"> <li>• The specification should benefit cell suppliers in demonstrating reliability of their product, and CPV system companies in evaluating suppliers on a common footing.</li> <li>• The standard should also address end market reliability concerns.</li> <li>• Currently separated in two parts: CPV cells specification and CPV cells qualification and reliability.</li> <li>• May be extended to cell assemblies or other higher level of assemblies including electrical interconnection, environmental protection, optical elements and thermal control features.</li> </ul>