

**CONFORMITY ASSESSMENT SYSTEM  
FOR  
EQUIPMENT FOR USE IN RENEWABLE ENERGY APPLICATION  
(PV ENERGY)**

## ARTICLE 1 – TERMS AND DEFINITIONS

For the purpose of this document, the following terms and definitions apply:

**Country :** United Arab Emirates

**ESMA :** Emirates Authority for Standardization & Metrology, a competent authority responsible for implementing this scheme.

**Board :** Board of Directors of ESMA

**Director General:** Director General of ESMA

**Concerned Authorities:** Federal and local governmental authorities of the country that are authorized to implement the requirements of this scheme.

**Standard:** A standard is a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose.

**Approved Standard:** A standard that is adopted by ESMA as a UAE standard.

**Mandatory UAE Standard (Technical Regulation):** Approved UAE standard which shall be mandatorily applied as per the resolution issued by the Cabinet,

**Certificate of Conformity:** A certificate issued by ESMA to the given product ensuring that the product complies with the requirements of this scheme.

**Mark of Conformity:** A mark exclusively owned by ESMA appearing on the product that indicates that the given product complies with requirements of the standard issued by ESMA

**Product:** products for use in renewable energy application covered by this technical regulation

**Supplier:** the manufacturer, importer, including storage operator, wholesale and retail, and any other relevant processes or each professional of the supply chain who may have an impact on the product .or any commercial or legal representative for import product subject to the provisions of this Regulation.

## **ARTICLE 2 – SCOPE**

This scheme covers Renewable Energy product focusing on Solar PV Energy, and relate to areas characterized by systems which generate electricity from renewable natural sources which consist of complex arrangements of sub-systems including structures, which are installed outside of any protective environment and whose reliability and performance is affected by direct interaction with the natural environment. These areas may include the equipment and processes to produce energy, as well as the equipment to manufacture, transport and service the energy-producing equipment.

This scheme covers classes of certification such as product certification, service and service facilities certification and personnel competence certification.

PV energy equipment manufacturers, PV energy service providers, developers, operators and persons are covered by this Technical Regulation

Mandatory certification from Emirates Authority for Standardization and Metrology is necessary before these products are accepted to be traded inside the country.

## **ARTICLE 3 – GENERAL REQUIREMENTS**

3.1 Locally produced or imported products and the company responsible for the product shall apply and comply with this Scheme for the products to be granted an approval.

3.2 It is the responsibility of the manufacturer of locally produced products or the importer for products from other countries to have the product to be registered in ESMA.

3.3 Manufacturers shall comply with the following requirements for them to be granted a Certificate of Conformity:

3.3.1 Effective implementation of a management system according to the latest edition of ISO 9001. This will be verified by ESMA and / or by an ESMA recognized competent conformity assessment body

3.3.2 Product compliance to the relevant product standards mentioned in Annex 1. Any third party testing laboratory recognized by ESMA can verify and test the product. Test Reports validity is 3 years.

## **ARTICLE 4 – CONFORMITY ASSESSMENT PROCESS**

4.1 Suppliers applying for approval shall apply to ESMA for approval

4.2 The conformity Assessment process shall be conducted by ESMA or by ESMA recognized third party conformity assessment bodies.

4.3 When the result of the conformity assessment process showed that the factory and product complies with this technical regulation, a Certificate of Conformity and the Mark of Conformity shall be issued by ESMA.

4.4 The Certificate of Conformity is valid for three (3) years and is renewable.

4.5 An annual surveillance visit shall be conducted to ensure continuous compliance of the product.

#### **ARTICLE 5 – MARK OF CONFORMITY**

5.1 A mark of conformity shown in **Annex 2** shall be issued to the product together with the certification number and the relevant product standard that the product is complying with.

5.2 The mark of conformity shall be affixed to the product and on the product packaging where applicable to provide an indication that the product is approved for the UAE market.

5.3 The Mark of Conformity is an exclusive property of ESMA and its correct use is a contractual obligation. Intentional misuse of the mark maybe grounds for actions that may include but not limited to withdrawing the Certificate of Conformity. ESMA shall implement market monitoring for ensuring correct use of the Emirates Mark of Conformity.

#### **ARTICLE 6 – MONITORING OF PRODUCTS**

6.1 Product covered by this scheme shall be subjected for inspection prior to the release of product from Ports and Customs Authorities. Each consignment shall be verified if the product is having the necessary approval and mark of conformity. Any products that do not have the necessary approval shall be rejected.

6.2 Inspection at Ports and Customs Authorities shall be conducted by ESMA and / or by its recognized inspection bodies.

#### **ARTICLE 7 – MARKET MONITORING AND SURVEILLANCE**

7.1 ESMA and relevant federal and local government authorities are responsible that only the approved products having the mark of conformity are traded in the market.

7.2 Relevant federal and local government authorities are authorized to issue fines and penalties and recall non-conforming products in the market.

7.3 ESMA has the right to suspend and cancel the Certificate of Conformity for products found not compliant during the market monitoring.

#### **ARTICLE 7 – DUTIES AND RESPONSIBILITIES**

7.1 It is the responsibility of Manufacturers and traders to supply to UAE only products that complies with this technical regulation

7.2 Retailers are required to display and sell only products that are ESMA approved and having the mark of conformity

7.3 The manufacturer and Suppliers are ultimately responsible for ensuring that product meets the requirements of this technical regulation.

#### **ARTICLE 8 – VIOLATIONS AND PENALTIES**

8.1 In case of any violations, ESMA and relevant government authorities shall implement the following actions to address the violation

8.2 Enforce the necessary actions depending upon the gravity of the violation to require the supplier to recall the product to either to repair, re-export or destroy them as per the agreed period of implementation.

8.3 Implement the agreed upon mitigating actions on the non-complying products and has the authority to announce the product recall in which the supplier shall bear the cost.

8.4 Violations and Penalties from the Federal Law 28 of 2001 shall apply.

8.5 ESMA shall have the authority to withdraw or cancel the Certificate of Conformity granted to the non-complying product.

#### **ARTICLE 9 – TRANSITIONAL PROVISIONS**

9.1 Suppliers are required to comply to this regulation by having the products to be approved and have the mark of conformity for a period of not more than 180 days after the publication of this document to the Official UAE Gazette.

9.2 Non-registered products already in the market are allowed to be traded in UAE for a period of not more than 1 year after the publication of this Regulation to the Official UAE Gazette.

#### **Article 10 - FINAL PROVISION**

10.1 ESMA to prepare procedures for the implementation of this regulation. ESMA may allow other authorities to monitor products in their own area of responsibilities under ESMA supervision

10.2 ESMA has the responsibility to process application and approve products complying to this regulation. ESMA has the right to delegate to other parties the processing of application for approval

10.3 ESMA Board of Directors is authorized to approve any relevant standards required to implement this regulation.

10.4 Annexes and Terms and Definitions mentioned in regulations including the relevant standards shall be part of this regulation and ESMA Board has the authority to modify this annexes when in deemed necessary.

10.5 This regulation shall not stop government authorities in taking samples and verifying them of their compliance with other requirement by other regulations not mentioned in this document.

10.6 All entities covered by this regulation shall provide all the necessary support and information to the relevant inspection authority for the effective implementation of this regulation.

10.7 Any disputes, misunderstandings and appeals for the implementation of this regulation shall be directed to the ESMA Director General who is authorized to make decisions taking into consideration the interest of the public.

#### **Article 11 - CANCELLATION**

Any requirements stated in any Regulations or Legislations shall be considered cancelled if such requirements contradicted with the provisions of this Regulation.

#### **Article 12 - PUBLICATION AND DATE OF IMPLEMENTATION**

This Regulation shall be published in the Official Gazette of UAE and come into force upon the publication and all concerned parties are expected to implement it.

Signed:

Sheikh Mohamed Bin Rashid Al Maktoum

Prime Minister, United Arab Emirates

Date:

**Table 1****Approved standards**

IEC 60269-6 ed1.0 (2010-09-29)	Low-voltage fuses - Part 6: Supplementary requirements for fuse-links for the protection of solar photovoltaic energy systems
IEC 60364-7-712 ed1.0 (2002-05-22)	Electrical installations of buildings - Part 7-712: Requirements for special installations or locations - Solar photovoltaic (PV) power supply systems
IEC 60439-1,	Low-voltage switchgear and control gear assemblies – Part 1: Type-tested and partially type-tested assemblies
IEC 60904-10 ed2.0 (2009-12-17) -	Photovoltaic devices - Part 10: Methods of linearity measurement
IEC 60904-2 ed2.0 (2007-03-20) -	Photovoltaic devices - Part 2: Requirements for reference solar devices
IEC 60904-3 ed2.0 (2008-04-09)	Photovoltaic devices - Part 3: Measurement principles for terrestrial photovoltaic (PV) solar devices with reference spectral irradiance data
IEC 60904-4 ed1.0 (2009-06-09)	Photovoltaic devices - Part 4: Reference solar devices - Procedures for establishing calibration traceability
IEC 60904-5 ed2.0 (2011-02-17) -	Photovoltaic devices - Part 5: Determination of the equivalent cell temperature (ECT) of photovoltaic (PV) devices by the open-circuit voltage method
IEC 60904-7 ed3.0 (2008-11-26) -	Photovoltaic devices - Part 7: Computation of the spectral mismatch correction for measurements of photovoltaic devices
IEC 60904-8 ed3.0 (2014-05-08) -	Photovoltaic devices - Part 8: Measurement of spectral responsivity of a photovoltaic (PV) device
IEC 60904-9 ed2.0 (2007-10-16) -	Photovoltaic devices - Part 9: Solar simulator performance requirements
IEC 61215	Crystalline silicon terrestrial photovoltaic (PV) modules – Design qualification and type approval
IEC 61345 ed1.0 (1998-02-26)	UV test for photovoltaic (PV) modules
IEC 61427-1 ed1.0 (2013-04-23) -	Secondary cells and batteries for renewable energy storage - General requirements and methods of test - Part 1: Photovoltaic off-grid application
IEC 61646 ed2.0 (2008-05-14) -	Thin-film terrestrial photovoltaic (PV) modules - Design qualification and type approval
IEC 61683 ed1.0 (1999-11-25)	Photovoltaic systems - Power conditioners - Procedure for measuring efficiency
IEC 61701 ed2.0 (2011-12-15)	Salt mist corrosion testing of photovoltaic (PV) modules
IEC 61702 ed1.0	Rating of direct coupled photovoltaic (PV) pumping systems

(1995-03-22)	
IEC 61724 ed1.0 (1998-04-15) -	Photovoltaic system performance monitoring - Guidelines for measurement, data exchange and analysis
IEC 61725 ed1.0 (1997-05-30)	Analytical expression for daily solar profiles
IEC 61727 ed2.0 (2004-12-14)	Photovoltaic (PV) systems - Characteristics of the utility interface
IEC 61730-1-am2 ed1.0 (2013-03-14) Amendment 2	Photovoltaic (PV) module safety qualification - Part 1: Requirements for construction
IEC 61730-2 ed1.0 (2004-10-14) -	Photovoltaic (PV) module safety qualification - Part 2: Requirements for testing
IEC 61829 ed1.0 (1995-03-31) -	Crystalline silicon photovoltaic (PV) array - On-site measurement of I-V characteristics
IEC 61850-7-420 ed1.0 (2009-03-10)	Communication networks and systems for power utility automation - Part 7-420: Basic communication structure - Distributed energy resources logical nodes
IEC 61853-1 ed1.0 (2011-01-26)	Photovoltaic (PV) module performance testing and energy rating - Part 1: Irradiance and temperature performance measurements and power rating
IEC 62093 ed1.0 (2005-03-29)	Balance-of-system components for photovoltaic systems - Design qualification natural environments
IEC 62108 ed1.0 (2007-12-07) -	Concentrator photovoltaic (CPV) modules and assemblies - Design qualification and type approval
IEC 62109-1 ed1.0 (2010-04-28) -	Safety of power converters for use in photovoltaic power systems - Part 1: General requirements
IEC 62109-2 ed1.0 (2011-06-23)	- Safety of power converters for use in photovoltaic power systems - Part 2: Particular requirements for inverters
IEC 62116 ed2.0 (2014-02-26)	Utility-interconnected photovoltaic inverters - Test procedure of islanding prevention measures
IEC 62124 ed1.0 (2004-10-06)	Photovoltaic (PV) standalone systems - Design verification
IEC 62253 ed1.0 (2011-07-15) -	Photovoltaic pumping systems - Design qualification and performance measurements
IEC 62446 ed1.0 (2009-05-13)	Grid connected photovoltaic systems - Minimum requirements for system documentation, commissioning tests and inspection
IEC 62509 ed1.0 (2010-12-16)	Battery charge controllers for photovoltaic systems - Performance and functioning
IEC 62670-1 ed1.0	Photovoltaic concentrators (CPV) - Performance testing - Part 1: Standard



(2013-09-25)	conditions IEC 62716 ed1.0 (2013-06-27) Photovoltaic (PV) modules - Ammonia corrosion testing
IEC 62790 ed1.0 (2014-11-06) -	Junction boxes for photovoltaic modules - Safety requirements and tests
IEC 62817 ed1.0 (2014-08-25) -	Photovoltaic systems - Design qualification of solar trackers
IEC 62852 ed1.0 (2014-11-06)	Connectors for DC-application in photovoltaic systems - Safety requirements and tests

**Table 2**  
**Recommended and guideline standards**

IEC 60050(826):1982,	International Electrotechnical Vocabulary (IEV) – Chapter 826: Electrical installations of buildings
IEC 60364-1 ed5.0 (2005-11-29)	Low-voltage electrical installations - Part 1: Fundamental principles, assessment of general characteristics, definitions
IEC 60891 ed2.0 (2009-12-14)	Photovoltaic devices - Procedures for temperature and irradiance corrections to measured I-V characteristics
IEC 60904-1 ed2.0 (2006-09-13)	Photovoltaic devices - Part 1: Measurement of photovoltaic current-voltage characteristics
IEC/PAS 62111 ed1.0 (1999-07-29)	Specifications for the use of renewable energies in rural decentralised electrification
IEC/TR 60269-5 ed2.0 (2014-03-07)	Low-voltage fuses - Part 5: Guidance for the application of low-voltage fuses
IEC/TR 60755,	General requirements for residual current operated protective devices Amendment 2 (1992)
IEC/TR 61850-90-7 ed1.0 (2013-02-21) -	Communication networks and systems for power utility automation - Part 90-7: Object models for power converters in distributed energy resources (DER) systems
IEC/TS 61836 ed2.0 (2007-12-13)	Solar photovoltaic energy systems - Terms, definitions and symbols
IEC/TS 62257-1 ed2.0 (2013-10-14) -	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 1: General introduction to IEC 62257 series and rural electrification
IEC/TS 62257-12-1 ed1.0 (2007-06-21)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 12-1: Selection of self-ballasted lamps (CFL) for rural electrification systems and recommendations for household lighting equipment
IEC/TS 62257-2	Recommendations for small renewable energy and hybrid systems for

ed1.0 (2004-05-27)	rural electrification - Part 2: From requirements to a range of electrification systems
IEC/TS 62257-3 ed1.0 (2004-11-10)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 3: Project development and management
IEC/TS 62257-4 ed1.0 (2005-07-25)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 4: System selection and design
IEC/TS 62257-5 ed1.0 (2005-07-13)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 5: Protection against electrical hazards
IEC/TS 62257-6 ed1.0 (2005-06-22)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 6: Acceptance, operation, maintenance and replacement
IEC/TS 62257-7 ed1.0 (2008-04-09)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 7: Generators
-	
IEC/TS 62257-7-3 ed1.0 (2008-04-09)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 7-3: Generator set - Selection of generator sets for rural electrification systems
-	
IEC/TS 62257-8-1 ed1.0 (2007-06-21)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 8-1: Selection of batteries and battery management systems for stand-alone electrification systems - Specific case of automotive flooded lead-acid batteries available in developing countries
IEC/TS 62257-9-1 ed1.0 (2008-09-09)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 9-1: Micropower systems
IEC/TS 62257-9-2 ed1.0 (2006-10-09)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 9-2: Microgrids
IEC/TS 62257-9-3 ed1.0 (2006-10-09)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 9-3: Integrated system - User interface
IEC/TS 62257-9-4 ed1.0 (2006-10-09)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 9-4: Integrated system - User installation
IEC/TS 62257-9-5 ed2.0 (2013-04-03)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 9-5: Integrated system - Selection of stand-alone lighting kits for rural electrification
IEC/TS 62257-9-6 ed1.0 (2008-09-19)	Recommendations for small renewable energy and hybrid systems for rural electrification - Part 9-6: Integrated system - Selection of Photovoltaic Individual Electrification Systems (PV-IES)
-	
IEC/TS 62548 ed1.0 (2013-07-26)	- Photovoltaic (PV) arrays - Design requirements
IEC/TS 62727 ed1.0 (2012-05-30) -	Photovoltaic systems - Specification for solar trackers