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# CONSUMER GUIDE

Room Air Conditioner
Refrigerator
Compact Fluorescent Lamp
Fluorescent Lamp Ballast
Fuel Economy Run

Energy Utilization Management Bureau

Energy Research and Testing Laboratory Services

Consumer Welfare and Promotion Office

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# FOREWORD

The *Consumer Guide* is an informative booklet that provides useful information on the energy ratings of room air conditioners, refrigerators, compact fluorescent lamps, fluorescent lamp ballast, and passenger vehicles. It comes in a handy manual format that will help the public choose the appropriate and efficient product suitable to their needs.

It provides an overview of the Philippine Energy Efficiency and Labeling Program for Household Appliances and Lighting Products, as well as the results of the Fuel Economy Run Program for Vehicles. Helpful tips are also included which present bits of information and easy-to-follow instructions to save energy.

The objective of eliminating the least efficient household appliances and lighting systems in the local market is now more attainable with the release of this *Consumer Guide*. At the same time, manufacturers are now more encouraged to improve their product efficiency thus become more competitive in both local and world markets.

This *Consumer Guide* will strengthen the current information, education, and communication program of the Department of Energy. It will also serve as an important tool toward consumer empowerment.

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# Philippine Energy Efficiency Standards and Labeling Program for Household Appliances and Lighting Products

## INTRODUCTION

The Energy Efficiency Standards and Labeling Program for household appliances and lighting products is a government-private sector initiative. It is being implemented jointly by the *Department of Energy* through its Energy Research and Testing Laboratory Services and the *Department of Trade and Industry* through the Bureau of Product Standards in cooperation with the industry associations such as the *Philippine Appliance Industry Association* and the *Philippine Lighting Industry Association*.

The program is a combination of mandatory energy efficiency standards and energy labeling. The energy efficiency standards weed out the relatively inefficient models from the market. On the other hand, the energy label provides the would-be buyers information on the product's energy performance ratings which, depending on the type of product, may be in terms of power consumption, energy efficiency, cooling capacity (for aircon), light output (for lamps), ballast loss (for ballast) as well as physical attributes such as storage volume (for refrigerators).

Currently, the program covers four types of appliances and lighting products, as listed below. The long term plan is to expand the program to cover more types and to increase capacity or size range.



Products covered:

1. Room air conditioners, both window-type and split-type (floor and wall-mounted only), with cooling capacity of up to 36,000 kilojoules per hour.

2. Household refrigerators with storage volume ranging from 5 to 8 cubic feet or 142 to 227 liters.

3. Compact fluorescent lamps up to 65 watts.

4. Fluorescent lamp ballast, electromagnetic type.

Program Objectives:

1. Eliminate the least efficient household appliances and lighting systems in the local market.

2. Reduce monthly electricity bill of end-users/consumers and allow them to choose the brand and model that will meet their particular needs.

3. Protect buyers from buying mislabeled products.

4. Encourage manufacturers to improve product efficiency thus making their products competitive in the local and world markets.

5. Reduce greenhouse gas emissions and other pollutants resulting from energy production and utilization.

# ROOM AIR CONDITIONER (Aircon)

## THE ENERGY LABEL GUIDE

### Your Guide To Real Cool Savings

Use this Energy Label as your guide to a wise decision. Your purchase of an energy-efficient appliance will surely make a difference in your electricity cost and more significantly, in protecting the environment, too!

Whenever you shop for a room air conditioner compare the Energy Efficiency Ratio (EER) and calculate the energy consumption and operating costs of different brands and models.

The general rule is, for the same cooling capacity, the higher the EER, the more efficient the unit and the lesser the operating cost.

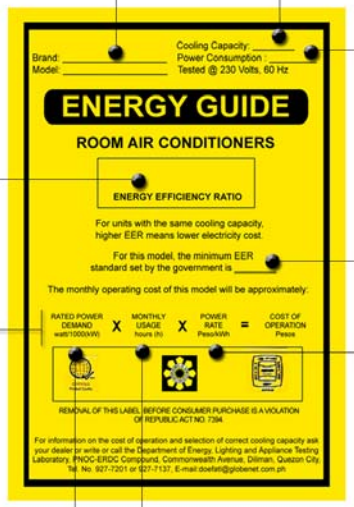
Check if the brand and model of the air conditioner match the given information on this label.

The Cooling Capacity expressed in kilojoules per hour quantifies the maximum amount of heat that the air conditioner can remove from an enclosed space.

Here you will find a number which is the Energy Efficiency Ratio (EER) of the unit as tested and certified by an independent appliance testing laboratory.

EER is determined by the following formula:

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




The Power Consumption expressed in watts tells you how rapidly the energy is used when your air conditioner runs at its maximum cooling capacity.

This air conditioner has to meet the stated minimum standard.

Use the formula to calculate the electricity cost and compare this with other air conditioners of the same cooling capacity.

Your current electricity bill will give you a good estimate of the power rate.

EXAMPLE:

kWh used = 650 kWh,
Net Bill Amount : P4,095.00

Power Rate = P4,095.00/650 kWh
= P6.30/kWh

Substitute the Power Consumption after converting it to kW. Do this by dividing it by 1000W/kW.

This refers to the number of hours you operate your airconditioner in a month.



# LIST OF CERTIFIED WINDOW-TYPE ROOM AIR CONDITIONERS

as of February 2005

| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| I. Room Air Conditioners with Cooling Capacity below 12,000 kJ/h Locally Manufactured and Imported Models | | | | | |
| 1 | HITACHI | RA-10RC | 11,600 | 1,074 | 10.8 |
| 2 | HITACHI | RA-116MAS | 11,600 | 1,074 | 10.8 |
| 3 | HITACHI | RA-116WAS | 11,600 | 1,074 | 10.8 |
| 4 | MIDEA | KC-32/EIY | 11,520 | 1,210 | 9.5 |
| 5 | MIDEA | KC-32E1 | 11,520 | 1,210 | 9.5 |
| 6 | ELEPHANT | KC32/F1 | 11,520 | 1,210 | 9.5 |
| 7 | CARRIER | WCARMO11EA | 11,250 | 1,004 | 11.2 |
| 8 | CARRIER | MCA115BP | 11,100 | 956 | 11.6 |
| 9 | CARRIER | MCA115PP | 11,100 | 956 | 11.6 |
| 10 | CARRIER | MCA115RP | 11,100 | 956 | 11.6 |
| 11 | CONDURA | MCC115BP | 11,100 | 956 | 11.6 |
| 12 | CONDURA | MCC115PP | 11,100 | 956 | 11.6 |
| 13 | CONDURA | MCC115RP | 11,100 | 956 | 11.6 |
| 14 | KELVINATOR | MCK115BP | 11,100 | 956 | 11.6 |
| 15 | KELVINATOR | MCK115PP | 11,100 | 956 | 11.6 |
| 16 | KELVINATOR | MCK115RP | 11,100 | 956 | 11.6 |
| 17 | CONDURA | WCONTO11EA | 11,100 | 991 | 11.2 |
| 18 | PANASONIC | CW-SC101VPH | 11,000 | 940 | 11.7 |
| 19 | PANASONIC | CW-C101VPH | 11,000 | 940 | 11.7 |
| 20 | PANASONIC | CW-XC101VPH | 11,000 | 940 | 10.3 |
| 21 | LG | LWC1031DAG | 10,609 | 1,030 | 10.3 |
| 22 | LG | LWC1031QAG | 10,609 | 1,030 | 10.3 |
| 23 | LG | LWC1031QAS | 10,609 | 1,030 | 10.3 |
| 24 | KOLIN | KAG-11ME | 10,600 | 960 | 11.0 |
| 25 | KOLIN | KAG-11RE | 10,600 | 960 | 11.0 |

| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/Wh) |
|---|---|---|---|---|---|
| 26 | LG | LWQ1030QAL | 10,550 | 1,000 | 10.5 |
| 27 | UNI-AIR | UF-100AS | 10,550 | 1,030 | 10.2 |
| 28 | UNI-AIR | UH-100MS | 10,550 | 1,055 | 10.0 |
| 29 | UNI-AIR | UH-100MC | 10,550 | 1,055 | 10.0 |
| 30 | UNI-AIR | U-1000MCF | 10,550 | 1,011 | 10.0 |
| 31 | AMERICAN HOME | AHAC-100MNT | 10,550 | 1,050 | 10.0 |
| 32 | KOMITSU | KAK-11M | 10,550 | 1,050 | 10.0 |
| 33 | KOLIN | KA-11BMW | 10,500 | 1,050 | 10.0 |
| 34 | YORK | YC-9DR | 10,140 | 938 | 10.8 |
| 35 | GE | AJE09KA | 9,800 | 930 | 10.5 |
| 36 | CARRIER | WCARF010EA | 9,750 | 928 | 10.5 |
| 37 | LG | LA100RG1 | 9,726 | 946 | 10.2 |
| 38 | YORK | YWU-09 | 9,603 | 967 | 9.9 |
| 39 | GREE | KW-23AP | 9,540 | 960 | 9.9 |
| 40 | GREE | KW-23P | 9,540 | 960 | 9.9 |
| 41 | YORK | YC-9D | 9,540 | 960 | 9.9 |
| 42 | DAIKIN | W25MVBL | 9,500 | 900 | 10.6 |
| 43 | PANASONIC | CW-SC91JPH | 9,500 | 900 | 10.6 |
| 44 | CARRIER | FCA095BP | 9,500 | 904 | 10.5 |
| 45 | CARRIER | FCA095PP | 9,500 | 904 | 10.5 |
| 46 | CARRIER | FCA095RP | 9,500 | 904 | 10.5 |
| 47 | CONDURA | FCC095BP | 9,500 | 904 | 10.5 |
| 48 | CONDURA | FCC095PP | 9,500 | 904 | 10.5 |
| 49 | CONDURA | FCC095RP | 9,500 | 904 | 10.5 |
| 50 | CONDURA | WCONS010EA | 9,500 | 904 | 10.5 |
| 51 | KELVINATOR | FCK095BP | 9,500 | 904 | 10.5 |
| 52 | KELVINATOR | FCK095PP | 9,500 | 904 | 10.5 |
| 53 | KELVINATOR | FCK095RP | 9,500 | 904 | 10.5 |
| 54 | MARKES OF CANADA | MWA-90 | 9,500 | 920 | 10.3 |



| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| 55 | SAMSUNG | AW-09F2TBA | 9,500 | 980 | 9.7 |
| 56 | LG | LWGO0930ACG | 9,496 | 1,000 | 9.5 |
| 57 | KOMITSU | KAM-10M | 9,495 | 950 | 10.0 |
| 58 | FEDDERS | 1FY2009I7L | 9,495 | 918 | 10.3 |
| 59 | FEEDERS | 2FY2009I7L | 9,495 | 918 | 10.3 |
| 60 | KOPPEL | 2KY2009I7M | 9,495 | 918 | 10.3 |
| 61 | FEDDERS | 2FY2009I7L-PH | 9,495 | 918 | 10.3 |
| 62 | KOPPEL | 1KY2009I7M-PH | 9,495 | 918 | 10.3 |
| 63 | KOPPEL | 1KY2009I7M | 9,495 | 897 | 10.1 |
| 64 | MIDEA | MWH-09CR | 9,495 | 950 | 10.0 |
| 65 | SANSIO | AW-900 | 9,495 | 960 | 9.9 |
| 66 | TOYO | TA-09CW | 9,495 | 960 | 9.9 |
| 67 | WHIRLPOOL | AMB09WK4 | 9,495 | 1,040 | 9.1 |
| 68 | YORK | Y9USC09-6A | 9,495 | 920 | 10.3 |
| 69 | YORK | Y9USC09-6R | 9,495 | 920 | 10.3 |
| 70 | GE | ASV09KA | 9,400 | 1,000 | 9.4 |
| 71 | FUJITSU | AKU9GNG-W | 9,200 | 955 | 9.6 |
| 72 | GE | AEV-09KB | 9,000 | 920 | 9.8 |
| 73 | SANYO | SA-T93P | 9,000 | 910 | 9.9 |
| 74 | IMARFLEX | IAC-100 | 9,000 | 920 | 9.8 |
| 75 | SAMSUNG | AW-09LFABA | 9,000 | 960 | 9.4 |
| 76 | MIDEA | KC-25E1 | 9,000 | 970 | 9.3 |
| 77 | ELEPHANT | KC25/F1 | 9,000 | 970 | 9.3 |
| 78 | MIDEA | KC-25CI | 9,000 | 980 | 9.2 |
| 79 | DURASTAR | DRAC-010 | 9,000 | 1,000 | 9.0 |
| 80 | MIDEA | MWH-09CM | 8,970 | 920 | 9.8 |
| 81 | CHANGHONG | KC 25/S | 8,968 | 960 | 9.3 |
| 82 | HITACHI | RA-08RC | 8,600 | 826 | 10.4 |
| 83 | HITACHI | RA-86MAS | 8,600 | 827 | 10.4 |

| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W)) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| 84 | HITACHI | RA-86WAS | 8,600 | 827 | 10.4 |
| 85 | YORK | YWU-07 | 8,441 | 771 | 10.9 |
| 86 | UNI-AIR | U-820MS | 8,440 | 881 | 9.6 |
| 87 | WIMPEX | KC-25/A | 8,440 | 881 | 9.6 |
| 88 | YORK | YC-7DR | 8,339 | 731 | 11.4 |
| 89 | CARRIER | WCARF008EA | 8,250 | 705 | 11.7 |
| 90 | SHARP | AF-A701S | 8,208 | 720 | 11.4 |
| 91 | SHARP | AF-A701ST | 8,208 | 720 | 11.4 |
| 92 | SHARP | AF-A750P | 8,208 | 720 | 11.4 |
| 93 | SHARP | AF-A750PR | 8,206 | 746 | 11.0 |
| 94 | LG | LWG0821DAG | 8,140 | 740 | 11.0 |
| 95 | KOMITSU | KAK-08M | 8,018 | 815 | 9.8 |
| 96 | CONDURA | WCONS008EA | 8,000 | 683 | 11.7 |
| 97 | KOLIN | KAG-08ME | 8,000 | 760 | 10.5 |
| 98 | KOLIN | KAG-08RE | 8,000 | 760 | 10.5 |
| 99 | MIDEA | MWH-07CR | 7,910 | 790 | 10.0 |
| 100 | GE | ASV07KA | 7,875 | 750 | 10.5 |
| 101 | AKIRA | AC-W10CP | 7,848 | 753 | 10.4 |
| 102 | CHANGHONG | KC 22/S | 7,800 | 753 | 10.4 |
| 103 | GREE | KC-19AP | 7,600 | 750 | 10.1 |
| 104 | UNI-AIR | UH-072MS | 7,596 | 775 | 9.8 |
| 105 | UNI-AIR | UH-072MC | 7,596 | 775 | 9.8 |
| 106 | GREE | KC-19 | 7,560 | 750 | 10.1 |
| 107 | YORK | YC-7D | 7,560 | 750 | 10.1 |
| 108 | MIDEA | KC-21/CI | 7,560 | 800 | 9.5 |
| 109 | LG | LA080MG | 7,500 | 682 | 11.0 |
| 110 | MARKES OF CANADA | MWA-75 | 7,500 | 720 | 10.4 |
| 111 | SANYO | SA-T73P | 7,500 | 750 | 10.0 |
| 112 | EVER AIRE | EKC-20/A60 | 7,500 | 790 | 9.5 |



| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| 113 | DAIKIN | W20MVBL | 7,420 | 645 | 11.5 |
| 114 | PANASONIC | CW-SC71JPH | 7,420 | 645 | 11.5 |
| 115 | PANASONIC | CW-C71JPH | 7,420 | 645 | 11.5 |
| 116 | PANASONIC | CW-XC71JPH | 7,240 | 645 | 11.5 |
| 117 | CARRIER | FCA075BP | 7,400 | 643 | 11.5 |
| 118 | CARRIER | FCA075PP | 7,400 | 643 | 11.5 |
| 119 | CARRIER | FCA075RP | 7,400 | 643 | 11.5 |
| 120 | CONDURA | FCC075BP | 7,400 | 643 | 11.5 |
| 121 | CONDURA | FCC075PP | 7,400 | 643 | 11.5 |
| 122 | CONDURA | FCC075RP | 7,400 | 643 | 11.5 |
| 123 | GE | AEOV07KB | 7,400 | 720 | 10.3 |
| 124 | KELVINATOR | FCK075BP | 7,400 | 643 | 11.5 |
| 125 | KELVINATOR | FCK075PP | 7,400 | 643 | 11.5 |
| 126 | KELVINATOR | FCK075RP | 7,400 | 643 | 11.5 |
| 127 | KOLIN | KA-08BMW | 7,400 | 718 | 10.3 |
| 128 | SAMSUNG | AW-07F2NBB | 7,400 | 750 | 9.9 |
| 129 | KOLIN | KA-08BMW | 7,400 | 778 | 9.5 |
| 130 | AKIRA | AC-W7CP | 7,385 | 710 | 10.4 |
| 131 | FEDDERS | 1FY2007I7L | 7,385 | 715 | 10.3 |
| 132 | FEDDERS | 2FY2007I7L | 7,385 | 715 | 10.3 |
| 133 | KOPPEL | 2KY2007I7M | 7,385 | 715 | 10.3 |
| 134 | KOPPEL | 1KY2007I7M | 7,385 | 715 | 10.3 |
| 135 | FEDDERS | 2FY2007I7L-PH | 7,385 | 715 | 10.3 |
| 136 | KOPPEL | 1KY2007I7M-PH | 7,385 | 715 | 10.3 |
| 137 | SANSIO | AW-700 | 7,385 | 770 | 9.6 |
| 138 | YORK | Y9USC07-6R | 7,385 | 720 | 10.3 |
| 139 | SAMSUNG | AW-07LFABA | 7,200 | 730 | 9.9 |
| 140 | GE | AJE07KA | 7,000 | 720 | 9.7 |
| 141 | UNI-AIR | U-660MS | 6,750 | 705 | 9.6 |

| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| 142 | GE | AEV05KB | 6,400 | 640 | 10.0 |
| 143 | GREE | KC-15P | 6,125 | 612 | 10.0 |
| 144 | LG | LWH0621ACG | 5,900 | 615 | 9.6 |
| 145 | LG | LA060MG1 | 5,900 | 580 | 10.2 |
| 146 | FEDDERS | 2FYX06N7A | 5,800 | 595 | 9.7 |
| 147 | FEEDERS | 2FYX06N7A-PH | 5,800 | 595 | 9.8 |
| 148 | FEDDERS | 1FYX06N7A | 5,800 | 595 | 9.7 |
| 149 | MARKES | MWA-60 | 5,800 | 590 | 9.8 |
| 150 | CARRIER | WCARF006EA | 5,780 | 535 | 10.8 |
| 151 | SAMSUNG | AW-05MOYBA | 5,700 | 560 | 10.2 |
| 152 | CONDURA | WCONS006EA | 5,600 | 518 | 10.8 |
| 153 | CARRIER | FCA055BP | 5,500 | 534 | 10.3 |
| 154 | CARRIER | FCA055PP | 5,500 | 534 | 10.3 |
| 155 | CARRIER | FCA055RP | 5,500 | 534 | 10.3 |
| 156 | CONDURA | FCC055BP | 5,500 | 534 | 10.3 |
| 157 | CONDURA | FCC055PP | 5,500 | 534 | 10.3 |
| 158 | CONDURA | FCC055RP | 5,500 | 534 | 10.3 |
| 159 | KELVINATOR | FCK055BP | 5,500 | 534 | 10.3 |
| 160 | KELVINATOR | FCK055PP | 5,500 | 534 | 10.3 |
| 161 | KELVINATOR | FCK055RP | 5,500 | 534 | 10.3 |
| 162 | LG | LA050MG | 5,500 | 545 | 10.1 |
| 163 | PANASONIC | CW-SC51JPH | 5,500 | 535 | 10.3 |
| 164 | GE | AJV05KA | 5,300 | 530 | 10.0 |
| 165 | SAMSUNG | AW-05F05BB | 5,300 | 530 | 10.0 |
| 166 | MIDEA | MWH-05CM | 5,280 | 536 | 9.9 |
| 167 | AMERICAN HOME | AHAC-50MNT | 5,275 | 550 | 9.6 |
| 168 | KOPPEL | 4KYX05N7A | 5,275 | 515 | 10.2 |
| 169 | KOMITSU | KAK-06M | 5,275 | 550 | 9.6 |
| 170 | LG | LW-036 | 5,040 | 510 | 9.9 |



| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/w-h) |
|---|---|---|---|---|---|
| II. Room Air Conditioners with Cooling Capacity of 12,000 kJ/h and Above Locally Manufactured and Imported Models | | | | | |
| 1 | HITACHI | RA-300WAS | 31,800 | 3,500 | 9.0 |
| 2 | LG | LA250MP | 26,000 | 2,750 | 9.5 |
| 3 | PANASONIC | CW-CS241EPH | 25,500 | 2,660 | 9.6 |
| 4 | PANASONIC | CW-XC241EPH | 25,500 | 2,660 | 9.6 |
| 5 | HITACHI | RA-224MA | 25,400 | 2,673 | 9.5 |
| 6 | HITACHI | RA-254MA | 25,400 | 2,673 | 9.5 |
| 7 | LG | LWN2432UAG | 25,320 | 2,820 | 9.0 |
| 8 | KOLIN | KAG-28BMW | 25,000 | 2,747 | 9.1 |
| 9 | KOLIN | KAG-25RE | 24,000 | 2,300 | 10.4 |
| 10 | CARRIER | APXRE240BA | 24,000 | 2,608 | 9.2 |
| 11 | CARRIER | APXRM240BA | 24,000 | 2,608 | 9.2 |
| 12 | CARRIER | APXRT240BA | 24,000 | 2,608 | 9.2 |
| 13 | CARRIER | WCARP024EA | 24,000 | 2,608 | 9.2 |
| 14 | CONDURA | CQXRE240BA | 24,000 | 2,608 | 9.2 |
| 15 | CONDURA | CQXRM240BA | 24,000 | 2,608 | 9.2 |
| 16 | CONDURA | CQXRT240BA | 24,000 | 2,608 | 9.2 |
| 17 | GE | AEE24KB | 23,300 | 2,410 | 9.7 |
| 18 | YORK | YWU-22 | 23,212 | 2,469 | 9.4 |
| 19 | MARKES OF CANADA | MWA-240 | 22,500 | 2,300 | 9.8 |
| 20 | YORK | YC-24D | 21,600 | 2,350 | 9.2 |
| 21 | YORK | YWU-18 | 20,718 | 2,127 | 9.7 |
| 22 | DAIKIN | W50LVBL | 19,900 | 1,890 | 10.5 |
| 23 | PANASONIC | CW-SC181EPH | 19,900 | 1,890 | 10.5 |
| 24 | PANASONIC | CW-XC181EPH | 19,900 | 1,890 | 10.5 |
| 25 | CARRIER | APXRE195BA | 19,600 | 1,866 | 10.5 |
| 26 | CARRIER | APXRE195BC | 19,600 | 1,866 | 10.5 |
| 27 | CARRIER | APXRM195BA | 19,600 | 1,866 | 10.5 |
| 28 | CARRIER | APXRT195BA | 19,600 | 1,866 | 10.5 |

| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| 29 | CARRIER | WCARP019EA | 19,600 | 1,866 | 10.5 |
| 30 | CONDURA | CQXRE195BA | 19,600 | 1,866 | 10.5 |
| 31 | CONDURA | CQXRE195BC | 19,600 | 1,866 | 10.5 |
| 32 | CONDURA | CQXRM195BA | 19,600 | 1,866 | 10.5 |
| 33 | CONDURA | CQXRT195BA | 19,600 | 1,866 | 10.5 |
| 34 | HITACHI | RA-180MA | 19,600 | 2,021 | 9.7 |
| 35 | KOLIN | KA-21BMW | 19,600 | 2,183 | 8.7 |
| 36 | IMARFLEX | IAC-200WR | 18,990 | 1,850 | 10.3 |
| 37 | LG | LWM1836DAG | 18,990 | 1,850 | 10.3 |
| 38 | LG | LWM1836QAG | 18,990 | 1,850 | 10.3 |
| 39 | LG | LWM1836QAS | 18,990 | 1,850 | 10.3 |
| 40 | FEDDERS | 1FY318N7A | 18,990 | 1,870 | 10.2 |
| 41 | FEDDERS | 1FY318N7B | 18,990 | 1,870 | 10.2 |
| 42 | FEDDERS | 2FY2018I7L-PH | 18,990 | 1,830 | 10.3 |
| 43 | KOPPEL | 1KY318N7G | 18,990 | 1,870 | 10.2 |
| 44 | GE | ASV18KA | 18,990 | 1,900 | 10.0 |
| 45 | UNI-AIR | UH-180MC | 18,990 | 1,940 | 9.7 |
| 46 | UNI-AIR | UH-180MS | 18,990 | 1,940 | 9.7 |
| 47 | LG | LWM1834DCG | 18,600 | 1,860 | 10.0 |
| 48 | GE | AEE18KB | 18,300 | 1,820 | 10.1 |
| 49 | LG | LWM1834QCG | 18,000 | 1,860 | 10.0 |
| 50 | MIDEA | MWC-16CM | 16,880 | 1,840 | 9.2 |
| 51 | MIDEA | KC-46CI | 16,560 | 1,840 | 9.0 |
| 52 | ELEPHANT | KC-46C1 | 16,560 | 1,840 | 9.0 |
| 53 | MARKES OF CANADA | MWA-180 | 16,500 | 1,580 | 10.4 |
| 54 | KOLIN | KAG-19ME | 16,200 | 1,620 | 10.0 |
| 55 | YORK | YC-18D | 16,200 | 1,650 | 9.8 |
| 56 | KOLIN | KAG-19RE | 16,000 | 1,580 | 10.1 |
| 57 | FEDDERS | 1FY2015I7L | 15,825 | 1,530 | 10.3 |
| 58 | FEDDERS | 2FY2015I7L | 15,825 | 1,530 | 10.3 |



| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| 59 | KOPPEL | 2KY2015I7M | 15,825 | 1,530 | 10.3 |
| 60 | KOPPEL | 1KY2015I7M | 15,825 | 1,530 | 10.3 |
| 61 | DURASTAR | DSAC-10Z | 15,000 | 1,700 | 8.8 |
| 62 | YORK | YC-12DR | 14,026 | 1,287 | 10.9 |
| 63 | HITACHI | RA-136MAS | 13,600 | 1,260 | 10.0 |
| 64 | HITACHI | RA-136WAS | 13,600 | 1,360 | 10.0 |
| 65 | CARRIER | WCARDM014EA | 13,500 | 1,205 | 11.2 |
| 66 | SHARP | AF-A1250P | 13,331 | 1,307 | 10.2 |
| 67 | SHARP | AF-A1250PR | 13,331 | 1,307 | 10.2 |
| 68 | PANASONIC | CW-XC121VPH | 13,000 | 1,210 | 10.7 |
| 69 | AKIRA | AC-W13CP | 13,293 | 1,300 | 10.2 |
| 70 | CARRIER | MCA135BP | 13,200 | 1,147 | 11.5 |
| 71 | CARRIER | MCA135PP | 13,200 | 1,147 | 11.5 |
| 72 | CARRIER | MCA135RP | 13,200 | 1,147 | 11.5 |
| 73 | CONDURA | MCC135BP | 13,200 | 1,147 | 11.5 |
| 74 | CONDURA | MCC135PP | 13,200 | 1,147 | 11.5 |
| 75 | CONDURA | MCC135RP | 13,200 | 1,147 | 11.5 |
| 76 | HITACHI | RA-15RC | 13,200 | 1,233 | 10.7 |
| 77 | KELVINATOR | MCK135BP | 13,200 | 1,147 | 11.5 |
| 78 | KELVINATOR | MCK135PP | 13,200 | 1,147 | 11.5 |
| 79 | KELVINATOR | MCK135RP | 13,200 | 1,147 | 11.5 |
| 80 | CONDURA | WCONTO14EA | 13,200 | 1,178 | 11.2 |
| 81 | DURASTAR | DSAC-10Y | 13,200 | 1,450 | 9.1 |
| 82 | KOLIN | KAG-15ME | 13,120 | 1,335 | 9.8 |
| 83 | KOLIN | KA-15BMW | 13,120 | 1,366 | 9.6 |
| 84 | DAIKIN | W30MVBL | 13,000 | 1,210 | 10.7 |
| 85 | GE | AEV12KB | 13,000 | 1,300 | 10.0 |
| 86 | PANASONIC | CW-C121VPH | 13,000 | 1,210 | 10.7 |
| 87 | PANASONIC | CW-SC121VPH | 13,000 | 1,210 | 10.7 |
| 88 | MARKES OF CANADA | MWA-120 | 13,000 | 1,270 | 10.2 |
| 89 | KOLIN | KAG-15RE | 13,000 | 1,270 | 10.2 |

| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| 90 | YORK | YWU-12 | 12,970 | 1,360 | 9.5 |
| 91 | SAMSUNG | AW-12F2DBA | 12,800 | 1,280 | 10.0 |
| 92 | KOMITSU | KAM-15 | 12,660 | 1,210 | 10.5 |
| 93 | LG | LA150RG1 | 12,660 | 1,220 | 10.4 |
| 94 | LG | LWC1232DAG | 12,660 | 1,200 | 10.5 |
| 95 | LG | LWC1232QAG | 12,660 | 1,200 | 10.5 |
| 96 | LG | LWC1232QAS | 12,660 | 1,200 | 10.5 |
| 97 | FEDDERS | 1FY2012I7L | 12,660 | 1,220 | 10.4 |
| 98 | FEDDERS | 2FY2012I7L | 12,660 | 1,220 | 10.4 |
| 99 | KOPPEL | 2KY2012I7M | 12,660 | 1,220 | 10.4 |
| 100 | KOPPEL | 1KY2012I7M | 12,660 | 1,220 | 10.4 |
| 101 | FEDDERS | 2FY2012I7L-PH | 12,660 | 1,220 | 10.4 |
| 102 | KOPPEL | 1KY2012I7M-PH | 12,660 | 1,220 | 10.4 |
| 103 | WHIRLPOOL | AMB12WK4 | 12,660 | 1,270 | 10.0 |
| 104 | AMERICAN HOME | AHAC-120MNT | 12,660 | 1,300 | 9.7 |
| 105 | IMARFLEX | IAC-150WR | 12,660 | 1,330 | 9.7 |
| 106 | UNI-AIR | UF-120AS | 12,660 | 1,319 | 9.6 |
| 107 | SHINCO | MWH-12CM | 12,660 | 1,210 | 10.5 |
| 108 | STELLAR | KC-35/J160 | 12,660 | 1,320 | 9.6 |
| 109 | UNI-AIR | UH-120MC | 12,660 | 1,347 | 9.4 |
| 110 | UNI-AIR | UH-120MS | 12,660 | 1,347 | 9.4 |
| 111 | YORK | Y9USC12-6R | 12,660 | 1,210 | 10.5 |
| 112 | GREE | KC-35AP | 12,600 | 1,400 | 9.0 |
| 113 | SHINCO | KC-35A | 12,600 | 1,400 | 9.0 |
| 114 | YORK | YC-12D | 12,600 | 1,400 | 9.0 |
| 115 | SANYO | SA-T123P | 12,300 | 1,370 | 9.0 |
| 116 | SAMSUNG | AW-12LFABA | 12,200 | 1,260 | 9.7 |
| 117 | CHANGHONG | KC 35/S | 12,133 | 1,380 | 8.8 |
| 118 | GE | AJE12KA | 12,000 | 1,200 | 10.0 |



# LIST OF CERTIFIED SPLIT-TYPE ROOM AIR CONDITIONERS

as of February 2005

| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| I. Room Air Conditioners with Cooling Capacity below 12,000 kJ/h | | | | | |
| Imported Models | | | | | |
| 1 | MIDEA | KF-32GW/Y(Indoor) KF-32GW/Y(Outdoor) | 11,520 | 1,050 | 11.0 |
| 2 | GE | KF-32G/Y(Indoor) KF-32W(Outdoor) | 11,500 | 1,050 | 11.0 |
| 3 | LG | LS-C112UBMO (in & Out) | 11,000 | 880 | 12.5 |
| 4 | HITACHI | RAS-256B(Indoor) RAC-256B(Outdoor) | 10,600 | 981 | 10.8 |
| 5 | UNI-AIR | U-1001NSEW(Indoor) U-1001SEW(Outdoor) | 10,550 | 1,100 | 9.5 |
| 6 | DAIKIN | FT25GVALT6(Indoor) R25GVALT6(Outdoor) | 10,470 | 1,030 | 10.2 |
| 7 | AKIRA | AC-S10CP (In & Out) | 10,340 | 970 | 10.7 |
| 8 | MIDEA | KF-28G/Y(Indoor) KF-28W(Outdoor) | 10,080 | 970 | 10.4 |
| 9 | PANASONIC | CS-XC9CKQ(Indoor) CU-XC9CKQ(Outdoor) | 9,940 | 890 | 11.2 |
| 10 | PANASONIC | CS-XC9DKQ(Indoor) CU-XC9DKQ(Outdoor) | 9,940 | 790 | 12.6 |
| 11 | SHARP | AH-AP09CF(Indoor) AU-A09BF(Outdoor) | 9,600 | 890 | 10.8 |
| 12 | PANASONIC | CU-C9CKQ(In & Out) | 9,540 | 760 | 12.5 |
| 13 | PANASONIC | CS/CU-C9DKQ (In & Out | 9,540 | 830 | 11.5 |
| 14 | MARKES OF CANADA | MSW-90D(In & Out) | 9,500 | 900 | 10.6 |

| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| 15 | CHANGHONG | KF-26GW(In & Out) | 9,500 | 920 | 10.3 |
| 16 | UNION | UAS-2510/AC(In & Out) | 9,500 | 930 | 10.2 |
| 17 | CONDURA | 42PPC009 (Indoor)<br>38PPC009 (Outdoor) | 9,496 | 900 | 10.5 |
| 18 | KOMITSU | KSM-10B1 (In & Out) | 9,495 | 1,000 | 9.5 |
| 19 | FEDDERS | 1FE1009N7F(Indoor)<br>1FC1009N7F(Outdoor) | 9,495 | 920 | 10.3 |
| 20 | KOPPEL | 1KE1009N7G(Indoor)<br>1KC1009N7F(Outdoor) | 9,495 | 920 | 10.3 |
| 21 | GALANZ | KF-25GW (In & Out) | 9,495 | 920 | 10.3 |
| 22 | ICHIBAN | SAC-094EK/EA (In & Out) | 9,495 | 950 | 10.0 |
| 23 | MIDEA | MSB-09CR(In & Out) | 9,495 | 1,000 | 9.5 |
| 24 | TOSHIBA | RAS-10UKP2L(Indoor)<br>RAS-10UA2L(Outdoor) | 9,397 | 800 | 11.7 |
| 25 | FUJIDENZO | ASK09K (In & Out) | 9,350 | 913 | 10.2 |
| 26 | DAIKIN | ANW23JVALT6(Indoor)<br>ARW23JVALT6(Outdoor) | 9,210 | 905 | 10.2 |
| 27 | CARRIER | 42PGA009(Indoor)<br>38PGA009(Outdoor) | 9,093 | 830 | 11.0 |
| 28 | GE | AJ0AC09GKO(Outdoor)<br>AJ1AC09KGQ(Indoor) | 9,000 | 800 | 11.3 |
| 29 | GREE | KF-25PF(In & Out) | 9,000 | 900 | 10.0 |
| 30 | HOME MATE | KF-25GW/C(In & Out) | 9,000 | 930 | 9.7 |
| 31 | WIMPEX | KF-88(In & Out) | 9,000 | 970 | 9.3 |
| 32 | SHINCO | KF-25GW/FLB(In & Out) | 9,000 | 980 | 9.2 |
| 33 | KOLIN | KIU-10A1(Indoor)<br>KOU-10B1(Outdoor) | 8,000 | 800 | 10.0 |
| 34 | MIDEA | MSB-07CR(In & Out) | 7,385 | 800 | 9.2 |



| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| II. Room Air Conditioners with Cooling Capacity of 12,000 kJ/h and Above Locally Manufactured and Imported Models | | | | | |
| 1 | KOLIN | KIU-11A1(Indoor-A)<br>KIU-20A1(Indoor-B)<br>KOU-35B2(Outdoor) | 28,500 | 3,131 | 9.1 |
| 2 | KOLIN | KSA-30B1(In & Out) | 26,800 | 2,821 | 9.5 |
| 3 | ICHIBAN | SAC-244EK/EA (In & Out) | 25,320 | 2,600 | 9.7 |
| 4 | CONDURA | 42PPC026 (Indoor)<br>38PPC026 (Outdoor) | 25,323 | 2,583 | 9.8 |
| 5 | CARRIER | 42AR-02432125(Indoor)<br>ASBCU240BA(Outdoor) | 25,320 | 2,780 | 9.1 |
| 6 | FEDDERS | 2FV2024S7A-PH (Indoor)<br>2FC4024S7A-PH (Outdoor) | 25,320 | 2,630 | 9.6 |
| 7 | KOLIN | KSM-25B1 (In & Out) | 25,320 | 2,750 | 9.2 |
| 8 | PANASONIC | CS/U-C24BKNG(Indoor)<br>CU-C24BKNG(Outdoor) | 25,310 | 2,580 | 9.8 |
| 9 | PANASONIC | CS/CU-C2DKQ (In & Out) | 25,310 | 2,580 | 9.8 |
| 10 | PANASONIC | CS/U-C24CKQ(In & Out) | 25,310 | 2,580 | 9.8 |
| 11 | SHINCO | KF-70LWL (In & Out) | 25,200 | 2,680 | 9.4 |
| 12 | KOPPEL | IKU424P7A(Indoor)<br>IKC424N7K(Outdoor) | 24,625 | 2,623 | 9.3 |
| 13 | FUJIDENZO | ASK24R (In & Out) | 24,200 | 2,220 | 10.9 |
| 14 | SAMSUNG | AS24S6GBA(In & Out) | 24,000 | 2,550 | 9.4 |
| 15 | UNI-IAR | U-2240NSEW(Indoor)<br>U-2240OSCW(Outdoor) | 23,630 | 2,570 | 9.2 |
| 16 | GE | AJ1AC24GKQ(Indoor)<br>AJ0AC24GKQ(Outdoor) | 23,500 | 2,220 | 10.6 |
| 17 | GE | UAS-2510(Outdoor) | 23,500 | 2,220 | 10.6 |
| 18 | HITACHI | RAS-56BN(Indoor)<br>RAC-56BN(Outdoor) | 23,446 | 2,308 | 10.2 |

| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| 19 | MIDEA | MSB-22CR(In & Out) | 23,210 | 2,500 | 9.3 |
| 20 | KOPPEL | 1KE424N7C(Indoor)<br>1KC424N7G(Outdoor) | 23,210 | 2,510 | 9.2 |
| 21 | FEDDERS | IFE424N7D(Indoor)<br>IFC424N7G(Outdoor) | 23,210 | 2,510 | 9.2 |
| 22 | TOSHIBA | RAS-24UKP2L3(In)<br>RAS-24UA2L3 (Out) | 23,062 | 2,591 | 8.9 |
| 23 | KOLIN | KSA-25B1(In & Out) | 23,000 | 2,421 | 9.5 |
| 24 | HITACHI | RAS-456B(Indoor)<br>RAC-456B(Outdoor) | 20,000 | 2,100 | 9.5 |
| 25 | CONDURA | 42PPC020(In)<br>38PPC020 (Out) | 18,993 | 1,742 | 10.9 |
| 26 | PANASONIC | CS-C18CKQ(Indoor)<br>CU-C18CKQ(Outdoor) | 19,080 | 1,730 | 11.0 |
| 27 | PANASONIC | CS/CU-C18DKQ (In & Out) | 19,080 | 1,730 | 11.0 |
| 28 | PANASONIC | CS/U-C18CKQ(In & Out) | 19,080 | 1,730 | 11.0 |
| 29 | PANASONIC | CS/U-PC18CKQ(In & Out) | 19,080 | 1,980 | 9.6 |
| 30 | AKIRA | AC-S19CP(In & Out) | 18,991 | 1,950 | 9.7 |
| 31 | FEDDERS | 1FE4018S7F-PH (In)<br>1FC4018S7P-PH (Out) | 18,990 | 1,975 | 9.6 |
| 32 | ICHIBAN | SAC-184E(K/A)(In & Out) | 18,990 | 2,100 | 9.0 |
| 33 | UNI-AIR | U-1800NSEW(Indoor)<br>U-1800SCW(Outdoor) | 18,990 | 2,064 | 9.2 |
| 34 | UNION | UAS-5010/AC(In & Out) | 18,990 | 2,080 | 9.1 |
| 35 | FEDDERS | 2FV2018S7A-PH (In)<br>2FC4018S7A-PH (Out) | 18,990 | 1,975 | 9.6 |
| 36 | KOPPEL | IKU418P7A(Indoor)<br>IKC418N7G(Outdoor) | 18,990 | 2,109 | 9.0 |



| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| 37 | MIDEA | MSB-18CR(In & Out) | 18,990 | 2,100 | 9.0 |
| 38 | TOSHIBA | RAS-18UKP2L (In)<br>RAS-18UA2L (Out) | 18,918 | 1,910 | 9.9 |
| 39 | MIDEA | KF-26G/T21Y(Indoor-A)<br>KF-26G/T21Y(Indoor-B)<br>KF-26X2W(Outdoor) | 18,720 | 1,880 | 9.9 |
| 40 | KOLIN | KIU-20A1(Indoor)<br>KOU-20B1(Outdoor) | 18,500 | 1,850 | 10.0 |
| 41 | KOPPEL | IKE418N7C(Indoor)<br>IKC418N7K(Outdoor) | 18,460 | 2,070 | 8.9 |
| 42 | FEDDERS | 1FE418N7D(Indoor)<br>1FC418N7G(Outdoor) | 18,460 | 2,070 | 8.9 |
| 43 | FEDDERS | 1FE418N7D-PH (In)<br>IFC418N7G-PH (Out) | 18,460 | 2,070 | 8.9 |
| 44 | HOME MATE | KF-516(Indoor)<br>KF-51W(Outdoor) | 18,360 | 2,000 | 9.2 |
| 45 | IMARFLEX | IAC-200S(In & Out) | 18,360 | 2,080 | 8.8 |
| 46 | SAMSUNG | AS18SOGBA(In & Out) | 18,200 | 1,800 | 10.1 |
| 47 | SAMSUNG | AS18OGB(In & Out) | 18,200 | 1,800 | 10.1 |
| 48 | GOLDEN AIRE | KF-51LW(In & Out) | 18,200 | 1,900 | 9.5 |
| 49 | SHARP | AH-AP18CF(Indoor)<br>AU-A18CF(Outdoor) | 18,100 | 2,010 | 9.0 |
| 50 | SHINCO | KF-50GW/FLB(In & Out) | 18,000 | 2,070 | 8.7 |
| 51 | GE | AJ1AC18GKQ(Indoor)<br>AJ0AC18GKO(Outdoor) | 17,500 | 1,620 | 10.8 |
| 52 | GOLDEN AIRE | KF-46G/W(In & Out) | 16,560 | 1,800 | 9.2 |
| 53 | MARKES OF CANADA | MSW-180D (In & Out) | 16,500 | 1,680 | 9.8 |
| 54 | KOLIN | KSG-20B1(Indoor)<br>KSG-20B1 (Outdoor) | 16,200 | 1,700 | 9.5 |

| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/w-h) |
|---|---|---|---|---|---|
| 55 | KOLIN | KIU-10A1 (Indoor-A)<br>KUI-10A1(Indoor-B) | 16,000 | 1,600 | 10.0 |
| 56 | GREE | KF-45PF(In & Out) | 16,000 | 1,700 | 9.4 |
| 57 | CARRIER | 42PGA013(Indoor)<br>38PGA013(Outdoor) | 13,357 | 1,245 | 10.7 |
| 58 | TOSHIBA | RAS-13UKP2L(Indoor)<br>RAS-13UA2L(Outdoor) | 13,320 | 1,270 | 10.5 |
| 59 | HITACHI | RAS-326B(Indoor)<br>RAC-326B (Outdoor) | 13,300 | 1,255 | 10.6 |
| 60 | UNI-AIR | U-1260NSEW(Indoor)<br>U-1260SCW(Outdoor) | 13,290 | 1,290 | 10.3 |
| 61 | SAMSUNG | AS12SGGB(Indoor)<br>US12SGB(Outdoor) | 13,200 | 1,200 | 11.0 |
| 62 | SAMSUNG | AS12S4GBA(In & Out) | 13,190 | 1,240 | 10.6 |
| 63 | MITSUBISHI | SRK40CSP(In & Out) | 12,960 | 1,260 | 10.3 |
| 64 | PANASONIC | CS/CU-C12DKQ (In & Out) | 12,890 | 1,120 | 11.5 |
| 65 | PANASONIC | CS-XC12CKQ(Indoor)<br>CU-XC12CKQ(Outdoor) | 12,890 | 1,120 | 11.5 |
| 66 | PANASONIC | CS/U-PC12CKQ(In & Out) | 12,740 | 1,210 | 10.5 |
| 67 | CONDURA | 42PPC013 (Indoor)<br>38 PPC013(Outdoor) | 12,662 | 1,250 | 10.1 |
| 68 | YORK | HLEAA12FS-ADA (In)<br>HLDA12FS-ADA (Out) | 12,661 | 1,330 | 9.5 |
| 69 | FEDDERS | 1FE1012N7F (Indoor)<br>1FC1012N7F(Outdoor) | 12,660 | 1,230 | 10.3 |
| 70 | KOPPEL | 1KE1012N7G(Indoor)<br>1KC1012N7F(Outdoor) | 12,660 | 1,230 | 10.3 |
| 71 | KOPPEL | IKE1012N7G (Indoor)<br>IKC1012N7F(Outdoor) | 12,660 | 1,230 | 10.3 |



| | Company/Brand Name | Model Number | Rated Cooling Capacity, (kJ/h) | Power Consumption, (W) | EER, (kJ/W-h) |
|---|---|---|---|---|---|
| 72 | GOLDENAIRE | KF-33GW/A(In & Out) | 12,660 | 1,300 | 10.0 |
| 73 | GALANZ | KF-35GW(In & Out) | 12,660 | 1,260 | 10.0 |
| 74 | MIDEA | MSB-12CR(In & Out) | 12,660 | 1,330 | 9.5 |
| 75 | CHANGHONG | KF-34GW(In & Out) | 12,650 | 1,290 | 9.8 |
| 76 | KOLIN | KSG-15B1(Indoor)<br>KSG-15B1(Outdoor) | 12,600 | 1,100 | 11.5 |
| 77 | KOMITSU | KSM-15B1 (In & Out) | 12,600 | 1,330 | 9.5 |
| 78 | SHARP | AH-AP12CF(Indoor)<br>AU-A12BF(Outdoor) | 12,600 | 1,190 | 10.6 |
| 79 | IMARFLEX | IAC-150S(In & Out) | 12,600 | 1,240 | 10.2 |
| 80 | SHINCO | KF-35GW/FLB(In & Out) | 12,600 | 1,310 | 9.6 |
| 81 | GOLDEN PORT | KF-35GW(In & Out) | 12,590 | 1,250 | 10.1 |
| 82 | DAIKIN | FT35GVALT6(Indoor)<br>R35GVALT6(Outdoor) | 12,560 | 1,230 | 10.2 |
| 83 | FUJIDENZO | ASK12K(In & Out) | 12,400 | 1,240 | 10.0 |
| 84 | AKIRA | AC-S13CP(In & Out) | 12,200 | 1,220 | 10.0 |
| 85 | AUX | KF-33GW(Indoor)<br>KF-33HII(Outdoor) | 12,100 | 1,300 | 9.3 |
| 86 | GREE | KF-35PF(In & Out) | 12,000 | 1,210 | 9.9 |

## HOW TO CHOOSE THE RIGHT SIZE OF AIRCON

Step 1 Measure the size of the room to be cooled.

- a unit whose cooling capacity is too small for the room will not cool adequately.

- a unit whose cooling capacity is too large will overcool before the thermostat can react.

Step 2 Select the aircon size according to the room size.

TABLE 1
Room Size vs. Aircon Capacity

| Room Size (sq. m.) | Cooling Capacity[1] (kJ/h) | | Approx. HP Rating[2] (hp) |
|---|---|---|---|
| 10 - 13 | 5,275 | 6,700 | 0.50 |
| 14 - 16 | 7,385 | 8,440 | 0.75 |
| 17 - 20 | 9,495 | 10, 550 | 1.00 |
| 21 - 25 | 12,660 | 13,290 | 1.50 |
| Up to 40 | 18,990 | 20,045 | 2.00 |

[1] Cooling capacity quantifies the maximum amount of heat that the air conditioner can remove from an enclosed space or room. It is expressed in kilojoules per hour (kJ/h)

[2] Manufacturer's equivalent cooling capacity in horsepower (hp)



Step 3 Buy the aircon unit with the highest Energy Efficiency Ratio or EER[3] you can afford.

TABLE 2
Energy Cost[4] per hour of use (₱/h)

| Cooling Capacity (kJ/h) | Energy Efficiency Ratio (kJ/Wh) | | | | | |
|---|---|---|---|---|---|---|
| | 8.7 | 9.5 | 10.0 | 10.5 | 11.0 | 11.7 |
| 5,040 | 3.65 | 3.34 | 3.18 | 3.02 | 2.89 | 2.71 |
| 7,910 | 5.73 | 5.25 | 4.98 | 4.75 | 4.53 | 4.26 |
| 9,500 | 6.88 | 6.30 | 5.99 | 5.70 | 5.44 | 5.12 |
| 10,550 | 7.64 | 7.00 | 6.65 | 6.33 | 6.04 | 5.68 |
| 11,520 | 8.34 | 7.64 | 7.26 | 6.91 | 6.60 | 6.20 |
| 12,660 | 9.17 | 8.40 | 7.98 | 7.60 | 7.25 | 6.82 |
| 16,200 | 11.73 | 10.74 | 10.21 | 9.72 | 9.28 | 8.72 |
| 18,990 | 13.75 | 12.59 | 11.96 | 11.39 | 10.88 | 10.23 |
| 19,600 | 14.19 | 13.00 | 12.35 | 11.76 | 11.23 | 10.55 |
| 25,000 | 18.10 | 16.58 | 15.75 | 15.00 | 14.32 | 13.46 |
| 31,800 | 23.03 | 21.09 | 20.03 | 19.08 | 18.21 | 17.12 |

[3] Energy Efficiency Ratio measures the efficiency of the aircon unit. It is expressed as the ratio of cooling capacity (kJ/h) over the power consumption (W).

[4] Energy cost is based on the average residential rate for Oct. 2004 @ ₱6.30/kWh

# ENERGY SAVING TIPS

- When buying a new room air conditioning unit, choose the unit with a higher Energy Efficiency Rating (EER).
- Install the air conditioning unit in the coolest part of the room, if possible, on a shady side where maximum air circulation is available.
- Air-conditioned rooms should be well-insulated from direct sunlight. Block out the sun's rays with curtains and drapes and close off unused rooms.
- Make sure the thermostat is working efficiently. Set the temperature at a comfortable level. Don't overcool the room.
- Avoid placing any electrical appliances that will generate heat in the room.
- Clean the filter and vacuum the outdoor coil regularly to keep the unit working efficiently.



## REFRIGERATOR (Ref)

# The Energy Label Guide

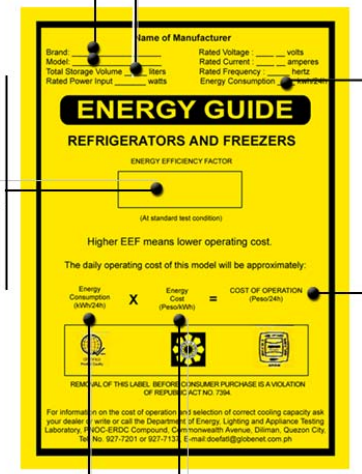
Check whether the brand and model of the product match the informatiaon on the label.

This refers to the net total space inside the unit available for storage of food.

This indicates the energy consumption of the model per 24 hr as tested under standard test conditions.

The box contains a number that indicates the efficiency of the model certified by an independent testing laboratory.

Use this formula to estimate the daily cost of operating the unit and compare it with other brands with similar storage volume.




This shows the energy consumption of the model as stated at the top-right corner of this energy label.

This is the cost of energy in your area. Your monthly electricity bill will give a good estimate of the power rate.

Example: kWh used = 500 kWh,
Net Bill Amount = P3,150.00

$$\text{Energy Cost} = \frac{\text{Net Bill Amount}}{\text{kWh Used}}$$

$$= \text{P } 6.30/\text{kWh}$$

# LIST OF CERTIFIED REFRIGERATORS

as of April 2005

| | BRAND | MODEL | Total Storage Volume (l) | Energy Consumption, (kWh/24h) | EEF |
|---|---|---|---|---|---|
| | A. Locally Manufactured Models | | | | |
| 1 | CONDURA | CPS-8SD | 244 | 1.55 | 183 |
| 2 | CONDURA | CR080SDM | 244 | 1.55 | 183 |
| 3 | CONDURA | CR080SDS | 244 | 1.55 | 183 |
| 4 | KELVINATOR | KPS-8SD | 244 | 1.55 | 183 |
| 5 | KELVINATOR | KR080SDM | 244 | 1.55 | 183 |
| 6 | KELVINATOR | KR080SDS | 244 | 1.55 | 183 |
| 7 | NATIONAL | NR-B2405PM | 237 | 1.93 | 143 |
| 8 | NATIONAL | NR-B2405PQ | 237 | 1.93 | 143 |
| 9 | PANASONIC | NR-B805A | 236 | 1.54 | 175 |
| 10 | PANASONIC | NR-B804E | 228 | 1.39 | 197 |
| 11 | SANYO | SR-907NTD | 226 | 0.98 | 243 |
| 12 | NATIONAL | NR-B803D | 220 | 1.33 | 196 |
| 13 | NATIONAL | NR-B803E | 220 | 1.33 | 196 |
| 14 | SINGER | REF 276 | 220 | 1.33 | 196 |
| 15 | NATIONAL | NR-B801D | 219 | 1.48 | 173 |
| 16 | NATIONAL | NR-B801E | 219 | 1.48 | 173 |
| 17 | SINGER | REF 275 | 219 | 1.48 | 173 |
| 18 | NATIONAL | NR-B2155PM | 219 | 1.63 | 158 |
| 19 | NATIONAL | NR-B2155PQ | 219 | 1.63 | 158 |
| 20 | SINGER | REF 274 | 219 | 1.63 | 158 |
| 21 | CONDURA | CT075SA | 216 | 1.36 | 192 |
| 22 | CONDURA | CPS-7TD | 216 | 1.81 | 147 |
| 23 | CONDURA | CR070TDM | 216 | 1.81 | 147 |
| 24 | CONDURA | CR070TDS | 216 | 1.81 | 147 |
| 25 | KELVINATOR | KPS-7TD | 216 | 1.81 | 147 |



| | BRAND | MODEL | Total Storage Volume (l) | Energy Consumption, (kWh/24h) | EEF |
|---|---|---|---|---|---|
| 26 | KELVINATOR | KR070TDM | 216 | 1.81 | 147 |
| 27 | KELVINATOR | KR070TDS | 216 | 1.81 | 147 |
| 28 | CONDURA | CS075MN | 214 | 0.98 | 240 |
| 29 | CONDURA | CPS-7SD | 214 | 1.47 | 167 |
| 30 | KELVINATOR | KPS-7SD | 214 | 1.47 | 167 |
| 31 | CONDURA | CR070SDM | 214 | 1.49 | 162 |
| 32 | KELVINATOR | KR070SDM | 214 | 1.49 | 162 |
| 33 | NATIONAL | NR-A803E | 213 | 0.86 | 260 |
| 34 | PANASONIC | NR-A804E | 212 | 0.92 | 243 |
| 35 | SANYO | SR-280LTD | 210 | 1.24 | 213 |
| 36 | SANYO | SR-280ND | 210 | 1.24 | 213 |
| 37 | SANYO | SR-280NSS | 210 | 1.24 | 213 |
| 38 | SANYO | SR-280NTD | 210 | 1.24 | 213 |
| 39 | SANYO | SR-280NW | 210 | 1.24 | 213 |
| 40 | SANYO | SR-280NWS | 210 | 1.24 | 213 |
| 41 | SANYO | SR-280SVG | 210 | 1.24 | 213 |
| 42 | SANYO | SR-280NTW | 210 | 1.50 | 166 |
| 43 | PANASONIC | NR-B704D | 202 | 1.42 | 164 |
| 44 | PANASONIC | NR-B704E | 202 | 1.42 | 164 |
| 45 | NATIONAL | NR-A701D | 200 | 0.86 | 246 |
| 46 | SANYO | SR-807NA | 198 | 0.97 | 215 |
| 47 | SANYO | SR-807LTD | 198 | 0.98 | 214 |
| 48 | SANYO | SR-807ND | 198 | 0.98 | 214 |
| 49 | SANYO | SR-807NM | 198 | 0.98 | 214 |
| 50 | SANYO | SR-807NTD | 198 | 0.98 | 214 |
| 51 | SANYO | SR-807NTM | 198 | 0.98 | 214 |
| 52 | SUNACE | SAR-198M | 198 | 0.98 | 214 |
| 53 | NATIONAL | NR-B703D | 198 | 1.30 | 175 |

| | BRAND | MODEL | Total Storage Volume (l) | Energy Consumption, (kWh/24h) | EEF |
|---|---|---|---|---|---|
| 54 | NATIONAL | NR-B703E | 198 | 1.30 | 175 |
| 55 | NATIONAL | NR-B701D | 198 | 1.35 | 169 |
| 56 | NATIONAL | NR-B701E | 198 | 1.35 | 169 |
| 57 | NATIONAL | NR-B1905PM | 198 | 1.67 | 140 |
| 58 | NATIONAL | NR-B1905PQ | 198 | 1.67 | 140 |
| 59 | NATIONAL | BR-A2007PE | 197 | 0.84 | 246 |
| 60 | SINGER | REF 178 | 197 | 0.84 | 246 |
| 61 | NATIONAL | NR-A702E | 196 | 0.84 | 246 |
| 62 | NATIONAL | NR-A703E | 196 | 0.84 | 246 |
| 63 | SINGER | REF 178A | 196 | 0.84 | 246 |
| 64 | SINGER | REF 179 | 196 | 0.84 | 246 |
| 65 | PANASONIC | NR-A704D | 196 | 0.95 | 227 |
| 66 | NATIONAL | NR-A702D | 196 | 0.94 | 226 |
| 67 | NATIONAL | NR-A703D | 196 | 0.94 | 226 |
| 68 | PANASONIC | NR-A704E | 196 | 0.95 | 215 |
| 69 | SANYO | SR-27WX | 193 | 2.27 | 99 |
| 70 | CONDURA | CPS-6SD | 187 | 1.03 | 191 |
| 71 | CONDURA | CR060SDM | 187 | 1.03 | 191 |
| 72 | CONDURA | CR060SDS | 187 | 1.03 | 191 |
| 73 | KELVINATOR | KPS-6SD | 187 | 1.03 | 191 |
| 74 | KELVINATOR | KR060SDM | 187 | 1.03 | 191 |
| 75 | KELVINATOR | KR060SDS | 187 | 1.03 | 191 |
| 76 | CONDURA | CPS-6SD DLX | 187 | 1.14 | 173 |
| 77 | SANYO | SR-270NTD | 184 | 1.31 | 172 |
| 78 | SANYO | SR-S70EW | 175 | 0.84 | 221 |
| 79 | NATIONAL | NR-A601D | 174 | 0.73 | 252 |
| 80 | NATIONAL | NR-A1707PE | 172 | 0.72 | 255 |
| 81 | SINGER | REF 165 | 172 | 0.72 | 255 |



| | BRAND | MODEL | Total Storage Volume (l) | Energy Consumption, (kWh/24h) | EEF |
|---|---|---|---|---|---|
| 82 | NATIONAL | NR-A602D | 170 | 0.74 | 242 |
| 83 | NATIONAL | NR-A602E | 170 | 0.74 | 242 |
| 84 | NATIONAL | NR-A603D | 170 | 0.74 | 242 |
| 85 | NATIONAL | NR-A603E | 170 | 0.74 | 242 |
| 86 | SINGER | REF 165A | 170 | 0.74 | 242 |
| 87 | SINGER | REF 166 | 170 | 0.74 | 242 |
| 88 | PANASONIC | NR-A604D | 170 | 0.80 | 227 |
| 89 | SANYO | SR-707LTD | 170 | 0.79 | 226 |
| 90 | SANYO | SR-707ND | 170 | 0.79 | 226 |
| 91 | SANYO | SR-707NM | 170 | 0.79 | 226 |
| 92 | SANYO | SR-707NTD | 170 | 0.79 | 226 |
| 93 | SANYO | SR-707NTM | 170 | 0.79 | 226 |
| 94 | SUNACE | SAR-170M | 170 | 0.79 | 226 |
| 95 | SANYO | SR-707NA | 170 | 0.87 | 204 |
| 96 | PANASONIC | NR-A604E | 170 | 0.87 | 203 |
| 97 | SANYO | SR-S63EW | 153 | 0.89 | 182 |
| 98 | CONDURA | CPS-5SD | 145 | 0.92 | 167 |
| 99 | CONDURA | CR050SDM | 145 | 0.92 | 167 |
| 100 | KELVINATOR | KPS-5SD | 145 | 0.92 | 167 |
| 101 | KELVINATOR | KR050SDM | 145 | 0.92 | 167 |
| 102 | CONDURA | CR050SDS | 145 | 1.00 | 154 |
| 103 | KELVINATOR | KR050SDS | 145 | 1.00 | 154 |
| 104 | CONDURA | CPS-5SD DLX | 145 | 1.12 | 137 |
| 105 | SANYO | SR-507LTD | 142 | 0.70 | 214 |
| 106 | SANYO | SR-507ND | 142 | 0.70 | 214 |
| 107 | SANYO | SR-507NTD | 142 | 0.70 | 214 |
| 108 | SANYO | SR-507NTM | 142 | 0.70 | 214 |
| 109 | SANYO | SR-147NSF | 142 | 0.75 | 200 |
| 110 | SANYO | SR-507NM | 142 | 0.75 | 200 |

| | BRAND | MODEL | Total Storage Volume (l) | Energy Consumption, (kWh/24h) | EEF |
|---|---|---|---|---|---|
| 111 | SUNACE | SAR-142M | 142 | 0.75 | 200 |
| 112 | NATIONAL | NR-A501D | 130 | 0.64 | 217 |
| 113 | NATIONAL | NR-A1407PE | 128 | 0.71 | 192 |
| 114 | SINGER | REF 155 | 128 | 0.71 | 192 |
| 115 | NATIONAL | Nr-A502E | 125 | 0.64 | 208 |
| 116 | NATIONAL | NR-A503E | 125 | 0.64 | 208 |
| 117 | NATIONAL | NR-A502D | 125 | 0.72 | 186 |
| 118 | NATIONAL | NR-Aa503D | 125 | 0.72 | 186 |
| 119 | CONDURA | CPS-10TD | * | * | * |
| 120 | CONDURA | CPS-9TD | * | * | * |
| 121 | CONDURA | CR090TDM | * | * | * |
| 122 | CONDURA | CR100SDM | * | * | * |
| 123 | CONDURA | CS083SA | * | * | * |
| 124 | KELVINATOR | KR090TDM | * | * | * |
| 125 | KELVINATOR | KR100SDM | * | * | * |
| 126 | NATIONAL | NR-851E | * | * | * |
| 127 | PANASONIC | NR-B703D | * | * | * |
| 128 | PANASONIC | NR-B703E | * | * | * |



| | BRAND | MODEL | Total Storage Volume (l) | Energy Consumption, (kWh/24h) | EEF |
|---|---|---|---|---|---|
| **B. Imported Models** | | | | | |
| 1 | SAMSUNG | RT34MASS | 275 | 2.72 | 123 |
| 2 | SAMSUNG | RT30MASS | 259 | 1.93 | 166 |
| 3 | SHARP | SJ-D25L | 225 | 1.61 | 164 |
| 4 | SHARP | SJ-D25P | 225 | 1.61 | 164 |
| 5 | SHARP | SJ-D23T | 215 | 0.92 | 244 |
| 6 | CHUNLAN | BCD-215 | 215 | 0.96 | 242 |
| 7 | SHARP | SJ-22T | 211 | 1.1 | 205 |
| 8 | SAMSUNG | RT24MESS | 207 | 2.24 | 109 |
| 9 | SAMSUNG | RT24VESS | 207 | 2.24 | 109 |
| 10 | HAIER | BCD-216 | 204 | 1.14 | 236 |
| 11 | LG | GR-242 MVF | 200 | 2.20 | 114 |
| 12 | CHUNLAN | BCD-195 | 195 | 0.95 | 233 |
| 13 | LG | GN-241 | 190 | 0.79 | 256 |
| 14 | SAMSUNG | RA20VHSS | 190 | 0.82 | 240 |
| 15 | ADMIRAL | BCD-193W | 190 | 1.65 | 144 |
| 16 | SHARP | SJ-D21P | 190 | 1.68 | 138 |
| 17 | SHARP | SJ-D21L | 190 | 1.68 | 138 |
| 18 | MIDEA | BC-203WH | 189 | 1.75 | 133 |
| 19 | LG | GN-241D | 188 | 0.85 | 235 |
| 20 | LG | GN-241D | 188 | 0.85 | 235 |
| 21 | SAMSUNG | RT21MESS | 187 | 2.38 | 93 |
| 22 | SAMSUNG | RT21VESS | 187 | 2.38 | 93 |
| 23 | TOSHIBA | GR-P200 | 186 | 0.95 | 204 |
| 24 | TOSHIBA | GR-P200D | 186 | 0.95 | 204 |
| 25 | GE | GAV7BAMR | 186 | 0.80 | 191 |
| 26 | White Westinghouse | WR-1708C | 186 | 1.06 | 186 |
| 27 | White Westinghouse | WR-1999CD | 186 | 1.06 | 182 |

| | BRAND | MODEL | Total Storage Volume (l) | Energy Consumption, (kWh/24h) | EEF |
|---|---|---|---|---|---|
| 28 | White Westinghouse | WR-1999C | 186 | 1.06 | 181 |
| 29 | LG | GR-232D | 186 | 1.90 | 118 |
| 30 | LG | LR-231 GVF | 185 | 0.90 | 218 |
| 31 | LG | LR-231GL | 185 | 0.95 | 218 |
| 32 | LG | GR-231 | 185 | 0.89 | 218 |
| 33 | SANYO | SR-270NTW | 184 | 1.31 | 172 |
| 34 | SHARP | SJ-19T | 180 | 0.98 | 198 |
| 35 | GE | GMV070BANR | 177 | 2.18 | 93 |
| 36 | SAMSUNG | RA18FHSS | 175 | 0.79 | 231 |
| 37 | WHIRLPOOL | WRD70K | 175 | 0.85 | 215 |
| 38 | SANYO | SR-S70FW | 175 | 0.90 | 207 |
| 39 | GE | GAV070BAPR | 175 | 0.93 | 194 |
| 40 | GE | GMV070BDNR | 175 | 2.16 | 96 |
| 41 | MIDEA | BC-193WH | 174 | 1.67 | 129 |
| 42 | LG | GR-212D | 174 | 1.90 | 114 |
| 43 | LG | GN-221 | 173 | 0.78 | 236 |
| 44 | LG | GN-221D | 171 | 0.78 | 234 |
| 45 | SAMSUNG | SR-A19NFB | 170 | 0.98 | 180 |
| 46 | SAMSUNG | SR-A19NFE | 170 | 0.98 | 180 |
| 47 | SAMSUNG | SR-A19WFB | 170 | 0.98 | 180 |
| 48 | SAMSUNG | SR-A19WFE | 170 | 0.98 | 180 |
| 49 | SAMSUNG | RA20FGSS | 170 | 0.98 | 180 |
| 50 | SAMSUNG | RA20VGSS | 170 | 0.98 | 180 |
| 51 | KOLIN | KRD-170A | 168 | 0.70 | 218 |
| 52 | MIDEA | BC-183WH | 168 | 1.92 | 106 |
| 53 | UNION | URF-629 | 167 | 0.70 | 230 |
| 54 | AKIRA | RD-202P | 166 | 1.25 | 143 |
| 55 | AKIRA | RS-201P | 164 | 0.70 | 232 |



| | BRAND | MODEL | Total Storage Volume (l) | Energy Consumption, (kWh/24h) | EEF |
|---|---|---|---|---|---|
| 56 | CHUNLAN | BCD-178 | 163 | 0.94 | 186 |
| 57 | TOSHIBA | GR-P180 | 159 | 0.85 | 196 |
| 58 | TOSHIBA | GR-P180D | 159 | 0.85 | 196 |
| 59 | White Westinghouse | WR-1808C | 159 | 0.90 | 186 |
| 60 | White Westinghouse | WR-1899CD | 159 | 0.90 | 186 |
| 61 | White Westinghouse | WR-1899C | 159 | 0.90 | 185 |
| 62 | GE | GAV65BAMR | 159 | 0.88 | 180 |
| 63 | LG | LR-191 GVF | 155 | 0.80 | 205 |
| 64 | LG | LR-191GL | 155 | 0.80 | 205 |
| 65 | LG | LR-191GVF | 155 | 0.80 | 205 |
| 66 | SANYO | SR-S63FW | 155 | 0.83 | 199 |
| 67 | SAMSUNG | RA18FGSS | 155 | 0.98 | 190 |
| 68 | SAMSUNG | SR-A17NFB | 155 | 0.86 | 190 |
| 69 | SAMSUNG | SR-A17NFE | 155 | 0.98 | 190 |
| 70 | LG | GR-191 | 155 | 0.88 | 187 |
| 71 | WHIRLPOOL | WRD63K | 155 | 0.91 | 178 |
| 72 | SAMSUNG | RA18VGSS | 155 | 0.98 | 158 |
| 73 | SAMSUNG | SR-A17WFB | 155 | 0.98 | 158 |
| 74 | SAMSUNG | SR-A17WFE | 155 | 0.98 | 158 |
| 75 | SANYO | SR-S63EW | 153 | 0.89 | 182 |
| 76 | LG | GN-171 | 150 | 0.56 | 285 |
| 77 | GE | GAV060BAPR | 145 | 0.80 | 192 |
| 78 | HAIER | HR-170U | 145 | 0.90 | 162 |
| 79 | HAIER | HR-175UD | 145 | 0.92 | 157 |
| 80 | GE | GAV6BAMR | 141 | 0.80 | 186 |
| 81 | White Westinghouse | WR-1708C | 141 | 0.88 | 168 |
| 82 | White Westinghouse | WR-1799C | 141 | 0.88 | 168 |
| 83 | TOSHIBA | GR-P165 | 141 | 0.93 | 160 |
| 84 | TOSHIBA | GR-P165D | 141 | 0.93 | 160 |

| | BRAND | MODEL | Total Storage Volume (l) | Energy Consumption, (kWh/24h) | EEF |
|---|---|---|---|---|---|
| 85 | TOSHIBA | GR-S32P | * | * | * |
| 86 | TOSHIBA | GR-S37PT | * | * | * |
| 87 | GE | GAV065BANR | * | * | * |
| 88 | GE | GAV070BANR | * | * | * |
| 89 | WHIRLPOOL | WRD82 | * | * | * |
| 90 | WHIRLPOOL | WRN08Q | * | * | * |
| 91 | MIDEA | BCD-179H | * | * | * |
| 92 | FRIGIDAIRE | BCD-155 | * | * | * |
| 93 | KOLIN | KRD-210B | * | * | * |
| 94 | KOLIN | KRD-220B | * | * | * |
| 95 | LG | GR-212DL | * | * | * |
| 96 | LG | GR-282MVF | * | * | * |
| 97 | POLYTRON | R-1985P | * | * | * |
| 98 | SAMSUNG | SR-21 | * | * | * |
| 99 | SAMSUNG | SR-24 | * | * | * |
| 100 | SAMSUNG | SR-30 | * | * | * |
| 101 | SAMSUNG | SR-34 | * | * | * |
| 102 | SANYO | SR-D29E | * | * | * |
| 103 | SHARP | VR-188P | * | * | * |
| 104 | HITACHI | R-20A3P | * | * | * |
| 105 | HITACHI | R-18PW3 | * | * | * |
| 106 | HITACHI | R-20PW3 | * | * | * |
| 107 | AKIRA | RD-220P | * | * | * |
| 108 | UNION | URF-70 | * | * | * |
| 109 | LG | GR-231GV | * | * | * |
| 110 | White Westinghouse | WRNF08SA | * | * | * |
| 111 | GE | TBV8DNBRLG | * | * | * |
| 112 | LG | GR-212SV | * | * | * |
| 113 | LG | GR-191GV | * | * | * |



| | BRAND | MODEL | Total Storage Volume (l) | Energy Consumption, (kWh/24h) | EEF |
|---|---|---|---|---|---|
| 114 | POLYTRON | PR-168SD | * | * | * |
| 115 | IMARFLEX | IRF-660S | * | * | * |
| 116 | TOSHIBA | GR-P201D | * | * | * |
| 117 | TOSHIBA | GR-P181D | * | * | * |
| 118 | SINGER | ALD-82S | * | * | * |

# ENERGY SAVING TIPS

- When buying a new refrigerator, consider a unit that suits your need and with a higher Energy Efficiency Factor (EEF).
- Don't leave the refrigerator door open longer than necessary.
- Defrost your refrigerator regularly. Frost acts as an insulating blanket, which causes the motor to work overtime, resulting in increased power consumption.
- Cool food to room temperature before storing in the refrigerator. Placing warm food in the refrigerator increases the temperature inside.
- Cover liquids and food, otherwise, moisture released inside the ref will cause the motor to work harder than normal. The moisture is the source of frost.
- Place the refrigerator far enough from the cooking stove or gas range so that it will not be affected by the heat when cooking. Install it where air can circulate freely around it.
- Don't overcrowd your refrigerator. This interferes with air circulation and overworks the compressor.
- Check the gaskets around the refrigerator door. Adjust the door or replace the gasket if there are leaks.
- Clean the compressor units and condenser of the refrigerator periodically following manufacturer's specifications.



## COMPACT FLUORESCENT LAMP (CFL)

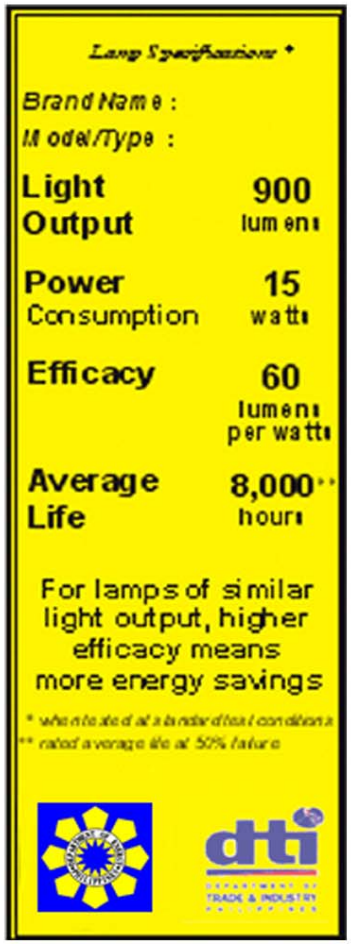
# The Energy Label Guide

The rate at which light is emitted by a lamp or light source expressed in lumens

The time rate at which electric energy is used by the lamp/ballast combination expressed in watts.

A measure to compare light output to energy input; the quotient of the total luminous emitted divided by the total lamp power input. It is expressed in lumens per watt.

The expected time in hours, at which half of a large group of lamps have failed under standard test conditions.




Note : The values shown in the figure are arbitrary.

# Basic Facts

Compact fluorescent lamps use 70% - 80% less energy than their incandescent equivalents. When replacing a 100-watt incandescent bulb a 20 to 23-watt CFL is used.

Compact fluorescents last approximately 5,000 to 8,000 hours, which is 8 to 13 times the life of an incandescent bulb (expected life approx. 750 to 1000 hours).

Most of the compact fluorescent lamps have improved color rendition. The light is a warm tone that is almost identical to that of an incandescent bulb. Most people can't tell the difference.

CFLs are most cost-effective when used at least 4 to 5 hours per day.

Although compact fluorescent lamps may appear different than the common incandescent, they fit most standard fixtures found in homes today. The screw-in base is the same on both lamps.

The typical incandescent bulb wastes 90% of the energy it uses, producing heat as it converts the energy into light.



Comparative Light Output, Efficacy and Operating Hours*, Incandescent Lamp (IL) and Compact Fluorescent Lamps (CFLs)

| Type of Lamps | Wattage rating and equivalent average light output | | | | | |
|---|---|---|---|---|---|---|
| Compact Fluorescent Lamp | 5 -6 | 7 - 8 | 9 - 12 | 13 - 14 | 15 - 18 | 22 - 23 |
| Light Output, lumens | 240 - 260 | 350 - 400 | 460 - 570 | 760 - 800 | 820 - 990 | 1280 - 1300 |
| Incandescent Bulb | 25 | 40 | 50 | 60 | 75 | 100 |
| Light Output, lumens | 200 | 390 | 520 | 720 | 890 | 1300 |

*Based on standard test conditions

Notes : 1. The efficacy, in lumens per watt, of CFLs is 45 to 57while that of the incandescent bulb is 8 to 13.
2. The average life of the CFLs is 5000 to 8000 hours while that of the incandescent bulb is 750 to 1000 hours.

SAVINGS CHART - QUALITY CFL vs. QUALITY INCANDESCENT LAMP

| | INCANDESCENT LAMP | COMPACT FLUORESCENT LAMP |
|---|---|---|
| Input Power, watts | 100 W | 20 W |
| Cost of First Lamp, ₱ | ₱ 21 | ₱ 150.00 |
| No. of Lamp Replacements, units | 5 units | 0 |
| Replacement Cost | ₱ 105.00 | 0 |
| Energy Cost | ₱ 5,298.00 | ₱ 1,060.00 |
| Total Energy & Lamp Cost | ₱ 5,424.00 | ₱ 1,210.00 |
| Net Savings | | |
| Cost, ₱ | | ₱ 4,214.00 |
| Demand, kW/unit | | 0.080 kW/unit |
| Consumption, kWh | | 480 kWh |
| Greenhouse Gas (GHG) | | 285 kg $CO_2e$ |
| Input Power, watts | 75 W | 16 W |
| Cost of First Lamp, ₱ | ₱ 21.00 | ₱ 150.00 |
| No. of Lamp Replacements, units | 5 units | 0 |
| Replacement Cost | ₱ 105.00 | 0 |
| Energy Cost | ₱ 3,974.00 | ₱ 848.00 |
| Total Energy & Lamp Cost | ₱ 4,100.00 | ₱ 968.00 |
| Net Savings | | |
| Cost, ₱ | | ₱ 3,132.00 |
| Demand, kW/unit | | 0.059 kW/unit |
| Consumption, kWh | | 354 kWh |
| Greenhouse Gas (GHG) | | 210 kg $CO_2e$ |

Assumptions: a. Quality incandescent lamps last 1,000 hours per unit
b. Quality CFLs last 6,000 hours per unit, have high efficacy for proper lumen equivalence
c. Residential energy cost projected a t ₱8.83/ kWh (as of June 2005)



SAVINGS CHART - QUALITY CFL vs. QUALITY INCANDESCENT BULB

| | INCANDESCENT BULB | COMPACT FLUORESCENT LAMP |
|---|---|---|
| Input Power, watts | 60 W | 13 W |
| Cost of First Lamp, ₱ | ₱ 21.00 | ₱ 120.00 |
| No. of Lamp Replacements, units | 5 units | 0 |
| Replacement Cost | ₱ 105.00 | 0 |
| Energy Cost | ₱ 3,179.00 | ₱ 689.00 |
| Total Energy & Lamp Cost | ₱ 3,305.00 | ₱ 809.00 |
| Net Savings | | |
| Cost, Php | | ₱ 2,496.00 |
| Demand, kW/unit | | 0.047 kW/unit |
| Consumption, kWh | | 282 kWh |
| Greenhouse Gas (GHG) | | 168 kg $CO_2e$ |
| Input Power, watts | 40 W | 8 W |
| Cost of First Lamp, ₱ | ₱ 21.00 | ₱ 120.00 |
| No. of Lamp Replacements, units | 5 units | 0 |
| Replacement Cost | ₱ 105.00 | 0 |
| Energy Cost | ₱ 2,119.00 | ₱ 424.00 |
| Total Energy & Lamp Cost | ₱ 2,245.00 | ₱ 544.00 |
| Net Savings | | |
| Cost, ₱ | | ₱ 1,701.00 |
| Demand, kW/unit | | 0.032 kW/unit |
| Consumption, kWh | | 192 kWh |
| Greenhouse Gas (GHG) | | 114 kg $CO_2e$ |

Assumptions: a. Quality incandescent lamps last 1,000 hours per unit
b. Quality CFLs last 6,000 hours per unit, have high efficacy for proper lumen equivalence
c. Residential energy cost projected a t ₱8.83/ kWh (as of June 2005)

## SAVINGS CHART - QUALITY CFL vs. QUALITY INCANDESCENT BULB

| | INCANDESCENT BULB | COMPACT FLUORESCENT LAMP |
|---|---|---|
| Input Power, watts | 25 W | 6 W |
| Cost of First Lamp, ₱ | ₱ 21.00 | ₱ 120.00 |
| No. of Lamp Replacements, units | 5 units | 0 |
| Replacement Cost | ₱ 105.00 | 0 |
| Energy Cost | ₱ 945.00 | ₱ 227.00 |
| Total Energy & Lamp Cost | ₱ 1,071.00 | ₱ 347.00 |
| Net Savings | | |
| Cost, Php | | ₱ 724.00 |
| Demand, kW/unit | | 0.019 kW/unit |
| Consumption, kWh | | 114 kWh |
| Greenhouse Gas (GHG) | | 68 kg $CO_2e$ |

Assumptions: a. Quality incandescent lamps last 1,000 hours per unit
b. Quality CFLs last 6,000 hours per unit, have high efficacy for proper lumen equivalence
c. Residential energy cost projected a t ₱8.83/ kWh (as of June 2005)



## LIST OF PNS-COMPLIANT COMPACT FLUORESCENT LAMPS (CFLs)

As of MAy 31, 2005

| Wattage | Brand Name | Model Name | Color Appearance | Type of Lamp | Light Output (lm) | Efficacy (lm/W) | Ave. Life (h) |
|---|---|---|---|---|---|---|---|
| 50 W | OMNI | ESM-50W-DL | Daylight | Spiral | 2750 | 55 | 7000 |
| 25 W | A. OPTIMA | TA 3U 25W | Daylight | 3U | * | * | 6000 |
| 23 W | HITACHI | EFH-23E | Daylight | 3U | * | * | 8000 |
| | HITACHI | EFS-23E | Daylight | Spiral | * | * | 8000 |
| 22 W | G. E. | Electronic FLP | Daylight | Encap | 1280 | 58 | 6000 |
| 20 W | A. OPTIMA | TA 3U 20W | Daylight | 3U | * | * | 6000 |
| | PHILIPS | Ecotone | Daylight | Encap | 1100 | 55 | 10000 |
| | PHILIPS | SLE P | Daylight | Encap | 1100 | 55 | 10000 |
| | PHILIPS | SLED | Warm White | Encap | 1100 | 55 | 10000 |
| | PHILIPS | Ecotone SLED | Daylight | Encap | 1050 | 53 | 10000 |
| | HITACHI | EFH-20E | Daylight | 3U | * | * | 8000 |
| | HITACHI | EFS-20E | Daylight | Spiral | * | * | 8000 |
| | DELTA | Brite Saver | Daylight | 3U | * | * | 6000 |
| | OSRAM | Dulux EE | Daylight | 3U | 1140 | 57 | 6000 |
| | G.E. | Economizer | Daylight | 3U | 1050 | 52 | 4000 |
| | G.E. | ECN-FLE-20W | Daylight | 3U | 1050 | 52 | 4000 |
| 18W | A. OPTIMA | TA 3U 15W | Daylight | 3U | * | * | 6000 |
| | PHILIPS | Essential | Daylight | 3U | 1040 | 58 | 6000 |
| | PHILIPS | Essential | Daylight | 3U | 1040 | 58 | 6000 |
| | WORKSHOP | - | Daylight | 3U | * | * | 6000 |
| | G.E. | Electronic FLP | Daylight | Encap | 960 | 53 | 6000 |
| | G.E. | Electronic FLP | Daylight | Encap | 960 | 53 | 5000 |
| | CLIPSAL | Energy Saver | Daylight | 3U | * | * | 8000 |

| Wattage | Brand Name | Model Name | Color Appearance | Type of Lamp | Light Output (lm) | Efficacy (lm/W) | Ave. Life (h) |
|---|---|---|---|---|---|---|---|
| 15W | A. OPTIMA | TA 2U 15W | Daylight | 2U | * | * | 6000 |
| | GARTIM | EB-15AP | Daylight | Spiral | 800 | 53 | 10000 |
| | PHILIPS | Ecotone | Daylight | Encap | 800 | 53 | 10000 |
| | PHILIPS | SLE-P | Daylight | Encap | 760 | 51 | 10000 |
| | PHILIPS | Ecotone SLED | Warm White | Encap | 800 | 53 | 10000 |
| | G.E. | FLE-HLX | Daylight | Spiral | 840 | 56 | 6000 |
| | G.E. | FLE-HLX 15W | Daylight | Spiral | 840 | 56 | 6000 |
| | G.E. | ECN-FLE 15W | Daylight | 3U | 830 | 55 | 4000 |
| | G.E. | Economizer | Daylight | 3U | 830 | 55 | 4000 |
| | ARO | EUS - 15W | Warm White | 2U | 900 | 60 | 6000 |
| | ARO | EUS - 15W | Daylight | 2U | 900 | 60 | 6000 |
| | LUXMAN | 15 | Daylight | 2U | * | * | 6000 |
| 14W | PHILIPS | Genie | Warm White | 3U | 800 | 57 | 6000 |
| | PHILIPS | Essential-Genie | Daylight | 3U | 760 | 54 | 6000 |
| | PHILIPS | Essential | Daylight | 2U | 720 | 51 | 5000 |
| | PHILIPS | Essential | Daylight | 2U | 760 | 54 | 5000 |
| 13W | LANDLITE | ELM 13W | Daylight | 2U | 760 | 58 | 5000 |
| 11W | A. OPTIMA | TA 2U 11W | Daylight | 2U | * | * | 6000 |
| | HITACHI | EFD-11E | Daylight | 2U | * | * | 8000 |
| | DELTA | Brite Saver | Daylight | 2U | * | * | 6000 |
| | GARTIM | EB-11AP | Daylight | 2U | 590 | 54 | 6000 |
| | G.E. | FLE-HLX 11W | Daylight | Spiral | 590 | 54 | 6000 |
| | PHILIPS | Genie | Warm White | 3U | 600 | 55 | 6000 |
| | PHILIPS | Essential Genie | Daylight | 3U | 570 | 52 | 6000 |
| | PHILIPS | Ecotone PLEU | Daylight | 2U | 490 | 45 | 6000 |
| | PHILIPS | Genie | Warm White | 3U | 600 | 55 | 6000 |

*Awaiting submission of claimed ratings from the manufacturers/importers



| Wattage | Brand Name | Model Name | Color Appearance | Type of Lamp | Light Output (lm) | Efficacy (lm/W) | Ave. Life (h) |
|---|---|---|---|---|---|---|---|
| 11W | G.E. | Economizer | Daylight | 2U | 580 | 53 | 4000 |
| | G.E. | ECN-FLE 11DBX | Daylight | 2U | 580 | 53 | 4000 |
| | G.E. | ECN-FLE 11W | Daylight | 2U | 580 | 53 | 4000 |
| | ARO | EUS -11W | Warm White | 2U | 600 | 55 | 6000 |
| | ARO | EUS-11W | Daylight | 2U | 600 | 55 | 6000 |
| | CLIPSAL | Energy Saver | Daylight | 2U | * | * | 8000 |
| | LUXMAN | ELD 11 Daylight | Daylight | 2U | * | * | 6000 |
| 9W | HITACHI | EFD-9E | Daylight | 2U | * | * | 8000 |
| | ARO | EUS-9W | Warm White | 2U | 500 | 55 | 6000 |
| | ARO | EUS-9W | Daylight | 2U | 500 | 55 | 6000 |
| | G.E. | Economizer | Daylight | 2U | 450 | 50 | 4000 |
| | G.E. | ECN-FLE 9W | Daylight | 2U | 450 | 50 | 4000 |
| | G.E. | Economizer | Warm White | 2U | 450 | 50 | 4000 |
| | G.E. | ECN-FLE 9DBX | Daylight | 2U | 450 | 50 | 4000 |
| | TOKINA | Energy Saver | Daylight | 2U | 380 | 42 | 8000 |
| | LUXMAN | ELD 9 Daylight | Daylight | 2U | * | * | 6000 |
| 8W | OSRAM | EL Economy | Daylight | 2U | 400 | 50 | 6000 |
| | PHILIPS | Genie | Warm White | 3U | 420 | 53 | 6000 |
| | PHILIPS | Genie | Warm White | 3U | 420 | 53 | 6000 |
| | PHILIPS | Essential Genie | Daylight | 3U | 400 | 50 | 6000 |
| | PHILIPS | Essential | Daylight | 2U | 380 | 48 | 6000 |
| | A. OPTIMA | T42U8W | Daylight | 2U | * | * | 6000 |
| 7 W | GARTIM | EB-7AP | Daylight | 2U | 370 | 53 | 6000 |
| | GARTIM | EB-7AP | Daylight | 2U | * | * | 6000 |
| | AKARI | _ | Daylight | 2U | 350 | 50 | 6000 |
| | LANDLITE | ELM 7W | Daylight | 2U | 350 | 50 | 5000 |
| | Firefly Jr. | XEU23-7W | Daylight | 2U | 315 | 45 | 5000 |

*Claimed ratings unavailable from the manufacturers/importers

| Wattage | Brand Name | Model Name | Color Appearance | Type of Lamp | Light Output (lm) | Efficacy (lm/W) | Ave. Life (h) |
|---|---|---|---|---|---|---|---|
| 6 W | G.E. | ECN-FLE 6W | Daylight | 2U | 260 | 43 | 4000 |
| | | | | | | | |
| 5 W | GARTIM | EB-5AP | Daylight | 2U | 250 | 50 | 6000 |
| | PHILIPS | Genie | Warm White | 2U | 235 | 47 | 6000 |
| | PHILIPS | Genie | Warm White | 2U | 235 | 47 | 6000 |
| | PHILIPS | Essential Genie | Daylight | 2U | 220 | 44 | 6000 |
| | A. OPTIMA | T42U5W | Daylight | 2U | * | * | 6000 |
| | | | | | | | |
| 3W | GARTIM | EB-3AP | Daylight | 2U | 140 | 47 | 6000 |

*Claimed ratings unavailable from the manufacturers/importers



# ENERGY SAVING TIPS

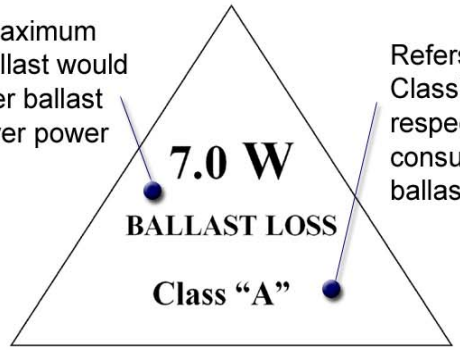
- Compact Fluorescent Lamp (CFL) is more economical than incandescent lamp. CFLs produce up to 5 times as much light for the same energy and last 8 to 13 times longer.
- Turn off lights whenever you leave a room. It's not true that there is a surge of power when a lamp is switched on. Although the average rated life of fluorescent lamps is shortened by switching, operating hours is lengthened.
- Keep lamps, as well as their glass or plastic fixtures clean.
- Open shades and blinds during the day to make the most of natural light.
- Consider replacing incandescent lamp in outdoor lighting fixtures with linear lamps or CFLs. They consume less energy for a given light output and have a longer life.
- Install CFLs in vertical base up (VBU) position.
- Install CFLs in areas where lights are "on" for 4 to 5 hours a day (e.g. perimeter lighting)
- Avoid installing CFLs in areas where lamps are subjected to frequent switching (e.g. comfort rooms)
- Buy CFLs with DOE-DTI Energy Labels ("PS", "ICC" or "ELI" Mark).

# Fluorescent Lamp Ballast
# The Energy Label Guide

Fluorescent lamp and ballast operate as a unit to produce light. The ballast is an integral and important control gear for the operation of a fluorescent lamp lighting system. Ballast consumes about 30% (or more in some inefficient ballast) of the lighting fixture.

The consumers will also find electromagnetic ballast in the market with label as shown, indicating power consumption ratings.

Indicates the maximum loss that the ballast would consume. Lower ballast loss means lower power consumption.




Refers to the Ballast Classification with respect to the power consumed by the ballast.

**Energy Label for Magnetic Ballast**

Note : Values shown in the triangle are arbitrary. The label above shall be marked in each ballast.





**Preheat Ballast Power Loss**

| BALLAST RATING | CLASS A | CLASS B | CLASS C | CLASS D |
|---|---|---|---|---|
| 1 X 18/20 watts<br>1 X 36/40 watts | Up to 7 watts | Above 7 watts up to 8 watts | Above 8 watts up to 10 watts | Above 10 watts up to 12 watts |

**Rapid Start Ballast Power Loss**

| BALLAST RATING | CLASS A | CLASS B | CLASS C | CLASS D |
|---|---|---|---|---|
| 1 X 18/20 watts<br>1 X 36/40 watts | Up to 12 watts | Above 12 watts up to 13 watts | Above 13 watts up to 15 watts | Above 15 watts up to 18 watts |
| 2 x 36/40 watts | Up to 17 watts | Above 17 watts up to 18 watts | Above 18 watts up to 20 watts | Above 20 watts up to 30 watts |

LIST OF PNS-COMPLIANT TUBULAR FLUORESCENT LAMP BALLAST

As of May 31, 2005

| Brand Name | Ballast Model | Ballast Type | Nameplate Rating | Ballast Loss (W)* | Category Class |
|---|---|---|---|---|---|
| **A. Wattage Category : 18 to 26 watts** | | | | | |
| STARLUX | SB 20 M | 1x20W | 220V, 60 Hz. | 9.28 | C |
| UNILUX | - | 1x20W | 220V, 60 Hz. | 7.99 | B |
| HALLO | - | 1x20W | 220V, 60 Hz. | 8.00 | B |
| LUXMAN | - | 1x20W | 220V, 60 Hz. | 9.23 | C |
| TOBO | - | 1x20W | 220V, 60 Hz. | 10.27 | D |
| LANDLITE | - | 1x20W | 220V, 60 Hz. | 9.32 | C |
| PINCO | - | 1x20W | 230V, 60 Hz., .38 | 8.80 | C |
| SUNLITE | KX 20-40 | 1x20W | 220V, 60 Hz., .37 | 9.85 | C |
| PHILIPS | BTA | 1x18/20W | 220V, 60 Hz. | 9.81 | C |
| PHILIPS | BPL | 1x18/20W | 220V, 60 Hz. | 8.44 | C |
| DECOLITE | - | 1x18/20W | 230V, 60 Hz. | 9.76 | C |
| OMNI | - | 1x18/20W | 220V, 60 Hz. | 8.81 | C |
| DELTA | - | 1x26/20W | 230 V, 60 Hz. | 9.56 | C |
| TOBO | - | 1x20W | 220V, 60 Hz. | 10.27 | D |
| LUXMAN | - | 1x20W | 220V, 60 Hz. | 9.23 | C |
| KOPEZ | - | 1x20W | 220V, 60 Hz. | 8.53 | C |
| KOPEZ | - | 1x20W | 220V, 60 Hz. | 10.08 | D |
| ATCO | EC18H-03 | 1x18W | 220V, 60 Hz. | 7.6 | B |
| NIKO-JAPAN | - | 1x20W | 220V, 60 Hz. | 8.81 | C |
| POWER LUX | - | 1x20W | 220V, 60 Hz. | 8.76 | C |
| SUAVE | - | 1x20W | 220V, 60 Hz. | 8.65 | C |
| SUPERLUX | - | 1x20W | 220V, 60 Hz. | 8.57 | C |
| MAXXI | - | 1x20W | 220V, 60 Hz. | 9.31 | C |
| AMERICA | - | 1x18/20W | 220V, 60 Hz. | 10.43 | D |
| TIGER | - | 1x20W | 220V, 60 Hz. | 9.14 | C |
| KOPEZ | - | 1x20W | 220V, 60 Hz. | 9.47 | C |

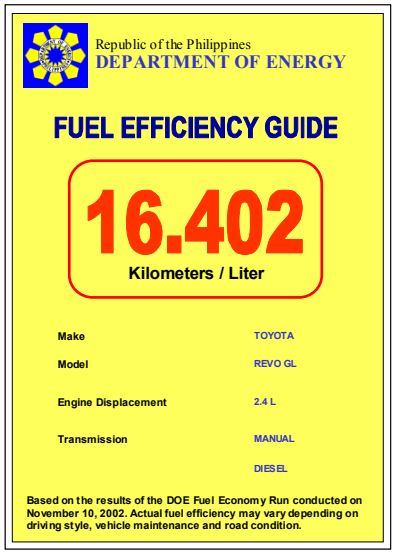
* A fluorescent lamp ballast consumes less energy if it has a lower ballast loss



| Brand Name | Ballast Model | Ballast Type | Nameplate Rating | Ballast Loss (W)* | Category Class |
|---|---|---|---|---|---|
| **B. Wattage Category : 36 to 40 watts** | | | | | |
| STARLUX | SB 40 M | 1 X 40W | 220V, 60 Hz. | 10.23 | D |
| UNILUX | - | 1 X 40W | 220V, 60 Hz. | 8.40 | C |
| HALLO | - | 1 X 40W | 220V, 60 Hz. | 7.99 | B |
| LUXMAN | - | 1 X 40W | 220V, 60 Hz. | 10.71 | D |
| TOBO | - | 1 X 40W | 220V, 60 Hz. | 11.36 | D |
| LANDLITE | - | 1 X 40W | 220V, 60 Hz. | 9.52 | C |
| PINCO | - | 1 X 40W | 230 V, 60 Hz., .43 | 7.06 | B |
| SUNLITE | KX 40-60 | 1 X 40W | 230 V, 60 Hz., .43 | 8.37 | C |
| PHILIPS | BTA | 1 X 36/40W | 220V, 60 Hz. | 11.73 | D |
| ADVANCE | V-140-2-TP | 1 X 40W | 220V, 60 Hz. | 16.03 | D |
| ADVANCE | XQM-140-S240-TP | 2 X 40W | 220V, 60 Hz. | 13.77 | D |
| DECOLITE | - | 1 X 36/40W | 230 V, 60 Hz. | 9.75 | C |
| OMNI | - | 1 X 36/40W | 220V, 60 Hz. | 10.44 | D |
| DELTA | - | 1 X 36/40W | 230 V, 60 Hz. | 9.92 | C |
| TOBO | - | 1 X 40W | 220V, 60 Hz. | 11.36 | D |
| LUXMAN | - | 1 X 40W | 220V, 60 Hz. | 10.71 | D |
| KOPEZ | - | 1 X 40W | 220V, 60 Hz. | 9.54 | C |
| KOPEZ | - | 1 X 40W | 220V, 60 Hz. | 10.44 | D |
| ATCO | TRIDONIC | 1 X 36/40W | 220V, 60 Hz. | 9.85 | C |
| NIKO-JAPAN | - | 1 X 40W | 220V, 60 Hz. | 9.68 | C |
| POWER LUX | - | 1 X 40W | 220V, 60 Hz. | 9.86 | C |
| SUAVE | - | 1 X 40W | 220V, 60 Hz. | 10.08 | D |
| SUPER LUX | - | 1 X 40W | 220V, 60 Hz. | 9.78 | C |
| MAXXI | - | 1 X 40W | 220V, 60 Hz. | 10.60 | D |
| AMERICA | - | 1x36/40W | 220V, 60 Hz. | 11.06 | D |
| TIGER | - | 1x40W | 220V, 60 Hz. | 10.00 | C |
| KOPEZ | - | 1x40W | 220V, 60 Hz. | 9.87 | C |

* A fluorescent lamp ballast consumes less energy if it has a lower ballast loss

## DOE Fuel Economy Run : Toward Vehicle Efficiency and Smart Consumer Choice




The DOE Fuel Economy Run aims to promote the judicious utilization of energy particularly fuel, by increasing consciousness on efficiency among consumers. This activity also puts premium on the vehicle and driving capabilities to obtain data on actual fuel consumption in a safe and normal driving condition, employing energy efficiency measures and techniques.

Guided by this principle, the DOE has conducted six fuel economy runs for different type of vehicles in two years. These runs have been conducted in various places in the country under specific conditions.



Driving habits and techniques have significant bearings on the overall performance of a vehicle. In two years of this activity, vehicle manufacturers and assemblers have been in a way encouraged to introduce units/models that are fuel-efficient. State-of-the-art models and technologically-advanced vehicles are designed to be more fuel-efficient without sacrificing their basic features and amenities.

Consumers are given the chance to be a smart buyer when choosing a vehicle. They are encouraged to select vehicles that are not only elegantly made, safe and durable but are also fuel-efficient. There is also a challenge for consumers to practice proper vehicle maintenance and good driving habits because these are the "best gas saving ingredients" and not the gas saving devices that are penetrating the market today.

The success of the Fuel Economy Run lies in the support of the public, oil companies, and especially the manufacturing industry to create and promote energy efficient vehicles.

## DOE FUEL ECONOMY RUN RESULTS

### ASIAN UTILITY VEHICLE (November 10, 2002)

| Unit/Model | Fuel | Transmission | Fuel EfficiencyRating (km/l )* |
|---|---|---|---|
| HONDA CRV, 2.0 L | Gasoline | Automatic | 9.587 |
| HONDA CRV, 2.0 L | Gasoline | Manual | 13.422 |
| ISUZU CROSSWIND XT, 2.5L | Diesel | Manual | 17.122 |
| ISUZU CROSSWIND XT, 2.5L | Diesel | Manual | 19.198 |
| MITSUBISHI ADVENTURE | Diesel | Manual | 17.509 |
| TOYOTA REVO | Diesel | Manual | 16.504 |

### PASSENGER CAR (April 27, 2003)

| Unit/Model | Engine Displacement (cc)** | Transmission | Fuel EfficiencyRating (km/l )* |
|---|---|---|---|
| HONDA Civic Vti | 1600 | Manual | 18.21 |
| Kia Rio LS HB | 1493 | Manual | 16.48 |
| Kia Rio RS Sedan | 1343 | Manual | 16.75 |
| Mitsubishi Lancer GLS | 1584 | Manual | 16.73 |
| Nissan Cefiro VIP Brougham | 1995 | Automatic | 11.86 |
| Nissan Sentra GX | 1300 | Manual | 18.84 |
| Toyota Corolla Altis | 1598 | Manual | 27.36 |
| Toyota Prius | 1497 | Automatic | 21.25 |
| Volvo S40 | 1948 | Automatic | 14.43 |
| Volvo S60 | 1984 | Automatic | 12.66 |

* kilometer per liter
** cubic centimeters



### PASSENGER JEEPNEY (July 13, 2003)

#### A. Seven-Seater Category

| Engine Make | Tank Capacity (l ) | Fuel EfficiencyRating (km/l ) |
|---|---|---|
| Isuzu | 30 | 19.268 |
| FUSO - Jitney | 40 | 16.611 |
| Isuzu | 55 | 12.579 |

#### B. Nine-Seater Category

| Engine Make | Tank Capacity (l ) | Fuel EfficiencyRating (km/l ) |
|---|---|---|
| 4BC 2 | - | 14.286 |
| Isuzu 50 | 35 | 12.469 |
| Isuzu | 40 | 12.063 |

PASSENGER AND LIGHT DUTY VEHICLE
(February 28, 2004)

## A. Gasoline-Fueled Vehicles

| Make/Model | Engine Displacement (cc)** | Transmission | Fuel Efficiency Rating (km/l )* |
|---|---|---|---|
| **Passenger Car** | | | |
| TOYOTA Vios | 1496 | Automatic | 22.445 |
| HONDA City | 1300 | Automatic | 15.143 |
| NISSAN Sentra | 1769 | Automatic | 14.187 |
| VOLVO S80 | 1984 | Automatic/Manual | 13.524 |
| TOYOTA Vios | 1298 | Manual | 20.435 |
| HONDA Civic | 1600 | Manual | 17.327 |
| KIA Rio | 1493 | Manual | 16.543 |
| HONDA City | 1300 | Manua | 16.134 |
| **S U V** | | | |
| NISSAN X Trail | 2500 | Automatic | 12.012 |
| NISSAN X Trail | 2000 | Automatic | 11.396 |
| VOLVO XC 70 | 2435 | Automatic/Manual | 10.796 |
| KIA Sorento | 3497 | Automatic | 8.294 |

* kilometer per liter
** cubic centimeters



## B. Diesel-Fueled Vehicles

| Make/Model | Engine Displacement (cc)** | Transmission | Fuel Efficiency Rating (km/l )* |
|---|---|---|---|
| **Passenger Car** | | | |
| BMW 530D | 2993 | Automatic/Manual | 21.237 |
| **A U V** | | | |
| ISUZU Crosswind | 2500 | Manual | 19.578 |
| **S U V** | | | |
| BMW X5 | 2993 | Automatic/Manual | 12.201 |
| MITSUBISHI Pajero | 3200 | Automatic | 11.958 |
| NISSAN Patrol | 2953 | Manual | 11.396 |
| **Pick - up** | | | |
| ISUZU D-MaX | 2999 | Manual | 16.647 |
| NISSAN Frontier | 2664 | Manual | 14.966 |
| MITSUBISHI Endeavor | 2477 | Manual | 14.625 |
| MITSUBISHI Strada | 2477 | Manual | 13.689 |
| **Van** | | | |
| KIA Sedona | 2902 | Manual | 13.214 |

* kilometer per liter
** cubic centimeters

## FUEL ECONOMY RUN IN METRO CEBU
(April 17, 2004)

### A. Taxi Category

| Engine Make/Model | Transmission | Fuel | Fuel Efficiency Rating (km/l ) |
|---|---|---|---|
| Toyota Corolla | Manual | Gasoline | 23.191 |
| Nissan Sentra | Manula | Gasoline | 22.338 |
| Nissan Sentra | Manual | Gasoline | 21.772 |

### B. Multicab Category

| Engine Make/Model | Transmission | Fuel | Fuel Efficiency Rating (km/l ) |
|---|---|---|---|
| Suzuki | Manual | Gas | 19.111 |
| Suzuki | Manual | Gas | 17.058 |

### C. Jeepney Category

| Engine Make/Model | Transmission | Fuel | Fuel Efficiency Rating (km/l ) |
|---|---|---|---|
| Isuzu | Manual | Diesel | 14.957 |
| Isuzu | Manual | Diesel | 14.722 |
| Nissan | Manual | Diesel | 13.385 |



## FUEL ECONOMY RUN IN SOUTHERN MINDANAO
(September 17, 2004)

### A. Category 1: Less than 1.5 L

| Make/Model | Fuel Efficiency Rating (km/l ) |
|---|---|
| TOYOTA Vios (1.3) / 2004 | 25.12 |
| TOYOTA Vios (1.3) | 23.42 |
| HONDA City (1.3) / 2003 | 20.52 |
| HONDA City (1.3) | 19.83 |
| KIA Pride (1.1) / CD5 | 18.03 |
| KIA Rio (1.3) / 2004 | 17.01 |
| HONDA City (1.3) / 2003 | 16.21 |
| NISSAN Exalta (1.3)/2000 | 14.61 |
| NISSAN Sentra | 14.11 |

### B. Category 2: 1.5 L - 1.6 L

| Make/Model | Fuel Efficiency Rating (km/l ) |
|---|---|
| TOYOTA Vios (1.5) | 20.67 |
| TOYOTA Vios (1.5) | 18.79 |
| HONDA City (1.5) | 16.54 |
| HONDA City (1.5) | 14.66 |
| TOYOTA Altis (1.6) | 14.45 |
| KIA Rio (1.5) / 2002 | 14.20 |

### C. Category 2: 1.8 L and above

| Make/Model | Fuel Efficiency Rating (km/l ) |
|---|---|
| TOYOTA Altis (1.8) / 2003 | 19.47 |
| HYUNDAI Coupe (2.0)/2000 | 12.09 |

*NOTE:*

*The results of the DOE Fuel Economy run are considered only as indicative and not conclusive.*

Some of the Fuel Economy runs were conducted under the following conditions:

1.) The standard distance used for computing the fuel mileagae is 170 kilometers.

2.) Each entry vehicle had 2 passengers.

3.) Maximum speed throughout the run was 80 kph.

4.) "Closed window policy" was observed with air conditioning system "ON" and thermostat set to "MEDIUM".

5.) Headlights and hazard lights were kept "ON" during the entire run.

6.) Condition of each entry vehicle was verified according to manufacturer's standard and technical specifications.



# Tips in Buying a Fuel-Efficient Vehicle

Fuel consumption can vary widely from one vehicle to the next whether you're buying a new vehicle or a used one. The choices you make will either save you money or cost you money.

In purchasing a vehicle, consider buying:

- a fuel-efficient vehicle that meets your needs. Choose the smallest engine that meets your needs. Under normal conditions, smaller engines deliver better fuel economy than larger engines.

- a 2-wheel or a front-wheel drive vehicle if you really don't need 4-wheel or all-wheel drive. Four-wheel drive offers superior traction and braking under slippery conditions, but the weight and friction of the additional drivetrain parts can increase fuel consumption by 5 to 10 % compared to 2-wheel drive vehicles.

- a vehicle on a manual transmission; this would mean 5 to 10 % less fuel than if the vehicle had an automatic transmission. As a general rule, a manual transmission is more fuel-efficient than an automatic, assuming you shift properly.

- a vehicle with removable roof racks. Roof racks, even when empty, increase aerodynamic drag.

- a fuel-efficient diesel vehicle which produces fewer greenhouse gas emissions. Biodisel fuel blends are now available for motorists. Hybrid electric vehicles, which use a combination of high-power batteries and an internal combustion engine, are appearing in the market.

- a vehicle with less power options , such as power windows, door locks and mirrors. These options can increase both the purchase price and the operating cost it may impose through increased fuel consumption. Ask yourself whether the increased comfort or convenience these options provide is worth the increase in fuel consumption.

- a vehicle with tinted glass which blocks some of the sun's heat from entering the vehicle through its windows. This option can help you save fuel. Operating an air conditioner in hot weather can increase fuel consumption by more than 20 % in city driving.
- a vehicle with aluminium wheels to actually reduce weight and improve fuel economy. Heavy-duty suspension systems improve handling and are stronger and longer lasting than standard suspension systems. The extra weight, cost and fuel consumption are nominal.
- a vehicle with a better mileage by checking the Fuel Economy Guide attached to it. The higher km/l rating, the more efficient is the car.

## Tips in Travel Planning

- Driving the smart way means planning your trip carefully to avoid traffic jams, steep hills, road construction, etc. Give yourself time – racing against the clock causes you to brake hard, accelerate quickly and drive too fast, all of which waste fuel.
- Combine errands and other activities to reduce the number of trips.
- Carpool if possible for traveling to work or for errands.
- Utilize mass transit system. Support efforts to make mass transit more available.
- For shorter errands, consider walking or the use of bicycle.
- Try to take one less car trip per week.
- Consider shorter vacation and recreation trips; there may be something more special to learn about in nearby areas.



## Tips on Efficient Driving Habits

Your personal driving habits will have a big impact on your fuel consumption and costs. You can control the costs of operating a vehicle and minimize the emissions it produces by making a commitment to drive less and to drive more efficiently. Research suggests that driving techniques can influence the fuel efficiency by as much as 30 %.

- Avoid accelerating or stopping too quickly. By anticipating traffic, fuel economy increases by 20%.
- Drive the speed limit. As your speed increases so does the aerodynamic drag. By slowing down your car, you slow down or reduce its fuel consumption.
- Try to avoid heavy loads and long idles. If you anticipate being stopped for more than ten seconds, simply shut off the car. Restarting it uses less fuel than letting it idle.
- Do not rev engine before shutting it off; this wastes fuel and can dilute motor oil, leading to excessive wear on engine parts.
- Park in the shade and/or leave windows slightly open to reduce the need for air conditioning.
- Use your gears wisely. Driving in the highest gear possible without laboring the engine is a fuel-efficient way of driving.
- Drive off promptly. Don't leave your engine running when you first start up. Drive off straight away if you can, but drive gently until the engine has reached its normal operating temperature.
- Have your vehicle serviced regularly. Dirty air filters, old spark plugs and low fluid levels all contribute to poor fuel economy.

# Tips on
# Keeping your Car in Shape

Keeping your vehicle in top operating condition will save you fuel and money; reduce your long-term maintenance costs; and minimize harmful exhaust emissions. A well-maintained vehicle is also more reliable and could be worth more when you want to sell it.

- Follow your vehicle's recommended oil service schedule. Regular oil and filter changes prolong the life of your engine by reducing the friction between engine parts. This also means your engine works less, hence, consumes less fuel.

- Service your vehicle on a regular basis. An engine that is poorly tuned can use up to 50% more fuel and release 50% more pollution than a properly maintained vehicle.

- Keep tires at proper air pressure. Tire-rolling resistance causes 20% of fuel consumption. But if a tire is properly inflated, a reduction in resistance of just 1% can increase fuel savings by up to 5%.

- Check fan belt tension and condition. Regularly check the looseness or tightness of the fan belt. Also check for cracks on the fan belt.

- Check battery. Check the terminals for loose connection and accumulated dirt. Check water and voltage level of the battery as well.

- Check clutch and brake pedal. Check the recommended or allowable free-play of the pedals. On a straight, flat and traffic-free stretch of road, rest your hands lightly on the steering wheel and apply the brakes gradually. If the vehicle swerves to one side, one of the brake linings may be worn out more than the other, or the brakes may need adjustment.



- Avoid tension. Check your high tension wires. Check for cracks and other signs of deterioration.

- Check fuel tanks and tank lines. Check fuel tanks for leaks and irregularities. Keep the fuel cap tightened to prevent fuel loss due to evaporation and spillage. You can often identify the type of fluid that is leaking by its color. Oil is black, coolant is a bright greeny yellow, automatic transmission fluid is pink, and power steering and break fluid are clear, with a slight brown tinge. All of these fluids are oily to the touch.

- Check and clean spark plugs periodically. Clean plugs assure you of better combustion and less unburned gas.

- Balance and align wheels to save fuel. If your wheels aren't aligned, you actually waste gasoline since the tires produce more friction against the ground. Have your wheels aligned regularly.

- Inspect contact points. Make sure that the contact point gap is still within specifications.

- Clean filter and check for dirt. Regardless of mileage or time, a filter should be replaced before it reaches the point where it significantly restricts airflows. Fuel economy performance and emissions begin to deteriorate and get progressively worse until the dirty filter is replaced.

- Check fluid levels, including engine oil, engine coolant level, transmission fluid and power steering fluid, according to the instructions in your owner's manual.