

**RENEWABLE ENERGY (STANDARDS AND LABELLING)  
(SOLAR PANELS) REGULATIONS, 2022**

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IN exercise of the power conferred on the Minister responsible for Energy, acting on the recommendation of the Board, by paragraphs (d) and (e) of section 50 of the Renewable Energy Act, 2011 (Act 832), these Regulations are made this 28<sup>th</sup> day of June, 2022.

*Preliminary Provisions*

**Purpose of Regulations**

1. The purpose of these Regulations is to promote the efficient use of solar panels in the country and mitigate related climate change by

(a) providing for

- (i) the enforcement of Standards set out in the First Schedule and the minimum efficiency standards set out in the Second Schedule;
- (ii) the labelling of solar panels;
- (iii) supplementary product information on solar panels; and
- (iv) the registration of models of solar panels in the Renewable Energy Product Register; and

(b) prohibiting the manufacture, importation, offer for sale, sale, storage, donation, disposal, installation or use of a solar panel that does not meet the minimum efficiency standards set out in the Second Schedule.

**Application of Regulations**

2. (1) These Regulations apply to a solar panel with

- (a) crystalline silicon cells;
- (b) thin film cells; or
- (c) concentrated photovoltaic cells

manufactured in the country or imported into the country for display, sale or use.

(2) These Regulations do not apply to a solar panel

- (a) with a capacity of less than 100 Watts; and
- (b) integrated or encapsulated with a lighting system.

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*Duties and Requirements*

**Duty to comply with requirements**

3. (1) A person who manufactures, imports, offers for sale, sells, stores, supplies, distributes, donates or otherwise disposes of a solar panel for use in the country shall ensure that each model of the solar panel

(a) is registered with the Commission; and

(b) meets the

- (i) Standards set out in the First Schedule;
- (ii) minimum efficiency standards set out in the Second Schedule;
- (iii) labelling requirements set out in the Third Schedule; and
- (iv) information requirements set out in the Fourth Schedule.

(2) A person who advertises a solar panel shall comply with the provisions of Part Five of the Fourth Schedule.

**Prohibition of manufacture, importation, offer for sale, sale, storage, donation, disposal, installation or use of solar panel**

4. (1) A person shall not manufacture, import, offer for sale, sell, store, donate or otherwise dispose of, install or use a solar panel in the country unless the solar panel meets the

(a) minimum efficiency standards set out in the Second Schedule; and

(b) requirements

- (i) set out in the Second Schedule; and
- (ii) of the Standards.

(2) An enforcement authority shall

(a) detain, cause to be re-exported or seize and destroy a solar panel imported for use in the country contrary to subregulation (1); or

(b) seize and destroy a solar panel manufactured for use in the country contrary to subregulation (1).

**Category of solar panel**

5. The category of a solar panel shall be determined in accordance with the categories set out in Part Two of the Fourth Schedule.

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**Minimum efficiency standard of solar panel**

6. The minimum efficiency standard of a solar panel shall be determined in accordance with the formula and standards set out in the Second Schedule.

**Model number, power, voltage, current and series fuse rating of solar panel**

7. The manufacturer of a solar panel shall ensure that the model number, rated power, voltage, current, open-circuit voltage, short-circuit current and maximum series fuse rating of a solar panel is printed conspicuously and displayed

- (a) on the back of a monofacial solar panel; and
- (b) at any appropriate location of a bifacial solar panel.

**Measurement methods**

8. The information to be provided pursuant to regulations 10 and 11 shall be obtained by

- (a) a reliable, accurate and reproducible measurement which takes into account recognised state-of-the-art measurements; and
- (b) calculation methods

in accordance with the Standards.

**Use of circumvention device**

9. (1) A manufacturer, an importer or an authorised representative of the manufacturer shall not use a circumvention device during the conduct of a test of a solar panel.

(2) A person shall not manufacture, import, offer for sale, sell, store, donate or otherwise dispose of, install or use a solar panel which is designed to

- (a) detect that the solar panel is being tested by recognising the test conditions or test cycle; or
- (b) react specifically by automatically altering the performance of the solar panel during the test with the aim of reaching a more favourable level for any of the parameters declared by

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the manufacturer, importer or authorised representative of the manufacturer, in the technical documentation or included in any other documentation provided.

**Technical documentation**

10. (1) A person shall not manufacture, import, offer for sale, sell, store, distribute, donate or otherwise dispose of a solar panel for use in the country, unless that person has provided the Commission with sufficient technical documentation to enable the Commission

- (a) ascertain the accuracy of the information contained
  - (i) in the Product Information Sheet; or
  - (ii) on the label; and

- (b) register each model of the solar panel in the Renewable Energy Product Register.

(2) The technical documentation referred to in subregulation (1) shall

- (a) be in the English language;
- (b) include the Product Information Sheet set out in Part One of the Fourth Schedule; and
- (c) contain the information set out in Part Three of the Fourth Schedule marked "Technical Documentation".

(3) The technical documentation shall

- (a) be prepared for each model of a solar panel placed on the market; and
- (b) include
  - (i) the name and address of the supplier;
  - (ii) the description of the solar panel, for purposes of identification;
  - (iii) the model identifier of the manufacturer;
  - (iv) the relevant drawings on the main design features of the model and parameters of the solar panel that affect the efficiency of the solar panel;
  - (v) reports of relevant measurement tests carried out in compliance with the Standards;
  - (vi) details of calculations, extrapolations and tests carried out to verify the accuracy of calculations;

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- (vii) the installation and operating instructions; and
- (viii) the period within which the model of the solar panel was manufactured.

**Labelling and information requirements**

11. (1) A person shall not manufacture, import, offer for sale, sell, store, supply, distribute, donate or otherwise dispose of a solar panel for use in the country, unless the solar panel and the packaging of the solar panel meet the following requirements:

- (a) the solar panel shall bear a label
  - (i) in the form set out in the Third Schedule; and
  - (ii) placed on the back of a monofacial solar panel or the packaging of a bifacial solar panel;
- (b) the information in respect of the solar panel indicated on the packaging of the solar panel shall be in English language;
- (c) the Product Information Sheet in respect of the solar panel shall be as set out in Part One of the Fourth Schedule;
- (d) the label on a packaging containing a solar panel shall
  - (i) contain the information set out in the Third Schedule; and
  - (ii) be printed in colour;
- (e) the labels on the solar panel and the packaging of the solar panel shall include the following information:
  - (i) the Quick Response Code;
  - (ii) the name or trade mark of the manufacturer;
  - (iii) the model identifier of the manufacturer;
  - (iv) the type of solar panel;
  - (v) the efficiency of the solar panel;
  - (vi) the rated power of the solar panel, measured in accordance with the test procedures specified in the Standards;
  - (vii) the year of manufacture and lifespan of the solar panel; and
  - (viii) the country of origin or manufacture;
- (f) the label on the solar panel shall be printed in colour on a waterproof material and pasted conspicuously on the solar panel;



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(g) the background of a label printed or pasted on each packaging containing a solar panel shall be gold in colour; and

(h) the text on the label of the solar panel shall be black in colour.

(2) Despite regulation 21, an update to the Standards shall take precedence over the requirements specified in paragraph (e) of subregulation (1) and the Second Schedule.

(3) Where

(a) a side of the packaging is not large enough to contain a label and the blank border; or

(b) a label would cover more than fifty per cent of the surface area of the largest side of a packaging

the label and the blank border shall be reduced to not less than forty per cent of the largest side of the packaging and pasted on the largest side of the packaging.

(4) A person shall not remove the label on a solar panel or the packaging containing a solar panel before the first retail purchase of the solar panel.

(5) For the purposes of this regulation, "first retail purchase" means the purchase of a solar panel by an end user.

*Registration of Solar Panels*

**Renewable Energy Product Register**

12. (1) The Commission shall establish, keep and maintain a Renewable Energy Product Register.

(2) The Renewable Energy Product Register shall contain the information specified in subregulation (5) of regulation 13.

**Application for registration**

13. (1) A person who

(a) manufactures a solar panel in the country; or

(b) imports a solar panel into the country

for use in the country shall, prior to the manufacture or importation ensure that each model of the solar panel is registered with the Commission.

(2) A person who

(a) manufactures a solar panel in the country; or

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(b) imports a solar panel into the country for use in the country shall apply to the Commission for registration of the solar panel.

(3) An application for registration under subregulation (2) shall be made in writing or electronically on the website of the Commission and accompanied with the prescribed fee.

(4) An application for registration shall be accompanied with a test report from an accredited test laboratory that demonstrates that

(a) the solar panel meets the minimum efficiency standards set out in the Second Schedule; and

(b) the panel efficiency on the test report corresponds to the panel efficiency that is provided on the label of the solar panel.

(5) The following information shall be provided for each registration of a model of a solar panel:

(a) the brand or trademark, if any, used in connection with a supply of the model;

(b) the model identifier issued by the manufacturer for each model covered by the registration;

(c) the Product Information Sheet of the model;

(d) the date the registration takes effect;

(e) a unique identifier for the registration issued by the Commission;

(f) the names and contact details of the applicant and contact person in relation to the registration;

(g) if the model is to be registered as a replacement model of an earlier registered model, that fact and details to identify the replaced model, including the date the replacement was made;

(h) if a model to be registered is affected by a replacement, that fact and details to identify the replaced model and replacement model, including the date the replacement was made;

(i) any information specified in these Regulations in relation to that model of solar panel; and

(j) any other information the Commission may consider appropriate.

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**Consideration of application**

14. (1) The Commission shall, on receipt of an application for registration of a solar panel, consider the application.

(2) The Commission shall, in considering the application, have regard to the requirements specified in subregulation (5) of regulation 13.

**Grant of application**

15. (1) The Commission may, within fourteen days after receipt of an application, grant or refuse an application.

(2) Where the Commission decides to grant an application, the Commission shall

(a) within three days after the date of the decision inform the applicant, in writing or electronically as the case may be, of the decision; and

(b) enter the information specified in subregulation (5) of regulation 13 in the Renewable Energy Product Register.

(3) Where the Commission refuses to grant an application, the Commission shall within three days after the date of the decision communicate to the applicant, in writing or electronically as the case may be,

(a) the reason for the refusal; and

(b) the applicable Standards the model of the solar panel is required to meet.

*Duties of Dealers and Suppliers of Solar Panels*

**Duty of dealer to keep, maintain and provide technical documentation**

16. (1) A dealer shall keep and maintain technical documentation in respect of a solar panel for a period of not less than two years after the date of manufacture or importation.

(2) A dealer shall, within two days after a request by an enforcement authority, provide the enforcement authority with technical documentation in respect of a solar panel for inspection.

(3) Where a dealer fails to provide technical documentation in respect of a solar panel within two days after the request, the enforcement authority shall detain the solar panel.

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- (4) A dealer shall ensure that
- (a) each solar panel, at the point of sale, including at trade fairs, bears the label provided by a supplier in accordance with regulation 3, with the label being displayed conspicuously on the back of the solar panel;
  - (b) in the event of distance selling, the label and Product Information Sheet are provided in accordance with the Third and Fourth Schedules;
  - (c) an audio advertisement, including radio and local information broadcast network, on a specific model of a solar panel where the brand, capacity, size, category or price is mentioned, includes a comparison of the panel efficiency of the model of the solar panel to the specified minimum efficiency standard in accordance with Part Five of the Fourth Schedule;
  - (d) a visual advertisement for a specific model of solar panel, including an advertisement on the internet, contains information on the panel efficiency, and the minimum efficiency of the solar panel available on the label in accordance with Part Five of the Fourth Schedule; and
  - (e) a technical promotional material concerning a specific model of solar panel, including technical promotional material on the internet, which describes the specific technical parameters of the solar panel includes
    - (i) the panel efficiency of that model; and
    - (ii) the minimum efficiency of the solar panel available on the label,in accordance with Part Five of the Fourth Schedule.

**Duty of supplier to keep, maintain and provide technical documentation**

17. (1) A supplier shall keep and maintain technical documentation in respect of each model of a solar panel for a period of not less than two years after the date of manufacture or importation.

(2) A supplier shall, on request by an enforcement authority, provide the enforcement authority with technical documentation of the solar panel for inspection.

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(3) Where a supplier fails to provide technical documentation in respect of a solar panel within two days after the request, the enforcement authority shall detain the solar panel.

**Duty of supplier to keep, maintain and provide Product Information Sheet**

18. (1) A supplier shall keep and maintain in the possession of the supplier a Product Information Sheet in respect of each solar panel in the form set out in Part One of the Fourth Schedule.

(2) A supplier shall, on request by an enforcement authority, provide the enforcement authority with a Product Information Sheet which shall be in the

(a) English language; and

(b) form set out in Part One of the Fourth Schedule.

**Duty of supplier to provide information for statistical purposes**

19. (1) A person who manufactures in the country, imports into the country or exports out of the country a solar panel or an assembly of components that incorporates a solar panel, shall provide the Commission with the following information not later than four months after the end of each year:

(a) the number of solar panels of each model that the person manufactured, exported or imported into the country in the relevant year;

(b) the number of solar panels of each model that the person sold in the country in the relevant year;

(c) the number of solar panels of each model that the person exported from the country in the relevant year;

(d) the name of each model that the person discontinued

(i) manufacturing in the relevant year;

(ii) exporting in the relevant year; or

(iii) importing in the relevant year; and

(e) a copy of any existing test report, or other energy performance data specified by the Commission, for each model specified under paragraph (d).

(2) Upon a written request by the Commission, a person who manufactures a solar panel for use in the country or imports a solar panel

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into the country shall provide the following information to the Commission not later than forty days after receiving the request:

- (a) the number of solar panels in each product class specified by the Commission that the person sold to a purchaser in the country in each of the preceding three years; and
- (b) the energy performance characteristics of the solar panels as specified in the request.

**Duty of supplier to ensure accuracy of information**

20. (1) A supplier shall ensure that the information indicated on a

- (a) Product Information Sheet; or
- (b) label

in respect of a solar panel is accurate.

(2) The duty imposed on a supplier under subregulation (1) does not affect any other right of action which a person may have by law against a person with respect to the inaccuracy of information on a Product Information Sheet or on a label.

**Access to information on technical documentation and Product Information Sheet**

21. (1) The information required under regulations 10, 11, 16, 17 and 18 shall be obtained in accordance with the test procedures required by the Standards.

(2) Information obtained in a manner other than in accordance with subregulation (1) shall, for the purposes of these Regulations, be invalid.

**Product brochure in respect of solar panel**

22. Where a supplier provides a product brochure in respect of a solar panel, the brochure shall contain a Product Information Sheet which shall be in the

- (a) English language; and
- (b) form set out in Part One of the Fourth Schedule.

*Information*

**Public information**

23. (1) The information provided by a supplier on the Product Information Sheet or on a label of a solar panel is deemed public information.

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(2) A supplier is deemed to have consented to the publication of the information indicated on a Product Information Sheet or on a label in respect of a solar panel.

**Information in respect of mail order and other distance selling**

24. (1) Where a person offers a solar panel for sale to another person in the country through a medium of communication including a mail order or any other distance selling medium, that person shall provide information in respect of the solar panel.

(2) The information referred to in subregulation (1) shall

- (a) be in the English language,
- (b) include the product registration number assigned by the Commission upon registration in the Renewable Energy Product Register;
- (c) include the information set out in Part Four of the Fourth Schedule; and
- (d) be written in a manner that is legible.

**Obligations of audio or audio-visual broadcasting service provider**

25. Where an audio or audio-visual broadcasting service provider advertises a solar panel, and the information in the advertisement includes the brand, model, size, price and any other information that is specific to a particular model, that service provider shall ensure that

- (a) the advertisement has been vetted and approved by the Commission; and
- (b) the advertisement includes
  - (i) information on the energy performance standard of the solar panel;
  - (ii) a statement that the advertisement has been vetted and approved by the Commission; and
  - (iii) any other information required under Part Five of the Fourth Schedule.

**Obligations of e-commerce platform**

26. (1) A person shall not offer for sale, sell, supply, distribute or otherwise dispose of a solar panel through a promotion on the internet, unless

- (a) the efficiency rating of the solar panel is posted next to the price of the solar panel; and

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- (b) the label of the solar panel is made available to consumers in the same medium of communication.
- (2) Where an e-commerce service provider allows the direct sale of a solar panel through the website of the service provider, the service provider shall
- (a) enable the display of the
    - (i) electronic label; and
    - (ii) electronic Product Information Sheet provided by the dealer on the display mechanism in accordance with Part Six of the Fourth Schedule; and
  - (b) inform the dealer of the obligation to display the electronic label and electronic Product Information Sheet.

**Misleading information**

27. (1) A person shall not display a label, mark, symbol or inscription which relates to the efficiency of a solar panel, if the display is likely to be
- (a) deceptive;
  - (b) misleading; or
  - (c) false.
- (2) A person shall not broadcast an advertisement relating to the efficiency performance of a solar panel if the information in the advertisement is likely to be
- (a) deceptive;
  - (b) misleading; or
  - (c) false.
- (3) Subregulations (1) and (2) do not apply to
- (a) a label;
  - (b) a mark;
  - (c) a symbol; or
  - (d) an inscription
- displayed under an environmental labelling scheme or endorsement labelling scheme.

**Restriction on disclosure of information**

28. (1) An enforcement authority shall not disclose information which consists of a
- (a) secret manufacturing process; or



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(b) trade secret

that was obtained by that enforcement authority in the course of the exercise of a power or duty conferred on the enforcement authority by these Regulations.

(2) Despite subregulation (1), an enforcement authority may disclose information if

(a) the information is public information; or

(b) the disclosure is made

(i) for the purpose of facilitating the exercise of power by an enforcement authority under these Regulations or any other enactment;

(ii) in connection with the investigation of an offence; or

(iii) for the purpose of a civil or criminal proceeding.

*Powers of Enforcement*

**Power of enforcement authority to require technical documentation**

29. Where an enforcement authority suspects that the information given

(a) in a Product Information Sheet; or

(b) on a label,

in respect of a solar panel is incorrect, that enforcement authority may, by notice served on the supplier or importer of the solar panel, require the supplier or importer to furnish the enforcement authority with the technical documentation referred to in regulation 10 within the period stipulated in the notice.

**Power of enforcement authority to inspect solar panel**

30. An enforcement authority may, at any reasonable time, enter any premises to inspect a solar panel if the enforcement authority has reason to believe that the premises are being used for a purpose in contravention of these Regulations.

**Power of enforcement authority to detain or seize record or solar panel**

31. (1) Subject to these Regulations, where an enforcement authority has reasonable cause to suspect that an offence has been committed or is

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being committed, that enforcement authority may

- (a) at any reasonable time enter premises other than a dwelling place, and conduct an inspection in accordance with subsection (3) of section 52 of the Energy Commission Act, 1997 (Act 541);
  - (b) require a person engaged in a business or employed in connection with a business to produce a record in respect of a solar panel;
  - (c) detain or seize a solar panel that is
    - (i) not labelled;
    - (ii) not properly labelled; or
    - (iii) labelled in a deceptive or misleading manner;
  - (d) detain or seize a solar panel that is imported without technical documentation which justifies the label affixed on the solar panel;
  - (e) detain or seize a solar panel to enable tests to be carried out;
  - (f) detain or seize a record to be used as evidence in proceedings in respect of an offence under these Regulations;
  - (g) cause a container to be opened for the purpose of inspection;
  - (h) break open a container, where implementation of paragraph (g) is not practicable; or
  - (i) detain or seize a solar panel if the model is not registered in the Renewable Energy Product Register.
- (2) For the purposes of paragraphs (b) and (f) of subregulation (1), the enforcement authority may request for information stored electronically to be made available to the enforcement authority in printed form.

**Power of enforcement authority to test solar panel**

32. (1) An enforcement authority may
- (a) obtain, remove and test a solar panel; or
  - (b) order the testing of a solar panel
- to ascertain whether a provision of these Regulations has been contravened.
- (2) A person who suspects that a solar panel offered for sale does not comply with the provisions of these Regulations may lodge a complaint with an enforcement authority.

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(3) The enforcement authority may, upon receipt of a complaint under subregulation (2), detain and test the solar panel.

(4) The test to be conducted in respect of a solar panel purchased, obtained or detained under regulation 31 shall be carried out in accordance with the test procedures required by the Standards.

*Detention, Re-Exportation and Seizure*

**Procedure for market surveillance and verification**

33. (1) Despite regulation 32, the Commission and the Standards Authority shall conduct market surveillance to ascertain whether a solar panel on the market conforms to these Regulations.

(2) The Commission and the Standards Authority shall apply the verification procedure specified in the Fifth Schedule to conduct the market surveillance.

**Order to access premises to inspect, detain or seize solar panel or record**

34. Where

- (a) an enforcement authority is refused entry to premises;
- (b) a notification to enter premises would defeat the purpose of the entry;
- (c) the premises to be entered are unoccupied; or
- (d) the occupier of premises to be entered is temporarily absent,

the enforcement authority may apply to a court for an order to enter the premises to inspect, detain or seize a solar panel or record, if the enforcement authority has reasonable grounds to believe that a solar panel or record on the premises may assist in the disclosure of evidence of the commission of an offence under these Regulations.

**Procedure for detention of solar panel**

35. (1) An enforcement authority that exercises a power of detention under these Regulations shall, immediately give a written notice to the person against whom the power has been exercised.

- (2) The written notice under subregulation (1) shall state
- (a) the solar panel that has been detained; and
  - (b) the reason for the detention.

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(3) Where an enforcement authority detains a solar panel, that solar panel may be kept in a warehouse or other secure location reserved for the purpose.

**Procedure for re-labelling of detained solar panel**

36. (1) Subject to these Regulations, where an enforcement authority detains a solar panel under paragraph (e) of subregulation (1) of regulation 31, the enforcement authority shall

- (a) within two days after the detention, submit a sample of the solar panel for testing; and
- (b) within two days after receipt of the test results, give a notice in writing to the supplier of the solar panel to properly label the solar panel if the minimum efficiency standards have been complied with.

(2) The notice under paragraph (b) of subregulation (1) shall require a solar panel to be re-labelled in the required manner or exported out of the country within twenty-eight days.

(3) Where a supplier is required under subregulation (2), to re-label a solar panel, the supplier shall re-label the solar panel under the supervision of an officer authorised for the purpose by the Commission or the Standards Authority.

(4) Where a supplier fails to

- (a) re-label the solar panel; or
- (b) export the solar panel

within twenty-eight days after the notice given under paragraph (b) of subregulation (1), the Commission shall, in consultation with the Standards Authority, destroy the solar panel in a manner that the Commission may determine.

**Procedure for re-exportation of imported solar panel**

37. (1) An enforcement authority that exercises a power of detention or seizure under these Regulations shall, within seven days after the detention or seizure, give an order in writing to the person against whom the power has been exercised to re-export the solar panel.

- (2) The order referred to in subregulation (1) shall state
  - (a) the solar panel to be re-exported;

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- (b) the reason for the order;
- (c) the period within which the solar panel is to be re-exported; and
- (d) the fact that the supplier shall be responsible for the cost associated with the re-export.

(3) Where a solar panel is kept within premises that are under the control of the owner of the solar panel, the owner shall pay a security deposit against any breach of the re-exportation order.

(4) A security deposit under subregulation (3) shall be forfeited in the event of a breach of the re-exportation order, including the sale or destruction of a solar panel which has been ordered to be re-exported.

(5) Where a person fails to pay a security deposit imposed under subregulation (3), the Commission may recover the amount imposed as a civil debt.

**Procedure for seizure of solar panel**

**38.** (1) An enforcement authority that exercises a power of seizure under these Regulations shall, within seven days after the seizure, give a written notice to the person against whom the power has been exercised.

- (2) The written notice under subregulation (1) shall state
- (a) the solar panel that has been seized;
  - (b) the reason for the seizure; and
  - (c) the venue and the period within which a petition against the seizure may be brought under regulation 39.

(3) Where an enforcement authority seizes a solar panel, that solar panel may be kept in a warehouse or other secure location reserved for the purpose.

(4) The owner of the solar panel may be required to pay a deposit to cover the cost of destruction if the solar panel does not meet the minimum efficiency standards.

(5) Where a solar panel is kept within premises that are under the control of the owner of the solar panel, the owner shall pay a security deposit against any breach of the seizure order.

(6) A security deposit under subregulation (5) shall be forfeited in the event of a breach of the seizure order, including the sale or destruction of a solar panel which has been seized.

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(7) Where a person fails to pay a security deposit imposed under subregulation (5), the Commission may recover the amount imposed as a civil debt.

*Petition and Compensation*

**Petition against seizure**

39. (1) Subject to these Regulations, a person whose solar panel is seized may, within seven days after receipt of the written notice specified in subregulation (1) of regulation 38, petition the Executive Secretary for the release of the seized solar panel.

(2) The Executive Secretary shall, within seven days after the receipt of a petition under subregulation (1),

(a) confirm the seizure; or

(b) order the release of the seized solar panel to the petitioner on a specific day.

(3) A person who is dissatisfied with a decision of the Executive Secretary under subregulation (2) may appeal to the Board within seven days after the receipt of the decision.

(4) The Board shall within thirty days after the receipt of an appeal under subregulation (3)

(a) consult the Standards Authority; and

(b) take a decision on the appeal.

(5) The Board may release the seized solar panel to the petitioner only if the Commission and the Standards Authority fail to prove that an offence under these Regulations has been committed.

(6) A person who is dissatisfied with

(a) a decision of the Board under subregulation (4) may, within fourteen days after the decision; or

(b) the failure of the Board to make a decision within thirty days after receipt of the appeal may, within fourteen days after the failure

apply to the court.

**Forfeiture and destruction of seized solar panel**

40. (1) Where an appeal to the Board under subregulation (3) of regulation 39 is not successful, the enforcement authority shall, within

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twenty-eight days after the decision of the Board, notify the owner of the solar panel of the forfeiture and date of destruction of the seized solar panel.

(2) The Commission may, in consultation with the Standards Authority, destroy a forfeited solar panel in a manner that the Commission may determine.

(3) Where under subregulation (6) of regulation 39, the court upholds or affirms the decision of the Board to forfeit and destroy the solar panel, the Commission shall destroy the solar panel within the period given by the court.

**Compensation for loss of solar panel or record seized**

41. (1) Where an enforcement authority exercises power under these Regulations to seize a solar panel or record, that enforcement authority is liable to pay compensation to the owner of the solar panel or record for a loss or damage caused by the exercise of the power, if

- (a) these Regulations have not been contravened in relation to the solar panel or record; and
- (b) the loss or damage is not attributable to the neglect or the fault of the owner but an official of the Commission.

(2) Paragraph (b) of subregulation (1) does not apply in a case of *force majeure*.

(3) The compensation payable under subregulation (1) for a loss or damage shall not exceed the value of the solar panel or record.

(4) A dispute as to the

- (a) right to compensation; or
- (b) amount of compensation payable to a person under subregulation (1)

shall be determined in the first instance by arbitration in accordance with the Alternative Dispute Resolution Act, 2010 (Act 798).

**Recovery of expenses by enforcement authority**

42. (1) Where an enforcement authority

- (a) seizes;
- (b) tests; or

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(c) supervises the re-labelling or destruction of a solar panel, that enforcement authority may surcharge the dealer or supplier of the solar panel for the expenses incurred for the seizure, testing or supervision.

(2) Despite subregulation (1), where a court convicts a person of an offence in respect of the contravention of a provision of these Regulations, the court may, in addition to any order that the court may make as to costs and expenses, order the person convicted to reimburse the enforcement authority for the expenditure incurred by the enforcement authority in connection with the seizure.

*Miscellaneous Provisions*

**Offences and penalties**

43. (1) A person who

- (a) manufactures, imports, offers for sale, sells, stores, advertises, distributes, or otherwise disposes of a solar panel that
  - (i) does not meet a requirement in respect of the minimum efficiency standards contrary to regulation 3;
  - (ii) is not accompanied by the required technical documentation contrary to regulation 10;
  - (iii) is not labelled or properly labelled contrary to regulation 11; or
  - (iv) is labelled in a deceptive or misleading manner contrary to regulation 27;
- (b) uses a circumvention device, contrary to regulation 9;
- (c) fails to comply with a labelling requirement contrary to regulation 11;
- (d) fails to provide technical documentation, contrary to regulation 10, 16 or 17;
- (e) fails to register a model of a solar panel contrary to regulation 13;
- (f) fails to provide a Product Information Sheet, contrary to regulation 18;
- (g) fails to provide information on a solar panel contrary to regulation 19;
- (h) provides inaccurate information, contrary to regulation 20;



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- (i) advertises a solar panel without providing accurate information on the efficiency performance of the solar panel, contrary to regulation 25;
- (j) offers for sale or sells a solar panel over the internet or other distance selling medium without providing the information required contrary to regulation 24 or 26;
- (k) provides misleading information, contrary to regulation 27;
- (l) obstructs or interferes with an enforcement authority in the exercise of the powers of that enforcement authority contrary to regulation 31;
- (m) fails to comply with the requirements for re-labelling contrary to regulation 36; or
- (n) violates a seizure order or notice contrary to regulation 38

commits an offence and is liable on summary conviction to a fine of not less than one hundred and twenty-five penalty units and not more than two hundred and fifty penalty units or to a term of imprisonment of not less than six months and not more than twelve months or to both.

(2) A person who commits a second or subsequent offence under subregulation (1) after an earlier conviction under subregulation (1) is liable on summary conviction to a fine of not less than two hundred and fifty penalty units and not more than five hundred penalty units or to a term of imprisonment of not less than twelve months and not more than twenty-four months or to both.

(3) Where an offence under these Regulations is committed by a body corporate or by a member of a partnership or other firm, every director or officer of that body corporate or any member of the partnership or other person concerned with the management of the firm shall be deemed to have committed that offence and is liable, on summary conviction, to a fine of not less than five hundred penalty units and not more than one thousand penalty units, and is in addition liable to the payment of compensation for the damage resulting from the breach.

(4) A person shall not be convicted of an offence under subregulation (3), if it is proved that

- (a) the person exercised due diligence to secure compliance with the provisions of these Regulations, and
- (b) the offence was committed without the knowledge, consent or connivance of that person.

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**Interpretation**

44. In these Regulations, unless the context otherwise requires,
- “accredited test laboratory” means a test laboratory that is recognised by the Standards Authority for laboratory testing and product certification;
  - “annual total energy consumption” means the electricity consumed by an appliance over specified periods of time across defined power modes and states;
  - “audio or audio-visual broadcasting service provider” means a person who provides a service which delivers radio programmes or programmes with hearing and sight components to persons with equipment appropriate for receiving that service, whether the delivery is effected by means of or uses the radio frequency spectrum, cable, optical fibre, satellite, internet radio via streaming media on the internet, or any other means or a combination of those means intended to reach a wide audience;
  - “bifacial solar panel” means a solar panel that has two sides of solar cells collecting light;
  - “circumvention device” means any control, control device, software, component or part that alters the operating characteristics of a solar panel during any test procedure, resulting in measurements that are unrepresentative of the true characteristics of the solar panel that may occur during normal use under comparable conditions;
  - “container” means a receptacle or enclosure for holding a product for storage, packaging and shipping;
  - “court” means a court of competent jurisdiction;
  - “dealer” means a retailer or other person who displays, offers for sale or sells a solar panel to an end user;
  - “distance selling” means the sale of goods or services without the buyer or seller being physically present simultaneously;
  - “dwelling place” means place of residence;
  - “electronic Product Information Sheet” means a document containing the following information in electronic format:
    - (a) basic product information;

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- (b) energy label information; and
- (c) special features and characteristics;

“end user” means the first user of a solar panel;

“endorsement labelling scheme” includes a voluntary labelling scheme that guarantees appliance performance standards, that are equal to or exceed the minimum threshold established by a recognised advisory body;

“enforcement authority” means

- (a) an authorised officer of the Commission;
- (b) an authorised officer of the Standards Authority;
- (c) an authorised officer of the Customs Division of the Ghana Revenue Authority;
- (d) an authorised officer of the Police Service; or
- (e) any other authorised person designated by the Customs Division of the Ghana Revenue Authority, the Commission or the Standards Authority to carry out inspections for the purposes of these Regulations;

“environmental labelling scheme” means a voluntary labelling scheme that provides detailed information on the environment in respect of the performance characteristics of a solar panel;

“equivalent model” means a model which has the same technical characteristics relevant for the technical information to be provided, but which is placed on the market or put into service by the same manufacturer, importer or authorised representative as another model with a different model identifier;

“external power supply” means a power supply circuit that is designed to convert alternating current (AC) power input from the mains power source input into a lower voltage direct current (DC) or AC output intended to be used to operate a consumer product;

“GS” means Ghana Standards;

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- “importer” means a person who places a solar panel from a foreign country on the Ghanaian market and supplies that solar panel for use;
- “label” means a material attached to a solar panel the inscription of which contains information on the efficiency of the solar panel;
- “minimum efficiency standards” mean a set of procedures and regulations that prescribe the minimum allowable values of efficiency of renewable energy products;
- “model identifier” means the code, usually alphanumeric, which distinguishes a specific product model from other models with the same trademark or the same name of the manufacturer, importer or authorised representative;
- “module” means the smallest environmentally protected, essentially planar assembly of solar cells and ancillary parts, such as interconnections, terminals and protective devices such as diodes intended to generate direct current power under unconcentrated sunlight;
- “monofacial solar panel” means a solar panel that has only one side of the solar cells collecting light;
- “point of sale” means the place at which a retail transaction is carried out;
- “premises” means land and any building, store, shop, apartment, or other structure on the land used for the storage of a solar panel;
- “product brochure” includes a pamphlet or booklet that contains introductory information about a product;
- “Product Information Sheet” means a standard table of information related to a solar panel;
- “Quick Response Code” means a matrix barcode included on the efficiency label of a product model that links to the information of the model in the public part of the product database;
- “rated voltage” means the voltage marked on a solar panel in volts;

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- “rating plate” means a name plate that indicates the measurable performance capability of a solar panel;
- “record” includes a book, document, label, mark, symbol, inscription or information in electric form;
- “renewable energy product” includes a solar panel, an inverter, a renewable energy battery and an improved biomass cookstove;
- “Renewable Energy Product Register” means an official record, kept and maintained by the Commission on performance information in respect of models of renewable energy products that have been certified by the Commission and the Standards Authority for use in Ghana;
- “sale” means the exchange of the product for consideration including hire purchase, credit sale and purchase by instalment;
- “solar panel” means a panel that is able to convert sunlight into usable energy or electricity;
- “Standards” means quality specifications for a solar panel as stipulated in the First Schedule;
- “Standards Authority” means the Standards Authority established under the Standards Authority Act, 1973 (N.R.C.D. 173);
- “supplier” means a person or organisation that provides a product and includes
- (a) a manufacturer or the authorised representative of a manufacturer resident in the country; and
  - (b) an importer or the person who introduces a solar panel on the Ghanaian market;
- “supply” includes an offer to supply, contract to supply or an advertisement for supply of a solar panel but excludes the exhibition at a trade fair of a solar panel that is prohibited by these Regulations;
- “trade secret” means a secret device or technique used by a company in manufacturing a product of the company;
- “wattage” means the power marked on a solar panel, in watts (W); and
- “year” means the period from 1<sup>st</sup> January to 31<sup>st</sup> December.

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**Transitional provision**

45. A person who, before the coming into force of these Regulations, has

- (a) manufactured in the country; or
- (b) imported into the country

a solar panel that does not comply with these Regulations, shall, within one year after the coming into force of these Regulations, sell, distribute, donate or otherwise dispose of that solar panel.

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**SCHEDULE**

**FIRST SCHEDULE  
STANDARDS**

*(regulations 1(a)(i), 3(1)(b)(i) and 44)*

GS IEC 60904-1: 2007 - Photovoltaic Devices-Part 1: Measurement of Photovoltaic current-voltage characteristics.

GS IEC 60904-2: 2007 - Photovoltaic Devices-Part 2: Requirements for Photovoltaic Reference devices.

GS IEC 60904-3: 2007 - Photovoltaic Devices - Part 3: Measurement Principles for Terrestrial Photovoltaic (PV) solar devices with Reference Spectral Irradiance Data.

GS IEC 61724-1: 2017 - Photovoltaic system performance - Part 1: Monitoring.

GS IEC 61724-2: 2016 - Photovoltaic system performance - Part 2: Capacity evaluation method.

GS IEC 61724-3: 2016 - Photovoltaic system performance - Part 3: Energy evaluation method.

GS IEC 61215-2: 2016 - Terrestrial Photovoltaic (PV) modules - Design qualification and type approval - Part 2: Test procedures.

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**SECOND SCHEDULE**

**MINIMUM EFFICIENCY STANDARDS**

*(regulations 1(a)(i), 1(b), 3(1)(b)(ii), 4(1)(a), 4(1)(b)(i), 6 and 11(2))*

**1. EFFICIENCY DEFINITION (THEORY)**

The efficiency of a solar panel refers to the ability of the solar panel to convert sunlight or solar incident radiation flux into usable energy, electrical energy or electricity. Solar Panel or Module Efficiency under these Regulations is measured by the ratio of the Maximum Power output of the solar panel or module to the total solar irradiance. Solar Panel Efficiency ( $\eta$ ) is calculated using the following general formula expressed in percent:

$$\eta(\%) = 100 \times \frac{P_{\max}}{E_{\text{tot}} \times A}$$

Where

$P_{\max}$  is the maximum electrical power produced when the solar panel is illuminated under standard reference test conditions of 25°C junction temperature, 1000 Wm<sup>2</sup> total irradiance as specified by the Ghana Standard GS IEC 60904-3 ed.2 global reference spectrum.

$A$  is the total area of the device including contacts and peripheral bus bars.

$E_{\text{tot}}$  is the total irradiance at standard reference conditions, 1000 Wm<sup>2</sup>.



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## 2. SOLAR CELL I-V CHARACTERISTIC CURVES

Show the current and voltage (I-V) characteristics of a particular photovoltaic cell, panel, module or array giving a detailed description of the solar energy conversion ability and efficiency of the device. Knowing the electrical I-V characteristics, more importantly the maximum power point MPP ( $P_{max}$ ) of a solar cell or panel is critical in determining the output and efficiency of the device as this is the most ideal point for operation of the solar cell or panel for that level of solar radiation.

The main electrical characteristics of a cell or module are summarised in the relationship between the current and voltage produced on a typical solar cell I-V characteristics curve shown in Figure 1. The intensity of the solar radiation or insolation that hits the cell controls the current (I), while the increases in the temperature of the solar cell reduces its voltage (V).

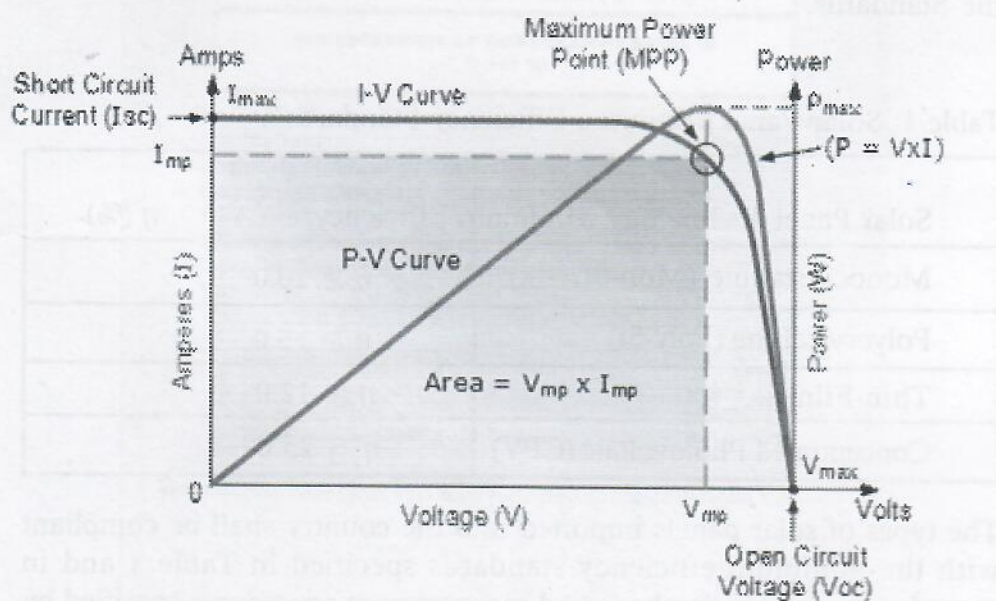


Figure 1: Typical I-V Characteristic of a Solar Panel

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Photovoltaic I-V characteristics curves provide the information needed to configure a solar power array so that it can operate as close as possible to its maximum peak power point. The peak power point is measured as the module produces its maximum amount of power when exposed to solar radiation equivalent to 1000 watts per square meter (that is, 1000 W/m<sup>2</sup> or 1kW/m<sup>2</sup>) at standard test conditions.

### 3. MINIMUM EFFICIENCY STANDARD FOR SOLAR PANEL

The efficiency performance for solar panels under these Regulations is provided in the specification as shown in Table 1. The table indicates the minimum efficiency levels expected of solar panels imported into the country or manufactured in the country based on the four main types of PV technology currently commercially available. The minimum efficiency standards of the solar panel set out in Table 1 are determined in accordance with measurements and standard test methods specified by the Standards.

Table 1: Solar Panel Minimum Efficiency Standards

Solar Panel Technology	Minimum Efficiency, $\eta$ (%)
Monocrystalline (Mon-Si)	$\eta \geq 18.0$
Polycrystalline (Poly-Si)	$\eta \geq 15.0$
Thin-Film	$\eta \geq 12.0$
Concentrated Photovoltaic (CPV)	$\eta \geq 25.0$

The types of solar panels imported into the country shall be compliant with the minimum efficiency standards specified in Table 1 and in accordance with test methods and measurement procedures specified by the Standards.

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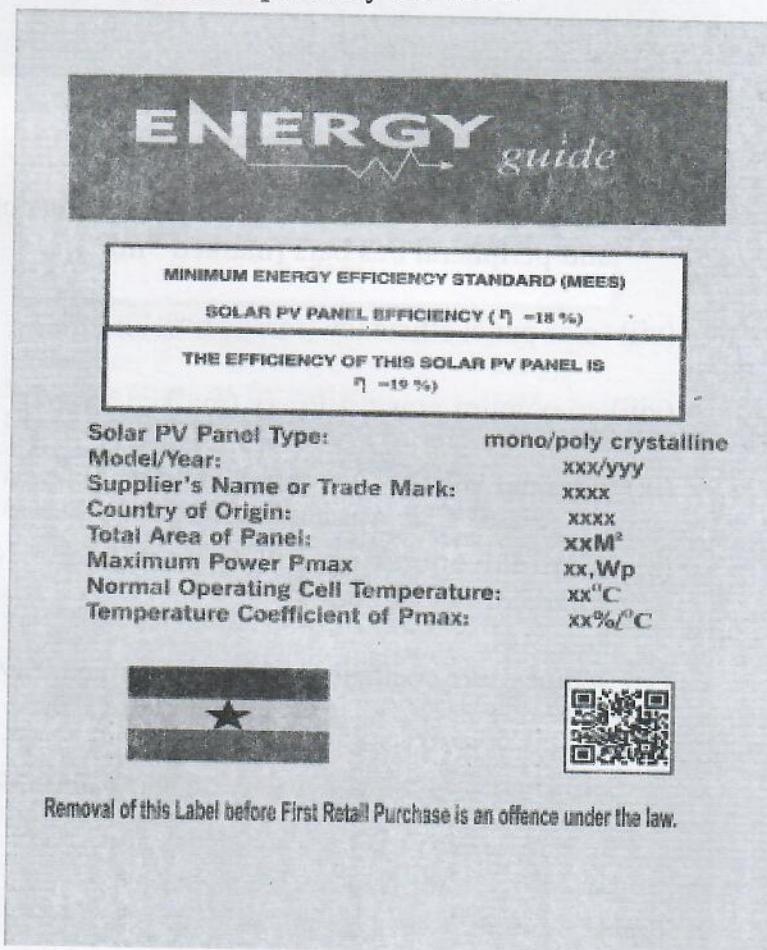
**THIRD SCHEDULE**

**THE LABEL**

*(regulations 3(1)(b)(iii), 11(1)(a)(i), 11(1)(d)(i) and 16(4)(b))*

**1. Label design for Solar Panels**

The design of the label shall be in accordance with Figure 1 and shall include the information required by the notes.



**Figure 1: The Label for Solar Panels**

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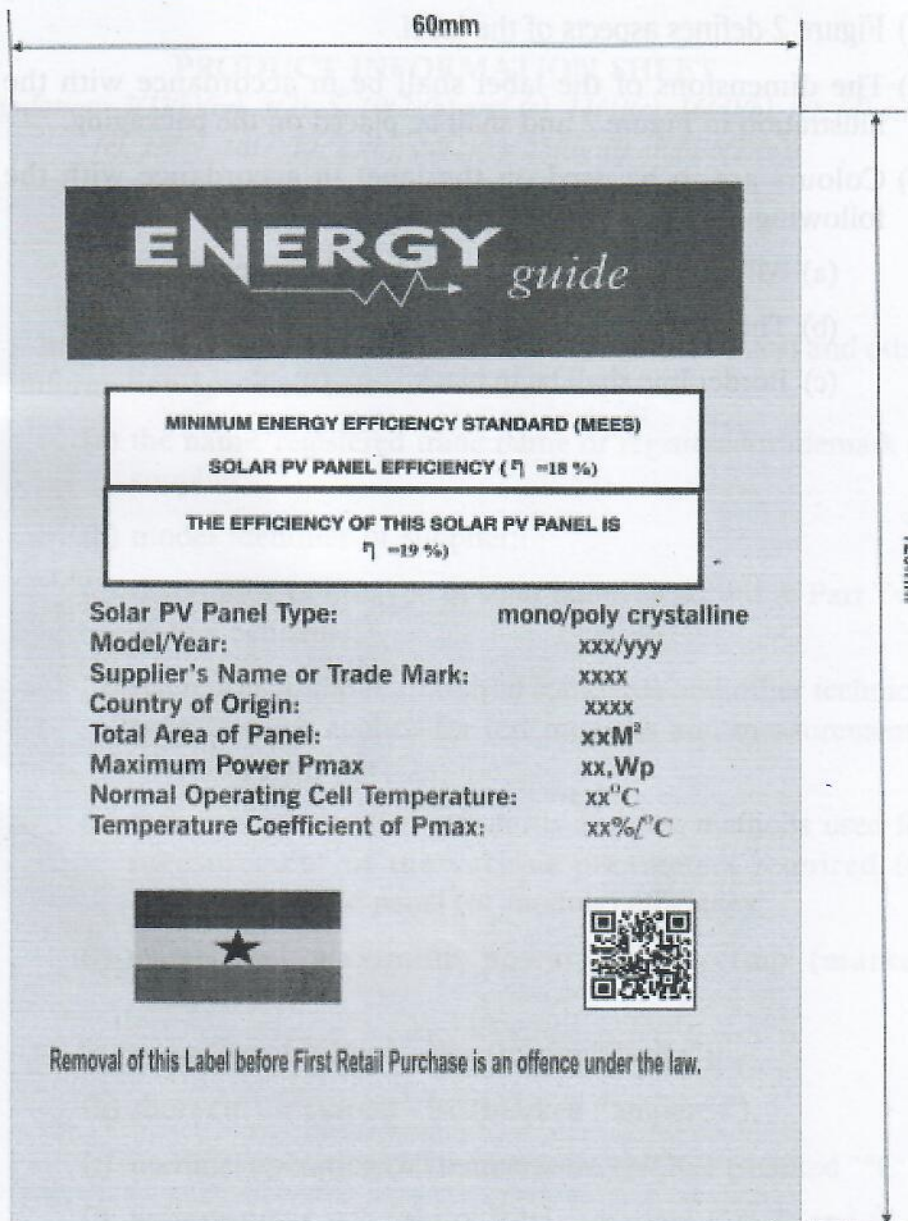
**2. Notes to Figure 1**

The following notes define the information to be included:

- (i) the Quick Response Code;
- (ii) the type of solar panel;
- (iii) the name or trade mark of the manufacturer;
- (iv) the model identifier of the manufacturer;
- (v) the country of origin;
- (vi) the total area of the solar panel, including contacts and peripheral bus bars (marked "m<sup>2</sup>");
- (vii) solar panel efficiency (marked "%");
- (viii) maximum power - P<sub>max</sub> (marked "W<sub>p</sub>");
- (ix) nominal voltage - V<sub>n</sub> (marked "volts");
- (x) nominal operating cell temperature - NOCT (marked "°C"); and
- (xi) temperature coefficient of P<sub>max</sub> (marked "%/°C").

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**3. Dimensions of the label**



**Figure 2: Dimensions of label**

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**4. Printing**

- (1) Figure 2 defines aspects of the label.
- (2) The dimensions of the label shall be in accordance with the illustration in Figure 2 and shall be placed on the packaging.
- (3) Colours are to be used on the label in accordance with the following:
  - (a) All text shall be black or gold as illustrated;
  - (b) The background is gold; and
  - (c) Border line shall be in black.

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**FOURTH SCHEDULE**

**PRODUCT INFORMATION SHEET**

*(regulations 3(1)(b)(iv), 3(2), 5, 10(2)(b) and (c), 11(1)(c), 16(4)(b), (c), (d) and  
(e), 18(1), 18(2)(b), 22(b), 24(2)(c), 25(b)(iii) and 26(2)(a))*

**PART ONE**

*(regulations 10(2)(b), 11(1)(c), 18(1), 18(2)(b) and 22(b))*

1. The Product Information Sheet shall contain the technical and other information specified below:
  - (a) the name, registered trade name or registered trademark of supplier;
  - (b) model identifier of supplier;
  - (c) description of the type of solar panel as set out in Part Two of this Schedule;
  - (d) references to the harmonised standards and other technical specifications applied for test methods and measurements, where appropriate;
  - (e) technical parameters, standards and test methods used for measurement of the various parameters required for estimation of the panel (or module) efficiency;
  - (f) current at maximum power point -  $I_{mp}$  (marked "amperes");
  - (g) open circuit voltage -  $V_{oc}$  (marked "volts");
  - (h) short circuit current -  $I_{sc}$  (marked "amperes");
  - (i) nominal operating cell temperature - NOCT (marked "°C");
  - (j) temperature coefficient of  $P_{max}$  (marked "11%"); and
  - (k) user instructions, including disposal instructions.

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2. The information may be given in the form of a table covering a number and type of solar panel supplied by the same supplier, in which case the information shall be given in the order specified or given in the description of the solar panel.

**PART TWO**  
(regulation 5)

**Type or Category of Solar Panel**

Description in information sheet	Type	Category
Type of Solar Panel Technology	Crystalline Silicon	Mono-Si Poly-Si
	Thin-film	A-Si CdTe CIGS DSC
	Concentrated Photovoltaic (CPV)	LCPV HCPV
	Emerging	Perovskite Organic
Recommended Temperature range for efficient performance		
Recommended uses of the model		



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**PART THREE**  
*(regulation 10(2)(c))*

**Technical Documentation**

The technical documentation referred to in regulation 10 shall include at least all the information required under Part One and Part Two of this Schedule in addition to the following information:

- (a) general description of the solar panel model, sufficient for it to be unequivocally and easily identified;
  - (b) references to the Standards applied;
  - (c) calculation methods, measurement standards and specifications used;
  - (d) identification and signature of the person empowered to bind the supplier;
  - (e) technical parameters for measurements, established in accordance with the Second Schedule; and
  - (f) overall dimensions.
2. A supplier may include additional information at the end of the above list.
  3. Where the information included in the technical documentation file for a particular solar panel model has been obtained by calculation on the basis of design, or extrapolation from other equivalent appliances or both, the documentation shall include details of such calculations or extrapolation and of tests undertaken by suppliers to verify the accuracy of the calculations undertaken. The information shall also include a list of all other equivalent product models where the information was obtained on the same basis.

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**PART FOUR**  
*(regulation 24(2)(c))*

**Mail Order and Other Distance Selling Information to be provided  
where the end-users cannot be expected to see the product displayed**

1. A supplier shall ensure that the following information is provided:
  - (a) panel efficiency of the model as specified in the Second Schedule; and
  - (b) maximum Power in W.
2. Where other information contained in the Product Information Sheet is also provided, it shall be in the form and order specified in Part One of this Schedule.
3. The size and font in which all the information referred to in this Schedule is printed or shown shall be legible.

**PART FIVE**

*(regulations 3(2), 16(4)(c), (d) and (e) and 25(b)(iii))*

**Information to be provided in audio advertisements, visual  
advertisements, in technical promotional material, in distance selling,  
except distance selling on the internet**

1. In an audio advertisement, for the purposes of ensuring conformity with the requirements laid down in subregulation (2) of regulation 3, the efficiency of the model of panel being advertised shall be compared with the specified minimum efficiency standards, listed in the Second Schedule and shall be stated in the advertisement.

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2. In a visual advertisement, for the purposes of ensuring conformity with the requirements laid down in subregulation (2) of regulation 3, the panel conversion efficiency listed in the Second Schedule shall be made available on the label and be shown as set out in paragraph 5 of this Part.
3. In technical promotional material, for the purposes of ensuring conformity with the requirements laid down in subregulation (2) of regulation 3, the solar panel conversion efficiency listed in the Second Schedule shall be made available on the label and be shown as set out in paragraph 5 of this Part.
4. Any paper-based distance selling shall show the performance characteristics of the model and the ranges of performance characteristics available on the label as set out in paragraph 5 of this Part.
5. The Panel Efficiency and the minimum efficiency standards of the model shall be shown, as indicated in Figure 1, with
  - (a) an arrow, containing the Panel efficiency in hundred per cent white, Calibri Bold and in a font size at least equivalent to that of the price, when the price is shown;
  - (b) the colour of the packaging box in gold;
  - (c) the minimum efficiency standards in hundred per cent black; and
  - (d) the size such that the packaging box is clearly visible and legible.

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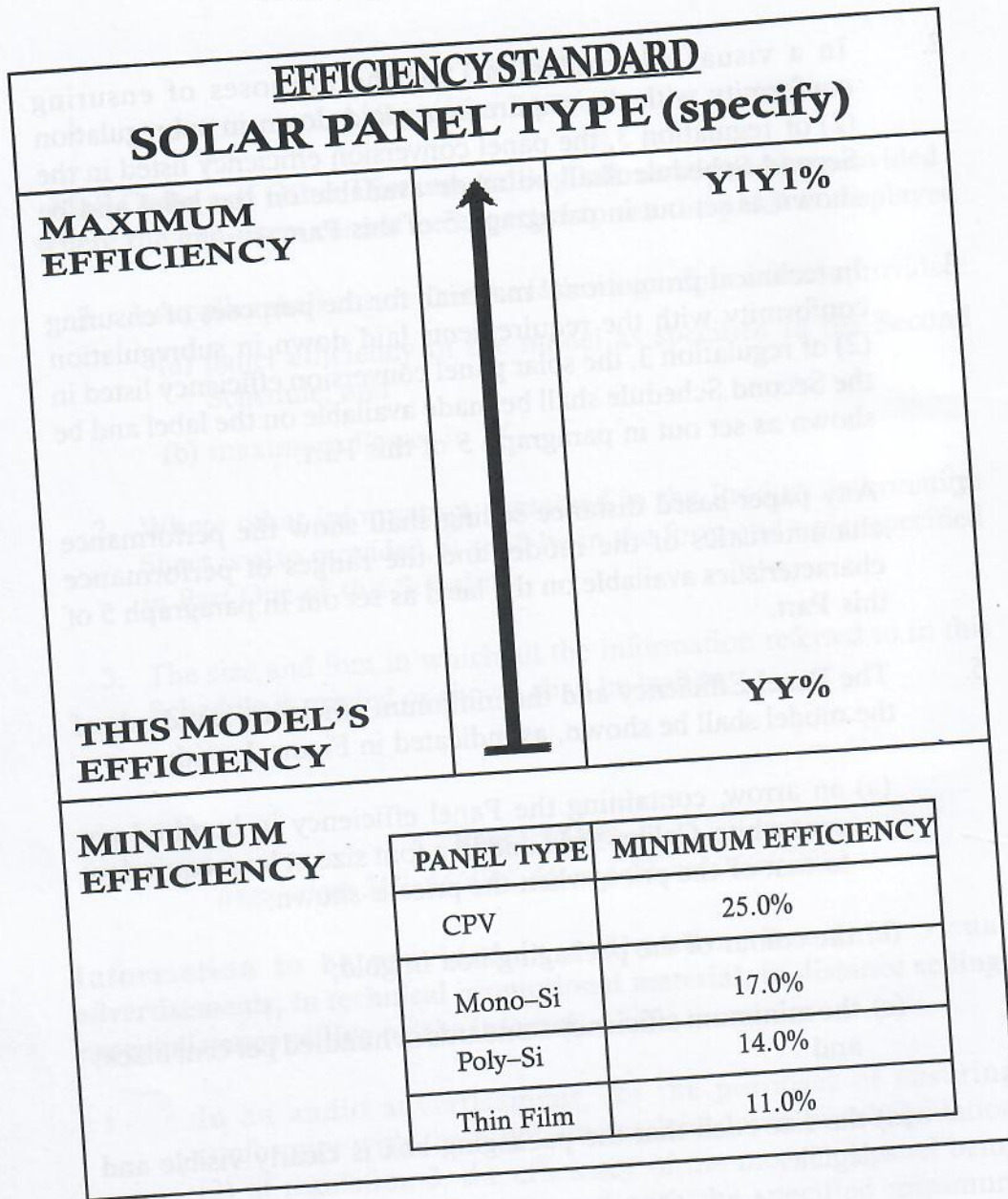


Figure 1: Coloured Panel Efficiency

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6. By way of derogation, if the visual advertisement, technical promotional material or paper-based distance selling is printed in monochrome, the packaging box can be in monochrome in that visual advertisement, technical promotional material or paper-based distance selling.
7. Telemarketing-based distance selling shall specifically inform the customer of the Panel efficiency of the model and minimum efficiency standards, listed in the Second Schedule, on the label, and that the customer can access the full label and the Product Information Sheet through a free access website, the public part of the Renewable Energy Product Register of the Commission or by requesting a printed copy.
8. For all the situations mentioned in paragraphs 2 to 4 and paragraph 7, it shall be possible for the customer to obtain, on request, a printed copy of the label and the Product Information Sheet.

**PART SIX**

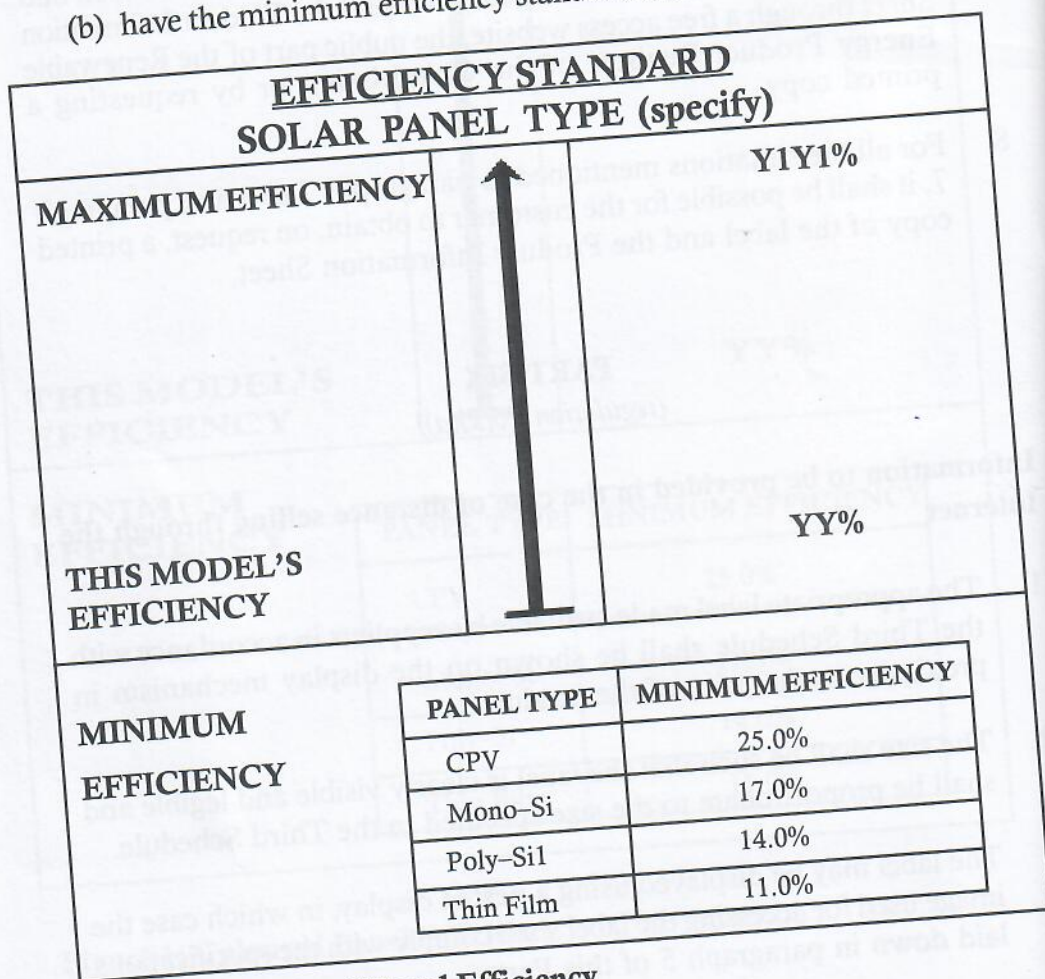
*(regulation 26(2)(a))*

**Information to be provided in the case of distance selling through the Internet**

1. The appropriate label made available by suppliers in accordance with the Third Schedule shall be shown on the display mechanism in proximity to the price of the product.
2. The size shall be such that the label is clearly visible and legible and shall be proportionate to the size specified in the Third Schedule.
3. The label may be displayed using a nested display, in which case the image used for accessing the label shall comply with the specifications laid down in paragraph 5 of this Part.

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4. If nested display is applied, the label shall appear on the first mouse click, mouse roll-over or tactile screen expansion on the image.
5. The image used for accessing the label in the case of nested display, as indicated in Figure 2, shall
  - (a) indicate the panel efficiency in the packaging box in hundred per cent black, Calibri Bold and in a font size equivalent to that of the price; and
  - (b) have the minimum efficiency standard in hundred percent black.



**Figure 2: Coloured Panel Efficiency**

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6. In the case of a nested display, the sequence of display of the label shall be as follows:
- (a) the image referred to in paragraph 5 of this Part shall be shown on the display mechanism in proximity to the price of the product;
  - (b) the image shall link to the label set out in the Third Schedule;
  - (c) the label shall be displayed after a mouse click, mouse roll-over or tactile screen expansion on the image;
  - (d) the label shall be displayed by pop up, new tab, new page or inset screen display;
  - (e) for magnification of the label on tactile screens, the device conventions for tactile magnification shall apply;
  - (f) the label shall cease to be displayed by means of a close option or other standard closing mechanism; and
  - (g) the alternative text for the graphic, to be displayed on failure to display the label, shall be the panel efficiency in a font size equivalent to that of the price.
7. The electronic Product Information Sheet made available by suppliers in accordance with subregulation (2) of regulation 26 shall be shown on the display mechanism in proximity to the price of the product. The size shall be such that the Product Information Sheet is clearly visible and legible. The Product Information Sheet may be displayed using a nested display or by referring to the product database, in which case the link used for accessing the Product Information Sheet shall clearly and legibly indicate 'Product Information Sheet'. If a nested display is used, the Product Information Sheet shall appear on the first mouse click, mouse roll-over or tactile screen expansion on the link.

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**FIFTH SCHEDULE**

**VERIFICATION PROCEDURE FOR MARKET  
SURVEILLANCE**

*(regulation 33(2))*

1. The verification tolerances set out in this Schedule relate only to the verification of the declared parameters by the Commission and the Standards Authority and shall not be used by the supplier as an allowed tolerance to establish the values in the technical documentation.
2. The values and classes on the label or in the Product Information Sheet shall not be more favourable for the supplier than the values reported in the technical documentation.
3. Where a model has been designed to be able to detect the model is being tested by recognising the test conditions or test cycle, and to react specifically by automatically altering its performance during the test with the objective of reaching a more favourable level for any of the parameters specified in these Regulations or included in the technical documentation or in any of the documentation provided, the model and all equivalent models shall be considered not compliant.
4. When verifying the compliance of a product model with the requirements laid down in these Regulations, the Commission and the Standards Authority shall apply the following procedure:
  - (a) the Commission and the Standards Authority shall verify one single unit of the model;
  - (b) the model of the solar panel shall be considered to comply with the provisions set out in Table 1 of the Second Schedule if the declared Panel Efficiency is not less than the minimum efficiency standard value minus 0.05% of the declared efficiency;



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- (c) the Panel Efficiency shall be established in accordance with the test procedures in the Second Schedule;
- (d) if the result referred to in paragraph (b) is not achieved, the Commission and the Standards Authority shall randomly select three additional units of the same model for testing;
- (e) the model of the solar panel shall be considered to comply with the provisions set out in Table 1 of the Second Schedule if the average of the three units for the Panel Efficiency is not less than the declared value minus 0.05% of the declared value;
- (f) the Panel Efficiency values shall be established in accordance with the Second Schedule; and
- (g) if the results referred to in paragraph (f) are not achieved, the model shall be considered not to comply with these Regulations.

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**HON. DR. MATTHEW OPOKU PREMPEH**  
*Minister responsible for Energy*

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