IMPLEMENTING GUIDELINES FOR THE PHILIPPINE ENERGY LABELING PROGRAM FOR AIR CONDITIONERS 2024, 1ST EDITION

Pursuant to Section 9 of Department Circular No. 2020-06-0015, as amended, entitled "Prescribing the Guidelines of the Philippine Energy Labeling Program (PELP) for Compliance of Importers, Manufacturers, Distributors and Dealers of Electrical Appliances and Other Energy-Consuming Products (ECP)", the Implementing Guidelines (IG) for Air Conditioners, including the Particular Product Requirement (PPR) and Code of Practice (COPE) are hereby issued for the information and guidance of all those concerned and for compliance by all manufacturers, importers, distributors, dealers, retailers and other key stakeholders.

1. Particular Product Requirement (PPR) for Air Conditioners

The PPR provides the requirements for mandatory energy labeling of air conditioners. It specifies the Minimum Energy Performance (MEP), Energy Efficiency Performance Rating (EEPR) and other relevant information applicable for Window and Split-type units.

1.1 Scope

This PPR covers single-phase air conditioners with cooling capacity of up to 14 kW or 50,400 kJ/hr for domestic and similar use.

The following are the categories:

Fixed-speed air conditioners / Variable-speed air conditioners

a. **Window-type**
b. **Split-type**
   - Wall-Mounted type
   - Floor-Standing type
   - Ceiling-Cassette-type
   - Ceiling-Suspended type

1.2 Definition of Terms

For the purpose of this PPR, the following definitions, and those in the normative references under Section 1.3 and its future amendments, shall apply:

Applicants - refers to manufacturers, importers, distributors, and dealers.

Basic Model / Type - a product model whose main component and other design components are distinct as to voltage rating, power input, frequency, light output, etc.

Cooling Seasonal Performance Factor (CSPF) - a number used to express an air conditioner's energy efficiency performance. The calculation of CSPF is done by taking the Cooling Seasonal Total Load (CSTL) in kWh and dividing it by the Cooling Seasonal Energy Consumption (CSEC) in kWh. Also stated under COPE as the measurement of efficiency.

Decision Rule – rule that describes how measurement uncertainty is accounted for when stating conformity with specified requirements.

Energy Efficiency Performance Rating (EEPR) – refers to the product's star rating which is based on the ranges of CSPF and is indicated on the energy label.

Energy Efficiency Rating - as indicated in the energy label, pertains to the rated CSPF of the air conditioner.

Fixed-speed Air Conditioner - a fixed-capacity unit that operates at a constant speed to cool a space.

Generic Models - refer to a range of models that are comparable to the base model in terms of their major physical characteristics, construction, system design, and other performance features.

Non-Ducted Air Conditioner - encased assembly or assemblies, designed primarily to deliver conditioned air throughout an enclosed space, room, or zone.

Variable-Speed Air Conditioner - a variable-capacity unit that can vary its cooling capacity based on the cooling load or demand of a space.

1.3 Normative References

The Air Conditioners covered under this PPR shall be tested, as applicable, according to, but not limited to the following standards and their future amendments:

PNS ISO 5151: Non-ducted air conditioners and heat pumps: Testing and rating for performance.

PNS ISO 16358-1: Air-cooled air conditioners and air-to-air heat pumps: Testing and calculating methods for seasonal performance factors - Part 1: Cooling Seasonal Performance Factor.

Considering the regular updating of standards, the latest edition of the PNS shall be used as a reference. It is understood that future amendments to the PNS indicated in this PPR shall be applied after its effectivity. A transition period coinciding with the transition period indicated in the PNS shall be provided to give ample time to all stakeholders to adjust and conform to the new requirements, if any.

1.4 Code of Practice on Energy Labeling of Products.

Pursuant to Section 15 of the EEC Act, the Code of Practice on Energy Labeling of Products (COPE) provides for the calculation methods of the following:

1.4.1 The Air Conditioner Energy Efficiency Performance Rating (EEPR) or the star rating shown in the DOE Energy Label is based on the ***Cooling Seasonal Performance Factor (CSPF)***, which is calculated as follows:

$$CSPF = \frac{\textit{Cooling Seasonal Total Load (kWh)}}{\textit{Cooling Seasonal Energy Consumption (kWh)}}$$

Where:

CSTL stands for Cooling Seasonal Total Load and is defined as the total annual amount of heat energy removed from the indoor air when the equipment is operated for cooling in active mode. The value of which must be converted and expressed in kilowatt-hour (kWh).

CSEC stands for Cooling Seasonal Energy Consumption and is defined as the total annual amount of electrical energy consumed by the equipment when it is operated for cooling in active mode and is expressed in kilowatt-hour (kWh).

The EEPR reflected on the DOE Energy Label shall correspond to the CSPF value shown in the product test report during product registration. The EEPR shall be adjusted accordingly (as needed) once the product has undergone verification testing.

1.4.2 For the estimation of **monthly energy kWh consumption** (based on a specified hour of daily usage), as shown in the DOE Energy Label, the calculation is as follows:

Monthly kWh Consumption = CSEC x (9/5) / 12 or CSEC x 0.15

Where:

Operating hours is the assumed length of time that the equipment is operated in a day and is expressed in hours. With regards to the DOE Energy Label, this parameter is assumed to be 9 hours.

1.4.3 For the estimation of **monthly electricity cost**, the calculation is as follows:

Monthly Electricity Cost = Monthly kWh Consumption x Electricity Price

Where:

Electricity price is the prevailing peso per kWh, as indicated in the electricity bill issued by an electric power distribution company.

1.4.4 For the estimation of **monthly Greenhouse Gas (GHG) emission** due to monthly electricity consumption, the calculation is as follows:

Monthly GHG emission = Monthly Energy kWh Consumption x Emission Factor

Where:

Emission Factor is the Simple Operating Margin (OM) Emission Factor derived using the power grid statistics and is available on the DOE website.

The unit of the calculated GHG emission shall be kg CO_2.

1.5 Minimum Energy Performance (MEP)

1.5.1 The rated CSPF of air-conditioning units of varying cooling capacities shall not be less than the values stated below.

Table 1: MEP for Air Conditioners

Product Parameter (Cooling Capacity)	CSPF
≤ 4.50 kW	3.32
Between 4.51 to 9.99 kW	3.70
Between 10.0 to 14.0 kW	3.70

Notes:

a) *The measured CSPF shall be rounded-off to the nearest 0.01 Wh/Wh. The rules of rounding-off shall be followed.*
b) *The verdict shall be based on the rounded-off value.*
c) *The MEP shall be subjected to review and upgrading every three (3) years or earlier, as necessary.*

1.5.2 Air Conditioners covered under this IG, manufactured and assembled in the country of origin other than the Philippines, must also pass the MEP set by the country of origin as applicable.

1.6 Energy Efficiency Performance Rating (EEPR) of Air Conditioners

1.6.1 Non-ducted air conditioners shall be classified based on the rated CSPF of the product.

1.6.2 The classification shall be represented by a star rating, with one star indicating the lowest range of the CSPF and five stars representing the highest range of the CSPF.

1.6.3 There shall be three (3) categories of EEPRs according to cooling capacity, with its corresponding CSPF values, and regardless of compressor speed type as shown in Table 2.

Table 2. EEPR of Air Conditioners

Cooling Seasonal Performance Factor (CSPF)			
EEPR	***Below 4.50kW Cooling Capacity***	***4.51 to 9.99kW Cooling Capacity***	***10.0 to 14.0kW Cooling Capacity***
One-Star	3.32 to 4.08	3.70 to 4.95	3.70 to 5.07
Two-Star	4.09 to 4.67	4.96 to 5.54	5.08 to 5.45
Three-Star	4.68 to 5.04	5.55 to 6.11	5.46 to 5.80
Four-Star	5.05 to 5.86	6.12 to 6.73	5.81 to 6.10
Five-Star	≥ 5.87	≥ 6.74	≥ 6.11

Note: Table 2 was generated by analyzing the available CSPF data from the PELP System for the year 2021-2022.

1.7 Tolerances

The following tolerances shall apply to all covered air conditioners:

1.7.1 Before determining the tolerance, the measured values shall be rounded-off to the nearest 0.01. The rules of rounding-off shall be followed.

1.7.2 The measured values of the test sample for CSPF and Cooling Capacity shall not be less than 90% of its rated values.

1.7.3 The measured percentage value shall be rounded-off to the nearest whole number. The rules of rounding-off shall be followed.

1.7.4 The verdict shall be based on the rounded-off values.

1.7.5 Both rated and measured values shall be mathematically consistent.

2. Product Verification Testing

All general technical provisions in this IG shall apply, including the following:

2.1 Sampling Method for Verification Testing

2.1.1 A unit of base model or its generic model shall be randomly taken from the sampling location.

Note: If a model (either base or generic) has been verified, the result of the test shall apply to all the base or generic models declared for that model.

2.2 Specific Guidelines on the Conduct of Verification Testing

2.2.1 Test Methods to verify conformity to the claimed information in the label shall be specified in Section 1.3.

2.2.2 An authorized representative of the Applicant shall be responsible for the installation of the sample (split-type air conditioner).

2.2.3 Compartment temperatures (indoor and outdoor, wet bulb and dry bulb) during stable condition and reading period shall be maintained at ± 0.1°C.

2.2.4 Samples shall be tested at a standard test voltage of 230V~±1%, 60Hz±1%.

2.2.5 All necessary operational settings required for the proper conduct of the test shall be provided by the Applicant.

2.2.6 In the conduct of partial (half) load test, the measured half load cooling capacity at T1 shall be ±5.0% of the measured full load.

2.2.7 The verification testing shall be conducted by the DOE-Lighting Appliance and Testing Division (DOE-LATD) or a DOE-Recognized Testing Laboratory (DOE-RTL) in accordance with the normative reference/s specified in Section 1.3 and the Guidelines stated in Section 2.2. The result shall be submitted directly to the DOE-Energy Efficiency and Conservation Performance Regulation and Enforcement Division (DOE-EPRED).

2.2.8 In cases where a measured value falls within the guard band, as defined in this IG, the DOE-RTL that conducted the test shall be responsible for issuing the final verdict. The final verdict shall be in accordance with Annex A: Guidelines on the Decision Rule of this IG to account for measurement uncertainty.

Conformance shall be evaluated according to the cases shown in Table 3.

Table 3. Conformance Requirements

Case Condition	1st Sampling	2nd Sampling	3rd Sampling	Conformance
Case 1	Passed	Not Applicable	Not Applicable	Passed
Case 2	Failed	Passed	Passed	Passed
Case 3	Failed	Passed	Failed	Failed
Case 4	Failed	Failed	Not Applicable	Failed

Notes:
1. *The Tolerance, MEP and Decision Rule shall be applied when determining the verdict.*
2. *Replacement of defective units, that cannot be properly tested, shall be allowed up to three (3) times only. If the unit is still defective after the 3rd replacement, the testing shall be considered as failed.*

2.3 Correction of Performance Ratings

2.3.1 Applicant has the option to change their claimed ratings in order to comply with the requirements of this IG based on the result of the test.

2.3.2 New claims shall conform to the tolerances specified in Section 1.7.

2.4 Inspection of Generic Models

2.4.1 A model will not be considered generic if there are major differences in any of the components related to the performance of the air conditioner (e.g., front grille design, number of tubes in evaporator and condenser, fins / inch of evaporator and condenser, compressor rating, number of louvers in the condenser, fan motor rating, inverter circuit board and number of fan blades).

2.4.2 In case of doubt, DOE-EPRED shall require the inspected units to be subjected to performance testing.

3. Specification and Dimensions of Energy Label

3.1 Label Design

Swatches

Pantone Blue 072	C100M98Y2K3 R44G49B140 Web 2B318B	Pantone 3945	C0M0Y100K0 R244G229B1 Web F3E501

3.2 Presentation of the Energy Labels

3.3 Products on sale shall have the energy label affixed to the front grille or external enclosure of the indoor unit, whichever is visible.

4. Product Registration

PELP-Registered Companies may register their air conditioner models through the PELP Online Product Registration, which includes the information indicated in the Product Registration Form – Air Conditioners, among others. These procedures also apply to both manufactured and imported institutional products.

4.1 Product Registration Form

The Product Registration Form shall indicate the product's details, details of the testing facility used and the product's performance specifications in accordance with the normative references stated in Section 1.3. The Product Registration Form shall contain, at the minimum, the following information:

Product Registration Form - Air Conditioner

Product Test Report Details	
Name of Testing Laboratory	
Country of Testing Laboratory	
ISO 17025 Accreditation Body	
Accreditation Membership / Affiliation	
Laboratory Report Issuance Date	
Accreditation Certificate Expiration Date	
Product Details	Air Conditioner
Product Category	Cooling, Heating and Ventilating Appliances
Product	Air Conditioner
Particular Product	☐ AC Variable (ACV) ☐ AC Fixed (ACF)
Installation Type	☐ Window Type ☐ Split Type – Wall-Mounted ☐ Split Type – Ceiling-Cassette ☐ Split Type – Ceiling-Suspended ☐ Split Type – Floor-Mounted
Brand Name	
Model Number/Code	
Year Model	
Country of Origin	
Original Equipment Manufacturer (OEM)	
Is the product a generic or a base model?	☐ Base ☐ Generic If Generic, please specify the model code of the Base model: _____

General List of Refrigerants	☐ HCFC-123 ☐ R-410A ☐ R-134A ☐ R-412A ☐ R-23 ☐ R-417A ☐ R-290 ☐ R-422A ☐ R-32 ☐ R-438A ☐ R-404A ☐ R-449A ☐ R-407A ☐ R-452A ☐ R-407C ☐ R-507 ☐ R-407F ☐ R-508 ☐ R-408A ☐ R-513A ☐ R-409A ☐ R-600A
Other refrigerants, please specify:	
Global Warming Potential (GWP) of Refrigerant	
Refrigerant Amount:	_____ ☐ kg ☐ L
Cooling Capacity (kW)	
Cooling Seasonal Total Load, CSTL (kWh)	
Cooling Seasonal Energy Consumption, CSEC (kWh)	
Cooling Seasonal Performance Factor (CSPF)	
Rated Power Input (W)	
Rated Voltage (V)	
Rated Frequency (Hz)	
Energy Efficiency Performance Rating	☐ ★ ☐ ★★ ☐ ★★★ ☐ ★★★★ ☐ ★★★★★
Other Parameters:	

Notes:

a.) Number of samples tested for product registration purposes will be up to the Applicant.

b.) The validity of the test report shall be one (1) year from the date of issuance of the report.

5 **Effectivity.** This IG shall take effect fifteen (15) days following its publication in at least two (2) newspapers of general circulation. Copies of this IG shall be filed with the University of the Philippines Law Center - Office of the National Administrative Register.

Issued at Energy Center, Bonifacio Global City, Taguig City.

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ANNEX A
GUIDELINES ON DECISION RULE

This document will provide the decision rule that will be used to account for measurement uncertainty, based on ILAC-G8:09/2019.

Definition of Terms:

Acceptance Interval - interval of permissible measured quantity values.

Acceptance Limit (AL) - specified upper or lower bound of permissible measured quantity values.

Guard Band (w) – interval between a tolerance limit (TL) and a corresponding acceptance limit (AL) where length w = |TL – AL|.

Measured Quantity Value - quantity value representing a measured result.

Rejection Interval - interval of non-permissible measured quantity values.

Specific Risk - is the probability that an accepted item is non-conforming, or that a rejected item does conform. This risk is based on measurements of a single item.

Tolerance Interval / Specification Interval - interval of permissible values of property.

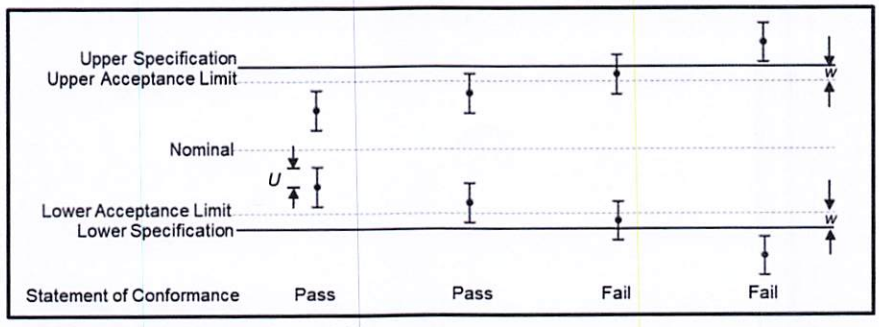
Tolerance Limit (TL) / Specification Limit - specified upper or lower bound of permissible values of a property.

Decision Rule

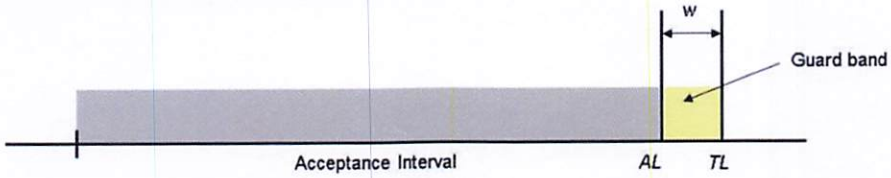
A Binary decision rule is when the result is limited to two choices (pass or fail). As explained below, the declaration of conformity is binary acceptance.

Binary Acceptance based on Guard Band

The decisions are based on guard-banded acceptance limits. The acceptance limits, AL = TL – w, where U is the expanded measurement uncertainty or equivalent to w. The estimate of the measurand is assumed to have a normal probability distribution and specific risk is used for the risk calculation. In this case, the risk of accepted items being outside the tolerance limit is less than or equal to 2.5%.



U = 95% expanded measurement uncertainty



Statements of Conformity are reported as follows:

- Pass – acceptance based on guard band; the measurement result being below the acceptance limit, AL = TL – w.
- Fail – rejection based on guard band; if the measurement result is above the acceptance limit, AL = TL – w