SEVENTH *lites.asia* REGIONAL LIGHTING POLICY MEETING

THE PHILIPPINE ENERGY STANDARDS AND LABELLING PROGRAM

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Jakarta, Indonesia
April 2013

Program Description

- A joint program of the Department of Energy (DOE) and the Department of Trade and Industry (DTI) which requires appliances and lighting products to meet prescribed minimum energy efficiency levels and to carry an energy label at the point of sale.

Brief History of the Program

- 1979 – second oil crisis
- 1980 – Energy Conservation Law (expired in 1990)
- July 1992 - voluntary labeling for RACs.
- October 1993 - Mandatory Labeling for RACs
- June 1994 - Full implementation for all sizes of window type RAC
- 1999 – Mandatory Labeling for refrigerators
- 2000 - inclusion of split type RAC up to 36,000 kJ/h capacity.
- 2003 – Launching of the mandatory CFL energy label
- 2010 – CFLs (MEPS), LFL (MEPS/Label), ballast, Circular fluorescent lamps

Objectives of the Philippine Energy Efficiency Standards and Labeling Program

- Eliminate the least efficient household appliances and lighting products in the local market
- Reduce monthly electricity bill to end-user or consumers.
- Protection from mislabeling.

Objectives of the Philippine Energy Efficiency Standards and Labeling Program

- Encourage manufacturers to improve product efficiency to make their products competitive in the local and in the world market

- Reduce greenhouse gas emission from power generation

Program development and implementation process

Government

Academe

Trade organization

Professional organization

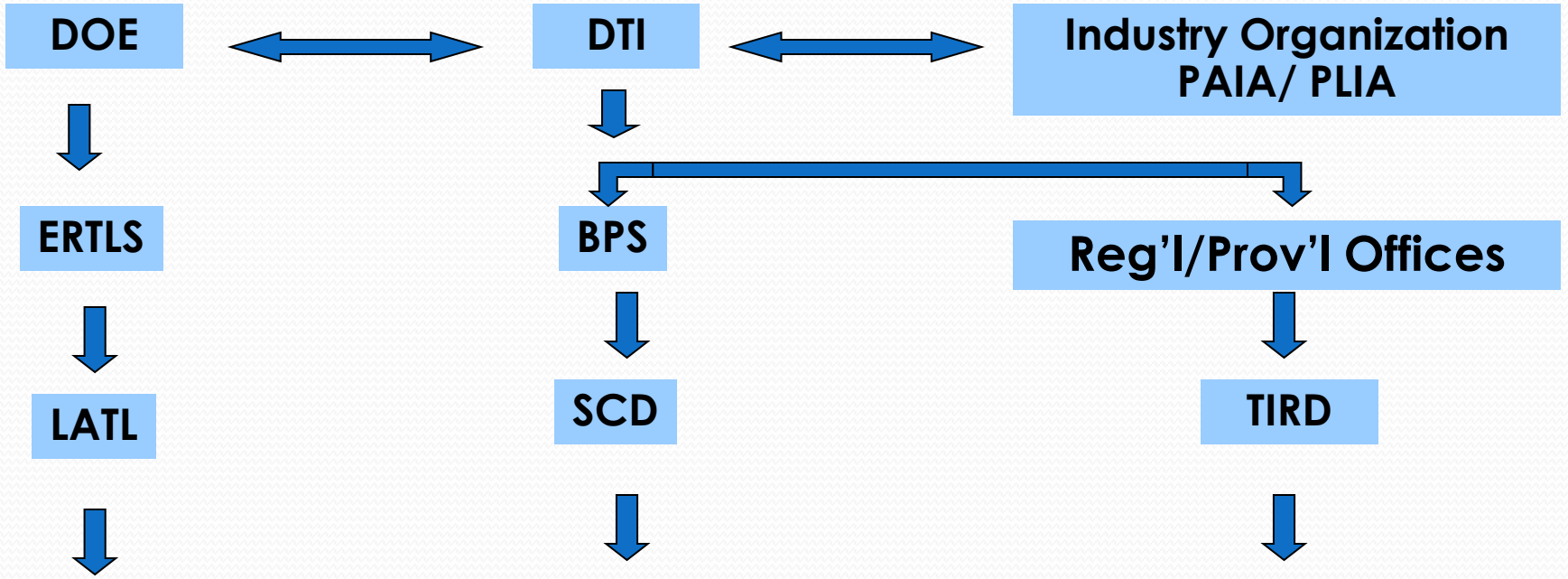
Consumer group

Manufacturers

Standards development – the Technical Committee Approach

Program development and implementation process

DOE/DTI roles



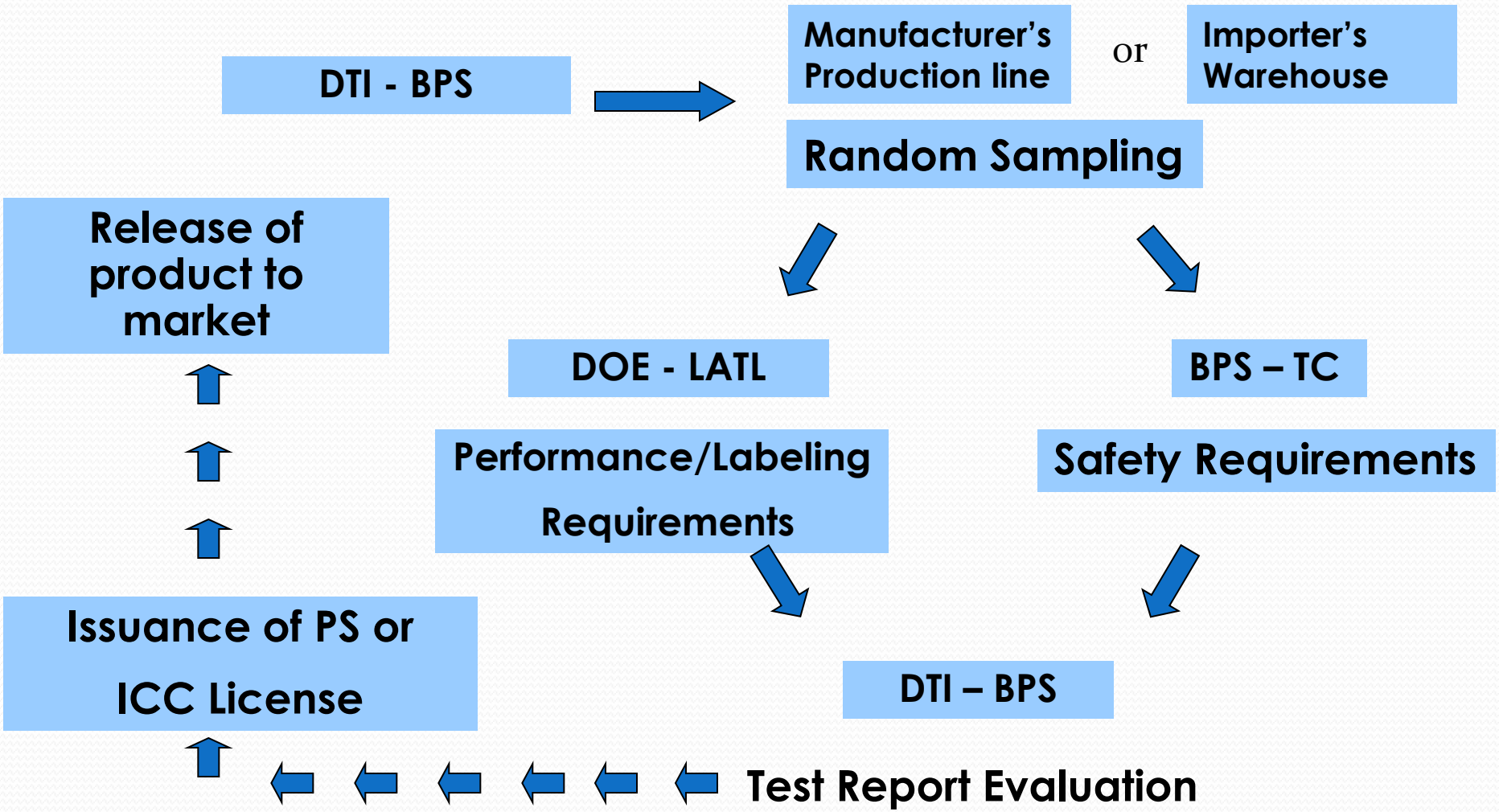
- Initiate/identify
- Validate energy label
- Conduct performance testing

- Process application for product certification
- Standardization
- Enforce the implementation of the standard
- Undertake product sampling

-Conduct market monitoring and sampling
- Penalize non-complying retailers/dealers and manufacturers
- Handle consumer complaints

Program development and implementation process

Sampling and Testing Process



Program development and implementation process

Philippine Standard (PS) Quality and/or Certification Mark

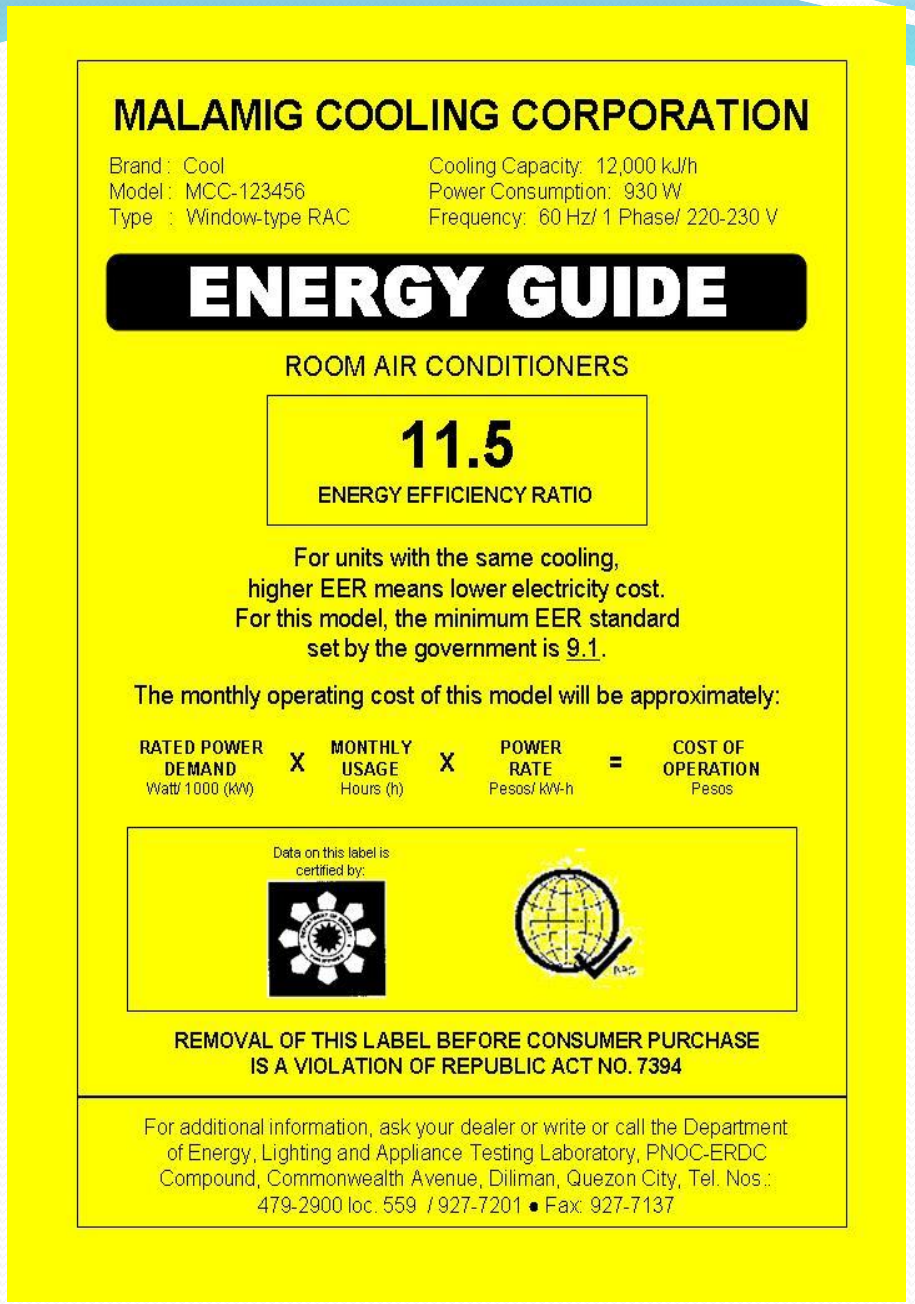
C E R T I F I E D
Product Safety

C E R T I F I E D
Product Quality

For locally-manufactured products that comply with Philippine National Standard

For imported products that comply with Philippine National Standard

SAMPLE YELLOW LABEL FOR RACs



MALAMIG COOLING CORPORATION

Brand : Cool
Model : MCC-123456
Type : Window-type RAC

Cooling Capacity: 12,000 kJ/h
Power Consumption: 930 W
Frequency: 60 Hz/ 1 Phase/ 220-230 V

ENERGY GUIDE

ROOM AIR CONDITIONERS

11.5
ENERGY EFFICIENCY RATIO

For units with the same cooling,
higher EER means lower electricity cost.
For this model, the minimum EER standard
set by the government is 9.1.

The monthly operating cost of this model will be approximately:

RATED POWER DEMAND (Watt/ 1000 (kW))	X	MONTHLY USAGE (Hours (h))	X	POWER RATE (Pesos/ kW-h)	=	COST OF OPERATION (Pesos)

Data on this label is certified by:

REMOVAL OF THIS LABEL BEFORE CONSUMER PURCHASE
IS A VIOLATION OF REPUBLIC ACT NO. 7394

For additional information, ask your dealer or write or call the Department of Energy, Lighting and Appliance Testing Laboratory, PNOC-ERDC Compound, Commonwealth Avenue, Diliman, Quezon City, Tel. Nos.: 479-2900 loc. 559 / 927-7201 • Fax: 927-7137

- **Cooling capacity**
- **Power Consumpton**
- **EER**
- **MEPS**
- **OPERATING COST COMPUTATION**
- **FOR MORE INFO**

AIR-CONDITIONERS

- **Labeling Standard:**

  PNS 396 Part 1:1995 Household appliances –Energy Efficiency Ratio (EER) and Labelling Requirements Part 1: Room Air Conditioners

- **Testing protocol :**

  PNS 240:1998/ISO5151:1994 "Non-ducted air conditioners and heat pumps – Testing and rating for performance

  Safety Std: IEC 335-2-40 (adopted, but not yet implemented)

- **Coverage**
  - Window type (single package)
  - Split system (wall and floor mounted)
  - up to 36,000 kJ/h (10 kW)

- **With MEPS – Minimum Energy Performance Standards (mandatory requirements)**

MEPS for RAC

PNS 396 Part 1: 1995 – Household appliances – Energy Efficiency Ratio (EER) and Labelling Requirements Part 1: Room Air Conditioners

Philippine Minimum EER Requirements for RAC from 1995 to 2002

Classification of room air conditioners	1995	1996	1997	1998	1999	2000	2001	2002
With Cooling Capacity below 12,000 kJ/h	8.3	8.3	8.3	8.7	8.7	8.7	9.1	9.1
With Cooling Capacity 12,000 kJ/h and above	7.4	7.8	7.8	7.8	8.2	8.2	8.2	8.6

Source: PNS 396-1:1995

- *Both for WT and ST*

Performance Rating Requirements

$$EER = \frac{\text{Cooling Capacity}}{\text{Power Input}}$$

Energy Efficiency Ratio (EER) - **Expressed in kJ/W-h.**

☞ **Should not be less than minimum requirement.**

☞ **Measured value should not be less than 90% of claimed.**

Cooling Capacity - **the amount of heat, in *kJ/hr*, that an air conditioner can removed from an enclosed space.**

☞ **Tested value should not be less than 90% of rated.**

Power Input - **amount of energy, in watt, when an air-conditioner runs at its rated cooling capacity.**

☞ **Measured value should not be more than 110% of rated.**

ROOM AIR-CONDITIONERS

- **Sampling**

  - BPS do the random sampling at manufacturer's factory or importer's warehouse.

  - One (1) sample per generic model

  -Advance / engineering sample is acceptable

  - One year validity of test report.

ROOM AIR-CONDITIONERS

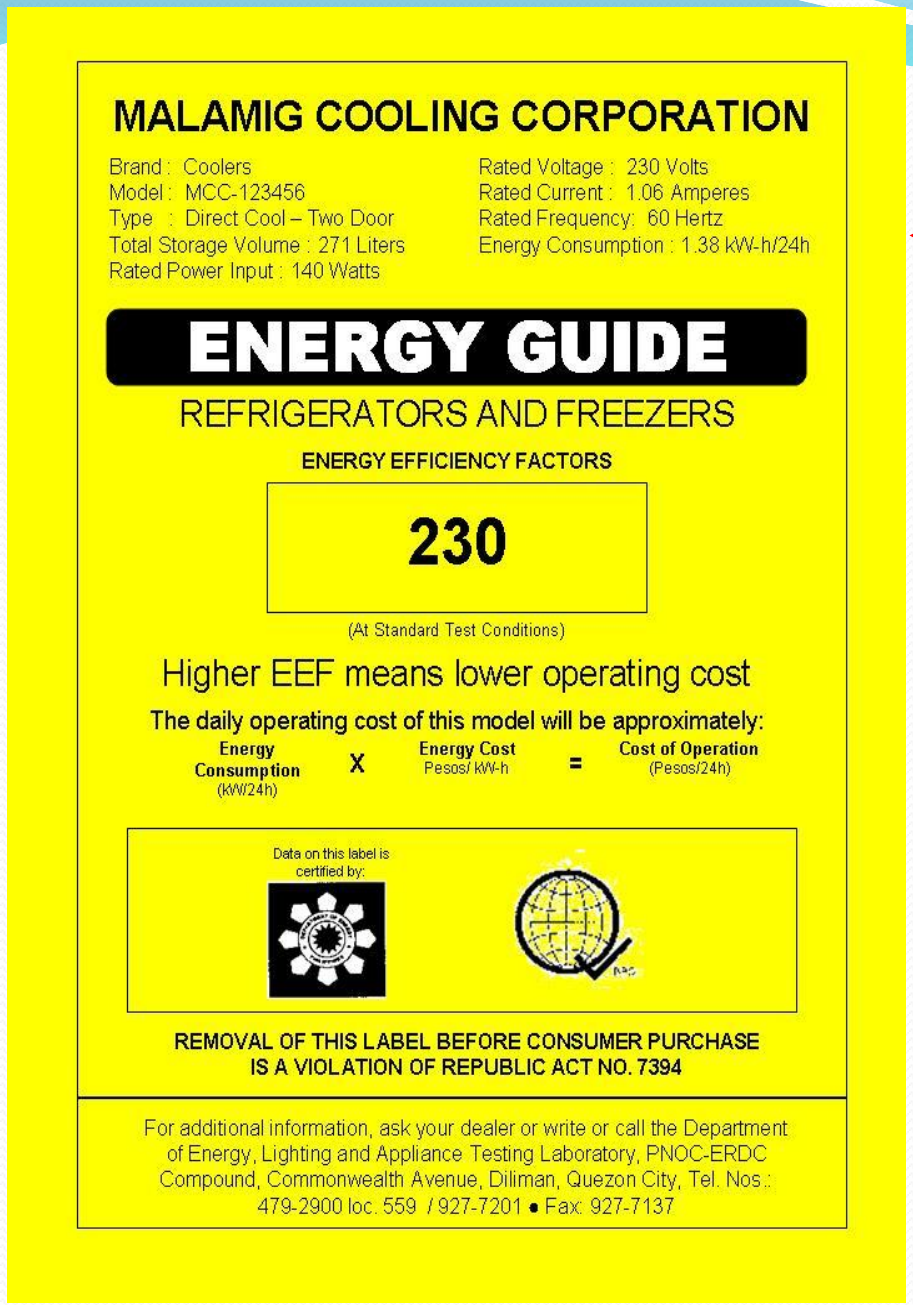
- **Testing**

  - LATL is the official testing laboratory.
  - Witness testing at BPS-recognized - manufacturer's laboratory with DOE and DTI approval
  - Inter-laboratory testing with industry test facility
  - Calorimeter and air-enthalpy methods

New Design of Energy Label

Energy Label for Household Refrigerators and Freezers

SAMPLE YELLOW LABEL FOR REFs



MALAMIG COOLING CORPORATION

Brand : Coolers
Model : MCC-123456
Type : Direct Cool – Two Door
Total Storage Volume : 271 Liters
Rated Power Input : 140 Watts

Rated Voltage : 230 Volts
Rated Current : 1.06 Amperes
Rated Frequency: 60 Hertz
Energy Consumption : 1.38 kW-h/24h

ENERGY GUIDE

REFRIGERATORS AND FREEZERS

ENERGY EFFICIENCY FACTORS

230

(At Standard Test Conditions)

Higher EEF means lower operating cost

The daily operating cost of this model will be approximately:

Energy Consumption (kW/24h) X Energy Cost Pesos/ kW-h = Cost of Operation (Pesos/24h)

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ENERGY CONSUMPTION IN kW/24 hours

EEF

OPERATING COST COMPUTATION

FOR MORE INFO

Energy Label: Household Refrigerators and Freezers

Philippine National Standard (PNS) 396 Part 2: 1997 –

Household appliances – Energy Efficiency Factor (EEF) and Labelling Requirements

Part 2: Refrigerators and Freezers

- **Coverage**

  142 to 227 liters / 5 – 8 cubic feet (Refrigerators)

Energy Label: Household Refrigerators and Freezers

- *Test Methods*

Energy Performance

- PNS 1474 (ISO 5155) - Frozen food cabinet and freezer
- PNS 1475 (ISO 7371) - Refrigerator with or without low temperature compartment
- PNS 1476 (ISO 8187) - Refrigerator-Freezer
- PNS 1477 (ISO 8561) - Frost Free-Refrigerator, Refrigerator-Freezer, f rozen food storage cooled by internal forced circulation

Safety

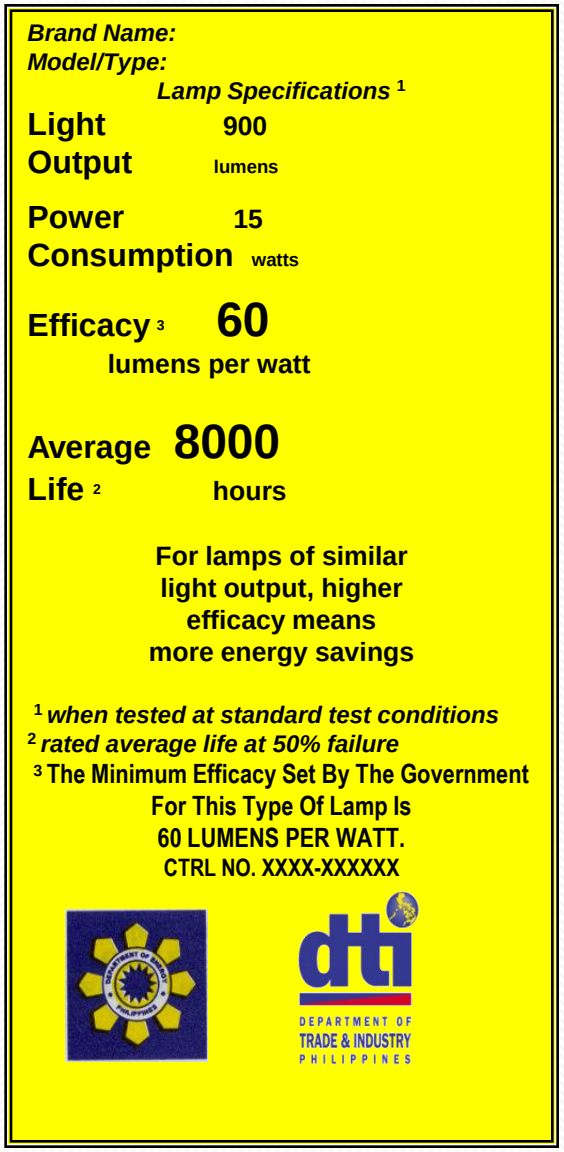
- PNS 219 (IEC 60335-2-24) - Safety requirements for refrigerators, food-freezers and ice-makers.

Philippine Energy Efficiency Project (PEEP)

- Component 1.4
- Expansion of the Appliance Program

- Bigger sizes of refrigerators up to 12 cuft
- Clothes washers
- Televisions

Energy Label for CFLs



Light Output

Power Consumption

Efficacy

Average life

Compact Fluorescent Lamps

PNS 2050-2:2007 Lamps and related equipment – Energy efficiency and labeling requirements
Part 2:Self-ballasted lamps for general lighting services

Scope:

Self-ballasted lamps for domestic and similar general lighting service, 3 to 60 watts power input, having a rated voltage up to 230 volts, 60Hz with Edison screw base E14 & E27.

Exemptions: LED lamps, PAR lamps

Linear Fluorescent Lamps

PNS 2050-1-1:2007 Lamps and related equipment – Energy efficiency and labeling requirements – Part 1-1: Double-capped fluorescent lamps

Scope:

Covers linear fluorescent lamps for general lighting service specifically T12, T8 and T5 halophosphate and triphospate fluorescent lamps with G13 and G5 caps with a power input of 10W up to 65W operating at 220-300V AC, 50/60 Hz

Circular Fluorescent Lamps

PNS IEC 901: 2001 "Single-capped fluorescent lamps- Performance requirements"

- **Coverage**

  Performance requirements for single-capped fluorescent lamps for general lighting service specifically for lamps with diameter:

  26.2 to 30.9 mm tube diameter, 60901-IEC-3222-2 page 1, 22W

  26.2 to 30.9 mm tube diameter, 60901-IEC-3232-2 page 1, 32W

  26.2 to 30.9 mm tube diameter, 60901-IEC-3240-2 page 1, 40W

Energy Label for Ballasts

Based on standard test condition

BALLAST EFFICACY FACTOR

2.6

DEPARTMENT OF TRADE AND INDUSTRY PHILIPPINES

0512-345678

Important: HIGHER BEF means HIGHER SAVINGS

Ballasts

PNS 2050-4:2007 Lamps and related equipment – Energy labeling requirements - Part 4: Ballasts

- Scope:
  Ballasts for general lighting

  AC supplied Electronic Ballasts:
  10W to 40W for T12,T10,T9,T8, and T5 fluorescent lamps with G13 and G5 caps

  AC supplied Electromagnetic Ballasts:
  18W to 40W for T12,T10,T9 and T8 fluorescent lamps with G13 cap

Ballasts

PNS IEC 60921:2006 (IEC published 2004) Ballast for tubular fluorescent lamps – Performance requirements (Electromagnetic)

PNS IEC 60929:2006 (IEC published 2003) AC-supplied electronic ballasts for tubular fluorescent lamps – Performance requirements

Ballasts

PNS IEC 60921:2006 (IEC published 2004) Ballast for tubular fluorescent lamps – Performance requirements (Electromagnetic)

Supply current
At rated voltage, the supply current to the ballasts shall not differ by more than 10% from the value marked on the ballasts when the latter is operated with a reference lamp

Circuit power factor
Shall not differ from the marked value by 0.05 when operated with a reference lamp

Lamp power and current
Shall limit the power and current of a reference lamp to not less than 92.5% for the power and not more than 115% for the current of the corresponding values delivered to the same lamp when operated with a reference ballast

Ballasts

PNS IEC 60929:2006 (IEC published 2004) AC-supplied electronic ballasts for tubular fluorescent lamps- Performance requirements

Supply current
At rated voltage, the supply current to the ballasts shall not differ by more than ±10% from the value marked on the ballasts when the latter is operated with a reference lamp

Circuit power factor
Shall not differ from the marked value by 0.05 when operated with a reference lamp

Crest factor
Shall not exceed 1.7

Ballasts

PNS IEC 60929:2006 (IEC published 2004) Ballast for tubular fluorescent lamps – Performance requirements (Magnetic)

Total power
Shall not be more than 110% of the value declared by the manufacturer when the ballast is operated with a reference lamp

Lamp power
Shall limit the current delivered to a reference lamp to a value not exceeding 115% of that delivered to the same lamp when it is operated with a reference ballast

Updates on the Lighting program
Plans for 2013

- Review the performance requirements for Self-ballasted Lamps (CFLs), by 2013

- Prepare the implementing guidelines for PNS 2050-6:2010 – specifies MEPS for incandescent lamps for general lighting services, by 2013

  - DOE is tasked to prepare the draft implementing guidelines
  - The promulgation of MEPS and implementing guidelines is targeted before end of 2013

- Review the performance requirements for luminaires, by 2013

THANK YOU!

For More Information, please contact:

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