

SEMI PV82-0318 (Reapproved 0124) SPECIFICATION FOR TERRESTRIAL DUAL-GLASS MODULE WITH CRYSTALLINE SILICON SOLAR CELL

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NOTICE: The section symbol (§) is used to reference a numbered section, paragraph, or header and all subordinate paragraphs, headers, and embedded material (i.e., EXCEPTIONs, lists) therein. The paragraph symbol (¶) is used to reference a particular numbered paragraph and embedded material therein. When duplicated (i.e., §§ and ¶¶) the symbols are used to reference more than one section or paragraph, respectively.

1 Purpose

1.1 This Standard defines a technical specification of terrestrial dual-glass module with crystalline silicon solar cell in an attempt to regulate the manufacturing, sales, and customer acceptance inspection, etc. of the dual-glass module.

2 Scope

2.1 This Standard specifies the terms and definitions, test methods, order information, approval requirements, inspection classification, sample preparation, judgment rules, product marking and packaging, transportation, and storage of the terrestrial dual-glass module with crystalline silicon solar cell.

2.2 This Standard applies to the terrestrial dual-glass module with crystalline silicon solar cell (hereinafter referred to as dual-glass module). However, the dual-glass module using bifacial cells is excluded in this Standard.

2.3 The glass involved in this Standard is restricted to physically fully-tempered glasses or physically heat strengthened glasses.

NOTICE: SEMI Standards and Safety Guidelines do not purport to address all safety issues associated with their use. It is the responsibility of the users of the Documents to establish appropriate safety and health practices, and determine the applicability of regulatory or other limitations prior to use.

3 Limitations

3.1 None.

4 Referenced Standards and Documents

4.1 IEC® Standards¹

IEC 60068-2-68:1994 — Environmental Testing – Part 2-68: Tests – Test L: Dust and Sand

IEC 60664-1:2007 — Insulation Coordination for Equipment Within Low-Voltage Systems – Part 1: Principles, Requirements and Tests

IEC 61215-1:2016 — Terrestrial Photovoltaic (PV) Modules – Design Qualification and Type Approval – Part 1: Test Requirement

IEC 61215-2:2016 — Terrestrial Photovoltaic (PV) Modules – Design Qualification and Type Approval – Part 2: Test Procedures

IEC 61701:2011 — Salt Mist Corrosion Testing of Photovoltaic (PV) Modules

IEC 61730-1:2013 — Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements for Construction

IEC 62716:2013 — Photovoltaic (PV) Modules – Ammonia Corrosion Testing

¹ International Electrotechnical Commission, 3 rue de Varembe, Case Postale 131, CH-1211 Geneva 20, Switzerland; Telephone: +41.22.919.02.11, <http://www.iec.ch>. IEC trademark is owned by International Electrotechnical Commission.

IEC 62804-1:2015 — Photovoltaic (PV) Modules – Test Methods for the Detection of Potential-Induced Degradation – Part 1: Crystalline Silicon

IEC TS 62782:2016 — Photovoltaic (PV) Modules – Cyclic (Dynamic) Mechanical Load Testing

4.2 *UL[®] Standards*²

UL 790 — Standard for Standard Test Methods for Fire Tests of Roof Coverings

NOTICE: Unless otherwise indicated, all documents cited shall be the latest published versions.

5 Terminology

5.1 Refer to the SEMI International Standards Compilation of Terms (COTs) for a list of the current Abbreviations, Acronyms, Definitions, and Symbols.

5.2 *Definitions*

5.2.1 *electroluminescence* — an optical and electrical phenomenon as a result of radiative combination of holes and electrons in a material where excited electrons release their energy as photons-light.

5.2.2 *glass shift* — the maximum distance of the difference between glass edges after lamination.

5.2.3 *standard test conditions (STC)* — temperature of $25 \pm 2^\circ\text{C}$, irradiation of 1000 W/m^2 with standard spectral irradiance distribution.

5.2.4 *terrestrial dual-glass module with crystalline silicon solar cell* — heat strengthened glasses or tempered glasses are used on both the top and rear, and crystalline silicon solar cells connected in series or parallels are placed between the glasses. After thermocompression and encapsulation with an adhesive film, such as EVA or PVB etc., the unit that can absorb light and transform it into electricity is referred as a terrestrial dual-glass module with crystalline silicon.

6 Test Method

6.1 *Test Procedure and Conditions*

6.1.1 Electrical performance, reliability and fire test of modules will be conducted as shown in Figure 1. As sand and dust test is not necessary, and it will not be included in Figure 1.

² Underwriters Laboratory, 333 Pfingsten Road Northbrook Illinois, 60062, USA; Telephone: +1.847.272.8800, <http://www.ul.com>. UL trademark is owned by Underwriters Laboratory.

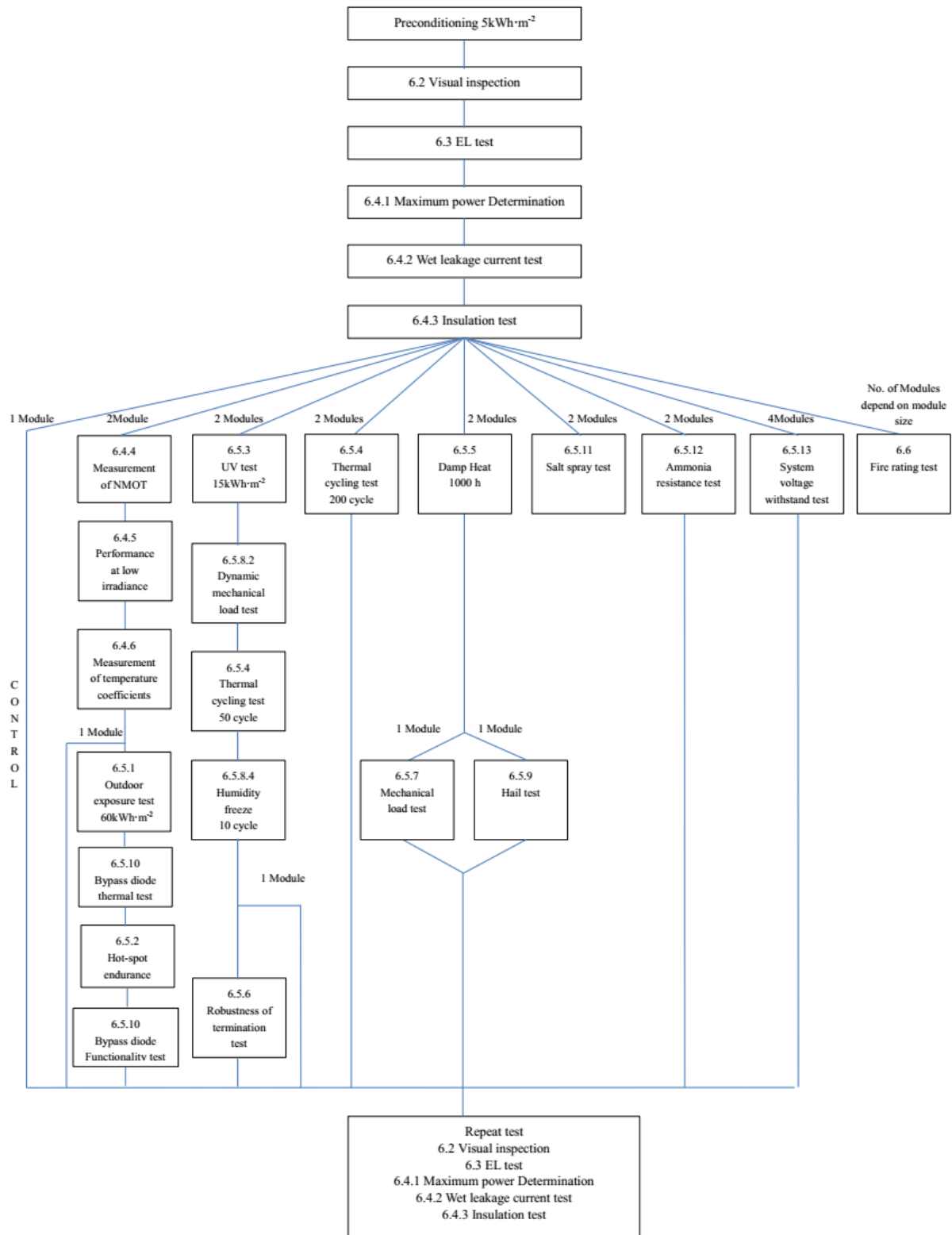


Figure 1
Test Procedure