Asia-Pacific Economic Cooperation

Reducing Trade Barriers for Environmental Goods and Services in APEC Economies

Website Recommendations and Update

December 23, 2010

Submitted to:

Asia-Pacific Economic Cooperation (APEC)
Expert Group on Energy Efficiency and Conservation Energy Working Group

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Executive Summary

The APEC Energy Standards Information System (ESIS) website provides extensive and in-depth information on energy efficiency standards and labeling (S&L) programs of APEC economies and others around the world. It is a valuable information portal where manufacturers, policy makers, researchers and other users can easily access and compare energy efficiency S&L information.

As requested by the APEC Energy Working Group, the ICF and CQM team conducted the following two tasks: 1) Assess knowledge gaps on the ESIS website and collect information on energy efficiency standards, labeling, and testing and measurement procedures for selected energy using appliances from APEC members to update the APEC-ESIS website; and 2) Work with the ESIS website manager to ensure the ESIS site has the necessary functionality (e.g., search facilities, data fields, and the ability to export information).

This report is a compilation of our recommendations and updated information. **Section I** provides recommendations from a user's angle to improve website functionality, which address search functions, information display, information export, and access speed. **Section II** locates all missing and incorrect information on the website and provides most updated S&L information for update.

Section I: Recommendations on Website Functionality

The APEC-ESIS website has a user-friendly structure that allows the user to easily understand the key functions of the website. The navigation menus at the top of each page help the user to quickly jump to a desired section of the website. The drop-down menus on the left of each page also allow for easy navigation. By using these functions, the user can easily locate S&L information of a specific region, economy, or product.

Based on our research and evaluation, there are opportunities to improve website functionality. We have identified the following four recommendations for the ESIS website team's consideration. The recommendations are presented from the user's perspective. Without sufficient knowledge of the website/database back structure, ICF is not able to determine the level of effort necessary to execute these recommendations. The ESIS website team may be able to determine what additional resources would be needed to implement the recommendations below.

1. Enhance Search Functions

Currently, the website provides three main search means for users to view or locate the specific S&L information: 1) using the activated Map on the homepage and database index page to view the summary information of a region or an economy; 2) choosing from the Drop-down menu on the left side of the webpage to access to the summary information of region/economy/product; and 3) choosing a product from the 'Equipment List' page from the navigation menu 'S&L Database'. The current methods allow the user to locate information, but they have to choose a specific product from a list with more than 240 products, or select an economy from the long drop-down list. These may not be the most efficient means of identifying the desired data.

To address this, we recommend enhancing the website search functionalities. Recommendations 1.1 through 1.5 below provide specific guidance that can offer alternative search options, improve search accuracy, and speed up the search process.

1.1 Add multiple search icons on the database index page

The current database index page gives the user two options for retrieving S&L information: 1) clicking the small red spot on the map to enter the summary page of a specific economy; and 2) choosing from the drop down list (region, or economy, or product) on the left side of the page. (See Figure 1.1.a). We found the small red spot on the map to be too small to accurately select, and the drop-down list to be extremely long.

We recommend adding two search icons under the map (see Figure 1.1.b). The recommended search icons include:

- Choose a/an Region/Economy
- Choose a Product

The two icons link to the Region/Economy List page (which would need to be developed) and the Product List page. The recommended additional Region/Economy List page does not yet exist, but would be a helpful addition to the site for more efficient navigation. See 1.3 for more details on this recommended addition.

Figure 1.1.a - Current Database Index page

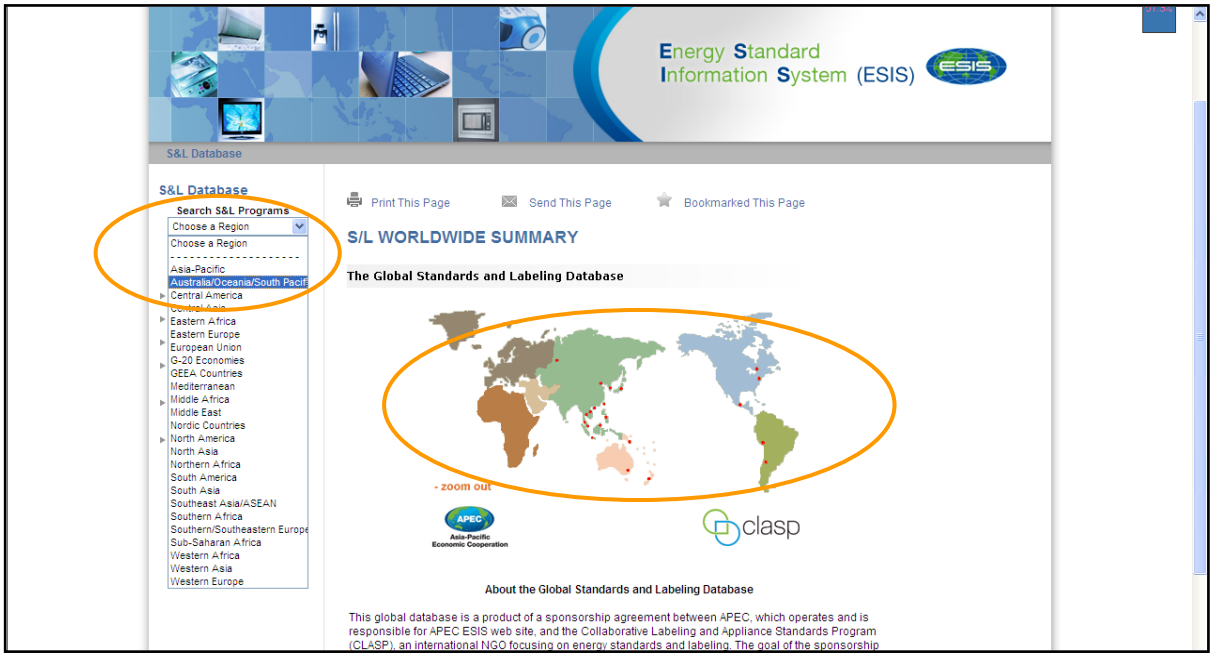
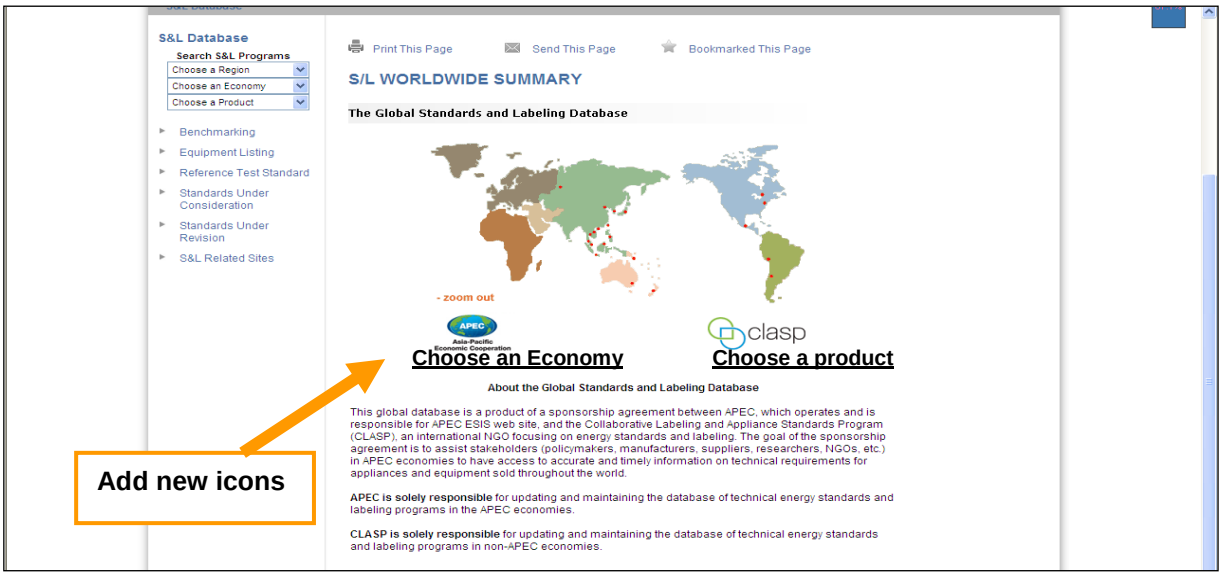


Figure 1.1.b - Recommendation: Adding new icons

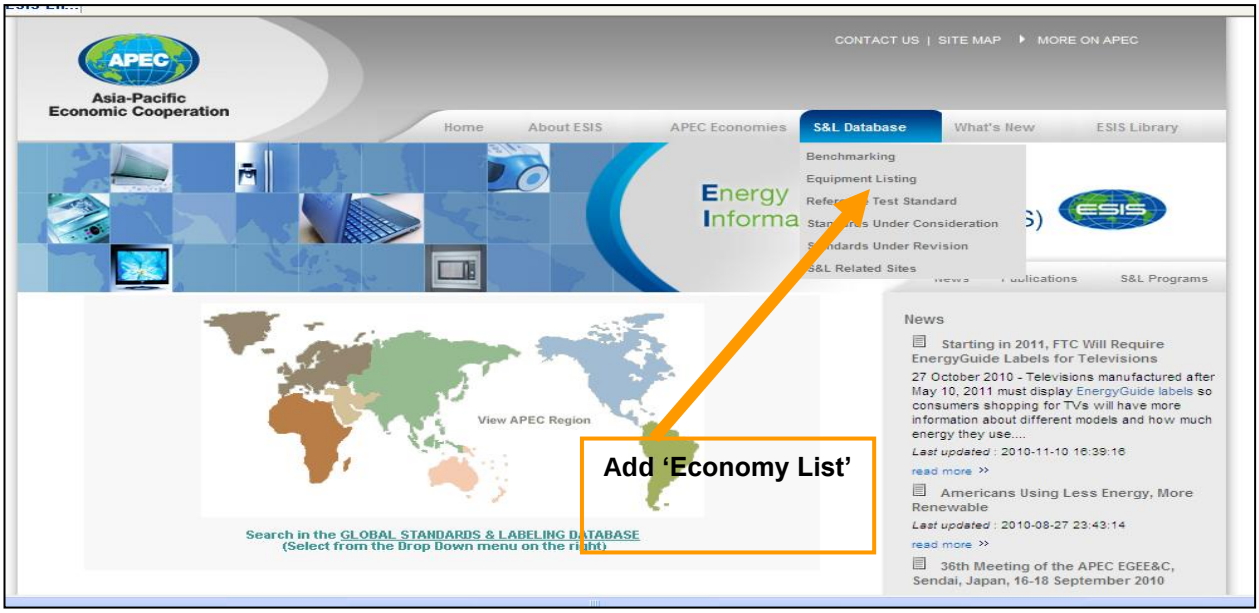


1.2 Add 'Economy List' menu to the top navigation menu

The current navigation menu 'S&L Database' provides the quick links to S&L information. The links include Benchmarking, Equipment List, Reference Test Standard, Standards Under Consideration, Standards Under Revision, and S&L Related Sites.

Users may also need search information by economies from this Navigation Menu. We recommend adding the quick link to 'Economy List' to the navigation menu 'S&L Database'. This will provide more options for users to view and locate the desired information quickly. See Figure below, 1.2.a. The 'Economy List' will link to the page 'Region/Economy List,' which would need to be developed. See recommendation 1.3 for more details on this recommended addition.

Figure 1.2.a- Recommendation to the Navigation Menu



1.3 Create a new page for Regions/ Economies List

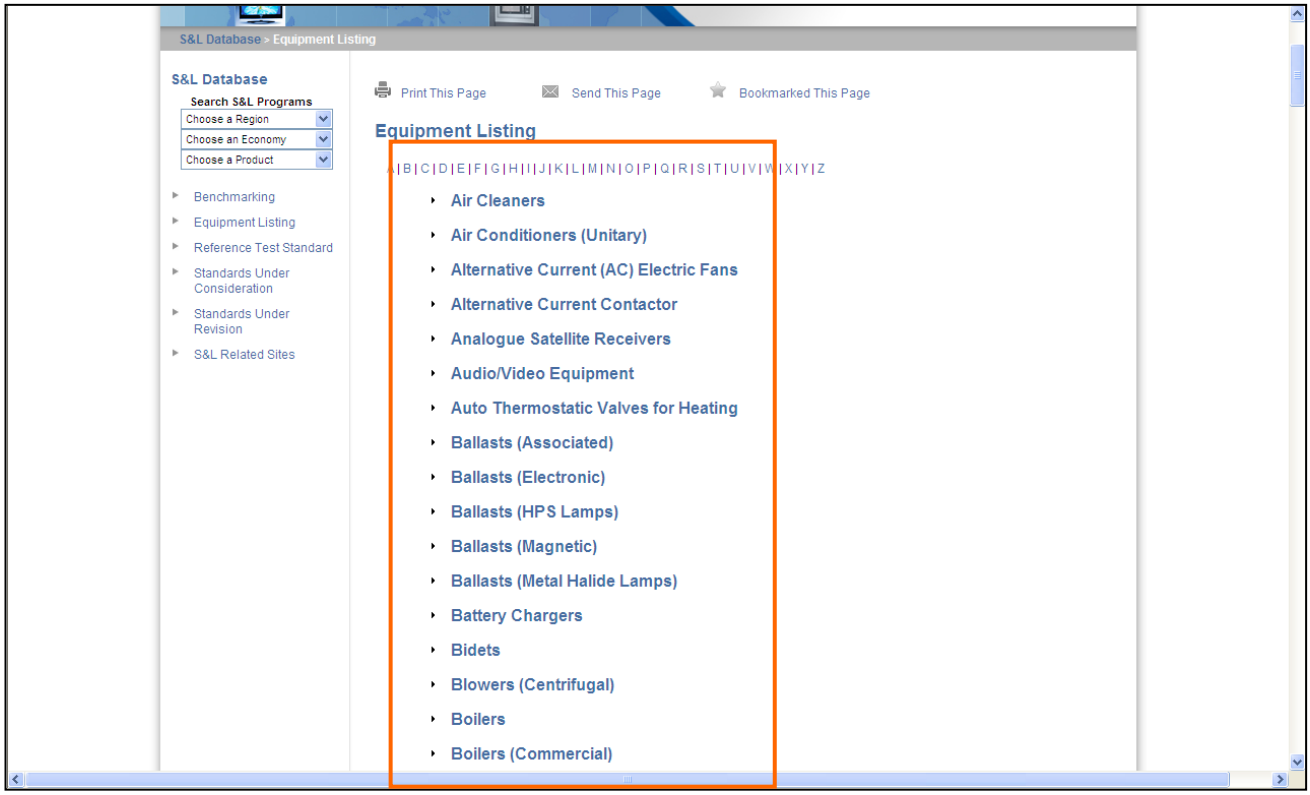
As recommended in 1.1 and 1.2, a Region/Economy list page could be considered, which links to the new icon 'Choose an Economy' on the Database Index Page and the 'Economy Listing' in the top navigation menu 'S&L Database'.

The new page could include two sections, a section for the Region and a section for the Economy. The Region section would include all regions that the APEC-ESIS website covers. This could be displayed as a list by text or in a map at the top. Each region (text or map) would be an active icon that links to the existing Summary Information Page for the Region. The Economy Section would list economies by alphabetic order as the default order, but could also provide a sort function related to 'Region' selection. If the user chose a region from the region icon, a list of economies included in that region could be generated. For instance, if a user clicks on "South America", only South American economies will show in the page which will help the user find targeted information more easily.

1.4 Sort products by categories

The current product list page shows all the products in alphabetic order. The list is very long with more than 240 products. It is difficult for users to find the right products if they do not know the accurate product name. Also, users may easily enter the wrong product type because the same product may have different English names in different economies.

Figure 1.4.a - Current Product List



To make product search more efficient for users, we recommend dividing the products under categories. The categories can be retained at the top of the page for users' convenience. If the user would like to view the product list in alphabetic order, the page can include a navigation link to the existing A to Z ordered list. We recommend revising the list using the following categories:

- Home Appliance
- Commercial & Industrial
- Lighting
- Heating, Air-Conditioning& Ventilation Equipment
- Computer & Electronics
- Other

All the products can be categorized under the six groupings above. See **Appendix A** for the US Energy Star website example, which may provide a good structure to follow.

1.5 Add a comparison function to the Product Summary

Currently the ESIS website either provides a list of S&L information for a specific product in all the economies, or detailed information for one specific product in one economy. Sometimes the user may want to compare information across various products and economies. Thus, we recommend adding a comparison function.

In a specific product summary page, we recommend adding a comparison function by adding check boxes before each economy and program. When the user checks the boxes for each economy and/or program, the function will move to the next page where the detailed S&L information of multi-economies or multi-programs is compared (see Figure 1.5.a). The comparison page will list the information as shown in Table 1.5.b. The existing detail S&L information for specific product for specific programs will be organized into the table based on the checked boxes by the users.

Figure 1.5.a - Recommendation: Add comparison function (Example: Product Summary)

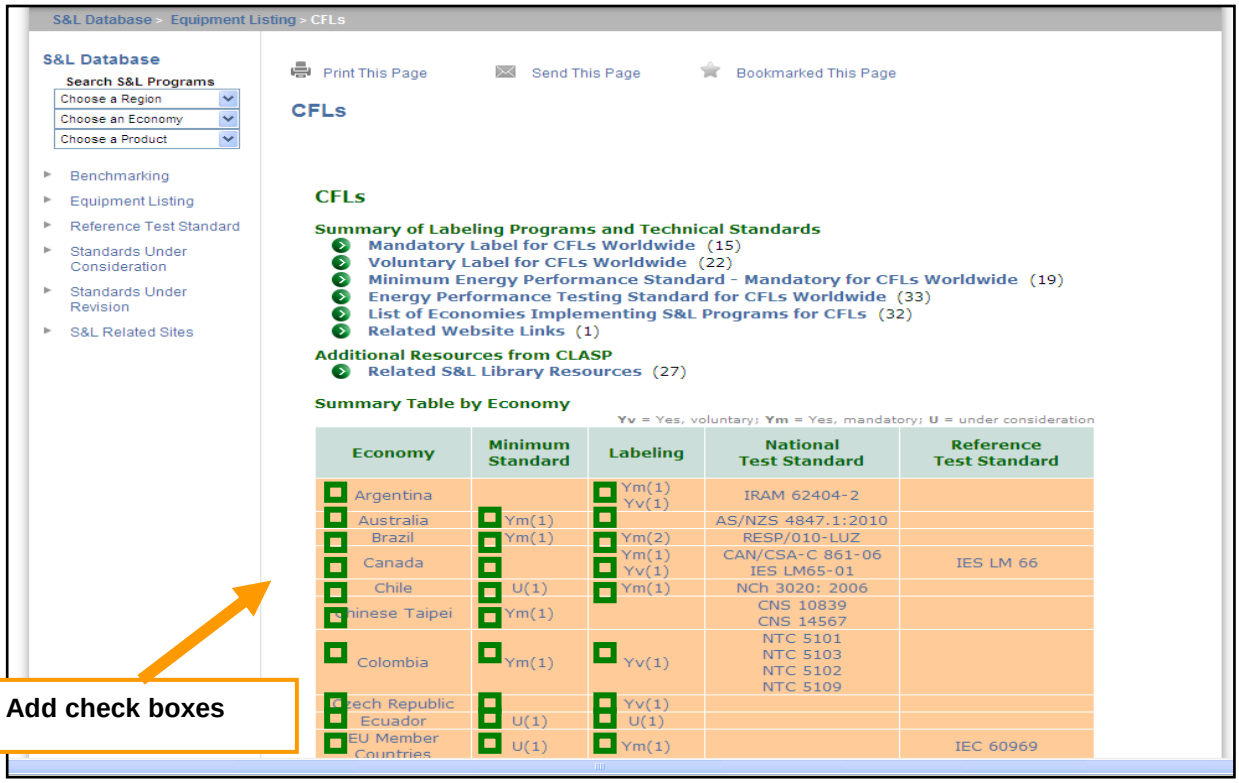


Table 1.5.b - Example: Economy Comparison for CFLs S&L Information

	Economy 1	Economy 2	…
Program Type	Mandatory Standard	Mandatory Standard	
Test Standard	Standard A	Standard B	
Reference Test Standard			
Year Published	2009	2009	
Year Effective	2009	2009	
Description			

2. Unified Information Display

Currently, the information page provides the program type, product, economy, test standard, and description, year published, etc. However, the webpage of each label/or standard for specific products does not have a unified display format for each economy. Often, the pages have various levels of completeness for the product label/standard's description.

For instance, the Figure 2.a below Screen shot shows that the description only includes general label program, rather than product specific scope, energy efficiency levels, etc. While Figure 2.b

Screen shot 2 includes completed information on specific product's label program/standard and level of energy efficiency.

Figure 2.a - Current Information Display (screenshot 1)

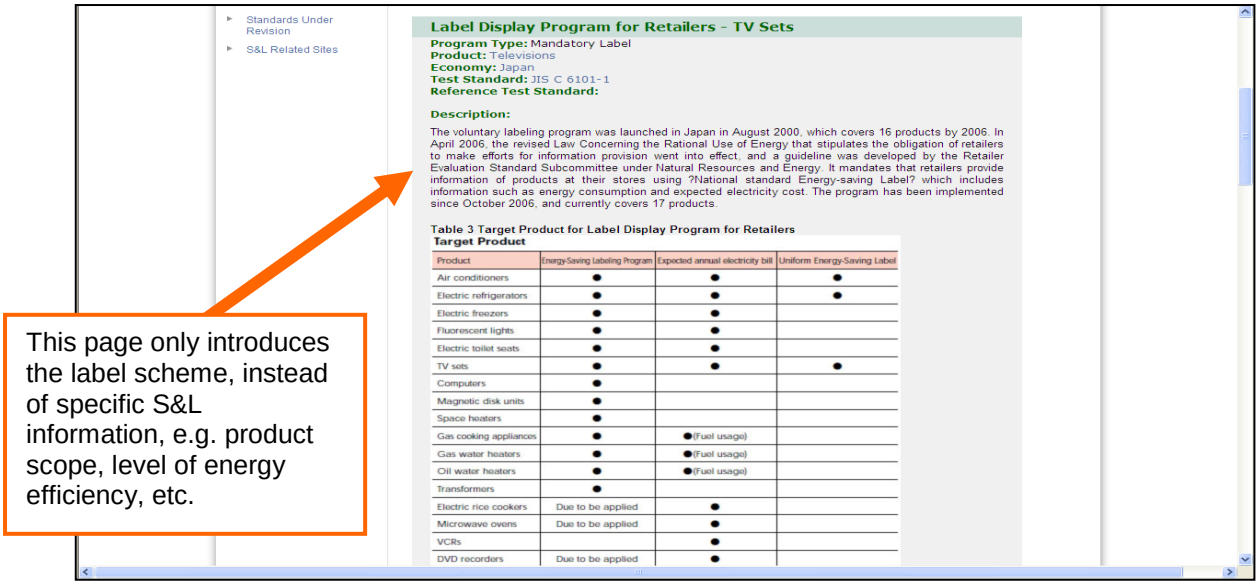
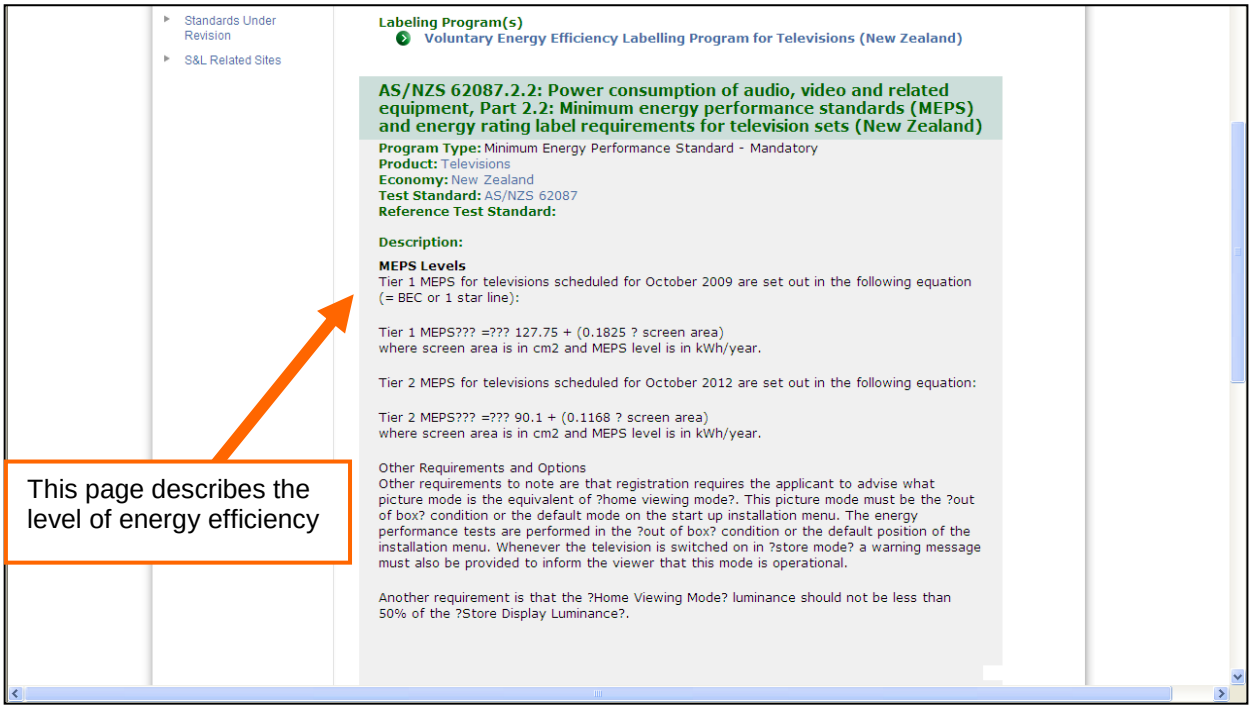


Figure 2.b- Current Information Display (screenshot 2)



It is recommended that a unified template be adopted for product label/standards information, particularly the section for product label/standards description. The webpage should include the following information, in the suggested order, to describe specific product S&L information:

- Product Scope & Definition
- Energy Efficiency Level
- Other Program Info

A unified template will not only create a more structured information format, but will also benefit potential efforts in comparing product label/standard information among various economies.
In **Section 2** of this report, the research group has applied the above mentioned uniformed format.

3. Information Export

Currently, the ESIS website provides the following functions:

- Print this page
- Send this page
- Bookmarked this page

(See the screen-shot below)

As the ESIS website has very valuable information, users could wish to utilize the raw data from the website. Therefore, it is recommend to add a new "exporting" function to each summary webpage, where there are the list of information on product label/standard. The "Export this page" function is recommended to put in the corner of each summary page.

This could help to facilitate the usage of information on ESIS website in a more user-friendly way.

4. Increase Server Speed

It is important to have a fast speed server so that users of this website can browse, search, and locate the accurate information in a timely manner. We found that the webpage display is slow compared with other government/private webpage speeds. We recommend upgrading the database server. A faster server could also help to prepare for a future expansion of website content/or interactive information, as the number of website visitors increases.

Appendix A. ENERGY STAR Products in Categories

Home Appliance

Bidets
Clothes Dryers
Clothes Dryers (Gas-fired)
Clothes Washers
Clothes Washers (Horizontal Drum)
Clothes Washers/Dryer
Coffee Makers (Electric)
Cooker Hoods
Cooking Appliances (Electromagnetic)
Cooking Appliances (Gas)
Cooktops and Ranges/Ovens
Dish Driers
Dishwashers
Fans
Fans (Ceiling)
Fans (Residential)
Faucets (Electric)
Fireplaces (Gas)
Freezers
Frying Pans (Electric)
Irons
Irons (Electric)
Juice Extractors (Electric)
Kettles (Electric)
Kim-chi Refrigerators
Microwave Ovens
Ovens (Electric)
Refrigerator
Refrigerator (Direct Cool)
Refrigerator-freezers
Rice Cooker
Showerheads (Electric)
Toasters (Electric)
Toilet Electric Seats
Vacuum Cleaners
Drinking Water Dispensers/Coolers

Commercial & Industrial

Alternative Current Contactor
Blowers (Centrifugal)
Boilers (Commercial)
Boilers (Industrial)
Clothes Washers (Commercial)
Compressors (Air)
Compressors (Refrigerant)
Cooking - Range Hoods
Cooking Equipment (Commercial)
Deep Fat Fryers
Dishwashers (Commercial)
Distribution Saver (Low Voltage)
Diving Pump (Electric)
Drinking Water Dispensers/Coolers
En.Saving Mains Controllers (Electronics)
En.Saving Mains Controllers (Info Tech)
Fans (Industrial)
Food Holding Cabinets (Commercial)
Freezers (Commercial)
Fryers (Commercial)
Furnace Fans
Furnaces
Furnaces (Gas)
Furnaces (Oil-fired)
Furnaces (Warm Air)
Griddles (Commercial)
Hand Driers
Ice-makers
Lab Grade Refrigerators and Freezers
Motor Compressors (Closed Type)
Motor Pumps for Aeration
Motors
Motors (1-phase Induction)
Motors (3-phase Induction)
Motors (Low Power)
Permanent Magnet Motors
Pumps (Axial)
Pumps (Centrifugal)
Pumps (Deep Well)
Pumps (Submersible)
Pumps (Vertical)
Refrigeration Equipment (Commercial)
Refrigeration/Chiller Towers
Refrigerator Display Cabinets
Refrigerators/Freezers (Commercial)
Solid Fuel Appliances
Steam Cookers (Commercial)
Switchgear Systems (Multi-function)
Transformers
Transformers (Mold)
Transformers (Oil-filled)
Unitary AC for Computer/Data Processing Room
Variable Frequency Speed Regulation Devices
Vending Machines
Walk-In Coolers/ Walk-In Freezers
Warming Plates (Electric)
Wine Chillers

Computer & Electronics

Analogue Satellite Receivers
Audio/Video Equipment
Battery Chargers
Calculators (Solar Cell Powered)
Computer (Game Console)
Computer (Small-Scale Server)
Computer (Thin Client)
Imaging Equipment (Mailing Machines)
Imaging Equipment (MFDs)
Imaging Equipment (Printers)
Imaging Equipment (Scanners)
Mailing Machines
Microcomputer
Modems

Computer (Workstation)
Computer Monitors
Computer Servers
Computers (Desktop PC)
Computers (Laptop PC)
Cordless and Mobile Phones
Data Center Storage
Data Projectors
Digital-to-Analog Converter Boxes
Door Phones
Hard-disk drives
Home Gateway/Routers
Imaging Eqpt (Digital Multipurpose Office Eqpt)
Imaging Equipment
Imaging Equipment (Copiers)
Imaging Equipment (Fax Machines)
Network Equipment (Small)
Portable AC
Power Supply/Adaptor - External
Power Systems (Uninterruptible)
Radio Rcvr/Rcdr
Set Top Boxes/TV Broadcasting Receivers
Socket-Outlets and Adapters
Standby Power
Switch Power Supply of Computers
Telephony
Television Recorders
Televisions
Televisions (Flat Panel)
TV-VCR and/or TV-DVD Combination
VCRs and/or DVDs
Watches (Solar Cell Powered)

Heating, Air-Conditioning & Ventilation

Air Cleaners
Air Conditioners (Unitary)
Alternative Current (AC) Electric Fans
Auto Thermostatic Valves for Heating
Boilers
Boilers (Electric)
Boilers (Gas)
Boilers (Low-capacity)
Boilers (Oil-fired)
Boilers (Packaged)
Boilers (Commercial)
Boilers (Industrial)
Central AC (Packaged Terminal)
Central AC (Split type)
Central AC and Heat Pumps
Central Heating Systems
Chillers
Climate Control (Residential)
Computer Room AC/Close Control Units
Coolers (Evaporative)
Dehumidifiers
Ducted AC and heat pumps
Fans (Ventilating)
Heat Pumps
Heat Pumps (Air Source)
Heat Pumps (Ground-source)
Heat Pumps (Water-loop)
Heat Recovery Devices & Systems
Heat-Recovery/ Energy-Recovery Ventilators
Heaters (Central)
Heaters (Electric)
Heaters (Gas)
Heaters (Pool)
Heaters (Space)
Heaters/ Fan-forced (Electric)
Heating Equipment (Direct)
Hot Water Cylinders
Hot Water Systems (Elec.)
Non-ducted AC and heat pumps
Packaged AC and HP (Single Pack Vertical)
Packaged Terminal AC and HP
RACs (Packaged Terminal)
RACs (Split)
RACs (Variable Speed)
RACs (Window)
Storage Water Heaters (Electric)
Water Chillers
Water Chillers (Direct-fired)
Water Heaters (Commercial)
Water Heaters (Gas)
Water Heaters (Oil-fired)
Water Heaters (Solar)
Water Heaters - Running (Gas)
Water Heaters Heat Pump
Water Heaters Instantaneous (Gas)

Lighting

Ballasts (Associated)
Ballasts (Electronic)
Ballasts (HPS Lamps)
Ballasts (Magnetic)
Ballasts (Metal Halide Lamps)
Ceiling Fan Lighting
CFLs
Entry Door Sidelights & Transoms
Exit Signs
Fluorescent Ballast (Single-capped Electrodeless)
Fluorescent Lamp (Self-ballasted & Electrodeless)
Fluorescent Lamp Ballasts
Fluorescent Lamps
Fluorescent Lamps (Double-capped)
Fluorescent Lamps (Single-capped Electrodeless)
Fluorescent Lamps (Single-capped)
Lamps (Halogen)
Lamps (High Intensity Discharge)
Lamps (HPS)
Lamps (LED)
Lamps (Mercury-vapor)
Lamps (Metal Halide)
Lamps (Non-directional Household)
Lamps (Torchiere)
Light Fixtures (Residential)
Light Strings (Decorative)
Lighting (Solid State SSL)
Lighting Systems (Ext.)
Lighting Systems (Indoor)
Luminaires
Reflectors for Fluorescent Lamps
Reflectors for HID Lamps

Incandescent Lamps
Incandescent Reflector Lamps
Lamp Containers
Lamps (General Service)
Self-ballasted Fluorescent Lamp for Gas Cooker
Sensor Lighting Equipments
Skylights
Traffic Signals

Others

Doors (Sliding Glass)
Insulation (Cavity Wall)
Insulation (Domestic Pipe)
Insulation (Dry Lining)
Insulation (External Wall)
Insulation (Loft)
Insulation (Thermal)
Plumbing Products
Swimming Pool Pumps
Windows

Section II: Standards & Labeling Information Update

I. Overview

This section of the report is for the APEC-ESIS staff to update missing and incorrect information on the website. The ICF and CQM team have reviewed current information on the ESIS website and identified gaps for the following selected products: air conditioners, refrigerators & freezers, domestic & commercial lighting, computers & monitors, televisions, clothes washers & dryers, and water heating.

The report is organized by economy. Under each economy, a summary table is provided at the beginning to illustrate where the knowledge gap exists: the product and program type. “Edit” in the table cell indicates an update need. Different colors are assigned to suggest different actions to be taken: red indicates a new page needs to be created for a product standard/label; orange indicates an existing page on ESIS has incomplete and/or incorrect information that needs to be updated; white indicates the existing information is complete and correct and no action is needed.

ESIS website staff can click on “Edit” in the table cell that links to the most updated details of the product standard/label collected by the ICF and CQM team. Under each product standard/label, only sections that are incorrect or missing from the website are included here. ESIS staff can replace the entire section on the website with the corresponding text in this document. Links to the information sources are also attached for verification purposes.

II. APEC Economies to be Updated

Brunei Darussalam

	Mandatory Standard	Mandatory Label	Voluntary Label
AC			Edit
Refrigerator & freezer			
Lighting			
Computers & Monitors			
Televisions			
Clothes washers			
Clothes driers			
Water heating			

Note: Red box – create a new page; orange box – update existing page; white box – no action needed.

Air Conditioners
Program Type: Voluntary Label
Create New Page:
Description:
Scope
The Energy Labeling Scheme will be launched as a voluntary basis scheme effective from 26th May 2008 preliminary for single-phase non-ducted room air conditioners having a cooling capacity of:-
• 8.8 kW or lower, in the case of window type air-conditioners; or

•17.6 kW or lower, in the case of spit type (non-inverter) air-conditioners
The scheme will be extended to other types of air conditioners (such as split type), refrigerators, water heaters, and other products in the later stage.
The Energy Label will be issued in the form of a certificate and shall be based on a 5-Star rating scheme as follows:-

Stars	Energy Efficiency Rating
1	Low
2	Fair
3	Good
4	Very good
5	Excellent

The Star Rating for air conditioners is defined as follows:-

Type	Minimum Coefficient of Performance (COP) (W/W)				
Stars	1	2	3	4	5
Window, single-split (non-inverter)	<2.5	≥2.5	≥2.78	≥3.2	N/A

Source:
http://www.energy.gov.bn:81/index.php?option=com_content&view=article&id=238&Itemid=89

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Canada

	Product	Mandatory Standard	Mandatory Label	Voluntary Label
AC	Room AC			
	Single-phase and three-phase single-package central air conditioners and heat pumps			
	Single-phase and three-phase split-system central air conditioners and heat pumps			
	Packaged terminal air conditioners and heat pumps			
Refrigerator & freezer	Household refrigerators, refrigerator-freezers and wine chillers			Edit
	Household freezer			Edit
	Self-Contained commercial	Edit		
Lighting	CFL		Edit	
	Fluorescent lamp ballasts			
	General service fluorescent lamps			
	General service incandescent reflector lamps, ER and BR lamps			
	General service lamps			
	Torchieres			
	Ceiling fan lighting			
Computers & Monitors	Computers			
	Monitors			

Televisions	Televisions			Edit
Clothes washers	residential and household-style commercial			
Clothes driers	N/A			
Water heating	Oil-fired			
	Gas			
	Electric			

Note: Red box – create a new page; orange box – update existing page; white box – no action needed.

Household refrigerators, refrigerator-freezers and wine chillers
Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Canada&countryid=247&product=Refrigerator-freezers&ID=10
Test Standard: Test Criteria for ENERGY STAR in Canada is harmonized with Test Criteria for ENERGY STAR in the United States: Residential refrigerator manufacturers must test their equipment according to the US Department of Energy's test procedure defined in ***10 CFR 430, Subpart B, Appendix A1***. Residential freezer manufacturers must test their equipment according to the test procedure defined in ***10 CFR 430, Subpart B, Appendix B1***.
Back to Summary

Household Freezer
Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Canada&countryid=247&product=Freezers&ID=9
Test Standard: Test Criteria for ENERGY STAR in Canada is harmonized with Test Criteria for ENERGY STAR in the United States: Residential refrigerator manufacturers must test their equipment according to the US Department of Energy's test procedure defined in ***10 CFR 430, Subpart B, Appendix A1***. Residential freezer manufacturers must test their equipment according to the test procedure defined in ***10 CFR 430, Subpart B, Appendix B1***.
Source: http://www.oee.nrcan.gc.ca/residential/business/manufacturers/specifications/refrig-freezer.cfm?attr=12
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Self-Contained Commercial
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Canada&countryid=247&product=Refrigerators%20%28Commercial%29&ID=76
Test Standard: ASHRAE standard 117-1992, ASHRAE standard 72-1998
Description:

Applies to **Self-contained commercial refrigerator**

a. has at least one compartment for the storage of food and beverages at temperatures above 0°C;
b. has no more than one compartment for the freezing and storage of food and beverages at temperatures between 0°C and -13.3°C; and
c. has a self-contained refrigeration system that requires energy input;

but does not include

a refrigerated buffet table, a commercial refrigerator that is designed to function as a table or counter for receiving and refrigerating food and from which persons can serve themselves, and that uses a mechanical refrigeration system;

a refrigerated preparation table, a commercial refrigerator the top of which is a work surface on which food can be prepared, displayed and kept refrigerated at temperatures between 1°C and 5°C; or
a walk-in commercial refrigerator.

***Applies to* Self-contained commercial freezer**

a. all the compartments are designed for the freezing and storage of food, beverages or ice; and
b. has a self-contained refrigeration system that requires energy input;

but does not include

a walk-in commercial freezer.

***Applies to* Self-contained commercial refrigerator-freezer**

a. has two or more compartments, at least one of which is for the storage of food and beverages at temperatures above 0°C and at least one other which is for the freezing and storage of food and beverages at temperatures below -13.3°C; and
b. has a self-contained refrigeration system that requires energy input;

but does not include

a walk-in commercial freezer.

Energy Efficiency Levels

Product			**Maximum E daily (kWh/day)**	
	Door or drawer type		**April 1, 2007 - December 31, 2007**	**on or after January 1, 2008**
Self-contained commercial refrigerators	opaque doors or drawers		0.00441 V + 4.22	0.00441 V + 2.76
	transparent doors		0.00607 V + 5.78	0.00607 V + 4.77
	other*		N/A	N/A
Self-contained commercial freezers	opaque doors	V < 340	7.62	7.07
		V >= 340	0.0141 V + 2.83	0.0141 V + 2.28
	transparent doors		0.0332 V + 5.10	0.0332 V + 5.10
	other*		N/A	N/A
Self-contained commercial refrigerator-freezers	opaque doors		0.00964 AV + 2.63	0.00964 AV + 1.65
	other*		N/A	N/A

* Product has no energy efficiency performance requirements but must meet all other regulatory requirements.

Notes:

1. "AV" means the adjusted volume of the product in liters calculated as follows:
   AV = the refrigerator volume in liters + 1.63 × the freezer volume in liters.
2. "Edaily" means the daily energy consumption of the product expressed in kilowatt hours per day.
3. "V" means the volume in liters of the refrigerated compartment.
4. Use AHAM standard ANSI/AHAM HRF-1-2004 entitled *Energy Performance and Capacity of Household Refrigerators, Refrigerator-Freezers and Freezers* to calculate refrigerator or freezer compartment volumes.

Reporting Requirements as listed in Schedule IV to the Regulations

Self-Contained Commercial	Test Standard
Refrigerators with Doors or Drawers	ASHRAE 117-1992*
Freezers with Doors	
Refrigerator-Freezers – all	
Refrigerators without Doors or Drawers	ASHRAE 72-1998*
Freezers without Doors	

Year Effective: April 1, 2007
Source: http://oee.nrcan.gc.ca/regulations/product/commercialrefrigerators.cfm?attr=0
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CFL
Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Canada&countryid=247&product=CFLs&ID=57
Description:
Regulatory definition
An integrally-ballasted compact fluorescent lamp with a medium screw base and a nominal voltage or voltage range that lies at least partially between 100 volts and 130 volts
EnerGuide label
Lamp package labeling required: light output (lumens), energy used (watts), and life (hours)
Source: http://www.oee.nrcan.gc.ca/regulations/product/cfl.cfm?attr=0
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Televisions
Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Canada&countryid=247&product=Television&ID=8
Reference Test Standard: IEC 62301, Draft, Ed. 2.0
Source:
http://www.oee.nrcan.gc.ca/residential/business/manufacturers/specifications/tv.cfm?attr=12
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Chile

	Product	Mandatory Standard	Mandatory Label	Voluntary Label
AC	Air Conditioners			
Refrigerator & freezer	Refrigerators, Freezers, Refrigerator-Freezers			
Lighting	CFL for General lighting			
	Incandescent Tungsten Filament		Edit	
	Double-capped fluorescent		Edit	
	Socket only fluorescent		Edit	
Computers & Monitors	N/A			
Televisions	N/A			
Clothes washers	N/A			
Clothes driers	N/A			
Water heating	N/A			

Note: Red box – create a new page; orange box – update existing page; white box – no action needed.

Incandescent Lamps
Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Chile&countryid=290&product=Incandescent%20Lamps&ID=56
Description:
Scope of Application
Incandescent tungsten filament lamps for domestic and general, which have a rated power between 25w and 200w, inclusive, a nominal voltage between 100v and 250v, blisters form A or PS, or frosted clear blisters, or white finish; caps B22D, E26 or E27, according to the scope and field of application of IEC 60064 / 2005.
Source:
http://www.sec.cl/portal/page?_pageid=33,3397595,33_3401553&_dad=portal&_schema=PORTAL
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Double-capped fluorescent lamps
Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Chile&countryid=290&product=Fluorescent%20Lamps&ID=19
Description:
Scope of Application
Double capped fluorescent lamps for general lighting, according to the scope and field of application of IEC 60081 (2002), with appendix A1:2000, A2: 2003, and A3: 3005. Exempted from this requirement are lamps with a length exceeding 1200 mm and the lamps whose nominal power exceeds 40W.
Year of Publication: 14-Jul-2008
Source:
http://www.sec.cl/portal/page?_pageid=33,3397595,33_3401553&_dad=portal&_schema=PORTAL
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Single-capped fluorescent lamps
Program Type: Mandatory Label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Chile&countryid=290&product=Fluorescent%20Lamps%20%28Single-capped%29&ID=98
Description:
Scope of Application
Single-capped fluorescent lamps for general lighting, according to the scope and field of IEC 60901 (2001), with Appendix A1:1997, A2: 2000, and A3: 2004.
Year Published: 14-Jul-2008
Source:
http://www.sec.cl/portal/page?_pageid=33,3397595,33_3401553&_dad=portal&_schema=PORTAL
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China

	Product	Mandatory Standard	Mandatory Label	Voluntary Label
AC	Unitary air conditioners	Edit	Edit	Edit
	Unitary air conditioners for computer and data processing room			Edit
	Room air conditioners	Edit	Edit	Edit
	Variable speed room air conditioner	Edit	Edit	Edit
	Multi-connected air-condition (heat pump) unit	Edit	Edit	Edit
	Water chillers	Edit	Edit	Edit
	Lithium Bromide Absorption Water Chiller			Edit
	Refrigerant compressor used in air conditioning application			Edit
	water source heat pumps			Edit
Refrigerator & freezer	Household refrigerators	Edit	Edit	Edit
Lighting	Tubular fluorescent lamps ballast	Edit		Edit
	Double-capped fluorescent lamps for general lighting service	Edit		Edit
	Self-ballasted fluorescent lamps for general lighting service	Edit	Edit	Edit
	Single-capped fluorescent lamps	Edit		Edit
	High-pressure sodium vapor lamps	Edit	Edit	Edit
	Ballast for high-pressure sodium lamp			Edit
	Metal- halide lamps	Edit		Edit
	Ballast for metal-halide lamps	Edit		Edit
	Luminaires system for road lighting			Edit
Computers & Monitors	Computers			Edit
	Computer monitors			Edit
Televisions	Color television broadcasting receivers	Edit		Edit
	Flat panel televisions	Edit	Edit	Edit
Clothes washers	Household electric washing machines	Edit	Edit	Edit
Clothes driers				
Water heating	Domestic gas instantaneous water heater and gas fired heating-hot water combo-boilers	Edit	Edit	Edit
	Electrical Storage Water Heaters			Edit
	Solar water heating system			Edit

	Product	Mandatory Standard	Mandatory Label	Voluntary Label
	Air-source heat pump water heater of commercial &industrial and similar application			Edit

Note: Red box – create a new page; orange box – update existing page; white box – no action needed.

Unitary air conditioners

Program Type: MEPS

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Air Conditioners (Unitary)&ID=207

Description:

Applies to the following types of unitary AC, which have a rated cooling capacity of bigger than 7100W: electric driven compressor type unitary AC, and duct type and roof type unitary AC. Not including multi-connected AC (heat pump) or variable speed type AC.

The Minimum Allowable Values of Energy Efficiency

The measured EER of unitary AC shall exceed or be equal to the values in the table below.

The minimum allowable values of energy efficiency

Type		EER(W/W)
Air-cooling	Non-ducted	2.40
	Ducted	2.10
Water-cooling	Non-ducted	2.80
	Ducted	2.50

Source: http://www.energylabel.gov.cn/UserFiles/GB%2019576-2004 单元式空调.pdf

Year Published: 23-08-2004

Year Effective: 01-03-2005

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Program Type: Mandatory Label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Air Conditioners (Unitary)&ID=207

Description:

Applies to the following types of unitary AC, which have a rated cooling capacity of bigger than 7100W: electric driven compressor type unitary AC, and duct type and roof type unitary AC. Not including multi-connected AC (heat pump) or variable speed type AC.

Energy Efficiency Levels

The rated energy efficiency grade shall be determined according to the measured EER of the product and the table below. The test value and label value of EER shall not be less than the specified value in the table below according to rated energy efficiency grade.

Energy efficiency grade and EER(W/W)

Type		Energy efficiency grade				
		1	2	3	4	5
Air-cooling	Non-ducted	3.2	3	2.8	2.6	2.4
	Ducted	2.9	2.7	2.5	2.3	2.1
Water-cooling	Non-ducted	3.6	3.4	3.2	3	2.8
	Ducted	3.3	3.1	2.9	2.7	2.5

Source: http://www.energylabel.gov.cn/UserFiles/GB%2019576-2004 单元式空调.pdf
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Air Conditioners (Unitary)&ID=207
Description:
Applies to the following types of unitary AC, which have a rated cooling capacity of bigger than 7100W: electric driven compressor type unitary AC, and duct type and roof type unitary AC. Not including multi-connected AC (heat pump) or variable speed type AC.
The Evaluating Values of Energy Conservation
The evaluating values of energy conservation are the Grade 2 of the table below.

Energy efficiency grade and EER(W/W)

Type		Energy efficiency grade				
		1	2	3	4	5
Air-cooling	Non-ducted	3.2	3	2.8	2.6	2.4
	Ducted	2.9	2.7	2.5	2.3	2.1
Water-cooling	Non-ducted	3.6	3.4	3.2	3	2.8
	Ducted	3.3	3.1	2.9	2.7	2.5

Source: http://www.energylabel.gov.cn/UserFiles/GB%2019576-2004 单元式空调.pdf
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Unitary air conditioners for computer and data processing room
Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Unitary AC for Computer/Data Processing Room&ID=247
Description:
Applies to unitary air conditioners of water-cooling type and air-cooling type for computer and data processing room
The Evaluating Values of Energy Conservation
Basic requirement
Products shall comply with national and industrial laws, regulations, GB/T 19413-2003 Unitary air conditioners for computer and data processing room and other standards and requirements indicated by enterprises. Products shall pass national “CCC” certification and obtain production license.
Cooling capacity
The test cooling capacity shall not be less than 95% of the rated cooling capacity.
Cooling power consumption
The test cooling power consumption shall not exceed 110% of the rated cooling power consumption.

EER

Under rated performance condition described in standards, the EER shall exceed or be equal to the values in the table below.

EER of energy efficient unitary air conditioners for computer and data processing room

CC(kW)		EER(kW/ kW)
Air cooling	CC≤50	2.55
	CC＞50	2.60
Water cooling	14≥CC	3.05
	28≥CC＞14	3.10
	50≥CC＞28	3.15
	CC＞50	3.20

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Room air conditioners

Program Type: MEPS

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=RACs (Split)&ID=5 http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=RACs (Window)&ID=62

Description:

Applies to air-cooling condenser, completely closed type electric motor-compressor type AC, whose cooling capacity is below 14000W and climate type is T1. Does NOT apply to portable, variable speed or multi-connected types of ACs.

The Minimum Allowable Values of Energy Efficiency

The test EER shall exceed or be equal to the values in the table below.

The minimum allowable values of energy efficiency

Type	Rated cooling capacity(CC) W	EER(W/W)
Single package		2.90
Split	CC≤4500	3.20
	4500＜CC≤7100	3.10
	7100＜CC≤14000	3.00

Year Published: 26-02-2010

Year Effective: 01-06-2010

Source: http://www.energylabel.gov.cn/UserFiles/GB12021.3-2004 房间空调.pdf

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Program Type: Mandatory Label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=RACs (Split)&ID=5 http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=RACs (Window)&ID=62

Description:

Applies to air-cooling condenser, completely closed type electric motor-compressor type AC, whose cooling capacity is below 14000W and climate type is T1. Does NOT apply to portable, variable speed or multi-connected types of ACs.

Energy Efficiency Levels

The energy efficiency grade of the product shall be determined according to the tested EER and the table below. The energy efficiency grade shall not be lower than the rated energy efficiency grade.

Energy efficiency grade and EER(W/W)

Type	Rated cooling capacity(W)	Energy efficiency grade

		1	2	3
Single package		3.3	3.1	2.9
Split	CC≤4500	3.6	3.4	3.2
	4500＜CC≤7100	3.5	3.3	3.1
	7100＜CC≤14000	3.4	3.2	3

Source: http://www.energylabel.gov.cn/UserFiles/GB12021.3-2004 房间空调.pdf
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=RACs (Split)&ID=5
http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=RACs (Window)&ID=62
Description:
Applies to air-cooling condenser, completely closed type electric motor-compressor type AC, whose cooling capacity is below 14000W and climate type is T1. Does NOT apply to portable, variable speed or multi-connected types of ACs.
The Evaluating Values of Energy Conservation
The evaluating values of energy conservation are the Grade 2 of the table below.

Energy efficiency grade and EER(W/W)

Type	Rated cooling capacity(W)	Energy efficiency grade		
		1	2	3
Single package		3.3	3.1	2.9
Split	CC≤4500	3.6	3.4	3.2
	4500＜CC≤7100	3.5	3.3	3.1
	7100＜CC≤14000	3.4	3.2	3

Source: http://www.energylabel.gov.cn/UserFiles/GB12021.3-2004 房间空调.pdf
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Variable speed room air conditioner
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=RACs (Variable Speed)&ID=210
Description:
Applies to air-cooling condenser, completely closed type with variable electric motor-compressor type AC, whose cooling capacity is below 14000W and climate type is T1. Does NOT apply to portable, fixed speed or multi-connected types of ACs.
The Minimum Allowable Values of Energy Efficiency

The test Seasonal Energy Efficiency Ratio(SEER) shall exceed or be equal to the values in the table below.

The minimum allowable values of energy efficiency

Type	Rated cooling capacity(CC) W	SEER/[W·h/W·h]
Split	CC≤4500	3.00
	4500＜CC≤7100	2.90
	7100＜CC≤14000	2.80

The target MEPS requirements
The Minimum Allowable Values of Energy Efficiency to be effective from 2011 are shown in the table below.

The minimum allowable values of energy efficiency

Type	Rated cooling capacity(CC) W	SEER/[W·h/(W·h)]
Split	CC≤4500	3.90
	4500＜CC≤7100	3.60
	7100＜CC≤14000	3.3.

Year Published: 18-02-2008
Year Effective: 01-09-2008
Source: http://www.energylabel.gov.cn/UserFiles/转速可控型房间空气调节器标准摘要.pdf
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Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=RACs (Variable Speed)&ID=210
Description:
Applies to air-cooling condenser, completely closed type with variable electric motor-compressor type AC, whose cooling capacity is below 14000W and climate type is T1. Does NOT apply to portable, fixed speed or multi-connected types of ACs.
Energy Efficiency Levels
The energy efficiency grade of the product shall be determined according to the test SEER and the table below. The energy efficiency grade shall not be lower than the rated energy efficiency grade.

Energy efficiency grade and SEER/[W·h/(W·h)]

Type		Energy efficiency grade				
		1	2	3	4	5
split	CC≤4500	5.20	4.50	3.90	3.40	3.00
	4500＜CC≤7100	4.70	4.10	3.60	3.20	2.90
	7100＜CC≤14000	4.20	3.70	3.30	3.00	2.80

Source: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=RACs (Variable Speed)&ID=210
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=RACs (Variable Speed)&ID=210
Description:
Applies to air-cooling condenser, completely closed type with variable electric motor-compressor type AC, whose cooling capacity is below 14000W and climate type is T1. Does NOT apply to portable, fixed speed or multi-connected types of ACs.
The Evaluating Values of Energy Conservation
The evaluating values of energy conservation are the Grade 2 of the table below.

Energy efficiency grade and SEER/[W·h/(W·h)]

Type		Energy efficiency grade				
		1	2	3	4	5
split	CC≤4500	5.20	4.50	3.90	3.40	3.00
	4500＜CC≤7100	4.70	4.10	3.60	3.20	2.90
	7100＜CC≤14000	4.20	3.70	3.30	3.00	2.80

Source: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=RACs (Variable Speed)&ID=210
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Multi-connected air-condition (heat pump) unit
Program Type: MEPS
Create New Page:
Description:
Applies to multi-connected air conditioning (heat pump) unit of T1 climate type. Does NOT apply to double or multiple cooling circulations system units.
The Minimum Allowable Values of Energy Efficiency
The test Integrated Part Load Value IPLV(C) shall exceed or be equal to the values in the table below.

The minimum allowable values of energy efficiency

Rated cooling capacity(CC)/W	IPLV(C)/(W/W)
CC≤28000	2.80
28000＜CC≤84000	2.75
CC＞84000	2.70

The target MEPS requirements
The Minimum Allowable Values of Energy Efficiency to be effective from 2011 are shown in the table below.

The minimum allowable values of energy efficiency

Rated cooling capacity(CC)/W	IPLV(C)/(W/W)
CC≤28000	2.80
28000＜CC≤84000	2.75
CC＞84000	2.70

Year Published: 18-02-2008
Year Effective: 01-09-2008
Source: http://www.energylabel.gov.cn/UserFiles/多联式空调（热泵）机组标准摘要(2).pdf
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Program Type: Mandatory Label
Create New Page:
Description:
Applies to multi-connected air conditioning (heat pump) unit of T1 climate type. Does NOT apply to double or multiple cooling circulations system units.
Energy Efficiency Levels
The energy efficiency grade of the product shall be determined according to the test IPLV(C) and the table below. The energy efficiency grade shall not be lower than the rated energy efficiency grade.

Energy efficiency grade and IPLV(C)/(W/W)

Rated cooling capacity(CC)/W	Energy efficiency grade				
	1	2	3	4	5
CC≤28000	3.60	3.40	3.20	3.00	2.80
28000＜CC≤84000	3.55	3.35	3.15	2.95	2.75
CC＞84000	3.50	3.30	3.10	3.00	2.70

Source: http://www.energylabel.gov.cn/UserFiles/多联式空调（热泵）机组标准摘要(2).pdf
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Heat Pumps&ID=110
Description:
Applies to multi-connected air conditioning (heat pump) unit of T1 climate type. Does NOT apply to double or multiple cooling circulations system units.
The Evaluating Values of Energy Conservation
The evaluating values of energy conservation are the Grade 2 of the table below.

Energy efficiency grade and IPLV(C)/(W/W)

Rated cooling capacity(CC)/W	Energy efficiency grade				
	1	2	3	4	5
CC≤28000	3.60	3.40	3.20	3.00	2.80
28000＜CC≤84000	3.55	3.35	3.15	2.95	2.75
CC＞84000	3.50	3.30	3.10	3.00	2.70

Source: http://www.energylabel.gov.cn/UserFiles/多联式空调（热泵）机组标准摘要(2).pdf
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Water Chillers

Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Water Chillers&ID=37
Test Standard: GB/T10870 GB/T18430.1 GB/T18430.2
Description:

Applies to Water chilling (heat pump) packages using the vapor compression cycle with electric motor driven compressor.

The Minimum Allowable Values of Energy Efficiency
The test COP shall exceed or be equal to the values in the table below.

The minimum allowable values of energy efficiency

Type	Rated cooling capacity(CC)/kW	COP/(W/W)
Air cooling or evaporative cooling	CC≤50	2.40
	CC＞50	2.60
Water cooling	CC≤528	3.80
	528＜CC≤1163	4.00
	CC＞1163	4.20

Year Published: 23-08-2004
Year Effective: 01-03-2005
Source: http://www.energylabel.gov.cn/file/bz/GB%2019577-2004 冷水机组.doc
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Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Water Chillers&ID=37
Test Standard: GB/T10870 GB/T18430.1 GB/T18430.2
Description:
Applies to water chilling (heat pump) packages using the vapor compression cycle with electric motor driven compressor.
Energy Efficiency Levels
The energy efficiency grade of the product shall be determined according to the test COP and the table below. The energy efficiency grade shall not be lower than the rated energy efficiency grade.

Energy efficiency grade and COP/(W/W)

Type	Rated cooling capacity	Energy Efficiency Grade(COP)/(W/W)				
		1	2	3	4	5
Air cooling or evaporative cooling	CC≤50	3.20	3.00	2.80	2.60	2.40
	CC＞50	3.40	3.20	3.00	2.80	2.60
Water cooling	CC≤528	5.00	4.70	4.40	4.10	3.80
	528＜CC≤1163	5.50	5.10	4.70	4.30	4.00
	CC＞1163	6.10	5.60	5.10	4.60	4.20

Source: http://www.energylabel.gov.cn/file/bz/GB%2019577-2004 冷水机组.doc
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Heat Pumps&ID=110
Test Standard: GB/T10870 GB/T18430.1 GB/T18430.2
Description:
Applies to water chilling (heat pump) packages using the vapor compression cycle with electric motor driven compressor.
The Evaluating Values of Energy Conservation
The evaluating values of energy conservation are the Grade 2 of the table below.

Energy efficiency grade and COP/(W/W)

Type	Rated cooling capacity	Energy Efficiency Grade(COP)/(W/W)				
		1	2	3	4	5
Air cooling or evaporative cooling	CC≤50	3.20	3.00	2.80	2.60	2.40
	CC＞50	3.40	3.20	3.00	2.80	2.60
Water cooling	CC≤528	5.00	4.70	4.40	4.10	3.80
	528＜ CC≤1163	5.50	5.10	4.70	4.30	4.00
	CC＞ 1163	6.10	5.60	5.10	4.60	4.20

Source: http://www.energylabel.gov.cn/file/bz/GB%2019577-2004 冷水机组.doc
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Lithium Bromide Absorption Water Chiller
Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Water Chillers (Direct-fired)&ID=158
Test Standard: CQC3106-2009, GB/T18362-2008, GB/T18431-2001
Description:

Applies to direct-fired type and steam type lithium bromide absorption water chiller. Includes water chillers that direct fire oil or gas or vapor as heat source, use water as cooling agent and lithium bromide as absorbent to make cool water (or warm water) for air conditioning or other process.

The Evaluating Values of Energy Conservation

The evaluating values of energy conservation of direct-fired type

Type	Chilling water	Cold water	Vapor	Mass flow rate

	temperature (in/out, ℃)	temperature (in/out, ℃)	pressure (MPa)	per energy consumption (kg/h*kW)
Vapor-type	32/38	12/7	0.4	1.25
		12/7	0.6	1.16
		12/7	0.8	1.12

The evaluating values of energy conservation of steam type

Type	Chilling water temperature (in/out, ℃)	Cold water temperature (in/out, ℃)	COP(W/W)
Direct-fired	32/37.5	12/7	1.30

Source: http://www.cqc.com.cn/chinese/rootfiles/2009/12/10/1260254657652152-1260407423546635.pdf
Year Published: 21-09-2009
Year Effective: 25-09-2009
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Refrigerant Compressor Used in Air-Conditioning Applications
Program Type: Voluntary Label
Create New Page:
Test Standard: CQC2209-2009, GB/T15765-2006, GB/T10079-2001, GB/T18429-2001, GB/T19410-2008
Description:
Applies to hermetic motor-compressors, hermetic scroll-type refrigerant compressors, piston-type single-stage refrigerant compressors, and screw-type refrigerant compressors for room air conditioners.
The Evaluating Values of Energy Conservation
The test COP of screw-type refrigerant compressors under rated condition shall not be less than the values in table below.

COP of screw-type refrigerant compressors

Cooling Capacity	COP
100kW＜ CC≤300kW	4.2
300kW＜ CC≤600kW	4.6
600kW＜ CC≤900kW	4.8
CC＞900kW	5.0

The test COP of non-R410A refrigerant, non screw-type refrigerant compressors under rated condition shall not be less than the values in table below.

COP of non-R410A refrigerant, non screw-type refrigerant compressors

Cooling capacity		COP
CC≤3kW	Single-phase	3.05
	Three-phase	3.10
3kW＜CC≤5kW	Single-phase	3.10
	Three-phase	3.15
5kW＜CC≤10kW	Single-phase	3.15
	Three-phase	3.20
10kW＜CC≤20 kW	Single-phase	3.15
	Three-phase	3.25
20kW＜CC≤40 kW		3.30
40kW＜CC		3.35

The test COP of R410A refrigerant, non screw-type refrigerant compressors under rated condition shall not be less than the values in table below.

COP for R410A refrigerant, non-screw refrigerant compressors

Cooling capacity		COP
CC≤3kW	Single-phase	2.85
	Three-phase	2.90
3kW＜CC≤5kW	Single-phase	2.90
	Three-phase	2.95
5kW＜CC≤10kW	Single-phase	2.90
	Three-phase	2.95
10kW＜CC≤20 kW	Single-phase	2.95
	Three-phase	3.00
20kW＜CC≤40 kW		3.30
40kW＜CC		3.35

Source: http://www.cqc.com.cn/chinese/rootfiles/2009/12/10/1260254657652152-1260407423545646.pdf
Year Published: 21-09-2009
Year Effective: 25-09-2009
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Water Source Heat Pumps
Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Heat Pumps (Ground-source)&ID=32
Test Standard: CQC3123-2009, GB/T19409-2003
Description:
Applies to water source heat pumps using eletro-mechanical compressing system, with water as cold (heat) source. Product could be for home use, commercial and industrial use.
The Evaluating Values of Energy Conservation
The test EER shall exceed or be equal to the values in table below.

EER of warm-cold air type water source heat pump

Type	Cooling capacity (kW)	EER(W/W), ≥
Water loop - water source heat pump	CC＜28	3.95
	28≤CC＜80	4.00
	80≤CC	4.05
Underground water - water source heat pump	CC＜28	4.40
	28≤CC＜80	4.45
	80≤CC	4.50
Underground water loop - water source heat pump	CC＜28	4.30
	28≤CC＜80	4.35
	80≤CC	4.40

EER of warm-cold water type water source heat pump

Type	Cooling capacity (kW)	EER(W/W), ≥
Water loop - water source heat pump	CC＜50	4.55
	50≤CC＜230	4.75
	230≤CC	4.95
Underground water - water source heat pump	CC＜50	5.25
	50≤CC＜230	5.55
	230≤CC	5.85
Underground water loop -	CC＜50	5.10

water source heat pump	50≤CC＜230	5.30
	230≤CC	5.60

Source: http://www.cqc.com.cn/chinese/rootfiles/2010/05/07/1260254657652152-1272266010164207.pdf
Year Published: 21-04-2010
Year Effective: 21-04-2010
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Household Refrigerators
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Water Chillers&ID=37
Test Standard: GB12021.2 GB/T8059
Description:

Applies to motor-driven compressor type refrigerators that are for household use (including those whose volume is bigger than 500L). Does NOT apply to built-in type, exhibition type with a transparent door, or other specialized types.

Minimum Allowable Values of Energy Consumption
Adjusted volumes:
The adjusted volumes of refrigerators shall be calculated as:

$$V_{adj} = \sum_{c=1}^{n} V_c \times F_c \times W_c \times CC$$

Here:
V_{adj}: adjusted volume, L;
n: Number of different types of compartments;
Vc: Test effective volume of each type of compartments, L;
Fc: Constant, equal to 1.4 for compartments with frost-free refrigerating system, 1.0 for other compartments;
CC: Amendment coefficient for climate type, equal to 1 when climate type is N or SN, 1.1 when climate change is ST, and 1.2 when climate type is T;
Wc: Weighting-coefficient of different types of compartment, as shown in table below:

Weighting-coefficient of different types of compartment Wc

Compartment type	Fresh-food storage compartment	Cellar compartment	Chill compartment	1-star compartment	2-star compartment	3-star compartment	Food freezer compartment
Tc(℃)	5	10	0	-6	-12	-18	-18
Wc	1.00	0.75	1.25	1.55	1.85	2.15	2.15

For types beyond table above, their weighting-coefficient Wc shall be calculated as:

$$W_c = \frac{25 - T_c}{20}$$

Here, Tc: Designed temperature or typical temperature indicated by manufacturers of each type of compartment, ℃.
Baseline energy consumption:
The baseline energy consumption acts as the baseline for comparison of products' energy consumption. The value is calculated as follows and keeps constant.

$$E_{base} = (M \times V_{adj} + N + CH) \times S_r / 365$$

E_{base}: Baseline energy consumption, kW·h/24h;

M: Parameter, kW·h/L, referred as table below;
N: Parameter, kW·h, referred as table below;
CH: Amendment coefficient of variable compartment;
Sr: Amendment coefficient for penetrating automatic ice-making function;

Value of M & N

Type	Category	M/(kW·h/L)	N/(kW·h)
1	Refrigerator with non-star compartment	0.221	233
2	Refrigerator with 1-star compartment	0.611	181
3	Refrigerator with 2-star compartment	0.428	233
4	Refrigerator with 3-star compartment	0.624	223
5	Refrigerator-freezer	0.697	272
6	Frozen food storage cabinet	0.530	190
7	Food freezer	0.567	205

The Minimum Allowable Values of Energy Consumption shall be calculated as table below.

Minimum Allowable Values of Energy Consumption

Type	Category	The minimum allowable values of the energy efficiency
1	Refrigerator with non-star compartment	$0.9\times(0.221\times V_{adj}+233+CH)\times S_r/365$
2	Refrigerator with 1-star compartment	$0.9\times(0.611\times V_{adj}+181+CH)\times S_r/365$
3	Refrigerator with 2-star compartment	$0.9\times(0.428\times V_{adj}+233+CH)\times S_r/365$
4	Refrigerator with 3-star compartment	$0.9\times(0.624\times V_{adj}+223+CH)\times S_r/365$
5	Refrigerator-freezer	$0.8\times(0.697\times V_{adj}+272+CH)\times S_r/365$
6	Frozen food storage cabinet	$0.9\times(0.530\times V_{adj}+190+CH)\times S_r/365$
7	Food freezer	$0.9\times(0.567\times V_{adj}+205+CH)\times S_r/365$
Notes: (1)When refrigerators have variable compartments with volume equal to or more than 15L and chilling function, CH shall be 50kW·h, otherwise it shall be 0. (2)When refrigerators have a volume less than or equal to 100L or more than 400L, and with penetrating automatic ice-making function, Sr shall be 1.10, otherwise it shall be 1.0; (3)When products don't belong to any categories in this table, they shall be classified as the nearest category according to the design temperature of the compartment with the lowest temperature.		

Target Minimum Allowable Values of Energy Consumption

The minimum allowable values of energy consumption shall be as follows after the fourth year since the effective date of this standard.

Target Minimum Allowable Values of Energy Consumption

Type	Category	The minimum allowable values of the energy

		efficiency(Emax/(kW·h/24h)
1	Refrigerator with non-star compartment	$0.9\times(0.221\times V_{adj}+233+CH)\times S_r/365$
2	Refrigerator with 1-star compartment	$0.9\times(0.611\times V_{adj}+181+CH)\times S_r/365$
3	Refrigerator with 2-star compartment	$0.9\times(0.428\times V_{adj}+233+CH)\times S_r/365$
4	Refrigerator with 3-star compartment	$0.9\times(0.624\times V_{adj}+223+CH)\times S_r/365$
5	Refrigerator-freezer	$0.8\times(0.697\times V_{adj}+272+CH)\times S_r/365$

Test energy consumption
In light of product sampling scheme in GB/T80509, three samples will be selected for energy consumption test. The average will be the test energy consumption (E_{test}). The test energy consumption and rated energy consumption shall not exceed the minimum allowable values of energy efficiency(E_{max}).
Year Published: 08-10-2008
Year Effective: 01-05-2009
Source: http://www.energylabel.gov.cn/UserFiles/GB%2012021.2-2008 家用电冰箱.pdf
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Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Water Chillers&ID=37
Test Standard: GB12021.2 GB/T8059
Description:
Applies to motor-driven compressor type refrigerators that are for household use (including those whose volume is bigger than 500L). Does NOT apply to built-in type, exhibition type with a transparent door, or other specialized types.
Energy Efficiency Levels
Energy Efficiency Index
The energy efficiency index shall be calculated as:

$$\eta = \frac{E_{test}}{(M \times V_{adj} + N + CH) \times S_r / 365} \times 100\%$$

Here, η: energy efficiency index;
E_{test}: Test energy consumption, kW·h/24h;
Energy Efficiency Grade
The energy efficiency grade shall be determined according to the table below. The energy efficiency grade shall not be lower than the rated energy efficiency grade. For variable compartments, the energy efficiency grade shall be calculated respectively under various temperature conditions, and shall not be lower than the rated energy efficiency grade.

Energy efficiency grade and Energy Efficiency Index

Energy efficiency grade	Energy efficiency index η	
	Refrigerator-freezer	Other types (type1, 2, 3, 4, 6, and 7)
1	$\eta \leq 40\%$	$\eta \leq 50\%$
2	$40\% < \eta \leq 50\%$	$50\% < \eta \leq 60\%$
3	$50\% < \eta \leq 60\%$	$60\% < \eta \leq 70\%$

4	60%＜ η ≤70%	70%＜ η ≤80%
5	70%＜ η ≤80%	80%＜ η ≤90%

Source: http://www.energylabel.gov.cn/UserFiles/GB%2012021.2-2008 家用电冰箱.pdf
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Water Chillers&ID=37
Delete This Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Refrigerator-freezers&ID=10
Test Standard: GB12021.2 GB/T8059
Description:
Applies to motor-driven compressor type refrigerators that are for household use (including those whose volume is bigger than 500L). Does NOT apply to built-in type, exhibition type with a transparent door, or other specialized types.
The Evaluating Values of Energy Conservation
The evaluating values of energy conservation are shown in the table below.

Evaluating values of energy conservation

Type	Evaluating values of energy conservation
Refrigerator-freezers	η_{EE}=50%
Other types(type1, 2, 3, 4, 6, and 7)	η_{EE}=60%

Source: http://www.energylabel.gov.cn/UserFiles/GB%2012021.2-2008 家用电冰箱.pdf
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Tubular Fluorescent Lamps Ballast
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Ballasts (Electronic)&ID=59
http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Ballasts (Magnetic)&ID=7
Description:
Applies to independent type of magnetic and eletronic ballasts working under 220V and 50Hz AC, used for tubular fluorescent lamps with rated power range of 18W-40W.
The Minimum Allowable Values of Energy Efficiency
The Ballast Efficacy Factor (BEF) is calculated as:

$$BEF = \frac{\mu}{P} \times 100$$

Here, μ - Lumen factor of ballast;
P- Power, W.
The test BEF of various types of ballasts shall exceed or be equal to the values in the table below.

The minimum allowable values of energy efficiency

Nominal power(W)		18	20	22	30	32	36	40
BEF	Magnetic	3.154	2.953	2.77	2.232	2.146	2.03	1.992
	Electronic	4.778	4.37	3.998	2.87	2.678	2.402	2.27

Year Published: 01-11-1999
Year Effective: 01-06-2000
Source: http://www.energylabel.gov.cn/UserFiles/GB%2017896-1999 管形荧光灯.pdf
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Ballasts (Electronic)&ID=59
http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Ballasts (Magnetic)&ID=7
Description:
Applies to independent type of magnetic and eletronic ballasts working under 220V and 50Hz AC, used for tubular fluorescent lamps with rated power range of 18W-40W.
The Evaluating Values of Energy Conservation
The test BEF of energy efficient ballasts shall exceed or be equal to the values in the table below.

Evaluating values of energy conservation

Nominal power(W)		18	20	22	30	32	36	40
BEF	Magnetic	3.686	3.458	3.248	2.583	2.461	2.271	2.152
	Electronic	5.518	5.049	4.619	3.281	3.043	2.681	2.473

Source: http://www.energylabel.gov.cn/UserFiles/GB%2017896-1999 管形荧光灯.pdf
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Double-capped Fluorescent Lamps for General Lighting Service
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Fluorescent Lamps (Double-capped)&ID=176
Description:
Applies to pre-heating cathode type of double capped fluorescent lamps with rated power from 14W to 65W, which works under AC power frequency and are with starter and/or under high frequency.
The Minimum Allowable Values of Energy Efficiency
Since August 1, 2005, the minimum allowable values of energy efficiency shall exceed or be equal to the values in the table below.

The minimum allowable values of energy efficiency

Rated power (W)	Initial luminous efficacy (lm/W)		
	Hues:RR,RZ	Hues:RL,RB	Hues:RN,RD
14~21	53	62	64
22~35	57	68	70
36~65	67	74	77

Source: http://www.energylabel.gov.cn/UserFiles/普通照明用双端荧光灯标准摘要.pdf
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Fluorescent Lamps (Double-capped)&ID=176
Description:

Applies to pre-heating cathode type of double capped fluorescent lamps with rated power from 14W to 65W, which works under AC power frequency and are with starter and/or under high frequency.

The Evaluating Values of Energy Conservation

The evaluating values of energy conservation of the high luminous efficacy series double-capped fluorescent lamps (14W, 21W, 28W, 35W) are the grade 1 in the table below. For other double-capped fluorescent lamps the evaluating values of energy efficiency are the grade 2 in the table below.

Energy efficiency grade

Rated power (W)	Initial luminous efficacy (lm/W)								
	EE grade (hues:RR,RZ)			EE grade (hues:RL,RB)			EE grade (hues:RN,RD)		
	1	2	3	1	2	3	1	2	3
14~21	75	53	44	81	62	51	81	64	53
22~35	84	57	53	88	68	62	88	70	64
36~65	75	67	55	82	74	60	85	77	63

Source: http://www.energylabel.gov.cn/UserFiles/普通照明用双端荧光灯标准摘要.pdf
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Self-ballasted fluorescent lamps for general lighting service

Program Type: MEPS

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=CFLs&ID=57

Description:

Applies to CFLs of rated voltage of 220V, rated working frequency of 50Hz and rated power lower than 60W, and with caps of screw or bayonet type. These CFLs shall be of general service and ignition control parts and stablization parts are integrated. Does NOT apply to CFLs with covers.

The Minimum Allowable Values of Energy Efficiency

The minimum allowable values of energy efficiency shall exceed or be equal to the Grade 3 in the table below.

Nominal power(W)	Initial light efficiency(lm/W)					
	EE grade (hues:RR,RZ)			EE grade (hues:RL,RB,RN,RD)		
	1	2	3	1	2	3
5~8	54	46	36	58	50	40
9~14	62	54	44	66	58	48
15~24	69	61	51	73	65	55
25~60	75	67	57	78	70	60

Source: http://www.energylabel.gov.cn/UserFiles/普通照明用自镇流荧光灯标准摘要.pdf
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Program Type: Mandatory Label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=CFLs&ID=57

Description:

Applies to CFLs of rated voltage of 220V, rated working frequency of 50Hz and rated power lower than 60W, and with caps of screw or bayonet type. These CFLs shall be of general service and ignition control parts and stablization parts are integrated. Does NOT apply to CFLs with covers.

Energy Efficiency Grade

Nominal power(W)	Initial light efficiency(lm/W)					
	EE grade (hues:RR,RZ)			EE grade (hues:RL,RB,RN,RD)		
	1	2	3	1	2	3
5~8	54	46	36	58	50	40
9~14	62	54	44	66	58	48

15~24	69	61	51	73	65	55
25~60	75	67	57	78	70	60

Source: http://www.energylabel.gov.cn/UserFiles/普通照明用自镇流荧光灯标准摘要.pdf
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=CFLs&ID=57
Description:
Applies to CFLs of rated voltage of 220V, rated working frequency of 50Hz and rated power lower than 60W, and with caps of screw or bayonet type. These CFLs shall be of general service and ignition control parts and stablization parts are integrated. Does NOT apply to CFLs with covers.
The Evaluating Values of Energy Conservation
The evaluating values of energy conservation shall exceed or be equal to the Grade 2 in the table below.

Nominal power(W)	Initial light efficiency(lm/W)					
	EE grade (hues:RR,RZ)			EE grade (hues:RL,RB,RN,RD)		
	1	2	3	1	2	3
5~8	54	46	36	58	50	40
9~14	62	54	44	66	58	48
15~24	69	61	51	73	65	55
25~60	75	67	57	78	70	60

Source: http://www.energylabel.gov.cn/UserFiles/普通照明用自镇流荧光灯标准摘要.pdf
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Single-capped fluorescent lamps
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Fluorescent Lamps (Single-capped)&ID=98
Description:
Applies to single capped fluorescent lamps with pre-heating cathode and internal ignition device or external ignition device.
The Minimum Allowable Values of Energy Efficiency
The minimum allowable values of energy efficiency shall exceed or be equal to the values in the table below.

The minimum allowable values of energy efficiency

Type	Rated power	Minimum initial luminous efficacy (lm/W)	
		RR,RZ	RL,RB,RN,RD
Double-tube,	5~7	41	44

Four-tube, Multi-tube, Square	9,10,13	50	54
	11(double-tube)	67	72
	16~26	56	60
Two-tube, Square	≥28	62	66
Multi-tube		54	58
Circular	22	44	51
	≥32	48	57

Year Published: 27-11-2003
Year Effective: 01-06-2004
Source: http://www.energylabel.gov.cn/UserFiles/GB%2019415-2003 单端荧光灯.pdf
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Fluorescent Lamps (Single-capped)&ID=98
Description:
Applies to single capped fluorescent lamps with pre-heating cathode and internal ignition device or external ignition device.
The Evaluating Values of Energy Conservation
The evaluating values of energy conservation shall exceed or be equal to the values in the table below.

The evaluating values of energy efficiency

Type	Nominal power	Minimum initial luminous efficacy (lm/W)	
		RR,RZ	RL,RB,RN,RD
Two-tube, Four-tube, Multi-tube, Square	5~7	51	54
	9,10,13	60	64
	11(two-tube)	74	80
	16~26	62	66
Two-tube, Square	≥28	69	73
Multi-tube		64	68
Circular	22	58	62
	≥32	68	72

Source: http://www.energylabel.gov.cn/UserFiles/GB%2019415-2003 单端荧光灯.pdf
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High-pressure Sodium Vapor Lamps
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Lamps (HPS)&ID=99
Description:
Applies to High-pressure sodium lamps with transparent glass cover for outdoor lighting service, and power ranges from 50W-1000W with matching ballasts and igniters, and can be started and operate normally with 92%-106% of rated voltage.
The Minimum Allowable Values of Energy Efficiency
The minimum allowable values of energy efficiency shall exceed or be equal to the Grade 3 in the table below. And the initial luminous efficacy of individual sample shall not be lower than the 90% of the minimum allowable values of energy efficiency.

The minimum allowable values of energy efficiency

Rated power (W)	Minimum average initial luminous efficacy (lm/W)
	EE grade

	1	2	3
50	78	68	61
70	85	77	70
100	93	83	75
150	103	93	85
250	110	100	90
400	120	110	100
1000	130	120	108

Year Published: 05-08-2004
Year Effective: 01-02-2005
Source: http://www.energylabel.gov.cn/file/bz/GB%2019573-2004 高压钠灯.doc
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Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Lamps (HPS)&ID=99
Description:
Applies to High-pressure sodium lamps with transparent glass cover for outdoor lighting service, and power ranges from 50W-1000W with matching ballasts and ignitors, and can be started and operate normally with 92%-106% of rated voltage.
Energy Efficiency Grade
The energy efficiency of high-pressure sodium vapor lamps are classified into three grades. The average initial luminous efficacy of samples of each grade shall not be lower than the requirements in table below and the initial luminous efficacy of individual sample shall not be lower than the 90% of the average initial luminous efficacy of samples of each grade.

Rated power (W)	Minimum average initial luminous efficacy (lm/W)		
	EE grade		
	1	2	3
50	78	68	61
70	85	77	70
100	93	83	75
150	103	93	85
250	110	100	90
400	120	110	100
1000	130	120	108

Source: http://www.energylabel.gov.cn/file/bz/GB%2019573-2004 高压钠灯.doc
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Program Type: Voluntary Label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Lamps (HPS)&ID=99

Description:

Applies to High-pressure sodium lamps with transparent glass cover for outdoor lighting service, and power ranges from 50W-1000W with matching ballasts and ignitors, and can be started and operate normally with 92%-106% of rated voltage.

The Evaluating Values of Energy Conservation

The evaluating values of energy conservation shall exceed or be equal to the Grade 2 in the table below. And the initial luminous efficacy of individual sample shall not be lower than the 90% of the evaluating values of energy conservation.

Rated power (W)	Minimum average initial luminous efficacy (lm/W)		
	EE grade		
	1	2	3
50	78	68	61
70	85	77	70
100	93	83	75
150	103	93	85
250	110	100	90
400	120	110	100
1000	130	120	108

Source: http://www.energylabel.gov.cn/file/bz/GB%2019573-2004 高压钠灯.doc

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Ballast for High-pressure Sodium Lamps

Program Type: Voluntary Label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Ballasts (HPS Lamps)&ID=100

Description:

Applies to independent and/or built-in magnetic ballasts for high pressure sodium lamps, which work under rated voltage of 220V, rated frequency of 50Hz, and rated power of 70W-1000W.

The Evaluating Values of Energy Conservation

The evaluating values of energy conservation shall exceed or be equal to the values in the table below.

The evaluating values of energy efficiency

Rated power/W	70	100	150	250	400	1000
BEF	1.26	0.91	0.61	0.367	0.231	0.095

Source: http://www.energylabel.gov.cn/file/bz/GB%2019574-2004 高压钠灯用镇流器.doc

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Metal-halide Lamps

Program Type: MEPS

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Lamps (Metal Halide)&ID=103

Description:

Applies to Scandium Sodium Series of metal halide lamps, which are with transparent glass cover and power range from 175W-1500W.

The Minimum Allowable Values of Energy Efficiency

The minimum allowable values of energy efficiency shall exceed or be equal to the Grade 3 in the table below.

Rated power (W)	Minimum initial luminous efficacy (lm/W)
	EE Grade

	1	2	3
175	86	78	60
250	88	80	66
400	99	90	72
1000	120	110	88
1500	110	103	83

Source: http://www.energylabel.gov.cn/UserFiles/金属卤化物灯标准摘要.pdf
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Lamps (Metal Halide)&ID=103
Description:
Applies to Scandium Sodium Series of metal halide lamps, which are with transparent glass cover and power range from 175W-1500W.
The Evaluating Values of Energy Conservation
The evaluating values of energy conservation shall exceed or be equal to the Grade 2 in the table below.

Rated power (W)	Minimum initial luminous efficacy (lm/W)		
	EE Grade		
	1	2	3
175	86	78	60
250	88	80	66
400	99	90	72
1000	120	110	88
1500	110	103	83

Source: http://www.energylabel.gov.cn/UserFiles/金属卤化物灯标准摘要.pdf
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Ballast for Metal-halide Lamps
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Ballasts (Metal Halide Lamps)&ID=102
Description:
Applies to LC peak lead type of independent and built-in type magnetic ballasts for single capped metal halide lamps with rated 220V, frequency 50Hz and power 175W-1500W.
The Minimum Allowable Values of Energy Efficiency
The minimum allowable values of energy efficiency shall exceed or be equal to the Grade 3 in the table below.

Rated power (W)		175	250	400	1000	1500
BEF(W^{-1})	1	0.514	0.362	0.233	0.0958	0.0638
	2	0.488	0.344	0.22	0.091	0.0606
	3	0.463	0.326	0.209	0.0862	0.0574

Source: http://www.energylabel.gov.cn/UserFiles/金属卤化物灯用镇流器标准摘要.pdf
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Ballasts (Metal Halide Lamps)&ID=102
Description:

Applies to LC peak lead type of independent and built-in type magnetic ballasts for single capped metal halide lamps with rated 220V, frequency 50Hz and power 175W-1500W.

The Evaluating Values of Energy Conservation

The evaluating values of energy conservation shall exceed or be equal to the Grade 2 in the table below.

Rated power (W)		175	250	400	1000	1500
BEF(W^{-1})	1	0.514	0.362	0.233	0.0958	0.0638
	2	0.488	0.344	0.22	0.091	0.0606
	3	0.463	0.326	0.209	0.0862	0.0574

Source: http://www.energylabel.gov.cn/UserFiles/金属卤化物灯用镇流器标准摘要.pdf

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Luminaires System for Road Lighting

Program Type: Voluntary Label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Luminaires&ID=126

Description:

Applies to systems with fluorescent and HID lamps as light sources. Does NOT apply to tunnel lighting system or LED lighting system.

The Evaluating Values of Energy Conservation

The evaluating values of energy conservation shall exceed or be equal to the values in the table below.

The evaluating values of energy conservation

Road type	Illumination（lx）	Number of lanes	(road surface) lighting power density（LPD）（W/m^2）
Expressway Trunk road	≥30	≥6	1.05
		＜6	1.25
	≥20 ＜30	≥6	0.70
		＜6	0.85
Secondary road	≥15	≥4	0.70
		＜4	0.85
	≥10 ＜15	≥4	0.45
		＜4	0.55
Branch road	≥10	≥2	0.55
		＜2	0.60
	≥8 ＜10	≥2	0.45
		＜2	0.50

Source: http://www.cqc.com.cn/chinese/rootfiles/2010/03/22/1260254655237770-1268626226208167.pdf

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Computers

Program Type: Voluntary Label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Computers (Desktop PC)&ID=43

Description:

Applies to ordinary desktop PC and laptops, also to equipment of similar hardware structure

Desktop computer categories:

A: All desktop computers not complying with category B & C.

B: must have:

- Dual processor;

- At least 1 GB system memory;

C: must have:
- More than dual processor;
- One independent graph processor with 128 bit frame buffer width;

Besides above requirements, category C must have two of the three characteristics below:
- At least 2 GB system processor;
- TV tuner and/or video capture and high definition;
- At least 2 hard disks;

Notebook categories:
A: All notebooks not complying with category B & C.
B: must have:
- An independent graph processor;

C: must have:
- At least dual processor;
- An independent graph processor with at least 128 bit frame buffer width;
- At least 2 GB system processor;

The Evaluating Values of Energy Conservation
The evaluating values of energy conservation for desktop computers are as follows:

Items	Indicator of desktop computers
Off-mode(Poff)	≤2.0W
Sleep-mode(Psleep)	≤4.0W
Idle-mode(Pidle)	Category A: ≤50.0W Category B: ≤65.0W Category C: ≤95.0W

The evaluating values of energy conservation for notebooks are as follows:

Items	Indicator of desktop computer
Toff	60%
Tsleep	10%
Tidle	30%

Items	Indicator of desktop computers
TEC(kWh)	Category A: ≤40 Category B: ≤53 Category C: ≤88.5
TEC adjustment	
Memory	Above 4 GB memory, increase 0.4 kWh per GB.
GPU frame buffer width	For frame buffer width above 64-bit, increase 3 kWh.
Additional hard disk	Increase 3 kWh.

ETEC=(8760/1000)×(Poff×Toff+Psleep×Tsleep+Pidle×Tidle)
The unit of Px is W. The unit of Tx is % per annum. The unit of ETEC is kWh. The table 2 indicates the percentage of each mode per annum.
Source: http://www.cqc.com.cn/chinese/rootfiles/2009/12/10/1260254655346628-1260407424611121.pdf
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Computer Monitors

Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Computer Monitors&ID=46
Description:
Applies to CRT and LCD monitors for computers working under normal electricity grid voltage, and those displays with tuners and/or receivers mainly used as computer monitors.
The Evaluating Values of Energy Conservation
The evaluating values of energy conservation shall exceed or be equal to the Grade 2 in the table below.

Type	EE Grade					
	1		2		3	
	EE(Cd/W)	energy consumption of off mode	EE(Cd/W)	energy consumption of off mode	EE(Cd/W)	energy consumption of off mode
CRT	0.18	1	0.16	3	0.14	5
LCD	1.05	0.5	0.85	1	0.55	2

Source: http://www.energylabel.gov.cn/UserFiles/计算机显示器标准摘要.pdf
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Color Television Broadcasting Receivers
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Set Top Boxes/TV Broadcasting Receivers&ID=114
Description:
In this standard, clause "standby-passive mode power" applies to all color TVs sold in China, clause "energy efficiency index" applies to CRT color TVs and other types of TV may also refer to it.
The Minimum Allowable Values of Energy Efficiency
The minimum allowable value of standby-passive mode power is 9W. The minimum allowable values of energy efficiency index is 1.5.
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Set Top Boxes/TV Broadcasting Receivers&ID=114
Description:
In this standard, clause "standby-passive mode power" applies to all color TVs sold in China, clause "energy efficiency index" applies to CRT color TVs and other types of TV may also refer to it.
The Evaluating Values of Energy Conservation
For the evaluating values of energy conservation, the standby-passive power is 3W and the energy efficiency index is 1.1. Since the fourth year after the effective date of this standard, the standby-passive power shall be 1W and the energy efficiency index shall be 0.75.
Source: http://www.cqc.gov.cn/chinese/rootfiles/2009/12/10/1260254655322186-1260407424677197.pdf
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Flat Panel Televisions
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Televisions (Flat Panel)&ID=206
Description:
Applies to LCD TV and Plasma TV that working under electricity grid of normal voltage and serve for general service. Also applies to LCD or plasma display equipment which main function is TV but without moderator, and other types of flat panel displays.

The Minimum Allowable Values of Energy Efficiency

The minimum allowable value of energy efficiency is Grade 3 in the table below.

Energy Efficiency Index (EEI)	Energy Efficiency Grade		
	1	2(HEPS)	3(MEPS)
EEI_{LCD}	1.4	1.0	0.60
EEI_{PDP}	1.2	1.0	0.60

Minimum allowable values of power under passive idle mode for Flat Panel Televisions		
Effective date	Before Jan 1, 2012	On and after Jan 1, 2012
Power under passive idle mode	≤1.0	≤0.50

The calculation method of EEI is as follows:

$$Eff = \frac{L \times S}{P_k - P_S}$$

Here:
Eff---Energy efficiency, cd/W;
L---Average luminance of screen, cd/m2;
S---Effective lighting area of screen, m2;
Pk---On-mode power, W;
Ps--- Signal processing power. While using YPBPR input, Ps is 6W; while using Analog/RF input, Ps is 10W; while using Digital/RF input, Ps is 17W.

$$EEI_{LCD} = \frac{Eff}{Eff_{LCD,ref}}$$

EEI_{LCD}---Energy Efficiency Index of LCD;
$Eff_{LCD,ref}$---Reference value of Eff of LCD, equal to 1.10cd/W.

$$EEI_{PDP} = \frac{Eff}{Eff_{PDP,ref}}$$

EEI_{PDP}--- Energy Efficiency Index of PDP;
$Eff_{PDP,ref}$---Reference value of Eff of PDP. The values are as follows:

Reference value of Eff of PDP		
Inherent resolution (number of pixels)	Horizontal inherent resolution ≥1920; and vertical inherent resolution ≥1080.	Other
$Eff_{PDP,ref}$ (cd/W)	0.320	0.450

Year Published: 2010-06-30
Year Effective: 2010-12-01
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Program Type: Mandatory Label
Create New Page
Description:
Applies to LCD TV and Plasma TV that working under electricity grid of normal voltage and serve for general service. Also applies to LCD or plasma display equipment which main function is TV but without moderator, and other types of flat panel displays.

The Energy Efficiency Grades for Flat Panel Televisions

Energy Efficiency Index (EEI)	Energy Efficiency Grade		
	1	2	3
EEI_{LCD}	1.4	1.0	0.60
EEI_{PDP}	1.2	1.0	0.60

Minimum allowable values of power under passive idle mode for Flat Panel Televisions		
Effective date	Before Jan 1, 2012	On and after Jan 1, 2012
Power under passive idle mode	≤1.0	≤0.50

The calculation method of EEI is as follows:

$$Eff = \frac{L \times S}{P_k - P_S}$$

Here:
Eff---Energy efficiency, cd/W;
L---Average luminance of screen, cd/m2;
S---Effective lighting area of screen, m2;
Pk---On-mode power, W;
Ps--- Signal processing power. While using YPBPR input, Ps is 6W; while using Analog/RF input, Ps is 10W; while using Digital/RF input, Ps is 17W.

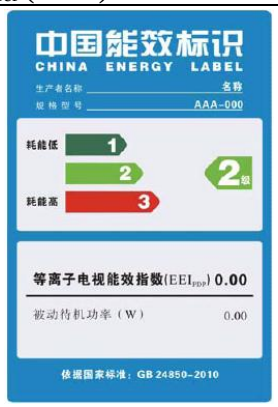
$$EEI_{LCD} = \frac{Eff}{Eff_{LCD,ref}}$$

EEI_{LCD}---Energy Efficiency Index of LCD;
$Eff_{LCD,ref}$---Reference value of Eff of LCD, equal to 1.10cd/W.

$$EEI_{PDP} = \frac{Eff}{Eff_{PDP,ref}}$$

EEI_{PDP}--- Energy Efficiency Index of PDP;
$Eff_{PDP,ref}$---Reference value of Eff of PDP. The values are as follows:

Reference value of Eff of PDP		
Inherent resolution (number of pixels)	Horizontal inherent resolution ≥1920; and vertical inherent resolution ≥1080.	Other
$Eff_{PDP,ref}$ (cd/W)	0.320	0.450



Year Published: 2010-06-30
Year Effective: 2011-03-01(For products manufactured or imported before March 1, 2011, the implementation of the mandatory energy efficiency label could be postponed to March 1, 2012.)
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Televisions (Flat Panel)&ID=206
Description:
Applies to LCD TV and Plasma TV that working under electricity grid of normal voltage and serve for general service. Also applies to LCD or plasma display equipment which main function is TV but without moderator, and other types of flat panel displays.
The Evaluating Values of Energy Conservation
The evaluating values of energy conservation are Grade 2 in the table below.

Energy Efficiency Index (EEI)	Energy Efficiency Grade		
	1	2	3
EEI_{LCD}	1.4	1.0	0.60
EEI_{PDP}	1.2	1.0	0.60

Minimum allowable values of power under passive idle mode for Flat Panel Televisions		
Effective date	Before Jan 1, 2012	On and after Jan 1, 2012
Power under passive idle mode	≤1.0	≤0.50

The calculation method of EEI is as follows:

$$Eff = \frac{L \times S}{P_k - P_S}$$

Here:
Eff---Energy efficiency, cd/W;
L---Average luminance of screen, cd/m2;
S---Effective lighting area of screen, m2;
Pk---On-mode power, W;
Ps--- Signal processing power. While using YPBPR input, Ps is 6W; while using Analog/RF input, Ps is 10W; while using Digital/RF input, Ps is 17W.

$$EEI_{LCD} = \frac{Eff}{Eff_{LCD,ref}}$$

EEI_{LCD}---Energy Efficiency Index of LCD;
$Eff_{LCD,ref}$---Reference value of Eff of LCD, equal to 1.10cd/W.

$$EEI_{PDP} = \frac{Eff}{Eff_{PDP,ref}}$$

EEI_{PDP}--- Energy Efficiency Index of PDP;
$Eff_{PDP,ref}$---Reference value of Eff of PDP. The values are as follows:

Reference value of Eff of PDP		
Inherent resolution (number of pixels)	Horizontal inherent resolution ≥1920; and vertical inherent resolution ≥1080.	Other
$Eff_{PDP,ref}$ (cd/W)	0.320	0.450

Year Published: 2010-06-30
Year Effective: 2010-12-01
Source:
http://www.cqc.com.cn/chinese/gkwj/rzbzxx/bzhbxx/webinfo/2010/11/1288630875259064.htm
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Household Electric Washing Machine
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Clothes Washers&ID=11
Description:

Applies to household electric washing machines with washing capacity no larger than 13kg. Does NOT apply to those with washing capacity no larger than 1.0kg and those without dehydration function. For washer-dryer type, only washing performance is considered.

The Minimum Allowable Values of Energy Efficiency

The minimum allowable value of energy efficiency is shown in the table below. Meanwhile the wash ratio shall exceed or be equal to 0.7, and the dehydration ration and rinse performance shall meet the requirements of GB/T4288.

Type of washing machine	Energy consumption (kWh/cycle/kg)	Water consumption (L/cycle/kg)
Impeller type and fully automatic agitator type washing machine	0.032	36
Front loading washing machine	0.350	20

Source: http://www.energylabel.gov.cn/UserFiles/电动洗衣机标准摘要.pdf

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Program Type: Mandatory label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Clothes Washers&ID=11

Description:

Applies to household electric washing machines with washing capacity no larger than 13kg. Does NOT apply to those with washing capacity no larger than 1.0kg and those without dehydration function. For washer-dryer type, only washing performance is considered.

Energy Efficiency Grade

EE grade	Impeller type washing machine			Front loading washing machine		
	Energy consumption kWh/cycle/kg	Water consumption L/cycle/kg	Wash ratio	Energy consumption kWh/cycle/kg	Water consumption L/cycle/kg	Wash ratio
1	≤0.012	≤20	≥0.90	≤0.19	≤12	≥1.03
2	≤0.017	≤24	≥0.80	≤0.23	≤14	≥0.94
3	≤0.022	≤28		≤0.27	≤16	
4	≤0.027	≤32	≥0.70	≤0.31	≤18	≥0.70
5	≤0.032	≤36		≤0.35	≤20	

Source: http://www.energylabel.gov.cn/UserFiles/电动洗衣机标准摘要.pdf

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Program Type: Voluntary label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Clothes Washers&ID=11

Description:

Applies to household electric washing machines with washing capacity no larger than 13kg. Does NOT apply to those with washing capacity no larger than 1.0kg and those without dehydration function. For washer-dryer type, only washing performance is considered.

The Minimum Allowable Values of Energy Efficiency

The minimum allowable value of energy efficiency is shown the table below.

Type of washing machine	Energy consumption (kWh/cycle/kg)	Water consumption (L/cycle/kg)	Wash ratio
Impeller type and fully automatic agitator type washing machine	≤0.017	≤24	≥0.80
Front loading washing machine	≤0.23	≤14	≥0.94

Source: http://www.energylabel.gov.cn/UserFiles/电动洗衣机标准摘要.pdf

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Domestic gas instantaneous water heater and gas fired heating-hot water combi-boilers

Program Type: MEPS

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Water Heaters (Gas)&ID=38

Description:

Applies to products with heating load lower than 70kW. Does NOT apply to storage type of gas fired heating hot water product.

The Minimum Allowable Values of Energy Efficiency

The minimum allowable value of energy efficiency is Grade 3 in the table below.

Type		Heat load	Minimum heat efficiency (%) Energy efficiency grade		
			1	2	3
Water heater		Rated heat load	96	88	84
		≤50% Rated heat load	94	84	---
Heating stove (heating only)		Rated heat load	96	88	84
		≤50% Rated heat load	92	84	---
Thermal heating stove	Heating	Rated heat load	94	88	84
		≤50% Rated heat load	92	84	---
	Hot water	Rated heat load	96	88	84
		≤50% Rated heat load	94	84	---

Source: http://www.energylabel.gov.cn/UserFiles/家用燃气快速热水器和燃气采暖热水炉标准摘要(2).pdf

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Program Type: Mandatory label

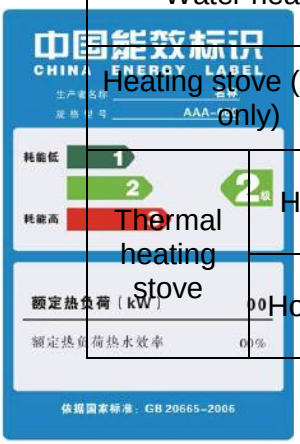
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Water Heaters (Gas)&ID=38

Description:

Applies to products with heating load lower than 70kW. Does NOT apply to storage type of gas fired heating hot water product.

Energy Efficiency Grade

Type		Heat load	Minimum heat efficiency (%) Energy efficiency grade		
			1	2	3
Water heater		Rated heat load	96	88	84
		≤50% Rated heat load	94	84	---
Heating stove (heating only)		Rated heat load	96	88	84
		≤50% Rated heat load	92	84	---
Thermal heating stove	Heating	Rated heat load	94	88	84
		≤50% Rated heat load	92	84	---
	Hot water	Rated heat load	96	88	84
		≤50% Rated heat load	94	84	---



Source: http://www.energylabel.gov.cn/UserFiles/家用燃气快速热水器和燃气采暖热水炉标准摘要(2).pdf

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Program Type: Voluntary label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Water Heaters (Gas)&ID=38
Description:
Applies to products with heating load lower than 70kW. Does NOT apply to storage type of gas fired heating hot water product.

The Evaluating Values of Energy Conservation

The evaluating value of energy conservation is the Grade 2 in the table below.

Type		Heat load	Minimum heat efficiency (%) Energy efficiency grade		
			1	2	3
Water heater		Rated heat load	96	88	84
		≤50% Rated heat load	94	84	---
Heating stove (heating only)		Rated heat load	96	88	84
		≤50% Rated heat load	92	84	---
Thermal heating stove	Heating	Rated heat load	94	88	84
		≤50% Rated heat load	92	84	---
	Hot water	Rated heat load	96	88	84
		≤50% Rated heat load	94	84	---

Source: http://www.energylabel.gov.cn/UserFiles/家用燃气快速热水器和燃气采暖热水炉标准摘要(2).pdf

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Electrical Storage Water Heaters
Program Type: Voluntary label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Storage Water Heaters (Electric)&ID=16
Description:
Applies only to electrical storage water heaters.
The Evaluating Values of Energy Conservation
The evaluating value of energy conservation is the Grade 2 in the table below.

Grade	24-hour inherent energy consumption factor (Ɛ)	Hot water output rate(μ)
1	≤0.6	≥70%
2	≤0.7	≥60%
3	≤0.8	≥55%
4	≤0.9	≥55%
5	≤1.0	≥50%

Source: http://www.energylabel.gov.cn/UserFiles/储水式电热水器标准摘要.pdf
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Solar water heating system
Program Type: Voluntary label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=People's Republic of China&countryid=249&product=Water Heaters (Solar)&ID=40
Description:
Applies to products that are consist of solar heat accumulator, hot water container, pipes and control system, used for household, small scale commercial buildings or public buildings. Does NOT applies to pre-heating solar water heating system.
The Evaluating Values of Energy Conservation
The energy performance of close-coupled and remote solar water heating system shall meet following requirements:
1)When the solar radiation is 17MJ/m^2 and the water temperature of the hot water storage tank after the heat collection is not less than 45℃, the daily useful heat per lighting area of the hot water storage tank of the close-coupled solar water heating system shall not be less than 7.5MJ/m^2. The daily useful heat of the remote and indirect solar water heating system shall not be less than 7.0MJ/m^2.
2)The average heat loss factor shall be not more than 22W/(m^3.k);
The energy performance of integral collector storage household solar water heating system shall meet following requirements:
1)When the solar radiation is 17MJ/m^2 and the water temperature of the hot water storage tank after the heat collection is not less than 45℃. The daily useful energy per lighting area of the hot water storage tank shall not be less than 7.5MJ/m^2.
2)The average heat loss factor shall be not more than 90W/(m^3.k);
Year Published: 21-09-2009
Year Effective: 25-09-2009
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Air-source heat pump water heater of commercial &industrial and similar application
Program Type: Voluntary label
Create New Page:
Description:
Applies to water heaters driven by electrical motors, adopting vapor condensing and refrigerating cycle, rated heat power over 3kW, with air as heat source and for the purpose of providing hot water.
The Evaluating Values of Energy Conservation
Under described test conditions, the COP of water heater shall not be less than the values in the table below.

Water heater \ Heat source		Air source	
		General	Low temprature
One-time heating		4.40	3.70
Cyclic heating	With pump	4.40	3.70
	Without pump	4.30	3.60

Year Published: 21-09-2009
Year Effective: 25-09-2009
Source: http://www.cqc.com.cn/chinese/rootfiles/2009/12/10/1260254657652152-1260407423544949.pdf

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Hong Kong, China

		Mandatory Standard	Mandatory Label	Voluntary Label
AC	Room Air Conditioners		Edit	Edit
Refrigerator & freezer	Refrigerating Appliances		Edit	Edit
Lighting	Compact Fluorescent Lamps		Edit	Edit
	Electronic Ballasts			
Computers				Edit
Monitors	LCD Monitors			
Televisions				
Clothes washers	Washing Machines		Edit	Edit
Clothes driers	Electric Clothes Dryers			
Water heating	Household Electric Storage Water Heaters			
	Household Domestic Gas Instantaneous Storage Water Heaters			

Note: Red box – create a new page; orange box – update existing page; white box – no action needed.

Room Air Conditioners
Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Hong Kong, China&countryid=250&product=RACs (Split)&ID=5
Test Methods: ISO5151
Description:
"Room air conditioner", subject to clause 7.1.3 of the Code–
(a) means an encased assembly or encased assemblies that are designed to be used together where–
(i) the assembly or assemblies is or are designed primarily to provide free delivery of conditioned air to an enclosed space, room or zone ("conditioned space"); and
(ii) the assembly or assemblies has or have a prime source of refrigeration for cooling or heating; and
(b) includes single package type and split type room air conditioners that–
(i) use mains electricity as the primary power source;
(ii) operate by using the vapor compression cycle;
(iii) are non-ducted;
(iv) are air-cooled;
(v) are of either cooling only type or reverse cycle type; and
(vi) have a rated cooling capacity not exceeding 7.5 kilowatts.

"Room air conditioner" does not include air-conditioners that are–
(a) fan-coil air-conditioning units;
(b) water-cooled units;
(c) multiple split-system air conditioners;
(d) heat pumps for heating only;
(e) units designed for use with additional ducting or flexible pipes for air intake or exhaust; or
(f) ceiling-mounted type or floor standing type air conditioners.

Energy Efficiency Grades

All room air conditioners regulated under the Ordinance are classified in accordance with Table below–

Type	Function	Category	Description
Single Package	Cooling Only	Category 1	A single package type room air conditioner with cooling function only
	Reverse Cycle	Category 2	A single package type room air conditioner with both cooling and heating functions
Split	Cooling Only	Category 3	A split type room air conditioner with cooling function only
	Reverse Cycle	Category 4	A split type room air conditioner with both cooling and heating functions

Average Appliance Energy Consumption

The Average Appliance Energy Consumption (Eav) figures are obtained using statistical method by plotting of the power consumption against cooling capacity for a particular room air conditioner category, under the prevailing market situation. They are approximated by a linear equation representing the average energy consumption with respect to the cooling capacity of room air conditioners on sale in the market.

The Average Appliance Energy Consumption line equations so developed for room air conditioners in Hong Kong are shown in Table below.

Room Air Conditioner Category	Average Appliance Energy Consumption (kW)	Equation No.
Category 1 & 2	$E_{av} = 0.442 \times \Phi_c$	1
Category 3 & 4	$E_{av} = 0.387 \times \Phi_c$	2

Where Φ_c is the measured cooling capacity defined in clause 7.5.3 of the Code.
E_{av} is the average appliance energy consumption expressed in kW.

Energy Efficiency Grading for Cooling Capacity

(a) Energy Consumption Index (Iε)

The energy consumption index (Iε) of a room air conditioner is defined as the ratio of the actual effective power input (PE) of the room air conditioner to the Average Appliance Energy Consumption (Eav) (as found from the associated average energy consumption line in clause 7.5.5 of the Code) of room air conditioners with same cooling capacity and same room air conditioner category. The index is expressed in percentage. Thus, by comparing the energy consumption indices, all room air conditioners can have a meaningful comparison of their energy efficiencies. Within a category, a room air conditioner with a lower energy consumption index (i.e. a lower percentage) consumes less energy than a room air conditioner with a higher energy consumption index (i.e. a higher percentage). The energy consumption index is calculated as follows– :

$$\text{Energy Consumption Index } (I_\varepsilon) = \frac{P_E}{E_{av}} \times 100\%$$

Where P_E = effective power input (actual power consumption) of the room air conditioner measured in cooling capacity test.

E_{av} = Average Appliance Energy Consumption as determined from Table 7.3.

(b) Energy Efficiency Grading

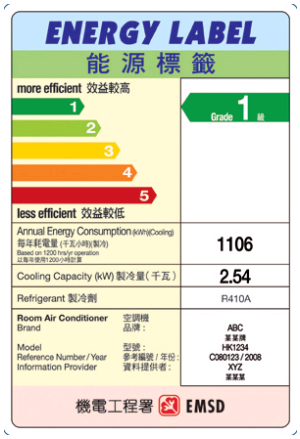
The energy efficiency grade of the room air conditioner shall be determined as shown in Table below, with Grade 1 having the best performance and Grade 5 having the worst performance.

Derivation of energy efficiency grades

Energy Consumption Index I_e (%)	Energy Efficiency Grade (Note)
$I_e \leq 85$	1
$85 < I_e \leq 95$	2
$95 < I_e \leq 105$	3
$105 < I_e \leq 120$	4
$120 < I_e$	5

Note:

In order to obtain Grade 1 to 4, the room air conditioner concerned shall also pass the maximum cooling test. Only Grade 5 will be accorded if the room air conditioner does not pass the maximum cooling test or $I_e > 120$.



Source: http://www.emsd.gov.hk/emsd/eng/pee/eels_mandate.shtml

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Program Type: Voluntary Label
Create New Page:
Test Methods: ISO5151
Description:
The scheme will only apply to the manufacturers and importers (local agents, retailers and the related parties) who have participated in the voluntary scheme.
The scheme commenced on 15 June 1996, revised in November 2009, and energy labels will expire on 31 December 2012 when re-registration is necessary.
The scope of application covers all new room coolers under the scope of the Scheme to be sold in Hong Kong with effect from the date that is declared by the participant but does not cover second-hand products, products already in existing use, under trans-shipment or manufactured for export, etc.

The scheme only cover ceiling-mounted type or floor standing type room coolers with a rated cooling capacity not exceeding 10 kW , and other types with cooling capacity larger than 7.5kW but not exceeding 10kW.

Room coolers under this labelling scheme only covers air-cooled non-ducted air-conditioners powered by electric current, either single unit or split system with a rated cooling capacity not exceeding 10 kW, and does not apply to fan-coil air conditioning units, heat pump, and water-cooled units. For room cooler with reverse cycle heat pump, only the cooling function will be considered and its heating function will be excluded.

The scheme covers split system utilizing single refrigeration circuit and having one evaporator and one condenser but does not cover multi-circuit system.

Overall Classification

Type	Function	Category	Description
Window	Cooling Only	Category 1	A window type room cooler with cooling function only
	Reverse Cycle	Category 2	A window type room cooler with both cooling and heating functions
Split	Cooling Only	Category 3	A split type room cooler with cooling function only
	Reverse Cycle	Category 4	A split type room cooler with both cooling and heating functions

** All appliances are designed to operate under 'T1' climatic conditions.*

Measurement of Cooling Capacity

The methodology for measurement of cooling capacity and energy consumption is based on the ISO 5151. Equipment shall be tested at a rated voltage of 380/220V, 50Hz. An outline of the test conditions, and general methodology is provided in Section 1 of Annex 1. Actual performance requirements and procedural descriptions are summarized under Section II of Annex 1 for quick reference. For more comprehensive descriptions please refer to ISO 5151.

Calculation of Cooling Capacity (Φc)

The cooling capacity (Φc) of the appliance shall be calculated based on the mean of the values taken over the test period from the cooling capacity test in accordance with the test requirements set out in Annex 1. The method of calculation is provided in Section II of Annex 2. The value shall be in watts (W), or in kilowatts (kW). The value shall not be less than 95% of the cooling capacity figure marked on the nameplate of the appliance.

Measurement of Energy Consumption

The energy consumption of the appliance shall be measured during the cooling capacity test as described in Annex 1. This is the mean of the values of the effective power input (PE) to the equipment or individual power inputs to each of the electrical equipment components taken over the test period from the cooling capacity test, in watts (W), or in kilowatts (kW). The value so measured shall not exceed 110% of the energy consumption figure marked on the nameplate.

Other Performance Requirements

The appliance shall be tested for conformity with the following performance requirements based upon the ISO 5151 standard:

a) passing of the maximum cooling test;

and for equipment which rejects condensate to the condenser air,

b) passing of the enclosure sweat and condensate disposal test.

Methodology on Energy Efficiency Comparison

The energy consumption value even measured with the well defined methodology in Section 7.3 above by itself gives only limited indication of the energy efficiency of an appliance. It does not cover two additional vital aspects i.e. the cooling capacity of the appliance and its energy performance relative to other products on the market.

Average Appliance Energy Consumption

The Average Appliance Energy Consumption (Eav) figures are obtained using statistical method by plotting of the energy consumption data against cooling capacity for a particular appliance category, under the prevailing market situation.

They can be approximated by a linear equation representing the average energy consumption with respect to the cooling capacity of appliances on sale in the market.
The Average Appliance Energy Consumption line equations so developed for Hong Kong appliances are shown in Table below.

Appliance Category	Average Appliance Energy Consumption (kW)	Equation No.
Category 1 & 2	$E_{av} = 0.442 \times \Phi c$	1
Category 3 & 4	$E_{av} = 0.387 \times \Phi c$	2

Where Φc is cooling capacity of the appliance expressed in kW
E_{av} is the average appliance energy consumption expressed in kW

Energy Efficiency Grading
The availability of Table above enables the formulation of a methodology to calculate the energy consumption index and the appliance energy efficiency grading.
Energy Consumption Indices (I ε)
The energy consumption index (Iε) of an appliance is defined as the ratio of the actual effective power input of the appliance to the Average Appliance Energy Consumption (as found from the associated average energy consumption line) of an appliance with similar output cooling capacity and similar category. The index is expressed in percentage. Thus, by comparing the energy consumption indices, all appliances can have meaningful comparison of their energy efficiencies. In other words, within a category appliance that has a lower energy consumption index (i.e. lower percentage) consumes less energy than an appliance of higher energy consumption index (i.e. higher percentage). The energy consumption index is calculated as follows :-

$$\text{Energy Consumption Index } (I_\varepsilon) = \frac{P_\varepsilon}{E_{av}} \times 100\% \quad \text{.....(eq.3)}$$

Where P_ε = the effective power input (actual energy consumption) of the appliance measured in cooling capacity test.
E_{av} = Average Appliance Energy Consumption as determined from Table 3.

Appliance Energy Efficiency Grading
To make the concept of appliance energy efficiency more readily understood by ordinary consumers, appliance energy efficiency grade is introduced by linking the energy consumption index (percentage) to the 5 grades as shown in Table below, with Grade 1 being the most energy efficient and Grade 5 the least.
Converting Energy Consumption Indices to Energy Efficiency Grades

Energy Consumption Index : I_ε(%)	Energy Efficiency Grade
$I_\varepsilon \leq 85$	1
$85 < I_\varepsilon \leq 95$	2
$95 < I_\varepsilon \leq 105$	3
$105 < I_\varepsilon \leq 120$	4
$120 < I_\varepsilon$	5

Year Published: 15-06-1996

Year Effective: 15-06-1996

Source: http://www.emsd.gov.hk/emsd/eng/pee/eels_sch_doc.shtml

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Refrigerating Appliances
Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Hong Kong, China&countryid=250&product=Refrigerator-freezers&ID=10
Description:

"Refrigerating appliance", subject to clause 8.1.3 of the Code–
(a) means a factory-assembled insulated cabinet with one or more compartments and of suitable volume and equipment for household use, cooled by internal natural convection or a frost-free system where the cooling is obtained by one or more energy-consuming means;
(b) includes a refrigerator, frozen food storage cabinet, food freezer, and their combinations; and
(c) includes refrigerating appliances that–
(i) use mains electricity as the primary power source;
(ii) operate by using the vapour compression cycle; and
(iii) have a rated total storage volume not exceeding 500 liters.
"Refrigerating appliance" does not include refrigerating appliances which–
(a) may also use other energy sources; or
(b) operate by using absorption refrigerating system.
Product Classification

Types	Category No.	Functional Classification		
		Fresh food compartment temp. in °C	Frozen food compartment temp. in °C	Description
Refrigerator	Category 1	+5	Nil	A refrigerator without a frozen food compartment
	Category 2	+5	≤ –6	A refrigerator with a 1-star frozen food compartment
	Category 3	+5	≤ –12	A refrigerator with a 2-star frozen food compartment
	Category 4	+5	≤ –18	A refrigerator with a 3-star frozen food compartment
Refrigerator -freezer	Category 5	+5	≤ –18	A refrigerator with a 4-star frozen food compartment
	Category 6	+5	≤ –18	A Category 5 refrigerator incorporating means to prevent the formation of frost on contents
Freezer	Category 7	Nil	≤ –18	A refrigerating appliance in which the entire storage volume is intended for freezing food.
	Category 8	Nil	≤ –18	A Category 7 refrigerating appliance incorporating means to prevent the formation of frost.

Calculation of Adjusted Volume
The refrigerating appliance storage volumes of the different compartments in liters shall be measured in accordance with the standards specified in clause 8.5.1 of the Code. The respective adjusted volume of the refrigerating appliance shall then be the sum of the measured storage volumes of the different compartments weighted by the difference in temperatures between the interior of the compartments and the ambient temperature. The adjusted volume Vadj is calculated as follows–

$V_{adj} = \Sigma V_i \times \Omega$ ..... (eq. 1)

where V_i = the measured storage volume of an individual compartment

Ω = the weighting factor given by the following equation:

$$\Omega = \frac{T_a - T_i}{T_a - T_r}$$ ..... (eq. 2)

where T_a = test room ambient temperature which is taken as 25 °C

T_i = the rated temperature in the individual compartment concerned

T_r = the rated temperature in the fresh food compartment which is taken as 5°C

A summary of eight simple equations for calculating the adjusted volume of each refrigerating appliance category is shown in Table below.

Refrigerating Appliance Category	Adjusted Volume (in litre)	Equation No.(Note)
Category 1	V_r	3
Category 2	$V_r + 1.55 \times V_{ffc}$	4
Category 3	$V_r + 1.85 \times V_{ffc}$	5
Category 4	$V_r + 2.15 \times V_{ffc}$	6
Category 5	$V_r + 2.15 \times V_{ffc}$	7
Category 6	$V_r + 2.15 \times V_{ffc}$	8
Category 7	$2.15 \times V_{ffc}$	9
Category 8	$2.15 \times V_{ffc}$	10

where V_r = *Storage volume of fresh food compartment*

V_{ffc} = *Storage volume of frozen food compartment*

Energy Efficiency Definition of Refrigerating Appliances

(a) The energy efficiency performance of a refrigerating appliance is defined as the maximum allowable energy consumed per unit storage volume for the storage of food stuff adjusted for the relative contribution to the total energy consumption according to the different temperatures of its compartments with the fresh food storage temperature 5 °C taken as the reference. For a refrigerating appliance with more than just the fresh food compartment, the energy consumption is not only a function of the refrigerating appliance storage volumes but also the relative 3 1 sizes of the fresh food and other compartment storage volumes.

(b) The energy consumption test measures the energy consumption of the refrigerating appliance in kWh/24h. The annual energy consumption of the refrigerating appliance is obtained by multiplying the figure of the measured energy consumption (kWh/24h) by 365.

(c) The energy efficiency of a refrigerating appliance is inversely related to the refrigerating appliance energy efficiency ratio which is expressed in the unit of kWh/year/litre.

Refrigerating Appliance Energy Efficiency Ratio =

$$\frac{\text{Annual Energy Consumption}}{\text{Adjusted Volume}} \text{ kWh/yr/litre} \quad \text{.....(eq. 12)}$$

Average Appliance Energy Consumption

(a) The Average Appliance Energy Consumption line equations developed from equation (12) represent the average annual energy consumption for refrigerating appliances in Hong Kong.

(b) The Average Annual Energy Consumption of a refrigerating appliance shall be determined in accordance with Table below.

Refrigerating Appliance Category	Average Annual Energy Consumption (kWh/yr)	Equation No.
Category 1	V_{adj} x 0.233 + 245	13
Category 2	V_{adj} x 0.643 + 191	14
Category 3	V_{adj} x 0.450 + 245	15
Category 4	V_{adj} x 0.657 + 235	16
Category 5	V_{adj} x 0.777 + 303	17
Category 6	1.35 x (V_{adj} x 0.777 + 303)(Note)	18
Category 7	Chest freezer: V_{adj} x 0.446 + 181	19
	Upright freezer: V_{adj} x 0.472 + 286	20
Category 8	Chest freezer: 1.35 x (V_{adj} x 0.446 + 181)(Note)	21
	Upright freezer: 1.35 x (V_{adj} x 0.472 + 286)(Note)	22

Note: The figure 1.35 in these equations is the correction factor for no-frost models.

Energy Efficiency Grading

(a) Energy Consumption Index (Iε)

The energy consumption index (Iε) of a refrigerating appliance is defined as the ratio of the actual energy consumption of the refrigerating appliance to the Average Appliance Energy Consumption (as found from the associated average annual energy consumption equations in clause 8.5.4 of the Code). The indices are expressed in percentages. Thus, within a category, a refrigerating appliance with a lower energy consumption index (i.e. a lower percentage) consumes less energy than a refrigerating appliance with a higher energy consumption index (i.e. a higher percentage). The energy consumption index is calculated as follows–

$$\text{Energy Consumption Index } (I_\varepsilon) = \frac{E}{E_{av}} \times 100\%.$$

where

E = actual annual energy consumption of the refrigerating appliance measured in energy consumption test.

E_{av} = average annual energy consumption as determined from Table 8.5.

(b) Refrigerating Appliance Energy Efficiency Grading

The energy efficiency grading of a refrigerating appliance shall be determined as shown in Table below, with Grade 1 having the best performance and Grade 5 having the worst performance.

Derivation of energy efficiency grades

Energy Consumption Index : I_ε (%)	Energy Efficiency Grade
$I_\varepsilon \leq 63$	1
$63 < I_\varepsilon \leq 80$	2
$80 < I_\varepsilon \leq 100$	3
$100 < I_\varepsilon \leq 125$	4
$125 < I_\varepsilon$	5

Source: http://www.emsd.gov.hk/emsd/eng/pee/eels_mandate.shtml

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Program Type: Voluntary Label
Create New Page:
Test Method: ISO 8187, ISO 8561, ISO 7371 and ISO 5155 or ISO 15502 or IEC 62552
Description:
The scheme will only apply to the manufacturers and importers (local agents, retailers and the related parties) who have participated in the voluntary scheme.
The scheme commenced on 15 June 1995, revised in November 2009, and labels will expire on 31 December 2012 when re-registration is necessary.
The scheme covers only household refrigeration appliances that have a rated total storage volume exceeding 500 liters.
The scope of application covers all new registered household refrigeration appliances under the scope of the Scheme, imported to or manufactured in Hong Kong with effect from the date that is declared by the participant but does not cover the second-hand products, products already in existing use, under trans- shipment or manufactured for export, etc.
Overall Classification

Types	Category No.	Functional Classification		
		Fresh food compartment temp. in °C	Frozen food compartment temp. in °C	Description
Refrigerator	Category 1	+5	Nil	A refrigerator without a frozen food compartment
	Category 2	+5	≤ -6	A refrigerator with a 1-star frozen food compartment
	Category 3	+5	≤ -12	A refrigerator with a 2-star frozen food compartment
	Category 4	+5	≤ -18	A refrigerator with a 3-star frozen food compartment
Refrigerator -freezer	Category 5	+5	≤ -18	A refrigerator with a 4-star frozen food compartment
	Category 6	+5	≤ -18	A Category 5 refrigerator incorporating means to prevent the formation of frost on contents
Freezer	Category 7	Nil	≤ -18	A refrigeration appliance in which the entire storage volume is intended for freezing food.
	Category 8	Nil	≤ -18	A Category 7 refrigeration appliance incorporating means to prevent the formation of frost.

** All appliances are designed to operate under "ST" climatic class.*

Calculation of Adjusted Volume
The appliance volume in liters should be measured in accordance with ISO or IEC standards. The adjusted volume should be the sum of the volumes of the different compartments weighted by the difference in temperature between the interior of the compartment and the ambient temperature.
The adjusted volume Vadj is calculated as follows:

$$V_{adj} = \Sigma V_i \times \Omega \quad \text{.....(eq. 1)}$$

where V_i = the measured storage volume of an individual compartment

Ω = the weighting factor given by the following equation:

$$\Omega = \frac{Ta-Ti}{Ta-Tr} \quad \text{..... (eq. 2)}$$

where T_a = test room ambient temperature which is taken as 25 °C

T_i = the rated temperature in the individual compartment concerned

Tr = the rated temperature in the fresh food compartment which is taken as 5°C
Specified in Table below are eight simple equations for calculating of the adjusted volume of each appliance category.
Adjusted Volume (V adj) calculation for all categories of refrigeration appliances

(Where V r = Volume of fresh food compartment V ffc = Volume of frozen food compartment)

Appliance Category	Adjusted Volume (in litre)	Equation No.
Category 1	V_r	3
Category 2	$V_r + 1.55 \times V_{ffc}$	4
Category 3	$V_r + 1.85 \times V_{ffc}$	5
Category 4	$V_r + 2.15 \times V_{ffc}$	6
Category 5	$V_r + 2.15 \times V_{ffc}$	7
Category 6	$V_r + 2.15 \times V_{ffc}$	8
Category 7	$2.15 \times V_{ffc}$	9
Category 8	$2.15 \times V_{ffc}$	10

Explanatory Note: To illustrate how Vadj for a category 4 appliance (i.e. Equation 6) is calculated Category 4 is defined as a refrigerator comprising one fresh food compartment (Vr) and one 3-star frozen food compartment (Vffc).
By equation 1: Vadj = Σ Vi x Ω.
Total adjusted Volume = (Volume of fresh food compartment Vr) + (Volume of 3-star compartment weighted to frozen food compartment Vffc)
From equation 2:

$$V_{adj} = V_r \times \left(\frac{T_a - T_r}{T_a - T_r}\right) + V_{ffc} \times \left(\frac{T_a - T_{ffc}}{T_a - T_r}\right) \quad \text{.....(eq. 11)}$$

Since Temperature of a 3-Star compartment $T_f = T_{ffc} = -18\ ^\circ C$,
Temperature of a fresh food compartment $T_r = 5\ ^\circ C$

$$\text{Hence} \quad V_{adj} = V_r \times \left(\frac{25-5}{25-5}\right) + V_{ffc} \times \left(\frac{25-(-18)}{25-5}\right)$$

$$V_{adj} = V_r + 2.15 \times V_{ffc}$$

[The above is equation 6 for a category 4 appliance]
Methodology on Energy Efficiency Comparison
Average Appliance Energy Consumption
The above appliance energy efficiency ratio (kWh/year/litre), although being a much better indicator than the energy consumption (kWh/year) alone, is still not totally satisfactory because it does not give true meaningful like-with-like comparison. This stems from the fact that some recent field surveys and statistical studies indicate that The Hong Kong Voluntary Energy Efficiency Labeling Scheme for Page 12 Household Refrigeration Appliances these ratios are always better for the larger appliances than for the smaller models. For this reason, this ratio cannot provide true comparison if adjusted volumes are not the same. It is necessary to establish another parameter in order to achieve like-with-like comparison, and this parameter is identified as the Average Appliance Energy Consumption figures for a particular appliance class.
In ideal situation, the Average Appliance Energy Consumption figures should be obtained from some acceptable statistical method by plotting of the annual energy consumption data with respect to the associated adjusted volumes for a particular appliance class under the prevailing market situation. They can be approximated by a line equation representing the average annual energy consumption with respect to the adjusted volume of appliances on sale in the market. These figures would change as the time changes because of advancement of energy efficient technologies and of the consumers' behavior.

Appliance Category	Average Annual Energy Consumption* (kWh/yr)	Equation No.
Category 1	V_{adj} x 0.233 + 245	13
Category 2	V_{adj} x 0.643 + 191	14
Category 3	V_{adj} x 0.450 + 245	15
Category 4	V_{adj} x 0.657 + 235	16
Category 5	V_{adj} x 0.777 + 303	17
Category 6	1.35*(V_{adj} x 0.777 + 303)	18
Category 7	Chest freezer: V_{adj} x 0.446 + 181	19
	Upright freezer: V_{adj} x 0.472 + 286	20
Category 8	Chest freezer: 1.35*(V_{adj} x 0.446 + 181)	21
	Upright freezer: 1.35*(V_{adj} x 0.472 + 286)	22

(* Where 1.35 is the correction factor for no-frost models.)

Energy Efficiency Grading

The availability of Table 5 enables formulation of a methodology to calculate the energy efficiency indices and the appliance efficiency grading. The methodology entails ultimate like-with-like meaningful comparison.

Energy Efficiency Indices (I ε)

The energy efficiency index (I ε) of an appliance is defined as the ratio of the actual energy consumption of the appliance to the average energy consumption (as found from the associated average energy consumption line) of a unit with similar adjusted volume and similar category. The indices are expressed in percentages. Thus, by comparing the energy efficiency indices, all appliances can have meaningful comparison of their energy efficiencies. In other words, within a category appliance that has a lower energy efficiency index (i.e. lower percentage) consumes less energy than an appliance of higher energy efficiency index (i.e. higher percentage). The energy efficiency index is calculated as follows:-

$$\text{Energy Efficiency Index } (I_\varepsilon) = \frac{E}{E_{av}} \times 100\% \quad \text{(eq. 23)}$$

Where E = the actual appliance Annual Energy Consumption obtained from energy consumption test.

E_{av} = Average Annual Energy Consumption as determined from Table 5.

Appliance Efficiency Grading

This is one further step to make the concept of appliance energy efficiency more easily understandable by ordinary consumers. The method is to link the energy efficiency index (percentage) to the 5 grades as shown in Table below, with Grade 1 being the most energy efficient and Grade 5 the least.

Energy Efficiency Index : I_ε (%)	Energy Efficiency Grade
$I_\varepsilon \leq 63$	1
$63 < I_\varepsilon \leq 80$	2
$80 < I_\varepsilon \leq 100$	3
$100 < I_\varepsilon \leq 125$	4
$125 < I_\varepsilon$	5

Year Published: 15-06-1995

Year Effective: 15-06-1995

Source: http://www.emsd.gov.hk/emsd/eng/pee/eels_mandate.shtml

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Compact Fluorescent Lamps
Program Type: Mandatory Label
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Hong Kong, China&countryid=250&product=CFLs&ID=57
Description:
"Compact fluorescent lamp", subject to clause 9.1.3 of the Code–
(a) means a type of fluorescent lamp which has a single lamp cap; and
(b) includes integrated type compact fluorescent lamps that–
(i) use mains electricity as the primary power source;
(ii) have a rated lamp wattage up to 60 watts; and
(iii) have a screw or bayonet cap.
"Compact fluorescent lamp" does not include–
(a) non-integrated type compact fluorescent lamps;
(b) reflector compact fluorescent lamps; or
(c) cold cathode fluorescent lamps.
Energy Efficiency Grading
The energy efficiency grade of CFLs shall be determined as shown in Table below, with Grade 1 having the best performance and Grade 5 having the worst performance.
In order to determine the energy efficiency grade according to clause 9.5.3 of the Code, the measured lamp luminous efficacy (Em) obtained in clause 9.4 of the Code shall be compared with the following rated lamp luminous efficacy (Er) which is determined and calculated based on the rated luminous flux and the rated wattage of the same product model–

$$\text{Rated Lamp Luminous Efficacy } (E_r) = \frac{\text{Rated Luminous Flux}}{\text{Rated Wattage}}$$

The energy efficiency grade is determined by using the measured lamp luminous efficacy (Em) or the rated lamp luminous efficacy (Er), whichever is smaller.
In Table below, for any CFL having a Grade 1 or 2 label, both the measured average life and the rated average life shall not be less than 8,000 hours, and both the measured lumen maintenance and the rated lumen maintenance at 2,000 hours shall not be less than 80%, and for any CFL having a Grade 3 or 4 label, both the measured average life and the rated average life shall not be less than 6,000 hours, and both the measured lumen maintenance and the rated lumen maintenance at 2,000 hours shall not be less than 78%. Any CFL with the measured average life or the rated average life less than 6,000 hours, or the measured lumen maintenance or the rated lumen maintenance at 2,000 hours less than 78%, can only obtain a Grade 5 label.

Rated Lamp Wattage (L_w) (Watt)	X Note (1) (Lumen/W)				
	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5
	Note (2)		*Note (3)*		*Note (4)*
≦10	X≧49.5	49.5>X≧45	45>X≧40.5	X<40.5	N/A
10 < L_w ≦ 20	X≧55	55>X≧50	50>X≧45	X<45	N/A
20 < L_w ≦ 30	X≧60.5	60.5>X≧55	55>X≧49.5	X<49.5	N/A
30 < L_w	X≧66	66>X≧60	60>X≧54	X<54	N/A

Note:

(1) Where X = measured lamp luminous efficacy (E_m) or rated lamp luminous efficacy (E_r), whichever is smaller.

(2) Applicable to a CFL with both measured average life and rated average life not less than 8,000 hours, and both measured lumen maintenance and rated lumen maintenance at 2,000 hours not less than 80%.

(3) Applicable to a CFL with both measured average life and rated average life not less than 6,000 hours, and both measured lumen maintenance and rated lumen maintenance at 2,000 hours not less than 78%.

(4) Applicable to a CFL with measured average life or rated average life less than 6,000 hours, or measured lumen maintenance or rated lumen maintenance at 2,000 hours less than 78%.

Unless otherwise indicated, the requirements set forth in the Code shall apply to non-dimmable CFLs, and also to multi-level and/or dimmable CFLs that are operating at maximum power.

Source: http://www.emsd.gov.hk/emsd/eng/pee/eels_mandate.shtml

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Program Type: Voluntary Label
Create New Page:
Test Methods: IEC60901, CIE84
Description:
The scheme will only apply to the manufacturers and importers (local agents, retailers and the related parties) who have participated in the voluntary scheme.
The scheme commenced from 29 December 1998, revised in November 2009, and will expire on 31 December 2012 when re-registration is necessary.
The scope of application covers all new registered appliances under the scope of the Scheme to be sold in Hong Kong with effect from the date that is declared by the participant but does not cover second-hand products, products already in use, under trans-shipment or export, etc.
The scheme will be operated as a 'Recognition Type' labeling system. All participating appliances will be registered under this scheme provided that they have met the performance requirement specified in the scheme.
The provisions of this scheme shall apply to non-integrated type CFLs which is electrically connected to permanently wired external ballast and is intended for general lighting purposes having the following characteristics:
(a) those with a rated voltage of 220 volts;
(b) those with a rated input current frequency of 50 Hz.; and
(c) those with a rated lamp wattage up to 60 watts.
The scheme shall apply to non-integrated type CFLs designed for multi-level and/or dimming operation.

Non-integrated type CFLs operated with cold cathode and reflector type lamps are excluded from this scheme.

Specific Energy Efficiency Requirements

The luminous efficacy for non-integrated type CFLs should be equal to or greater than the corresponding minimum allowable value as indicated in Table below.

Table 1: Minimum Allowable Luminous Efficacy for Non-integrated Type CFLs without Built-in Control Gear

Rated Lamp Wattage (L_w)	Minimum Allowable Luminous Efficacy (lumens/W)
$L_w \leq 10$ W	50
11 W $\leq L_w \leq$ 30 W	65
$L_w \geq 31$ W	75

The aforesaid lamp luminous efficacy refers to values measured at the end of the 100 hours ageing period.

Unless otherwise indicated, the requirements set forth in this scheme shall apply to nondimmable non-integrated type CFLs, and also to multi-level and/or dimmable nonintegrated type CFLs that are operating at maximum power.

The luminous efficacy for a non-integrated type CFL without built-in control gear excludes the lamp control gear loss.

Other Performance Requirements

In addition to the specific energy efficiency requirements, the non-integrated type CFLs are also needed to meet the following performance requirements:

(a) all materials and workmanship shall comply with the Electrical Products (Safety) Regulation of the HKSAR and appropriate IEC Safety Standards;

(b) the rated average lamp life shall not be less than 6,000 hours; and

(c) lumen maintenance at 2,000 hours shall not be less than 78%.

Year Published: 29-12-1998

Year Effective: 29-12-1998

Source: http://www.emsd.gov.hk/emsd/eng/pee/eels_mandate.shtml

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Computers

Program Type: Voluntary Label

Updating Existing Page:

Description:

The scheme will only apply to the manufacturers and importers who have participated in the voluntary scheme.

The scheme commenced from 23 December 2004 and energy labels will expire on 31 December 2013 when re-registration is necessary.

The scope of application covers all new registered appliances imported to or manufactured in Hong Kong with effect from the date that is declared by the participants but does not cover second-hand products, products already in existing use, under trans-shipment or manufactured for export, etc.

The scheme will operate as a 'Recognition Type' labeling system. All participating appliances will be registered under this scheme provided that they have met the performance requirement specified in the scheme.

Computers under this labeling scheme include desktops, towers or mini-towers, or portable units. These include high-end desktop computers, personal computers, workstations, network computer desktops, X terminal controllers, computer-based point-of-sale retail terminals and tablet PCs.

To qualify, the unit must be capable of being powered from a wall outlet, but this does not preclude units that are capable of being powered from a wall outlet and also from a battery. This definition is intended primarily to cover computers sold for use in businesses or homes. This definition of a computer does not include computers sold or otherwise marketed as “File Server” or “Server”.
A tablet PC capable of being powered and/or charged from a wall outlet and marketed as being a "PC" or personal computer is eligible under the definition of “portable unit”.
Products marketed as "personal handheld devices" or PDAs is not included in the scope of this EELS. A PDA unit does not function as a desktop or laptop computer because of its size and target-function, nor does it consume similar amounts of energy to operate.
Computers are classified into the following categories:

Category	Description
A	Computers that are shipped with the capability to be on networks such that they can remain in their sleep mode while their network interface adapter retains the ability to respond to network queries. Computers that are not shipped with a network interface capability. Computers shipped to a non-networked environment. Computers sold or marketed as personal computers.
B	Computers that are shipped with the capability to be on networks that currently require the computer's processor and/or memory to be involved in maintaining its network connection while in sleep mode. These computers are expected to maintain identical network functionality in and out of sleep mode.
C	Integrated Computer System (computer and monitor are combined into a single unit).

Key Criteria
The key criteria for products to qualify under this scheme include:

- Automatically entering a low-power sleep mode after a period of inactivity.
- Fulfilling Energy-efficiency specifications based on power supply.
- Including mechanisms through which the low-power modes of monitors (if applicable) can be activated.

Energy Efficiency Specifications for Qualifying Products
The energy efficiency specifications for qualifying computers are stipulated in the following clauses. There are three sets of requirement for the three appliance categories respectively.
Appliances under Category A shall fulfill the following requirement:
(a) The computer shall enter a sleep mode after a period of inactivity. The default time for all products shall be preset for less than 30 minutes. The user shall have the ability to change the time settings or disable the sleep mode.
(b) If the computer is shipped with the capability to be on a network, it shall have the ability to enter a sleep mode while on the network.
(c) If the computer is shipped with the capability to be on a network, it shall retain in sleep mode its ability to respond to wake events directed or targeted to the computer while on a network. If the wake event requires the computer to exit the sleep mode and perform a task, the computer shall re-enter its sleep mode after a period of inactivity following the completion of the task requested.
(d) The computer shall consume power in the sleep mode according to Table 2.

Maximum Continuous Power Rating of Power Supply (MCPR)	Watts in sleep mode
MCPR ≤ 200 W	Not more than 15 W
200 W < MCPR ≤ 300 W	Not more than 20 W
300 W < MCPR ≤ 350 W	Not more than 25 W
350 W < MCPR ≤ 400 W	Not more than 30 W
MCPR > 400W	Not more than 10% of maximum continuous output rating

* Computers that always maintain a level of power consumption of 15 watts or less comply with the power consumption requirements, and are not required to incorporate the sleep mode described.

Appliances under Category B shall fulfill the following requirements:
(a) The computer shall enter a sleep mode after a period of inactivity. The default time for all products shall be preset for less than 30 minutes. The user shall have the ability to change the time settings or disable the sleep mode.
(b) If the computer is shipped with the capability to be on a network, it shall have the ability to enter a sleep mode irrespective of the network technology.
(c) The computer shall retain in sleep mode its ability to respond to all types of network requests. There shall be no loss in network functionality available to the user (e.g., the network functionality available to the user during the sleep mode shall be the same as that was available before the computer entered the sleep mode).
(d) The computer shall consume in the sleep mode, no more than 15% of the maximum continuous power rating of its power supply.
5.6 Appliances under Category C shall fulfill the following requirements:
(a) The integrated computer system shall enter a sleep mode after a period of inactivity. The default time for all products shall be preset for less than 30 minutes. The user shall have the ability to change the time settings or disable the sleep mode.
(b) If the integrated computer system is shipped with the capability to be on a network, it shall have the ability to enter a sleep mode while on the network.
(c) If the integrated computer system is shipped with the capability to be on a network, it shall retain in sleep mode its ability to respond to wake events directed or targeted to the computer while on a network. If the wake event requires the computer to exit the sleep mode and perform a task, the integrated computer system shall re-enter its sleep mode after a period of inactivity after the completion of the task requested.
(d) An integrated computer system shall consume no more than 35 watts in the sleep mode. Integrated computer systems that always maintain a level of power consumption less than or equal to 35 watts comply with the power consumption requirements of this scheme and are not required to incorporate the sleep mode described.

Source: http://www.emsd.gov.hk/emsd/eng/pee/eels_mandate.shtml

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Washing Machines
Program Type: Mandatory Label
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Hong Kong, China&countryid=250&product=Clothes Washers&ID=11
Description:
"Washing machine", subject to clause 10.1.3 of the Code–
(a) means a household appliance for cleaning and rinsing of textiles using water with or without a means of extracting excess water from the textiles; and
(b) includes washing machines that–
(i) use mains electricity as the primary power source; and
(ii) have a rated washing capacity not exceeding 7 kilograms,
whether or not they have built-in dryers for drying textiles by means of heating.
"Washing machine" does not include washing machines that –
(a) may also use other energy sources; or
(b) have no spin extraction capability.
Product Classification

Category	Description
1	Horizontal drum type washing machines
2	Impeller type or agitator type washing machines

Calculation of Specific Energy Consumption
The specific energy consumption of a washing machine shall be calculated as follows:

(a) For horizontal drum type washing machine with built-in water heating device and impeller type or agitator type washing machine, the specific energy consumption is calculated as follows:

$$\text{Specific Energy Consumption } (E_{sp}) = \frac{E}{W_r} \quad \text{.....(eq. 1)}$$

where E = *measured energy consumption per cycle (kWh/cycle)*

W_r = *rated washing capacity (kg)*

(b) For horizontal drum type washing machine without built-in water heating device, the specific energy consumption is calculated as follows:

$$\text{Specific Energy Consumption } (E_{sp}) = \frac{E + W_h}{W_r} \quad \text{.....(eq. 2)}$$

where E = *measured energy consumption per cycle (kWh/cycle)*

W_r = *rated washing capacity (kg)*

W_h = *calculated hot water energy (kWh/cycle)*

The calculated hot water energy is the theoretical energy requirement for heating water from 15 oC to 60 oC and shall be calculated as follows:

$$W_h = \frac{(V_h \times (t_h - 15))}{860} \quad \text{.....(eq. 3)}$$

where W_h = the calculated hot water energy in kWh for the operation

V_h = the volume of external hot water used in litres during the operation

t_h = the hot water inlet temperature in °C, i.e. 60 °C

Average Specific Energy Consumption

The average specific energy consumption (Eav) figures for washing machines are shown in Table below.

Washing Machine Category	Average Specific Energy Consumption (kWh/kg/cycle)
Category 1	$E_{av} = 0.26$
Category 2	$E_{av} = 0.0264$

Energy Efficiency Grading

(a) Energy Consumption Index (Iε)

The energy consumption index (Iε) of a washing machine is defined as the ratio of the specific energy consumption (Esp) of the washing machine to the average specific energy consumption (Eav) (as found from the associated average specific energy consumption in clause 10.5.6 of the Code). The indices are expressed in percentages. Thus, within a category, a washing machine with a lower energy consumption index (i.e. a lower percentage) consumes less energy than a washing machine with a higher energy consumption index (i.e. a higher percentage). The energy consumption index is calculated as follows–

$$\text{Energy Consumption Index } (I_\varepsilon) = \frac{E_{sp}}{E_{av}} \times 100\% \quad \text{.....(eq. 4)}$$

where E_{sp} = *specific energy consumption as determined in clause 10.5.5*

E_{av} = *average specific energy consumption as determined from Table 10.2*

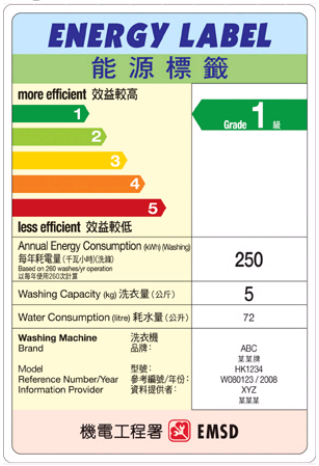
(b) Energy Efficiency Grading

The energy efficiency grading of a washing machine shall be determined as shown in Table below, with Grade 1 having the best performance and Grade 5 having the worst performance.

Energy Consumption Index: I_e (%)	Energy Efficiency Grade
$I_e \leq 80$	1
$80 < I_e \leq 95$	2
$95 < I_e \leq 110$	3
$110 < I_e \leq 125$	4
$125 < I_e$	5

Note:

In order to obtain Grade 1 to 4, the washing machine concerned shall also meet all the performance requirements as stipulated in clause 10.6.1(c), i.e. washing performance and spin extraction performance. Only Grade 5 will be accorded if the washing machine does not meet anyone of these performance requirements or $I_e > 125$.



Source: http://www.emsd.gov.hk/emsd/eng/pee/eels_mandate.shtml

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Program Type: Voluntary Label
Create New Page:
Test Method: IEC60456, JIS C 9606
Description:
The scheme will only apply to the manufacturers and importers who have participated in the voluntary scheme.
The scheme commenced from 15 December 1997 and energy labels will expire on 31 December 2011 when re-registration is necessary.
The scope of application covers all new registered appliances to be supplied in Hong Kong with effect from the date that is declared by the participants but does not cover second-hand products, products already in existing use, under trans-shipment or manufactured for export, etc.
The scheme is operated as a 'Grading Type' labeling system. All participating appliances will be registered under this scheme provided that they have met the testing requirement specified in the scheme.
Washing machines under this labeling scheme apply to all electrically operated clothes washing machines that have washing capacity normally not exceeding 10 kg for household use. Appliances that have large capacity or for industrial use or those using non-electric energy sources, or have no spin extraction capability are excluded.
This scheme applies to top-loading agitator/impeller -type and top-loading/front-loading drum-type clothes washing machines.

Overall Classification

All washing machines are to be evaluated based on appliance operation in accordance with the following classification scheme:

Table 1: Appliance Classification

Category	Description
1	Horizontal drum type washing machines
2	Impeller type or agitator type washing machines

Average Specific Energy Consumption

The average specific energy consumption (Eav) figures for washing machines are shown in Table 2.

Table 2: Average Specific Energy Consumption

Washing Machine Category	Average Specific Energy Consumption (kWh/kg/cycle)
Category 1	$E_{av} = 0.26$
Category 2	$E_{av} = 0.0264$

Energy Efficiency Grading and Performance Requirements

The availability of Table 2 enables formulation of a methodology to calculate the energy efficiency indices and the appliance efficiency grading. The methodology entails ultimate like-with-like meaningful comparison.

Energy Efficiency Indices (I)

The energy efficiency index (I) of an appliance is defined as the ratio of the actual specific energy consumption of the appliance to the average specific energy consumption. The indices are expressed in percentages. Thus, by comparing the energy efficiency indices, all appliances can have meaningful comparison of their energy efficiencies. In other words, within a category appliance that has a lower energy efficiency index (i.e. lower percentage) consumes less energy than an appliance of higher energy efficiency index (i.e. higher percentage). The energy efficiency index is calculated as follows:

$$\text{Energy Consumption Index } (I_E) = \frac{E_{sp}}{E_{av}} \times 100\%$$

Where E_{sp} = the actual appliance "Specific Energy Consumption" obtained from energy consumption test per rated washing capacity.

E_{av} = Average Specific Energy Consumption as determined from Table 2.

Appliance Energy Efficiency Grading

To make the concept of appliance energy efficiency more readily understood by ordinary consumers, appliance energy efficiency grade is introduced by linking the energy consumption index (percentage) to the 5 grades as shown in Table 3, with Grade 1 being the most energy efficient and Grade 5 the least.

Table 3: Converting Energy Consumption Indices to Energy Efficiency Grades

Energy Consumption Index : Iε (%)	Energy Efficiency Grade
Iε ≤ 80	1
80 < Iε ≤ 95	2
95 < Iε ≤ 110	3
110 < Iε ≤ 125	4
125 < Iε	5

Year Published: 15-12-1997

Year Effective: 15-12-1997

Source: http://www.emsd.gov.hk/emsd/eng/pee/eels_mandate.shtml

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Japan

	Product	Mandatory Standard	Mandatory Label	Voluntary Label
AC	Air Conditioners	Edit		
Refrigerator & freezer	Refrigerator-freezers	Edit		
	Commercial Refrigeration	Edit	Edit	
Lighting	Fluorescent Lamps and Compact Fluorescent lamp	Edit		
Computers & Monitors	Computer (PC)	Edit		Edit
	Monitors			Edit
Televisions	Televisions	Edit		
Clothes washers	NONE			
Clothes driers	NONE			
Water heating	Water Heaters - Electric	Edit	Edit	
	Gas Water Heater	Edit		
	Oil-fired water heater	Edit		

Note: Red box – create a new page; orange box – update existing page; white box – no action needed. Grey Box – no standards/label exists

Air Conditioners
Program Type: Top Runner Program Energy Saving Standard

Updating Existing Page:

Central AC http://www.apec esis.org/productsummary_sl.php?country=Japan&countryid=252&product=Central AC (Split type)&ID=54
Ducted AC http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=Ducted AC and heat pumps&ID=109
Non Ducted AC and heat pumps http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=Non-ducted AC and heat pumps&ID=108
RAC (packaged Terminal) http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=RACs (Packaged Terminal)&ID=79
RAC (Split) http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=RACs%20(Split)&ID=5

Year Published: Apr, 2008, Effective Date: Jun, 2009

Description:

Product Scope

Cooling-cum-heating air conditioners and dedicated cooling air conditioners, except the following:

1) ones with cooling capacity of over 50.4 kW, 2) ones of water-cooling type, 3) ones so structured as to have no motor for compression, 4) ones so structured as to use any energy other than electricity as a heat source for space heating, 5) ones so structured as to have temperature control

function or dust control function intended for air conditioning to maintain machine or appliance performance or beverage or food hygiene, 6) ones so structured as to solely cool outside air and send it into indoors, 7) spot air conditioners, 8) ones designed for vehicles and other means of transport, 9) ones so structured as to have a duct at suction/exhaust outlet of a heat-exchanger of the outdoor unit, 10) ones so structured as to have a thermal storage tank dedicated for cooling (including cooling-cum-heating), 11) ones designed for highly gas-tight/heat-insulating housing, and so structured as to send air to multiple rooms through a branched duct and operate interlocked with ventilation devices, 12) ones so structured as to have compressors, air blowers and other main components powered by electricity generated from a dedicated solar cell module, 13) ones having floor heating function or hot-water supply function, 14) among separate type air conditioners so structured as to connect two or more indoor units to one outdoor unit, ones using heat absorbed by space cooling for space heating, 15) ones dedicated to space cooling use; 16) ones structured for installation in the window frame, 17) ones structured for installation penetrating a wall, and 18) among air conditioners with cooling capacity of over 28 kW, separate type ones so structured as to connect two or more indoor units to one outdoor unit (applicable only to ones each of whose indoor units is separately controlled).

Energy Efficiency Level

- Air conditioners whose target year is freezing year 2004 or any subsequent year or freezing year 2007 or any subsequent year: It is the average cooling/heating energy consumption efficiency (cooling/heating average COP), which is a numerical value obtained by dividing the sum the cooling energy consumption efficiency and the heating energy consumption efficiency (obtained in the same manner as the cooling energy consumption efficiency).

- Air conditioners whose target fiscal year is FY 2010 or any subsequent fiscal year, FY 2012 or any subsequent fiscal year, or FY 2015 or any subsequent fiscal year: It is the annual performance factor (APF), which is a numerical value calculated by the method under JIS C9612 (2005) for products for residential use or by that under JIS B8616 (2006) for service use.

In the target fiscal year and each subsequent fiscal year, energy consumption efficiency in each category shall be at or greater than the target standard value.

Residential air conditioners	
Air conditioners of wall-hung type among the non-duct types (excluding the multi-types that control operation of the indoor unit individually)	●For ones of 4.0 kW or less in cooling capacity: Observe the standard value for freezing year 2004 (the period from October 1, 2003 through September 30, 2004) and any subsequent freezing year*1(1). ●For ones of over 4.0 kW in cooling capacity: Observe the standard value for freezing year 2007 (the period from October 1, 2006 through September 30, 2007) and any subsequent freezing year*1(1). ●For freezing year 2010 and any subsequent freezing year: Observe the applicable one of standard values of classes A through G in (2) and (3).
Others	●For freezing year 2007 and any subsequent freezing year: Observe the standard value of *2(1). ●For freezing year 2012 and any subsequent freezing year: Observe the applicable one of standard values of classes H through M in (3).
Service air conditioners	
All	●For freezing year 2007 and any subsequent freezing year*3: Observe the standard value of (1). ●For freezing year 2015 and any subsequent freezing year: Observe the standard value of (4).

＊1 It shall be the period from October 1, 2009 through March 31, 2010.

＊2 It shall be the period until freezing year 2011.

＊3 It shall be the period until freezing year 2014.

(1) Air conditioners whose target fiscal year is 2007 freezing year and each freezing year after that (for some categories, 2004 freezing year and each freezing year after that)
[for residential use, for service use]

Category			Standard energy consumption efficiency (COP)
Unit type	Cooling capacity	Category name	
Non-ducted wall-mounted type (except multi-type operating indoor units individually)	Up to 2.5kW	b	5.27
	Over 2.5kW up to 3.2kW	c	4.90
	Over 3.2kW up to 4.0kW	d	3.65
	Over 4.0kW up to 7.1kW	e	3.17
	Over 7.1kW	f	3.10
Other non-ducted type (except multi-type operating indoor units individually)	Up to 2.5kW	g	3.96
	Over 2.5kW up to 3.2kW	h	3.96
	Over 3.2kW up to 4.0kW	i	3.20
	Over 4.0kW up to 7.1kW	j	3.12
	Over 7.1kW	k	3.06
Ducted type (except multi-type operating indoor units individually)	Up to 4.0kW	l	3.02
	Over 4.0kW up to 7.1kW	m	3.02
	Over 7.1kW	n	3.02
Multi-type operating indoor units individually	Up to 4.0kW	o	4.12
	Over 4.0kW up to 7.1kW	p	3.23
	Over 7.1kW	q	3.07

Remarks : 1. "Ducted type" indicates systems connected to ducts at the outlet.
2. "Multi-type" indicates a type that has two or more indoor units connected to an outdoor unit.

(2) Air conditioners whose target fiscal year is FY 2010 and each subsequent fiscal year
[For ones of 4.0 kW or less in cooling capacity and Non-ducted wall-hung type]

Category			Standard energy consumption efficiency (APF)
Cooling capacity	Dimension type of indoor units	Category name	
Up to 3.2kW	Dimension-defined type	A	5.8
	Free-dimension type	B	6.6
Over 3.2kW up to 4.0kW	Dimension-defined type	C	4.9
	Free-dimension type	D	6.0

Remarks : "Dimension Type of Indoor Unit" means that air conditioner models whose indoor unit has horizontal width of 800 mm or less and height of 295 mm or less shall be defined as a dimension-defined type. Air conditioners other than those of dimension-defined type shall be free-dimension type.

(3) Air conditioners whose target year is freezing year 2012 or any freezing year after that (for classes E through G, freezing year 2010 or any freezing year after that) [for residential use other than (2)]

Category			Standard energy consumption efficiency (APF)
Unit type	Cooling capacity	Category name	
Non-ducted wall-hung type (except multi-type controlling operation of indoor units individually)	Over 4.0kW up to 5.0kW	E	5.5
	Over 4.0kW up to 6.3kW	F	5.0
	Over 6.3kW up to 28.0kW	G	4.5
Other non-ducted type (except multi-type controlling operation of indoor units individually)	Up to 3.2 kW	H	5.2
	Over 3.2 kW up to 4.0 kW	I	4.8
	Over 4.0 kW up to 28.0 kW	J	4.3
Multi-type controlling operation of indoor units individually	Up to 4.0 kW	K	5.4
	Over 4.0 kW up to 7.1 kW	L	5.4
	Over 7.1 kW up to 28.0 kW	M	5.4

Remarks : "Multi-type" refers to a type that has two or more indoor units connected to one outdoor unit.

(4) Air conditioners whose target year is freezing year 2015 or any freezing year after that [for service
use]

Category				Standard energy consumption efficiency or calculation formula thereof
Type & function	Indoor unit type	Cooling capacity	Category name	
Combination of plural types or any type other than following	4-directional cassette type	Less than 3.6 kW	aa	E = 6.0
		Not less than 3.6 kW but less than 10.0 kW	ab	E = 6.0 - 0.083×(A - 3.6)
		Not less than 10.0 kW but less than 20.0 kW	ac	E = 6.0 - 0.12×(A - 10)
		Not less than 20.0 kW and up to 28.0 kW	ad	E = 5.1 - 0.060×(A - 20)
	Other than 4-directional cassette type	Less than 3.6 kW	ae	E = 5.1
		Not less than 3.6 kW but less than 10.0 kW	af	E = 5.1 - 0.083×(A - 3.6)
		Not less than 10.0 kW but less than 20.0 kW	ag	E = 5.1 - 0.10×(A - 10)
		Not less than 20.0 kW and up to 28.0 kW	ah	E = 4.3 - 0.050×(A - 20)
Multi-type controlling operation of indoor units individually		Less than 10.0 kW	ai	E = 5.7
		Not less than 10.0 kW but less than 20.0 kW	aj	E = 5.7 - 0.11×(A - 10)
		Not less than 20.0 kW but less than 40.0 kW	ak	E = 5.7 - 0.065×(A - 20)
		Not less than 40.0 kW and up to 50.4 kW	al	E = 4.8 - 0.040×(A - 40)
Ducted type whose indoor unit is set on floor or any like type	Non-ducted type	Less than 20.0 kW	am	E = 4.9
		Not less than 20.0 kW and up to 28.0 kW	an	E = 4.9
	Ducted type	Less than 20.0 kW	ao	E = 4.7
		Not less than 20.0 kW and up to 28.0 kW	ap	E = 4.7

Remarks : 1. "Ducted type" indicates systems connected to ducts at the outlet.
2. "Multi-type" indicates a type that has two or more indoor units connected to an outdoor unit.
3. E and A represent the following values, respectively.
E: Standard energy consumption efficiency (in full-year energy consumption efficiency units)
A: Cooling capacity (in kilowatts)

Source: http://www.eccj.or.jp/top_runner/pdf/tr_air_conditioners_apr.2008.pdf

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Refrigerator- Freezers

Program Type: Top Runner Program Energy Saving Standard

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=Refrigerator&ID=2
http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=Refrigerator-freezers&ID=10
http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=Freezers&ID=9

Year Published: Jul 2006, Effective Date: Sep 2006

Description:
Product Scope
Electric refrigerators including ones combined with a freezer, except the followings:
1) ones using thermo-elements, 2) ones produced for industrial use, and 3) ones of absorption type.

Energy Efficiency Level

1. Electric refrigerators whose target fiscal year is FY 2004 and each subsequent fiscal year (until FY
2009) Energy consumption efficiency is annual energy consumption (kWh/year) measured as specified in JIS C9801 (1999), 15. Energy Consumption Measurement.

2. Electric refrigerators whose target fiscal year is FY 2010 and each subsequent fiscal year Energy consumption efficiency is annual energy consumption (kWh/year) measured as specified in JIS C9801 (2006), 15. Energy Consumption Measurement.

1. Electric refrigerators whose target fiscal year is FY 2004 and each subsequent fiscal year (until FY 2009)

1. Electric refrigerators whose target fiscal year is FY 2004 and each subsequent fiscal year (until FY 2009)

Category				Calculation formula of standard energy consumption efficiency
Product type	Cooling type	Use of specified technology	Category name	
Refrigerator	Cold air-natural convection type *1		a	$E_1=0.427V_1+178$
			b	$E_1=0.427V_1+178$
Refrigerator-Freezer	Cold air-forced convection type *2		c	$E_1=0.433V_1+320$
	Cold air-natural convection type	With specified technology	d	$E_1=0.507V_1+147$
	Cold air-forced convection type	Without specified technology	e	$E_1=0.433V_1+340$

*1 The walls of the freezing room function as an evaporator, and foods are refrigerated by direct freezing. In the case of the two-door type, however, another evaporator is needed for the refrigeration room in addition to that for the freezing room.

*2 An evaporator is installed in the rear of the freezing room, and with use of a fan cold air is generated and distributed to the freezing room and refrigeration room.

Remarks : 1. E_1 and V_1 express the following numerical values:

E_1: Standard energy consumption efficiency (unit: kWh per year)

V_1:Adjusted internal volume (The figure is acquired first by multiplying rated internal volume of freezing compartment by either 2.15 for three-star type, 1.85 for two-star type, or 1.55 for one-star type, and then by adding the result to the rated internal storage volume excluding the freezing compartment. The obtained figure shall be rounded to the nearest whole number.) (unit: liter)

2. "Specified technology" refers to inverter or vacuum insulation technology.

2. FY 2010 and each fiscal after that

2. FY 2010 and each fiscal after that

Category					Calculation formula of standard energy consumption efficiency
Product type	Cooling type	Rated internal volume	Number of doors in chiller section	Category name	
Refrigerator or refrigerator-freezer	Cold air-natural convection type			A	$E_2=0.844V_2+155$
	Cold air-forced circulation type	Up to 300 liter		B	$E_2=0.774V_2+220$
		Over 300 liter	One	C	$E_2=0.302V_2+343$
			2 or more	D	$E_2=0.296V_2+374$

Remarks : E_2 and V_2 express the following numerical values.

E_2 : Standard energy consumption efficiency (unit: kWh per year)

V_2 : Adjusted internal volume (The figure is acquired first by multiplying rated internal volume of freezing compartment by either 2.20 for three-star type, 1.87 for two-star type, or 1.54 for one-star type, and then by adding the result to the rated internal storage volume excluding the freezing compartment. The obtained figure shall be rounded to the nearest whole number.) (unit: liter)

Source: http://www.eccj.or.jp/top_runner/pdf/tr_re-freez_Jul.2006.pdf

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Freezers

Program Type: Top Runner Program Energy Saving Standard

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=Freezers&ID=9

Year Published: Jul 2006

Description:

Product Scope
Electric freezers, except the following:
1) ones using thermo-elements, 2) ones produced for industrial use, and 3) ones of absorption type.

Energy Efficiency Level

(1) From FY 2004 to FY 2009

Category		Calculation formula of standard energy consumption efficiency
Cooling type	Category name	
Cold air-natural convection type*1	a	$E_1=0.281V_1+353$
Cold air-forced circulation type*2	b	$E_1=0.281V_1+353$

*1 The walls of the freezing room function as an evaporator, and foods are refrigerated by direct freezing. In the case of the two-door type, however, another evaporator is needed for the refrigeration room in addition to that for the freezing room.

*2 An evaporator is installed in the rear of the freezing room, and with use of fan cold air is generated and distributed to the freezing room and refrigeration room.

Remarks : E_1 and V_1 express the following numerical values.
E_1 : Standard energy consumption efficiency (unit: kWh per year)
V_1 : Adjusted internal volume (The figure is acquired by multiplying rated internal volume of freezing compartment by either 2.15 for three-star type, 1.85 for two-star type, or 1.55 for one-star type. The obtained figure shall be rounded to the nearest whole number.) (unit: liter)

(2) FY 2010 and each fiscal after that

Category			Calculation formula of standard energy consumption efficiency
Cooling type	Rated internal volume	Category name	
Cold air-natural convection type		A	$E_2=0.844V_2+155$
Cold air-forced circulation type	Up to 300 liter	B	$E_2=0.774V_2+220$
	Over 300 liter	C	$E_2=0.302V_2+343$

Remarks: E_2 and V_2 express the following numerical values.
E_2 : Standard energy consumption efficiency (unit: kWh per year)
V_2 : Adjusted internal volume (The figure is acquired first by multiplying rated internal volume of freezing compartment by either 2.20 for three-star type, 1.87 for two-star type, or 1.54 for one-star type. The obtained figure shall be rounded to the nearest whole number.) (unit: liter)

Source: http://www.eccj.or.jp/top_runner/pdf/tr_re-freez_Jul.2006.pdf

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Commercial Refrigeration

Program Type: Mandatory Standards

Creating New Page:

Description:

This program is under development.

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Program Type: Mandatory Label

Creating New Page:

Description:

This program is under development.

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Lighting Equipment

Program Type: Top Runner Program Energy Saving Standard

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=Fluorescent Lamps&ID=19

Published year: Jul, 2009 Effective Date: Mar 2010

Description:

Product Scope

Lighting equipment using only a fluorescent lamp or lamps as the main light source, except the following:
1) ones of explosion-proof type, 2) ones of heat-resistant type, 3) ones of dust-proof type, 4) ones of anticorrosion type, 5) ones designed for vehicles and other means of transport, 6) ones of wall-hung type, pendant type for service facilities or built-in type using fluorescent lamps of less than 40 watts, 7) ones designed for use in or on mining or manufacturing machinery, 8) ones designed for use in or on furniture, 9) ones whose bayonet base and fluorescent lamp stabilizer are structurally integrated (ones using a compact fluorescent lamp or lamps with built-in stabilizer), and 10) ones whose globe for fluorescent lamp protection is transparent.

Bulb-shaped fluorescent lamps including:
11) ones so structured as to have a reflector (reflection type), 12) ones having a function to regulate light flux (for dimming purpose), 13) ones emitting light of any other color than that of daylight, daylight white, white, warm white or usual electric bulb color (such as color lamps or black lights), 14) ones designed for use in henhouse, and 15) ones allowing separation of fluorescent lamp (separable stabilizer type).

Energy Efficiency Level

- Fluorescent light equipment

Energy consumption efficiency for such equipment shall be a numerical value obtained by dividing by consumed wattage (W), measured by a method prescribed under JIS C8105-3, the total luminous flux (a value expressed in lumens＊1) obtained by multiplying by the stabilizer output factor and the temperature correction factor the total luminous flux value of the fluorescent lamp alone, measured by a method prescribed under JIS C7617-2 if it is a straight tube fluorescent lamp or by that prescribed under JIS C7618-2 if it is a compact fluorescent lamp or a circular fluorescent lamp.

- Bulb-shaped fluorescent lamp

Energy consumption efficiency for such lamps shall be a numerical value obtained by dividing by consumed wattage (W), measured by a method prescribed under JIS C7620-2, the total luminous flux (a value expressed in lumens＊1) measured by a method prescribed under JIS C7620-2.
＊1 The lumen is the SI unit of luminous flux. Where a point light source emits 1 candela (cd) of luminous intensity uniformly and omnidirectionally, the amount of luminous flux in a cone having a solid angle of 1 sr (steradian) is defined as 1 lumen.

(1) Ones whose target year is FY 2005 and each subsequent fiscal year (until FY 2011)

Category	Standard energy consumption efficiency
1 Equipment using 110-watt rapid-start fluorescent lamp	79.0
2 Equipment using dedicated 40 W fluorescent lamp for high frequency lighting	86.5
3 Equipment using 40 W rapid-start fluorescent lamp	71.0
4 Equipment using 40 W starter fluorescent lamp	60.5
5 Electronic ballast type using 20 W starter fluorescent lamp	77.0
6 Magnetic ballast type using 20 W starter fluorescent lamp	49.0
7 Equipment using circular fluorescent lamps with size category of over 72	81.0
8 Equipment using circular fluorescent lamps with size category of over 62 up to 72	82.0
9 Electronic ballast type among equipment using circular fluorescent lamps with size category of 62 or less	75.5
10 Magnetic ballast type among equipment using circular fluorescent lamps with size category of over 62	59.0
11 Desk top using compact fluorescent lamps	62.5
12 Desk top using fluorescent lamps	61.5

(2) Ones whose target year is FY 2012 or any subsequent fiscal year

- Bulb-shaped fluorescent lamp

Category				Standard energy consumption efficiency
Fluorescent lamp size category	Light source color of fluorescent lamp	Shape of fluorescent lamp	Category name	
10	Usual electric bulb color		a	60.6
	Daylight white		b	58.1
	Daylight		c	55.0
15	Usual electric bulb color		d	67.5
	Daylight white		e	65.0
	Daylight		f	60.8
25	Usual electric bulb color	Fluorescent lamp is exposed	g	72.4
		Category name is not g	h	69.1
	Daylight white	Fluorescent lamp is exposed	i	69.5
		Category name is not i	j	66.4
	Daylight	Fluorescent lamp is exposed	k	65.2
		Category name is not k	l	62.3

- Fluorescent light equipment

Category				Standard energy consumption efficiency
Intended use	Shape of fluorescent lamp	Fluorescent lamp size category	Category name	
For service use	Straight tube type or twin tube compact type	Using fluorescent lamp of 86 or above in size category	I	100.8
		Category name is not I	II	100.5
	Compact type of non-twin tube shape		III	61.6
For residential use	Circular type or straight tube type	Using fluorescent lamps of 70 or above in total of size category counts (except ones using straight tube type fluorescent lamps of 20 in size category)	IV	91.6
		Category name is not IV	V	78.1
For desk lamp	Straight tube type or compact type		VI	70.8

Source: http://www.eccj.or.jp/top_runner/pdf/tr_fluorescent_lights_jul.2009.pdf
http://www.eccj.or.jp/top_runner/pdf/tr_fluorescent_light_bulb_jul.2009.pdf

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Computers

Program Type: Top Runner Program Energy Saving Standard

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=Computers%20(Desktop%20PC)&ID=43

Year Published: Dec. 2009

Description:

Product Scope

Digital central processing units (CPUs) and personal computers (PCs) stipulated by the Japan Standard Commodity Classification, except the following:
1) ones whose processing units, main memory units, input/output controllers and power supplies are structurally multiplexed, 2) ones whose theoretical operation＊ is 50,000 MTOPS or more, 3) ones capable of computation using a processing unit composed of over 256 processors, 4) ones with 512 or more input/output signal transmission channels (limited to those whose maximum data transfer rate is 100 megabit or more per second), 5) ones whose theoretical operation is less than 100 MTOPS, 6) ones mainly used with built-in power supply instead of being connected to power line and having built-in magnetic disk units.
＊ As for computers listed in the left column of Appendix Table 4, Enforcement Regulation of Law Concerning the Rational Use of Energy, their theoretical operation is presented in the right column of the same table.

Energy Efficiency Level

Value obtained by driving average power consumption (W) in idle state and in low power mode, by theoretical operation (GTOPS＊).
＊ Category and target standard values 1) of MTOPS

(1) Ones whose target year is FY 2007 or any subsequent fiscal year(until FY 2010)

(2) Ones whose target year is FY 2011 or any subsequent fiscal year

- Server-type computer

Category				Standard energy consumption efficiency
Type of Computer	Number of input/output signal transmission channels	Main memory capacity	Category name	
Earlier server-type computers	64 or more		a	3.1
	8 or more, and less than 64		b	0.079
	4 or more, and less than 8	16 GB or more	c	0.071
		Less than 16 GB	d	0.068
	Less than 4	16 GB or more	e	0.053
		4 GB or more, and less than 16 GB	f	0.039
		2 GB or more, and less than 4 GB	g	0.024
		Less than 2 GB	h	0.016
Earlier client-type computers not of battery-driven type	2 or more, and less than 4	Less than 6 GB	i	0.027
	Less than 2	2 GB or more, and less than 6 GB	j	0.0048
		Less than 2 GB	k	0.0038
Earlier client-type computers of battery-driven type		1 GB or more, and less than 6 GB	l	0.0026
		Less than 1 GB	m	0.0022

Remarks : 1. “Earlier server-type computers” refers to ones other than earlier client-type computers.
2. “Number of input/output signal transmission lines” refers to numbers of signal transmission lines of 100 Mbps or more in maximum data transfer velocity, among those that split directly from signal transmission lines (including other signal transmission lines having a comparable transfer ability) connecting processing units and main memory units or among those that split directly from signal transmission line splitters connected to the pertinent signal line; however, those that are connected to outer elements only through graphic display ports or keyboard ports are excluded.
3. “Battery-driven type” refers to ones capable of running on built-in batteries without relying on power supplied from outside power line.
4. “Earlier client-type computers” refers to ones with a graphic display port and a keyboard port (including ones with a built-in display unit instead of a graphic display port, and ones with a built-in keyboard instead of a keyboard port), and having main memory capacity of below 6 GB and less than 4 input/ output signal transmission lines.

Category				Standard energy consumption efficiency
CPU type	No. of I/O slots	No. of CPU sockets	Category name	
Dedicated CISC	Less than 32		A	1,950
	32 or more		B	2,620
RISC	Less than 8		C	13
	8 or more, but less than 40		D	31
	40 or more		E	140
IA64	Less than 10		F	6.2
	10 or more		G	22
IA32	0		H	1.3
	1 or more, but less than 7	Less than 2	I	1.2
		2 or more, but less than 4	J	1.9
		4 or more	K	6.7
	7 or more		L	7.4

- Client-type computers

Category					Standard energy consumption efficiency
Client-type computer classified by power source type and no. of memory channels	Main memory capacity	Standalone GPU	Screen size	Category name	
Battery- driven with 2 or more memory channels	16 GB or more			M	2.25
	Over 4 GB, below 16 GB			N	0.34
	4 GB or less		17″ size or less	P	0.31
		Mounted	Less than 17″ size	Q	0.21
		Not mounted	12″ size or larger, but less than 17″ size	R	0.15
			Less than 12″ size	S	0.21
Non-battery- driven with 2 or more memory channels having AC adaptor for power supply				T	0.29
Non-battery- driven with 2 or more memory channels, not of category name T	16 GB or more			U	2.25
	Over 4 GB, below 16 GB	Mounted		V	0.51
		Not mounted		W	0.64
	4 GB or less			X	0.53
Having less than 2 memory channels				Y	0.51

Source: http://www.eccj.or.jp/top_runner/pdf/computers_magneticdiscunits-eng.pdf

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Computer

Updating Existing Page: ENERGY-STAR-Computer **Vo**luntary Label

Description: http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=Computers%20(Desktop%20PC)&ID=43

Effective Year : Jul, 2009, Effective Date: Mar 2010

Description :

Computer: A device which performs logical operations and processes data. Computers are composed of, at a minimum: (1) a central processing unit (CPU) to perform operations; (2) user input devices such as a keyboard, mouse, digitizer or game controller; and (3) a computer display screen to output information. For the purposes of this specification, computers include both stationary and portable units, including desktop computers, gaming consoles, integrated desktop computers, notebook computers, small-scale servers, thin clients, and workstations. Although computers must be capable of using input devices and computer displays, as noted in numbers 2 and 3 above, computer systems do not need to include these devices on shipment to meet this definition.

How to obtain additional information:
http://www.energystar.gov/index.cfm?fuseaction=find_a_product.showProductGroup&pgw_code=CO

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Computer Monitor

Program Type: ENERGY STAR – Monitor Voluntary Label

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=Computer%20Monitors&ID=46

Test Standard: ENERGY STAR Program Requirements for Displays (Version 5.0)

Description:

Product Scope

Electronic Display (also referred to as "Display"): A commercially-available product with a display screen and associated electronics, often encased in a single housing, that as its primary function displays visual information from (i) a computer, workstation or server via one or more inputs, such as VGA, DVI, HDMI, or IEEE 1394, or (ii) a USB flash drive, a memory card, or wireless Internet connection. Common display technologies include liquid crystal display (LCD), light emitting diode (LED), cathode-ray tube (CRT), and plasma display panel (PDP).

To qualify for ENERGY STAR, the display must satisfy the following criteria:

A. Maximum viewable diagonal screen size: The display must have a viewable diagonal screen size of less than or equal to (≤) 60 inches.

B. Power Source: The display must be powered by a separate AC wall outlet, a battery unit that is sold with an AC adapter, or a data or network connection.

C. Television Tuners: If the display has an integrated television tuner, it may qualify for ENERGY STAR under this specification as long as it is primarily marketed and sold to consumers as a display or as a dual-function display and television. Any display with a television tuner that is marketed and sold exclusively as a television is not eligible to qualify under this specification. Under Tier 2 of this specification, only those displays without tuners may qualify; displays with tuners may qualify under Tier 2 of the Version 3.0 ENERGY STAR TV specification.

D. Automatic Brightness Control (ABC): To qualify for ENERGY STAR using the Automatic Brightness Control On Mode power equation, the display must ship with ABC enabled by default.

E. External Power Supply: If the display is shipped with an EPS, the EPS must be ENERGY STAR qualified or meet the no-load and active mode efficiency levels provided in the ENERGY STAR Program Requirements for Single Voltage AC-AC and AC-DC External Power Supplies. The ENERGY STAR specification and qualified product list can be found at www.energystar.gov/powersupplies .

F. Power Management Requirements: The display must have at least one mechanism enabled by default that allows the display to automatically enter Sleep or Off Mode. For instance, data or network connections must support powering down the display according to standard mechanisms, such as Display Power Management Signaling. Displays generating their own content must have a sensor or timer enabled by default to automatically engage Sleep or Off Mode.

Energy Efficiency Level

A. On Mode Requirements:

B. Sleep and Off Mode Requirements:

And, More detailed information on energy efficiency level:
http://www.energystar.gov/ia/partners/product_specs/program_reqs/displays_spec.pdf

Year Effective: 2009

Program Requirements:
http://www.energystar.gov/ia/partners/product_specs/program_reqs/displays_spec.pdf

Source: http://www.energystar.gov/index.cfm?fuseaction=products_for_partners.showMonitors
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Television

Program Type: Top Runner Program Energy Saving Standard

Updating Existing Page:

Year Published: Jul, 2009, Effective Date: Mar 2010

Description:

Product Scope

Cathode ray tube TV sets, liquid crystal display TV sets, or plasma TV sets that run on alternating current, except the following:
1) ones for industrial use, 2) multiscan-compatible cathode ray tube (CRT) type ones of over 33.8 kHz in horizontal frequency, 3) ones for travelers from overseas, 4) rear projection type ones, 5) 10 type, 10 V type or smaller ones in TV receiver size, 6) wireless type ones, and 7) computer display units having TV broadcast receiving function.

Energy Efficiency Level

- CRT TV sets, liquid crystal TV sets whose target year is FY 2008 or any subsequent fiscal year (not beyond FY 2011) and plasma TV sets. The annual power consumption (kWh/year) is based on a supposed daily active period of 4.5 hours, the rest being idle time.
- Liquid crystal TV sets and plasma TV sets whose target year is FY 2012 or any subsequent fiscal year. The annual power consumption (kWh/year) is based on a supposed daily active period of 4.5 hours, the rest being idle time. (However, if EPG is to be acquired during the idle time, the period of acquisition shall be taken into account in calculating the kilowatts-h.)

(1) Ones whose target year is FY 2003 or any subsequent fiscal year
Cathode ray tube TV (20 categories)

Category						Standard energy consumption efficiency
Scanning method	Aspect ratio	Deflection angle	Shape of tube	Function	Category name	
Normal scanning method	4:3	Up to 100 degrees	Other than flat type	Other than those having built-in VCR (or DVD)	AA	E=2.5S+32
				Those having built-in VCR (or DVD)	AB	E=2.5S+60
			Flat type	Other than those having built-in VCR (or DVD)	AC	E=2.5S+42
				Those having built-in VCR (or DVD)	AD	E=2.5S+70
		Over 100 degrees	Other than flat type	Other than those having built-in VCR (or DVD)	AE	E=5.1S−4
				Those having built-in VCR (or DVD)	AF	E=5.1S+24
			Flat type	Other than those having built-in VCR (or DVD)	AG	E=5.1S+21
				Those having built-in VCR (or DVD)	AH	E=5.1S+49
	16:9		Other than flat type	Other than those having built-in VCR (or DVD), and having no additional function	AI	E=5.1S−11
				Those having built-in VCR (or DVD)	AJ	E=5.1S+17
				Other than those having built-in VCR (or DVD), and having 1 additional function	AK	E=5.1S+6
				Other than those having built-in VCR (or DVD), and having 2 additional functions	AL	E=5.1S+13
				Other than those having built-in VCR (or DVD), and having 3 additional functions	AM	E=5.1S+59
			Flat type	Other than those having built-in VCR (or DVD), and having no additional function	AN	E=5.1S−1
				Those having built-in VCR (or DVD)	AO	E=5.1S+27
				Other than those having built-in VCR (or DVD), and having 1 additional function	AP	E=5.1S+16
				Other than those having built-in VCR (or DVD), and having 2 additional functions	AQ	E=5.1S+23
				Other than those having built-in VCR (or DVD), and having 3 additional functions	AR	E=5.1S+69
Double speed scanning type				Those having analog high-vision TV	AS	E=5.5S+72
				Other than those having analog high-vision TV	AT	E=5.5S+41

Remarks : 1. “Television receiver size” refers to the centimeter- denominated quotient, rounded at the decimal point, of division of the diagonal dimension of the driven display area of the display screen by 2.54.
2. “Flat type” means a TV set whose percentage of the maximum gap value between the center and the peripheral portion on a cathode-ray-tube surface to the diagonal dimensions of a cathode-ray-tube is 0.5% or less (provided that the measurement position of the peripheral portion and the diagonal dimension shall be within the effective area plus 5 mm).
3. “Analog high-vision TV” means a cathode-ray-tube TV with 1,125 scanning lines and a screen of 16:9 aspect ratio that also has a MUSE decoder and satellite broadcasting receiving function.
4. “Additional function” refers to dual-tuner & split-screen function, text broadcast reception function, and MUSE-NTSC converter ＊.
＊ Built-in converters that convert MUSE high-vision broadcast signals to current NTSC signals.
5. “E” and “S” represent the following numeric values.
E : standard energy consumption efficiency (kWh per year)
S : Television receiver size

(2) Ones whose target year is FY 2008 or any subsequent fiscal year (but not later than FY 2011)

- Liquid crystal TV (38 categories)

Category						Standard energy consumption efficiency or calculation formula thereof
Aspect ratio	Number of pixels	Television receiver size	Function	Additional function	Category name	
4:3	Vertical pixel count of less than 650	Below 15 V size	Other than those having DVD play function only	Other than the following	BA	E=44
				With 1 additional function	BB	E=58
				With 2 additional functions	BC	E=72
			Those having DVD play function only	Other than the following	BD	E=58
				With HDD	BE	E=72
		15 V size or larger	Other than those having DVD play function only	Other than the following	BF	E=5.9S−45
				With 1 additional function	BG	E=5.9S−31
				With 2 additional functions	BH	E=5.9S−16
			Those having DVD play function only	Other than the following	BI	E=5.9S−31
				With HDD	BJ	E=5.9S−16
	Vertical pixel count of 650 or more	Below 15 V size	Other than those having DVD play function only	Other than the following	BK	E=49
				With 1 additional function	BL	E=64
				With 2 additional functions	BM	E=78
			Those having DVD play function only	Other than the following	BN	E=59
				With HDD	BO	E=73
		15 V size or larger	Other than those having DVD play function only	Other than the following	BP	E=5.4S−32
				With 1 additional function	BQ	E=5.4S−17
				With 2 additional functions	BR	E=5.4S−3
			Those having DVD play function only	Other than the following	BS	E=5.4S−22
				With HDD	BT	E=5.4S−8
16:9	Vertical pixel count of less than 650			Those capable of receiving analog broadcast signals only, and falling in a category other than the following	BU	E=8.1S−86
				With 1 additional function	BV	E=8.1S−72
				With 2 additional functions	BW	E=8.1S−58
				Those capable of receiving digital broadcast signals, and falling in a category other than the following	BX	E=7.5S−45
				With 1 additional function	BY	E=7.5S−31
				With 2 additional functions	BZ	E=7.5S−17
				With 3 additional functions	BAA	E=7.5S−3
	Vertical pixel count of 650 or more, and less than 1080			Those capable of receiving analog broadcast signals only, and falling in a category other than the following	BBB	E=8.1S−66
				With 1 additional function	BCC	E=8.1S−52
				With 2 additional functions	BDD	E=8.1S−38
				Those capable of receiving digital broadcast signals, and falling in a category other than the following	BEE	E=7.5S−40
				With 1 additional function	BFF	E=7.5S−25
				With 2 additional functions	BGG	E=7.5S−11
				With 3 additional functions	BHH	E=7.5S+3
	Vertical pixel count of 1080 or more			Other than the following	BII	E=8.9S−55
				With 1 additional function	BJJ	E=8.9S−41
				With 2 additional functions	BKK	E=8.9S−26
				With 3 additional functions	BLL	E=8.9S−12

Remarks : 1. “Television receiver size” refers to the centimeter- denominated quotient, rounded at the decimal point, of division of the diagonal dimension of the driven display area of the display screen by 2.54.
2. “Additional function(s)” refers to DVD (solely what has a video recording function), HDD and double digital tuner.
3. E and S represent the following values, respectively.
E: Standard energy consumption efficiency (in kWh/year)
S: Television receiver size

- Plasma TV sets (8 categories)

Category			Calculation formula of standard energy consumption efficiency
Television receiver size	Additional function(s)	Category name	
Smaller than 43 V size	Other than the following	CA	E=7.9S+30
	With 1 function	CB	E=7.9S+44
	With 2 functions	CC	E=7.9S+58
	With 3 functions	CD	E=7.9S+73
43 V size or larger	Other than the following	CE	E=15.9S−314
	With 1 function	CF	E=15.9S−300
	With 2 functions	CG	E=15.9S−286
	With 3 functions	CH	E=15.9S−272

Remarks : 1. “Television receiver size” refers to the centimeter- denominated quotient, rounded at the decimal point, of division of the diagonal dimension of the driven display area of the display screen by 2.54.
2. “Additional function(s)” refers to DVD (solely what has a video recording function), HDD and double digital tuner.
3. E and S represent the following values, respectively.
E: Standard energy consumption efficiency (in kWh/year)
S: Television receiver size

(3) Ones whose target year is FY 2012 or any subsequent fiscal year

- Liquid crystal TV sets and plasma TV sets (64 categories)

Category					Standard energy consumption efficiency or calculation formula thereof
No. of pixels	Television receiver size	Dynamic image display	Additional function(s)	Category name	
FHD	Below 19 V size	Liquid crystal normal	Other than the following	DA	E=59
			With 1 function	DA1	E=71
			With 2 functions	DA2	E=83
			With 3 functions	DA3	E=95
		Liquid crystal double speed	Other than the following	DB	E=74
			With 1 function	DB1	E=86
			With 2 functions	DB2	E=98
			With 3 functions	DB3	E=110
	Not below 19 V size, but below 32 V size	Liquid crystal normal	Other than the following	DC	E=2.0S+21
			With 1 function	DC1	E=2.0S+33
			With 2 functions	DC2	E=2.0S+45
			With 3 functions	DC3	E=2.0S+57
		Liquid crystal double speed	Other than the following	DD	E=2.0S+36
			With 1 function	DD1	E=2.0S+48
			With 2 functions	DD2	E=2.0S+60
			With 3 functions	DD3	E=2.0S+72
		Liquid crystal quadruple speed or plasma	Other than the following	DE	E=2.0S+58
			With 1 function	DE1	E=2.0S+70
			With 2 functions	DE2	E=2.0S+82
			With 3 functions	DE3	E=2.0S+94
	32 V size or larger	Liquid crystal normal	Other than the following	DF	E=6.6S-126
			With 1 function	DF1	E=6.6S-114
			With 2 functions	DF2	E=6.6S-102
			With 3 functions	DF3	E=6.6S-90
		Liquid crystal double speed	Other than the following	DG	E=6.6S-111
			With 1 function	DG1	E=6.6S-99
			With 2 functions	DG2	E=6.6S-87
			With 3 functions	DG3	E=6.6S-75

Category					Standard energy consumption efficiency or calculation formula thereof
No. of pixels	Television receiver size	Dynamic image display	Additional function(s)	Category name	
		Liquid crystal quadruple speed or plasma	Other than the following	DH	E=6.6S-89
			With 1 function	DH1	E=6.6S-77
			With 2 functions	DH2	E=6.6S-65
			With 3 functions	DH3	E=6.6S-53
Others	Below 19 V size	Liquid crystal normal	Other than the following	DI	E=44
			With 1 function	DI1	E=56
			With 2 functions	DI2	E=68
			With 3 functions	DI3	E=80
		Liquid crystal double speed	Other than the following	DJ	E=59
			With 1 function	DJ1	E=71
			With 2 functions	DJ2	E=83
			With 3 functions	DJ3	E=95
	Not below 19 V size, but below 32 V size	Liquid crystal normal	Other than the following	DK	E=2.0S+6
			With 1 function	DK1	E=2.0S+18
			With 2 functions	DK2	E=2.0S+30
			With 3 functions	DK3	E=2.0S+42
		Liquid crystal double speed	Other than the following	DL	E=2.0S+21
			With 1 function	DL1	E=2.0S+33
			With 2 functions	DL2	E=2.0S+45
			With 3 functions	DL3	E=2.0S+57
		Liquid crystal quadruple speed or plasma	Other than the following	DM	E=2.0S+43
			With 1 function	DM1	E=2.0S+55
			With 2 functions	DM2	E=2.0S+67
			With 3 functions	DM3	E=2.0S+79
	32 V size or larger	Liquid crystal normal	Other than the following	DN	E=6.6S-141
			With 1 function	DN1	E=6.6S-129
			With 2 functions	DN2	E=6.6S-117
			With 3 functions	DN3	E=6.6S-105
		Liquid crystal double speed	Other than the following	DO	E=6.6S-126
			With 1 function	DO1	E=6.6S-114
			With 2 functions	DO2	E=6.6S-102
			With 3 functions	DO3	E=6.6S-90
		Liquid crystal quadruple speed or plasma	Other than the following	DP	E=6.6S-104
			With 1 function	DP1	E=6.6S-92
			With 2 functions	DP2	E=6.6S-80
			With 3 functions	DP3	E=6.6S-68

Remarks : 1. “FHD” refers to ones having 1080 or more pixels in the vertical direction and 1920 or more in the horizontal direction.
2. “Television receiver size” refers to the centimeter- denominated quotient, rounded at the decimal point, of division of the diagonal dimension of the driven display area of the display screen by 2.54.
3. “Dynamic image display” refers to or another of the following.
Liquid crystal normal: What uses a liquid crystal panel to display 60 or more but less than 120 still frames per second.
Liquid crystal double speed: What uses a liquid crystal panel to display 120 or more but less than 240 still frames per second.
Liquid crystal quadruple speed: What uses a liquid crystal panel to display 240 or more still frames per second.
Plasma: What performs displaying by using a plasma display panel.
4. “Additional function(s)” refers to DVD (solely those having a video recording function), HDD, double digital tuner and blue ray disk recorder.

5. E and S represent the following values, respectively.
E: Standard energy consumption efficiency (in kWh/year)
S: Television receiver size

Source: http://www.eccj.or.jp/top_runner/pdf/tr_tv_jul.2009.pdf

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Water Heaters - Electric

Program Type: Mandatory Standards

Creating New Page:

Description:

This program is under development.

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Program Type: Mandatory Label

Creating New Page:

Description:

This program is under development.

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Gas Water Heaters

Program Type: Top Runner Program Energy Saving Standard

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=Water%20Heaters%20(Gas)&ID=38

Year Published: May, 2004, Effective Date: Mar 2006

Description:

Product Scope

Gas water heaters with space heating functions (limited to those for home use with displayed gas consumption of 70kW or lower as stipulated in JIS S2109, using City Gas 13 A or liquefied petroleum gas).

Gas water heaters, except the following:
1) ones of water storage type, 2) ones for industrial use, 3) ones using gases other than either those of City Gas 13A group or liquefied petroleum gas for fuel, 4) bathtub water heaters installed inside of a bathroom, having an oxygen depletion safety shut-off device, 5) direct vent type bathtub gas water heaters whose air supply/exhaust outlet is connected to a duct.

Energy Efficiency Level

For hot water supply sections and bath tub gas water heaters, energy consumption efficiency is heat efficiency (%) measured as specified by JIS S2109.
For space heating sections, energy consumption efficiency is heat efficiency (%) when water temperature difference between outward flow and inward flow in a hot water circulation becomes the specified level.
For bathtub gas water heaters (with hot water supply functions), energy consumption efficiency is the weighted average value obtained by a 1:3.3 ratio (1 for bath section heat efficiency, 3.3 for hot water supply section heat efficiency).
For gas water heaters for space heating (with hot water supply functions), energy consumption efficiency is the weighted average value obtained by a 1:3 ratio (1 for space heating section heat efficiency, 3 for hot water supply section heat efficiency).

Category					Standard energy consumption efficiency
Gas water heater type	Ventilation type	Circulation type	Exhaust type	Category name	
Gas instant water heaters	Natural ventilation type		Unvented type	A	83.5
			Other than unvented types	B	78.0
	Forced ventilation type		Other than outdoor type	C	80.0
			Outdoor type	D	82.0
Bath tub gas water heaters (with no hot water supply functions)	Natural ventilation type	Natural circulation type	Vented type or direct vent type (the height where the air supply and exhaust part penetrates external wall is as high as vented types)	E	75.5
			Direct vent type (other than types of the height where the air supply and exhaust part penetrates external wall is as high as vented types)	F	71.0
			Outdoor type	G	76.4
	Forced ventilation type	Natural circulation type		H	70.8
		Forced circulation type		I	77.0
Bath tub gas water heaters (with hot water supply functions)	Natural ventilation type	Natural circulation type	Vented type or direct vent type (the height where the air supply and exhaust part penetrates external wall is as high as vented types)	J	78.0
			Direct vent type (other than types of the height where the air supply and exhaust part penetrates external wall is as high as vented types)	K	77.0
			Outdoor type	L	78.9
	Forced ventilation type	Natural circulation type		M	76.1
		Forced circulation type	Other than outdoor types	N	78.8
			Outdoor types	O	80.4
Gas water heater for space heating (with no hot water supply functions)				P	83.4
Gas water heater for space heating (with hot water supply functions)				Q	83.0

Source: http://www.eccj.or.jp/top_runner/pdf/tr_gas_oil_appliances_grill.pdf

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Oil Water Heaters

Program Type: Top Runner Program Energy Saving Standard

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Japan&countryid=252&product=Water%20Heaters%20(Oil-fired)&ID=39

Year Published: Apr. 2002, Effective Date: Mar 2006

Description:

Product Scope

Oil water heaters, except the following,
1) bathtub gas water heaters with pot-type burners, 2) ones for industrial use, 3) ones having a structure for burning firewood, and 4) hot water boilers whose gauge pressure exceeds 0.1 MPa.

Energy Efficiency Level

Energy consumption efficiency is heat efficiency (%) measured as specified by JIS S3031.

Category				Standard energy consumption efficiency
Purpose	Heating type	Air supply and exhaust type or control method	Category name	
For hot water supply	Instantaneous type		A	86.0
	Storage type with rapid heating system		B	87.0
	Storage types other than rapid heating system		C	85.0
For heaters	Instantaneous type	Unvented type	D	85.3
		Vented type	E	79.4
		Direct vent type	F	82.1
	Storage type with rapid heating system	On/off control	G	87.0
		Other than on/off control	H	82.0
	Storage types other than rapid heating system		I	84.0
For baths	Water heaters with a center flue heat exchanger		J	75.0
	Water heaters without a center flue heat exchanger		K	61.0

Remarks : 1. "For hot water supply" refers to equipment mainly used to supply hot water, including equipment featuring heating or bathing functions.
2. "For heaters" refers to equipment mainly used for heating, including equipment that has hot water supply or bathing functions.
3. "For baths" refers to equipment used mainly for bath use, including equipment that has hot water supply or heating functions.
4. "Rapid heating system" refers to equipment of which heating time (as measured by the heating speed measurement method described in JIS S3031) is within 200 seconds.
5. "Center flue heat exchanger" refers to the air flue that penetrates the hot water supply section.
6. "On/off control" refers to those that control by only ignition and extinction.

Source: http://www.eccj.or.jp/top_runner/pdf/tr_gas_oil_appliances_summary.pdf

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Korea

		Mandatory Standard	Mandatory Label	Voluntary Label
AC	Air-conditioner	Edit	Edit	
	Heat pump	Edit	Edit	
Refrigerator & freezer	Refrigerator		Edit	
	Commercial	Edit	Edit	

		Mandatory Standard	Mandatory Label	Voluntary Label
	Refrigerator			
	Freezer	Edit	Edit	
	Kimchi Refrigerator	Edit	Edit	
Lighting	Incandescent Lamp	Edit	Edit	
	Fluorescent Lamp	Edit	Edit	
	Fluorescent Lamps Ballast	Edit	Edit	
	Associated Ballast	Edit	Edit	
	LED Lamps (internal & external converter)			
	LED Traffic Lights			
	Metal-halide Lamps			
	Reflectors for fluorescent lamps and HID lamps			
	Sensor lighting equipment			
Computers & Monitors	Computers		Edit	Edit
	Monitors		Edit	Edit
Televisions	Televisions		Edit	Edit
Clothes washers	Washing Machine (Agitator & Impeller)	Edit	Edit	
	Horizontal Drum Washing Machine	Edit	Edit	
Clothes driers				
Water heating	Household Gas Boiler	Edit	Edit	
	Gas Water Heater	Edit	Edit	
	Oil burning water boilers			

Note: Red box – create a new page; orange box – update existing page; white box – no action needed.

Air Conditioners

Program Type: MEPS

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=RACs (Split)&ID=5
http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=RACs (Window)&ID=62

Description:

Scope

- Air-conditioners of rated cooling power consumption of not more than 7,500W and the rated cooling capacity of not more than 23,000W;
- If it has heater, the rated power consumption of heater shall be not more than 5,000W;
- Exclude water cooling, duct-type, portable, multi-split type;
- Cooling Energy Efficiency Ratio (hereinafter “EER) shall be measured by the test method of KS C 9306, which is obtained from the cooling capacity divided by the cooling power consumption.

MEPS

(unit : W/W)

Type		MEPS (EER) Effective date : From 1st of January, 2010
Room air conditioner		2.88
Split type	RCC < 4.0 kW	3.37
	4.0 kW ≤ RCC < 10.0 kW	2.97
	10.0 kW ≤ RCC < 17.5 kW	2.76
	17.5 kW ≤ RCC < 23.0 kW	2.63

Remark) Rated Cooling Capacity (RCC)

Year Effective: 01-01-2010

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=RACs (Split)&ID=5
http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=RACs (Window)&ID=62
Description:
Scope

- Air-conditioners of rated cooling power consumption of not more than 7,500W and the rated cooling capacity of not more than 23,000W;
- If it has heater, the rated power consumption of heater shall be not more than 5,000W;
- Exclude water cooling, duct-type, portable, multi-split type;
- Cooling Energy Efficiency Ratio (hereinafter “EER) shall be measured by the test method of KS C 9306, which is obtained from the cooling capacity divided by the cooling power consumption.

Energy Efficiency Level Standards

A. Energy Efficiency Level Index

$$EER = \frac{\text{Measured Cooling Capacity [W]}}{\text{Measured Power consumption [W]}}$$

For a constant speed compressor type CEER(Cooling Energy efficiency ratio) shall be used according to KS C 9306, and for a variable capacity and 2 and more compressors type and a inverter driven compressor type CSPF(Cooling Seasonal Performance Factor)) shall be used according to KS C 9306.
Standby power shall be tested in power-off with using remote controller, if a remote controller is not provided, it shall be tested in power-off in a tested sample.

B. Energy Efficiency Level

1) Window room type and unitary type

R	Standby power (Off mode power consumption)	Level
3.94 ≤ R	≤ 1.0 W	1
3.94 ≤ R	N/A	2
3.55 ≤ R < 3.94	N/A	3

3.20 ≤ R < 3.55	N/A	4
2.88 ≤ R < 3.20	N/A	5

2) Window room type and unitary type with network function

R	Standby power	Level
3.94 ≤ R	≤1.0 W (off mode) ≤3.0 W (active standby mode)	1
3.94 ≤ R	N/A	2
3.55 ≤ R < 3.94	N/A	3
3.20 ≤ R < 3.55	N/A	4
2.88 ≤ R < 3.20	N/A	5

3) Split type, RCC < 4.0 kW

R	Standby power (Off mode power consumption)	Level
4.36 ≤ R	≤1.0 W	1
4.36 ≤ R	N/A	2
4.00 ≤ R < 4.36	N/A	3
3.67 ≤ R < 4.00	N/A	4
3.37 ≤ R < 3.67	N/A	5

4) Split type, RCC < 4.0 kW with network function

R	Standby power	Level
4.36 ≤ R	≤1.0 W (off mode) ≤3.0 W (active standby mode)	1
4.36 ≤ R	N/A	2
4.00 ≤ R < 4.36	N/A	3
3.67 ≤ R < 4.00	N/A	4
3.37 ≤ R < 3.67	N/A	5

5) Split type, 4.0 kW ≤ RCC < 10.0 kW

R	Standby power (Off mode power consumption)	Level
4.40 ≤ R	≤1.0 W	1
4.40 ≤ R	N/A	2
3.86 ≤ R < 4.40	N/A	3
3.39 ≤ R < 3.86	N/A	4
2.97 ≤ R < 3.39	N/A	5

6) Split type, 4.0 kW ≤ RCC < 10.0 kW with network function

R	Standby power	Level
4.40 ≤ R	≤1.0 W (off mode) ≤ 3.0 W (active standby mode)	1
4.40 ≤ R	N/A	2
3.86 ≤ R < 4.40	N/A	3
3.39 ≤ R < 3.86	N/A	4
2.97 ≤ R < 3.39	N/A	5

7) Split type, 10.0 kW ≤ RCC < 17.5 kW

R	Standby power (Off mode power consumption)	Level
4.62≤ R	≤1.0 W	1
4.62≤ R	N/A	2
3.89≤ R < 4.62	N/A	3
3.28≤ R < 3.89	N/A	4
2.76≤ R < 3.28	N/A	5

8) Split type, 10.0 kW ≤ RCC < 17.5 kW with network function

R	Standby power	Level
4.62 ≤ R	≤1.0 W (off mode) ≤3.0 W (active standby mode)	1
4.62 ≤ R	N/A	2
3.89 ≤ R < 4.62	N/A	3
3.28 ≤ R < 3.89	N/A	4
2.76 ≤ R < 3.28	N/A	5

9) Split type, 17.5 kW ≤ RCC < 23.0 kW

R	Standby power (Off mode power consumption)	Level
4.11≤ R	≤ 1.0 W	1
4.11≤ R	N/A	2
3.54≤ R < 4.11	N/A	3
3.05≤ R < 3.54	N/A	4
2.63≤ R < 3.05	N/A	5

10) Split type, 17.5 kW ≤ RCC < 23.0 kW with network function

R	Standby power	Level
4.11 ≤ R	≤ 1.0 W (off mode) ≤ 3.0 W (active standby mode)	1
4.11 ≤ R	N/A	2
3.54 ≤ R < 4.11	N/A	3
3.05 ≤ R < 3.54	N/A	4
2.63 ≤ R < 3.05	N/A	5

C. Definitions

Without network function

With network function :

It has a network function in a body, which is enable to exchange data between a body and external network, or between indoor unit and outdoor unit by wire or wireless. If it is get to 1st level, standby power shall be less than 3 W for active standby mode, and 1W for off mode.

Off mode : The power state when the product is switched off or auto off.

Active standby mode :

When an appliance is switched to off/standby and is not performing its primary functions while still connected to a power supply but can be activated by a remote control or other internal signals. In addition, it can also be activated into other power modes by receiving external signals or when it is receiving minimum level of data from service providers.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Electric Driven Heatpump

Program Type: MEPS

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=RACs (Split)&ID=5

Test Methods: KS C 9306

Reference Test Methods: KS C IEC 60335-2-34, KS C IEC 60335-2-40, AMCA standard 210 : 1985 laboratory Methods of Testing Fans for Rating, ANSI/ASHRAE 16 Method of Testing for Rating Room Air Conditioners and Packaged Terminal Air Conditioners.

Description:

Scope

Electric driven heatpump of rated cooling power consumption of not more than 7,500W and the rated cooling capacity of not more than 23,000W

If it has heater, the rated power consumption of heater shall be not more than 30,000W.

Exclude water cooling, duct-type, portable, multi-split type

Averaged Energy Efficiency Ratio (hereinafter “EER”) shall be measured by the test method of KS C 9306, which is obtained from CSPF(Cooling Seasonal Performance Factor) and HSPF(Heating Seasonal Performance Factor).

MEPS

(unit : W/W)

Type		MEPS Effective date : From 1st of January, 2009
Non-ducted and ducted unitary (Including window type)		2.00
Split type	RCC < 4.0 kW	2.40
	4.0 kW ≤ RCC < 10.0 kW	2.20
	10.0 kW ≤ RCC < 23.0 kW	2.00

Remark) Rated Cooling Capacity (RCC)

Year Effective: 01-01-2009

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Program Type: Mandatory Label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=RACs (Split)&ID=5

Test Methods: KS C 9306

Reference Test Methods: KS C IEC 60335-2-34, KS C IEC 60335-2-40, AMCA standard 210 : 1985 laboratory Methods of Testing Fans for Rating, ANSI/ASHRAE 16 Method of Testing for Rating Room Air Conditioners and Packaged Terminal Air Conditioners.

Description:

Scope

Electric driven heatpump of rated cooling power consumption of not more than 7,500W and the rated cooling capacity of not more than 23,000W

If it has heater, the rated power consumption of heater shall be not more than 30,000W.

Exclude water cooling, duct-type, portable, multi-split type

Averaged Energy Efficiency Ratio (hereinafter “EER”) shall be measured by the test method of KS C 9306, which is obtained from CSPF(Cooling Seasonal Performance Factor) and HSPF(Heating Seasonal Performance Factor).

Energy Efficiency Level Standards

A. Energy Efficiency Level Index

$$R = \text{Cooling EER(CEER)+Heating EER(HEER)}$$

For CEER all types (Fixed Capacity Unit, Two (2) stage capacity units, and Variable capacity units) shall be applied to CSPF(Cooling Seasonal Performance Factor) in KS C 9306, and for HEER they shall be applied to HSPF(Heating Seasonal Performance Factor) in KS C 9306. If there is a make-up heater, it shall be operated in extra low temperature test.

B. Energy Efficiency Level

1) Non-ducted and ducted unitary(Including window type)

R	Level
3.20 ≤ R	1
2.90 ≤ R < 3.20	2
2.60 ≤ R < 2.90	3
2.30 ≤ R < 2.60	4
2.00 ≤ R < 2.30	5

2) Split type, RCC<4kW

R	Level
4.00 ≤ R	1
3.60 ≤ R < 4.00	2
3.20 ≤ R < 3.60	3
2.80 ≤ R < 3.20	4
2.40 ≤ R < 2.80	5

3) Split type, 4kW ≤ RCC< 10kW

R	Level
3.80 ≤ R	1
3.40 ≤ R < 3.80	2
3.00 ≤ R < 3.40	3
2.60 ≤ R < 3.00	4
2.20 ≤ R < 2.60	5

4) Split type, 10kW ≤ RCC< 23.0kW

R	Level
3.20 ≤ R	1
2.90 ≤ R < 3.20	2
2.60 ≤ R < 2.90	3
2.30 ≤ R < 2.60	4
2.00 ≤ R < 2.30	5

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Refrigerator
Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Refrigerator&ID=2
http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Refrigerator-freezers&ID=10
Description: (replace the energy label)

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Commercial Refrigerator
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Refrigerators/Freezers (Commercial)&ID=76
Description:
Scope
Commercial electric refrigerator-freezer of storage volume 300L ~ 2000L with the cooling system of less 1000W electric power consumption by KS C ISO 15502. Exclude the freezer only, the showcase, the table type, and the specified type.
Monthly electric power consumption shall be measured by the test method of KS C ISO 15502, where is defined as followings ;
- Monthly electric power consumption = Measured power consumption x 365/12
- No using wall partition

MEPS

Items	MEPS
	From 1 January, 2010
Refrigerator only	$P \leq 0.111AV+50.25$
Refrigerator-freezer	$P \leq 0.129AV+48.57$

Remark)
1.AV = compensated cubic volume = ∑{{cubic volume of the each compartment} × K × F }
1) K value in the refrigerator only is 1
2) K value in refrigerator-freezer is
K (compensation coefficient) = (T1 - Tc) / (T1 - T2)
Where
T_1=ambient temperature in testing(25℃)
T_2=averaging indoor temperature of the fresh compartment(5℃)
3) F = 1.2 if it is auto defrost, otherwise F=1.0
2. P = Maximum power consumption (kWh/month)
3. 220V is priority if both voltages, 110V and 220V can be applied

4.To determine MEPS it shall round off the 2nd place of decimal of the value in accordance with KS 3251-1.

Year Effective: 01-01-2010

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Refrigerators/Freezers (Commercial)&ID=76
Description:
Scope
Commercial electric refrigerator-freezer of storage volume 300L ~ 2000L with the cooling system of less 1000W electric power consumption by KS C ISO 15502. Exclude the freezer only, the showcase, the table type, and the specified type.
Monthly electric power consumption shall be measured by the test method of KS C ISO 15502, where is defined as followings ;
- Monthly electric power consumption = Measured power consumption x 365/12
- No using wall partition

Energy Efficiency Level Standards
Energy Efficiency Level Index

$$R(\text{Energy efficiency level index}) = \frac{\text{MEPS [kWh/month]}}{\text{Measured monthly power consumption[kWh/month]}}$$

Energy Efficiency Level
1) Refrigerator only

R	Level
4.20 ≤ R	1
3.40 ≤ R < 4.20	2
2.60 ≤ R < 3.40	3
1.80 ≤ R < 2.60	4
1.00 ≤ R < 1.80	5

2) Refrigerator-Freezer

R	Level
3.40 ≤ R	1
2.80 ≤ R < 3.40	2
2.20 ≤ R < 2.80	3
1.60 ≤ R < 2.20	4
1.00 ≤ R < 1.60	5

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Freezer
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Freezers&ID=9
Description:
Scope
Household electric freezer of storage volume 80L ~ 400L with the cooling system of less 500W electric power consumption by KS C ISO 15502.
Monthly electric power consumption shall be measured by the test method of KS C ISO 15502, where is defined as followings ;
- Monthly electric power consumption = Measured power consumption x 365/12
MEPS

Items	MEPS
	From 1 January, 2010
Freezer	$P \leq 0.028AV+32.40$

Remark)
1.AV = compensated cubic volume = ∑{{cubic volume of the each compartment} × K × F }
1) K value in the refrigerator only is 1
2) K value in refrigerator-freezer is
K (compensation coefficient) = (T1 - Tc) / (T1 - T2)
Where
T_1=ambient temperature in testing(25℃)
T_2=averaging indoor temperature of the fresh compartment(5℃)
3) F = 1.2 if it is auto defrost, otherwise F=1.0
2. P = Maximum power consumption (kWh/month)
3. 220V is priority if both voltages, 110V and 220V can be applied
4.To determine MEPS it shall round off the 2nd place of decimal of the value in accordance with KS 3251-1.

Year Effective: 01-01-2010

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Freezers&ID=9
Description:

Scope

Household electric freezer of storage volume 80L ~ 400L with the cooling system of less 500W electric power consumption by KS C ISO 15502.

Monthly electric power consumption shall be measured by the test method of KS C ISO 15502, where is defined as followings ;

- Monthly electric power consumption = Measured power consumption x 365/12

Energy Efficiency Level Standards

Energy Efficiency Level Index

R(Energy efficiency level index) =	MEPS [kWh/month] / Measured monthly power consumption[kWh/month]

Energy Efficiency Level

R	Level
2.20 ≤ R	1
1.90 ≤ R < 2.20	2
1.60 ≤ R < 1.90	3
1.30 ≤ R < 1.60	4
1.00 ≤ R < 1.30	5

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Kimchi Refrigerator

Program Type: MEPS

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Kim-chi Refrigerators&ID=78

Description:

Scope

Household electric refrigerating appliances of total storage volume 1000L or less, and Kimchi storage compartment is much than 50% of the whole storage volume with a function maturing which it will be able to take effect the foodstuffs of the Kimchi artificially, and with a compression type refrigerating machine and storage cabinet integrated in one body.

Monthly electric power consumption shall be measured by the test method of KS C 9321

MEPS

Items	MEPS From 1 January, 2011
Kimchi Refrigerator whose compensated cubic volume is no less than 200 L with 2 or less Kim-chi preserving compartment	P ≤ 0.026AV+25.00
Kimchi Refrigerator whose compensated cubic volume is no less than 200 L with 3 or more Kim-chi preserving compartment	P ≤ 0.040AV+27.00+0.022 ×the length of the actual sealing perimeter of the

	homebar door of freezer compartment (cm)

Remark)
1. AV = compensated cubic volume = [{cubic volume of the freezing compartment × Kf} + {cubic volume of the kimchi preserving compartment × Kr}+ other compartment] × F(Auto defrost function) (measured volume to round off the 1st place of decimal of the value in accordance with KS 3251-1)
1) For a freezer
K_f (compensation coefficient) = (T1 - T_f) / (T1 - T2)

Where
T1=ambient temperature in testing(25℃)
T2=averaging indoor temperature of the fresh compartment(0℃)
Tf=averaging indoor temperature of the freezer compartment(℃)

2) For a kimchi preserving compartment
Kr (compensation coefficient) = (T1 - Tr) / (T1 - T2)
Where
T1=ambient temperature in testing(25℃)
T2=averaging indoor temperature of the fresh compartment(0℃)
Tr=averaging indoor temperature of the kimchi compartment(℃)
3)F = 1.1 if it is auto defrost, otherwise F=1.0. The defrost shall be more than one during 48 hours.
2. P = Maximum power consumption (kWh/month)
3. 220V is priority if both voltages, 110V and 220V can be applied
4. To determine MEPS it shall round off the 2nd place of decimal of the value in accordance with KS 3251-1.

Year Effective: 01-01-2011

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Kim-chi Refrigerators&ID=78
Description:
Scope
Household electric refrigerating appliances of total storage volume 1000L or less, and Kimchi storage compartment is much than 50% of the whole storage volume with a function maturing which it will be able to take effect the foodstuffs of the Kimchi artificially, and with a compression type refrigerating machine and storage cabinet integ rated in one body.
Monthly electric power consumption shall be measured by the test method of KS C 9321
Energy Efficiency Level Standards
Energy Efficiency Level Index

R(Energy efficiency level index) =	Measured monthly power consumption[kWh/month] / MEPS [kWh/month]

Energy Efficiency Level

R	Level
2.20 ≤ R	1
1.90 ≤ R < 2.20	2
1.60 ≤ R < 1.90	3
1.30 ≤ R < 1.60	4
1.00 ≤ R < 1.30	5

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Incandescent Lamps
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Incandescent Lamps&ID=56
Description: (Add following text)
Scope
By KS C 7501 the white tungsten bulb at 220V of rated power consumption of 25~150W, which includes the colorless transparent bulb, the inner frosting bulb, the bulb coated with white, and the bulb coated with thin film.
Energy Efficiency (lm/W) shall be measured by the test method in KS C 7501, which is obtained from lumen divided by power consumption.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Incandescent Lamps&ID=56
Description: (Add following text)
Scope
By KS C 7501 the white tungsten bulb at 220V of rated power consumption of 25~150W, which includes the colorless transparent bulb, the inner frosting bulb, the bulb coated with white, and the bulb coated with thin film.
Energy Efficiency (lm/W) shall be measured by the test method in KS C 7501, which is obtained from lumen divided by power consumption.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Fluorescent Lamps
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Fluorescent Lamps&ID=19
Description: (Add following text)
Scope
By KS C 7601 Fluorescent lamps which are the tubular type of rated power consumption of 20W, 28W, 32W and 40W, the circular type of rated power consumption of 32W and 40W, and the compact type of rated power consumption of FPX 13W, FDX 26W, FPL 27W, FPL 32W, FPL 36W, FPL 45W and FPL 55W By K 61195, K61199 Fluorescent lamps which are the tubular tupe of rated power consumption of 20W and 32W, the compact type of rated power consumption of FPL 36W, and the commercial used type (which is more than 7100K of color temperature, and can be used in the conventional lamp)
Energy Efficiency (lm/W) shall be measured by the test method in KS C 7601, which is obtained from lumen divided by power consumption. But, FPL 32W and FPL 45W shall be measured by the test method in “Safety Certification”.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Fluorescent Lamps&ID=19
Description: (Add following text)
Scope
By KS C 7601 Fluorescent lamps which are the tubular type of rated power consumption of 20W, 28W, 32W and 40W, the circular type of rated power consumption of 32W and 40W, and the compact type of rated power consumption of FPX 13W, FDX 26W, FPL 27W, FPL 32W, FPL 36W, FPL 45W and FPL 55W By K 61195, K61199 Fluorescent lamps which are the tubular tupe of rated power consumption of 20W and 32W, the compact type of rated power consumption of FPL 36W, and the commercial used type (which is more than 7100K of color temperature, and can be used in the conventional lamp)
Energy Efficiency (lm/W) shall be measured by the test method in KS C 7601, which is obtained from lumen divided by power consumption. But, FPL 32W and FPL 45W shall be measured by the test method in “Safety Certification”.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Fluorescent Lamps Ballast

Program Type: MEPS

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Ballasts (Electronic)&ID=59
http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Ballasts (Magnetic)&ID=7

Description:

Scope

By KS C 8100 and KS C 8102 Fluorescent lamps ballasts which are the tubular type of rated power consumption of 20W, 28W, 32W and 40W, the circular type of rated power consumption of 32W and 40W and the compact type of rated power consumption of FPX 13W, FDX 26W, FPL 27W, FPL 32W, FPL 36W, FPL 45W and FPL 55W.

MEPS

Type		TEPS (To 31st of December, 2012)	MEPS (From 1st of January, 2009)
Tubular (Starter, Rapid Starter)	20W	1.07	0.97
	32W	1.09	1.07
	40W	1.21	1.18
Tubular (T5, HID)	28W	0.92	0.88
	32W	0.92	0.88
Circular	32W	1.09	1.07
	40W	1.09	1.07
Compact type (With Starter, Without Starter)	FPX 13W	0.97	0.85
	FDX 26W	1.05	0.90
	FPL 27W	1.05	0.90
	FPL 32W	0.90	0.88
	FPL 36W	1.07	0.90
	FPL 45W	0.90	0.88
	FPL 55W	1.09	1.07

Year Effective: 01-01-2009

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Program Type: Mandatory Label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Fluorescent Lamps&ID=19
http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Ballasts (Magnetic)&ID=7

Description:

Scope

By KS C 8100 and KS C 8102 Fluorescent lamps ballasts which are the tubular type of rated power consumption of 20W, 28W, 32W and 40W, the circular type of rated power consumption of 32W and 40W and the compact type of rated power consumption of FPX 13W, FDX 26W, FPL 27W, FPL 32W, FPL 36W, FPL 45W and FPL 55W.

Energy Efficiency Standards

Type	TEPS	MEPS

		(To 31st of December, 2012)	(From 1st of January, 2009)
Tubular (Starter, Rapid Starter)	20W	1.07	0.97
	32W	1.09	1.07
	40W	1.21	1.18
Tubular (T5, HID)	28W	0.92	0.88
	32W	0.92	0.88
Circular	32W	1.09	1.07
	40W	1.09	1.07
Compact type (With Starter, Without Starter)	FPX 13W	0.97	0.85
	FDX 26W	1.05	0.90
	FPL 27W	1.05	0.90
	FPL 32W	0.90	0.88
	FPL 36W	1.07	0.90
	FPL 45W	0.90	0.88
	FPL 55W	1.09	1.07

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Associated Ballast
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Ballasts (Associated)&ID=159
Description:
Scope
By KS C 7621 Associated ballasts which all components are in one, and any parts are not allowed to change, and the rated power consumption of 5 W~60W. But globe type is excluded.
Energy Efficiency Standards, Date to accomplish TEPS, Effective date of MEPS

(unit : lm/W)

Type		TEPS	MEPS
		To 31 December, 2012	From 1 October, 2004
5W d P < 10W	EX-W, EX-N, EX-L	53.0	46.1
	EX-D and etc	51.9	45.2
10W d P < 16W	EX-W, EX-N, EX-L	58.9	51.3
	EX-D and etc	57.9	50.4
16W d P < 21W	EX-W, EX-N, EX-L	66.9	58.2
	EX-D and etc	66.0	57.4
21W d P < 25W	EX-W, EX-N, EX-L	69.0	60.0
	EX-D and etc	67.9	59.1
25W d P ≤ 60W	EX-W,	70.9	61.7

	EX-N, EX-L		
	EX-D and etc	70.0	60.9

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Fluorescent Lamps&ID=19
Description: (Add following text)
Scope
By KS C 7621 Associated ballasts which all components are in one, and any parts are not allowed to change, and the rated power consumption of 5 W~60W. But globe type is excluded.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Computer
Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Computers (Desktop PC)&ID=43
Description:
Scope
- Computers with nameplate output power of power supply less than equal to 1,000W
- Covers mainly computers sold commercially or for household use in the market, including personal computers, notebook computers, and including integrated computer systems. Computers for network servers, workstations and computers in standby mode awaiting instructions remotely are excluded;

The Standby Power Reduction Standard
A. Low power mode performance

Category	Sleep mode		Watts in off mode
	Default time	Watts in low power mode	
Personal Computers (Laptop)	≤30min	≤1.7W	≤1.0W
Personal Computers (Desktop)	≤30min	≤4.0W	≤2.0W
Integrated Computer	≤30min	≤4.0W	≤2.0W

System			

(1) The computers and the integrated computer system shall enter a sleep mode after a period of inactivity. Computers maintaining below 1.7W standby power consumption are not required to have sleep modes. However, prior to July 1st 2008, computers maintaining below 3W standby power consumption and integrated computer system maintaining below 5W standby power consumption are not required to have sleep modes.
(2) The participating entities shall preset the sleep mode default time as prescribed in the regulation, when shipping computers and integrated computer system. Furthermore, the computers and integrated computer system shall be equipped with default time adjusting functions so that the user is able modify the time settings or to deactivate the sleep mode. If a computer and integrated computer system are shipped with one or more operating systems (hereinafter referred to as "OS"), they shall be capable of entering and fully recovering from the sleep mode while running in at least one of those operating systems. If the product is shipped failing to meet the requirements of the proper activation and recovery of the sleep mode, the participating entity shall include this information in user's manual and brochures and advertisements shall be worded to avoid misleading statements. If the product is not shipped with operating system software, the participating entity shall include this information in user's manual and brochures and advertisements shall be worded to avoid misleading statements.
(3) The computer shall include one or more mechanisms through which it can activate the sleep modes of a monitor. The participating entity shall clearly specify in product literature that manner in which its computer can control monitors, and any special circumstances that must exist in order for monitor power management to be accomplished. The participating entity shall set the computer's default to activate the monitor's sleep mode within 60 minutes of user inactivity. This monitor control requirement does not apply to integrated computer systems. However, integrated computer systems that are sold as part of a docking system shall have the capability to automatically control the power of an externally connected monitor.
(4) When applying the standards listed in table above to computers shipped to the market, additional allowable tolerance of +0.7W is given at sleep and off modes for computers with WOL (Wake on Lan) function.
B. Terminology Definitions
- On mode: The active mode of operation
- Sleep mode: The reduced power state that the computer enters after a period of inactivity.
- Off mode: The power state when the product is switched off.
- WOL (Wake on Lan): A function that is capable of activating computer automatically by direct wake events through the network.
- Wake events: An external event or stimulus (movement of the mouse, keyboard activity or a button press on the chassis, stimulus conveyed via a telephone) that causes the computer to transition from its low power mode to its active mode of operation.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-49_e-standby_Program.pdf

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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Computers (Desktop PC)&ID=43
Description:
Scope
- Computers with nameplate output power of power supply less than equal to 1,000W
- Covers mainly computers sold commercially or for household use in the market, including personal computers, notebook computers, and including integrated computer systems. Computers for network servers, workstations and computers in standby mode awaiting instructions remotely are excluded;

The Standby Power Reduction Standard
A. Low power mode performance

Category	Sleep mode		Watts in off mode
	Default time	Watts in low power mode	
Personal Computers (Laptop)	≤30min	≤1.7W	≤1.0W
Personal Computers (Desktop)	≤30min	≤4.0W	≤2.0W
Integrated Computer System	≤30min	≤4.0W	≤2.0W

(1) The computers and the integrated computer system shall enter a sleep mode after a period of inactivity. Computers maintaining below 1.7W standby power consumption are not required to have sleep modes. However, prior to July 1st 2008, computers maintaining below 3W standby power consumption and integrated computer system maintaining below 5W standby power consumption are not required to have sleep modes.
(2) The participating entities shall preset the sleep mode default time as prescribed in the regulation, when shipping computers and integrated computer system. Furthermore, the computers and integrated computer system shall be equipped with default time adjusting functions so that the user is able modify the time settings or to deactivate the sleep mode. If a computer and integrated computer system are shipped with one or more operating systems (hereinafter referred to as "OS"), they shall be capable of entering and fully recovering from the sleep mode while running in at least one of those operating systems. If the product is shipped failing to meet the requirements of the proper activation and recovery of the sleep mode, the participating entity shall include this information in user's manual and brochures and advertisements shall be worded to avoid misleading statements. If the product is not shipped with operating system software, the participating entity shall include this information in user's manual and brochures and advertisements shall be worded to avoid misleading statements.
(3) The computer shall include one or more mechanisms through which it can activate the sleep modes of a monitor. The participating entity shall clearly specify in product literature that manner in which its computer can control monitors, and any special circumstances that must exist in order for monitor power management to be accomplished. The participating entity shall set the computer's default to activate the monitor's sleep mode within 60 minutes of user inactivity. This monitor control requirement does not apply to integrated computer systems. However, integrated computer systems that are sold as part of a docking system shall have the capability to automatically control the power of an externally connected monitor.
(4) When applying the standards listed in table above to computers shipped to the market, additional allowable tolerance of +0.7W is given at sleep and off modes for computers with WOL (Wake on Lan) function.
B. Terminology Definitions
- On mode: The active mode of operation
- Sleep mode: The reduced power state that the computer enters after a period of inactivity.
- Off mode: The power state when the product is switched off.
- WOL (Wake on Lan): A function that is capable of activating computer automatically by direct wake events through the network.
- Wake events: An external event or stimulus (movement of the mouse, keyboard activity or a button press on the chassis, stimulus conveyed via a telephone) that causes the computer to transition from its low power mode to its active mode of operation.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-49_e-standby_Program.pdf

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Computer Monitor
Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Computer Monitors&ID=46

Description:
Scope
- Commercially-available, electronic product with a display screen and its associated electronics encased in a single housing that is capable of displaying output information from a computer via one or more inputs, such as VGA and DVI with nameplate output power of power supply less than equal to 1,000W
- Includes computer monitors (i.e., focusing on computer monitor as the primary function) or as dual function computer monitors and televisions
The Standby Power Reduction Standard
A. Low power mode performance

Category	Watts in sleep mode	Watts in off power mode
Monitor	≤2.0W	≤1.0W

- The monitors shall automatically enter a low power mode after a period of inactivity and returns to its previous mode, for the convenience of the user, when it reactivates.
- Any special software needed in activating the monitor into sleep mode, shall be shipped together with the monitor.
B. Terminology Definitions
- On mode: The product is connected to a power source and produces an image.
- Sleep mode: The reduced power state that the computer monitor enters after receiving instructions from a computer or via other functions. A blank screen characterize this mode and the computer monitor returns to on mode upon sensing a request from a user/computer (user moves the mouse or presses a key on the keyboard).
- Off mode: The power off state by switching off the power source. In case there are more than two power switches, soft switched located in the front of the product is used to create this power off state.
- No external devices shall be connected to any included USB hubs or ports and the power of the speakers shall be turned off in power measurement.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-49_e-standby_Program.pdf

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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Computer Monitors&ID=46
Description:
Scope
- Commercially-available, electronic product with a display screen and its associated electronics encased in a single housing that is capable of displaying output information from a computer via one or more inputs, such as VGA and DVI with nameplate output power of power supply less than equal to 1,000W
- Includes computer monitors (i.e., focusing on computer monitor as the primary function) or as dual function computer monitors and televisions
The Standby Power Reduction Standard
A. Low power mode performance

Category	Watts in sleep mode	Watts in off power mode
Monitor	≤2.0W	≤1.0W

- The monitors shall automatically enter a low power mode after a period of inactivity and returns to its previous mode, for the convenience of the user, when it reactivates.
- Any special software needed in activating the monitor into sleep mode, shall be shipped together with the monitor.
B. Terminology Definitions

- On mode: The product is connected to a power source and produces an image.
- Sleep mode: The reduced power state that the computer monitor enters after receiving instructions from a computer or via other functions. A blank screen characterize this mode and the computer monitor returns to on mode upon sensing a request from a user/computer (user moves the mouse or presses a key on the keyboard).
- Off mode: The power off state by switching off the power source. In case there are more than two power switches, soft switched located in the front of the product is used to create this power off state.
- No external devices shall be connected to any included USB hubs or ports and the power of the speakers shall be turned off in power measurement.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-49_e-standby_Program.pdf

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Television
Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Televisions&ID=8
Description: (Add following text)
Scope
- An electronic product with nameplate output power of power supply less than equal to 1,000W, consisting of a tuner/receiver and a monitor encased in a single housing
- The monitor usually relies upon a cathode-ray tube (CRT), liquid crystal display (LCD), plasma display, or other display device and designed to receive and display a television signal broadcast by antenna, satellite, or cable
- Television products with computer capability are included as long as they are marketed and sold to consumers as televisions (focusing on television as the primary function)
- Also includes television monitors, component television units, TV/VCR combination units, TV/DVD combination units, TV/VCR/DVD combination units
- Excludes OCAP, IP and other television receivers internalized with special functions

The Standby Power Reduction Standard
(A) Low power mode performance (Televisions, television monitors, component television units, TV/VCR combination units, TV/DVD combination units, TV/VCR/DVD combination units, TV/ Set-top Box (all pay TV broadcasting) Combination Units)

Category	Passive standby mode (Watts)
Televisions	≤1.0W
Television monitors	≤1.0W
Component television units	≤1.0W
TV/VCR combination units	≤1.0W
TV/DVD combination units	≤1.0W
TV/VCR/DVD combination units	≤1.0W

(B) Terminologies used in the table above:
- On mode: When the appliance is connected to a power supply and it is able to perform its normal operation which includes receiving signals from peripheral devices.
- Passive standby power mode: When an appliance is switched to off/standby and is not performing its primary functions while still connected to a power supply but can be activated by a remote control or other internal signals.
- Active standby power mode: When an appliance is switched to off/standby and is not performing its primary functions while still connected to a power supply but can be activated by a remote control or other internal signals. In addition, it can also be activated into other power modes by receiving external signals or when it is receiving minimum level of data from service providers.
- Off mode: A condition where the product is switched off from a power source and there is no obvious function being performed. It is not possible to activate the appliance with a remote control, internal or external signals.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-49_e-standby_Program.pdf

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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Televisions&ID=8
Description: (Add following text)
Scope
- An electronic product with nameplate output power of power supply less than equal to 1,000W, consisting of a tuner/receiver and a monitor encased in a single housing
- The monitor usually relies upon a cathode-ray tube (CRT), liquid crystal display (LCD), plasma display, or other display device and designed to receive and display a television signal broadcast by antenna, satellite, or cable
- Television products with computer capability are included as long as they are marketed and sold to consumers as televisions (focusing on television as the primary function)
- Also includes television monitors, component television units, TV/VCR combination units, TV/DVD combination units, TV/VCR/DVD combination units
- Excludes OCAP, IP and other television receivers internalized with special functions

The Standby Power Reduction Standard
(A) Low power mode performance (Televisions, television monitors, component television units, TV/VCR combination units, TV/DVD combination units, TV/VCR/DVD combination units, TV/ Set-top Box (all pay TV broadcasting) Combination Units)

Category	Passive standby mode (Watts)
Televisions	≤1.0W
Television monitors	≤1.0W
Component television units	≤1.0W
TV/VCR combination units	≤1.0W
TV/DVD combination units	≤1.0W
TV/VCR/DVD combination units	≤1.0W

(B) Terminologies used in the table above:
- On mode: When the appliance is connected to a power supply and it is able to perform its normal operation which includes receiving signals from peripheral devices.
- Passive standby power mode: When an appliance is switched to off/standby and is not performing its primary functions while still connected to a power supply but can be activated by a remote control or other internal signals.
- Active standby power mode: When an appliance is switched to off/standby and is not performing its primary functions while still connected to a power supply but can be activated by a remote control or other internal signals. In addition, it can also be activated into other power modes by receiving external signals or when it is receiving minimum level of data from service providers.
- Off mode: A condition where the product is switched off from a power source and there is no obvious function being performed. It is not possible to activate the appliance with a remote control, internal or external signals.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-49_e-standby_Program.pdf

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Washing Machine
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Clothes Washers&ID=11
Description:
Scope
By KS C 9608 washing machine in which the textiles are substantially immersed in the washing water, the mechanical action being produced by a device moving, which are defined the agitator

washing machine, and impeller washing machine with the rated capacity of 2 kg ~ 20kg But, washing only, spin extraction only and separated spin extraction are excluded.

MEPS

(unit: Wh/kg)

Type	MEPS
	From 1 January, 2007
Washing machine	23.0

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Clothes Washers&ID=11
Description:
Scope
By KS C 9608 washing machine in which the textiles are substantially immersed in the washing water, the mechanical action being produced by a device moving, which are defined the agitator washing machine, and impeller washing machine with the rated capacity of 2 kg ~ 20kg But, washing only, spin extraction only and separated spin extraction are excluded.
Energy Efficiency Level Standards
A. Energy Efficiency Level Index

Electric Power Consumption during a complete cycle [Wh] per Rated Washing Capacity [Standard program] and standby power.

$$R(\text{Energy efficiency level index}) = \frac{\text{Electric Power Consumption during a complete cycle [Wh]}}{\text{Rated Washing Capacity [kg]}}$$

Standby power shall be tested in off-mode, which means a tested sample shall be in power-off manually or automatically.
B. Energy Efficiency Level

1) Without network function

R	Standby power (off mode power consumption)	Water consumption per 1 cycle-1kg	Level
R≤ 12.0	≤0.5W	≤15.0liter/kg	1
R≤ 14.5	N/A	N/A	2
14.5 < R ≤ 17.0	N/A	N/A	3
17.0 < R ≤ 20.0	N/A	N/A	4
20.0 < R ≤ 23.0	N/A	N/A	5

2) With network function

R	Standby power (off mode power consumption)	Water consumption per 1 cycle-1kg	Level
R≤ 12.0	≤ 0.5W (off mode) ≤2.0W (active standby mode)	≤ 15.0liter/kg	1
R≤ 14.5	N/A		2
14.5 < R ≤ 17.0	N/A		3
17.0 < R ≤ 20.0	N/A		4
20.0 < R ≤ 23.0	N/A		5

C. Definitions
Without network function
With network function:
It has a network function in a body, which is enable to exchange data between a body and external network by wire or wireless. If it is get to 1st level, standby power shall be less than 3 W for active standby mode, and 1W for off mode.
Off mode : The power state when the product is switched off or auto off.
Active standby mode :
When an appliance is switched to off/standby and is not performing its primary functions while still connected to a power supply but can be activated by a remote control or other internal signals. In addition, it can also be activated into other power modes by receiving external signals or when it is receiving minimum level of data from service providers.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-49_e-standby_Program.pdf

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Horizontal Drum Washing Machine
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Clothes Washers (Horizontal Drum)&ID=145
Description:
Scope
Horizontal drum washing machine which is defined the household washing machine with the rated capacity of 2 kg ~ 20kg, and has the heater, spin extractor, and dryer. But, non-detergent type is excluded, and the type with the heater is only available to boil or to dry is also excluded.
MEPS

(unit: Wh/kg)

Type	MEPS
	From 1 January, 2001
2kg≤ The rated washing capacity ≤8kg	82
8kg≤ The rated washing capacity ≤13kg	80
13kg≤ The rated washing capacity ≤20kg	78

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Program Type: Mandatory Label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Clothes Washers&ID=11

Description:

Scope

Horizontal drum washing machine which is defined the household washing machine with the rated capacity of 2 kg ~ 20kg, and has the heater, spin extractor, and dryer. But, non-detergent type is excluded, and the type with the heater is only available to boil or to dry is also excluded.

Energy Efficiency Level Standards

A. Energy Efficiency Level Index

Electric Power Consumption during a complete cycle [Wh] per Rated Washing Capacity [Water temperature 40℃].

$$R(\text{Energy efficiency level index}) = \frac{\text{Electric Power Consumption during a complete cycle [Wh]}}{\text{Rated Washing Capacity [kg]}}$$

Standby power shall be tested in off-mode, which means a tested sample shall be in power-off manually or automatically.

B. Energy Efficiency Level

1) 2kg≤ The rated washing capacity ≤8kg without network function

R	Standby power (off mode)	Water consumption per 1 cycle – 1kg	Washing efficiency index	Level
R≤ 42	≤ 0.5W	≤ 12.0liter/kg	0.99≥	1
R≤ 52	N/A	N/A	0.90≥	2
52< R ≤ 62	N/A	N/A	0.90≥	3
62< R ≤ 72	N/A	N/A	0.90≥	4
72< R ≤ 82	N/A	N/A	0.90≥	5

2) 2kg≤ The rated washing capacity ≤8kg with network function

R	Standby power (off mode)	Water consumption per 1 cycle – 1kg	Washing efficiency index	Level
R≤ 42	≤ 0.5W(off mode) ≤ 2.0W(active mode)	≤ 12.0liter/kg	0.99≥	1
R≤ 52	N/A	N/A	0.90≥	2
52< R ≤ 62	N/A	N/A	0.90≥	3
62< R ≤ 72	N/A	N/A	0.90≥	4
72< R ≤ 82	N/A	N/A	0.90≥	5

3) 8kg≤ The rated washing capacity ≤13kg without network function

R	Standby power (off mode)	Water consumption per 1 cycle – 1kg	Washing efficiency index	Level
R≤ 40	≤ 0.5W	≤ 12.0liter/kg	0.99≥	1
R≤ 50	N/A	N/A	0.90≥	2
50< R ≤ 60	N/A	N/A	0.90≥	3

60< R ≤ 70	N/A	N/A	0.90≥	4
70< R ≤ 80	N/A	N/A	0.90≥	5

4) 8kg≤ The rated washing capacity ≤13kg with network function

R	Standby power (off mode)	Water consumption per 1 cycle – 1kg	Washing efficiency index	Level
R≤ 40	≤ 0.5W (off mode) ≤ 2.0W(active mode)	≤ 12.0liter/kg	0.99≥	1
R≤ 50	N/A	N/A	0.90≥	2
50< R ≤ 60	N/A	N/A	0.90≥	3
60< R ≤ 70	N/A	N/A	0.90≥	4
70< R ≤ 80	N/A	N/A	0.90≥	5

5) 13kg≤ The rated washing capacity ≤20kg with network function

R	Standby power (off mode)	Water consumption per 1 cycle – 1kg	Washing efficiency index	Level
R≤ 38	≤ 0.5W	≤ 12.0liter/kg	0.99≥	1
R≤ 48	N/A	N/A	0.90≥	2
48< R ≤ 58	N/A	N/A	0.90≥	3
58< R ≤ 68	N/A	N/A	0.90≥	4
68< R ≤ 78	N/A	N/A	0.90≥	5

6) 13kg≤ The rated washing capacity ≤20kg with network function

R	Standby power (off mode)	Water consumption per 1 cycle – 1kg	Washing efficiency index	Level
R≤ 38	≤ 0.5W (off mode) ≤ 2.0W(active mode)	≤ 12.0liter/kg	0.99≥	1
R≤ 48	N/A	N/A	0.90≥	2
48< R ≤ 58	N/A	N/A	0.90≥	3
58< R ≤ 68	N/A	N/A	0.90≥	4
68< R ≤ 78	N/A	N/A	0.90≥	5

C. Definitions
Without network function
With network function :
It has a network function in a body, which is enable to exchange data between a body and external network by wire or wireless. If it is get to 1st level, R shall be met with above tables and standby power shall be less than 3 W for active standby mode, and 1W for off mode.
Off mode : The power state when the product is switched off or auto off.
Active standby mode :

When an appliance is switched to off/standby and is not performing its primary functions while still connected to a power supply but can be activated by a remote control or other internal signals. In addition, it can also be activated into other power modes by receiving external signals or when it is receiving minimum level of data from service providers.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-49_e-standby_Program.pdf

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Household Gas Boiler
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Boilers (Gas)&ID=61
Description:
Scope
By KS B 8109 and KS C 8127 Gas water heating boiler of rated gas consumption of 69.5 kW or less, and the total heat capacity is defined by KS B 8101.
Energy Efficiency (%) shall be measured by the test method in KS B 8109 and KS B 8127, which is heating thermal efficiency.
MEPS

(Unit: %)

Type	MEPS
	From 1 January, 2003
Household Gas Boiler	80.0

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Republic of Korea&countryid=253&product=Boilers (Gas)&ID=61
Description:
Scope
By KS B 8109 and KS C 8127 Gas water heating boiler of rated gas consumption of 69.5 kW or less, and the total heat capacity is defined by KS B 8101.
Energy Efficiency (%) shall be measured by the test method in KS B 8109 and KS B 8127, which is heating thermal efficiency.
Energy Efficiency Level Standards
A. Energy Efficiency Level Index

R(Energy efficiency level index) = Measured thermal efficacy for heating(%)

B. Energy Efficiency Level

R	Standby power (Sleep mode)	Level
87.0%≤ R	≤ 3.0W	1
85.0%≤ R	N/A	2
83.0%≤ R ＜ 85.0%	N/A	3
81.5%≤ R ＜ 83.0%	N/A	4
80.0%≤ R ＜ 81.5%	N/A	5

C. Definitions
Sleep mode is defined as the reduced power state that the product is not running for a moment, and automatically goes back to run.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Gas Water Heater
Program Type: MEPS
Create New Page:
Test Method: KS B 8116
Description:
Scope
By KS B 8116 Gas water heater of rated gas consumption of 70.0kW or less and the total heat capacity is defined by KS B 8101.
Energy Efficiency (%) shall be measured by the test method in KS B 8116, which is heating thermal efficiency for water heater.
MEPS

(Unit: %)

Type	MEPS
	From 1 January, 2011
Gas Water Heater	73.0

Year Effective: 01-01-2011

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Program Type: Mandatory Label
Create New Page:
Test Method: KS B 8116
Description:
Scope
By KS B 8116 Gas water heater of rated gas consumption of 70.0kW or less and the total heat capacity is defined by KS B 8101.
Energy Efficiency (%) shall be measured by the test method in KS B 8116, which is heating thermal efficiency for water heater.
Energy Efficiency Level Standards
A. Energy Efficiency Level Index

R(Energy efficiency level index) = Measured thermal efficacy for heating(%)

For a instant gas water heater

$$\text{thermal efficiecny} = \frac{\text{Output}}{\text{Gas consumption}} = \frac{M \times C \times (tw2 - tw1)}{V \times Q} \times \frac{101.3(273 + ta)}{(B + Pm - S) \times 273} \times 100$$

Where,
M : Mass of water, kg
C : Specific heat of Water, 4.19 kJ/kg K
tw2 : temperature at hot water, ℃
tw1 : temperature of supply water, ℃
Q : Total energy, kJ/m3N
V : gas consumption, m3
B : barometer, kPa
ta : temperature at gas meter, ℃
Pm : pressure at gas meter, kPa
S : pressure at ta
B. Energy Efficiency Level

R	Standby power (Sleep mode)	Level
93.0%≤ R	≤ 3.0W	1
88.0%≤ R	N/A	2
83.0%≤ R ＜ 88.0%	N/A	3
78.0%≤ R ＜ 83.0%	N/A	4
73.0%≤ R ＜ 78.0%	N/A	5

C. Definitions
Sleep mode is defined as the reduced power state that the product is not running for a moment, and automatically goes back to run.

Source: http://www.kemco.or.kr/nd_file/kemco_eng/MKE_Notice_2010-124.pdf

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Malaysia

	Mandatory Standard	Mandatory Label	Voluntary Label
AC			Edit
Refrigerator & freezer			Edit
Lighting			
Computers & Monitors			
Televisions			Edit
Clothes washers			
Clothes driers			
Water heating			

Note: Red box – create a new page; orange box – update existing page; white box – no action needed.

Air Conditioners

Program Type: Voluntary Label

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Malaysia&countryid=254&product=RACs (Split)&ID=5 http://www.apec-esis.org/productsummary_sl.php?country=Malaysia&countryid=254&product=RACs (Window)&ID=62

Test Method: MS ISO 5151:2004

Description:

Performance Indicator and Testing Standard

Energy Efficiency Ratio (EER) based on tests done in accordance to MS ISO 5151:2004 (Non-ducted air conditioners and heat pumps: Testing and rating for performance)

The tests can be either the Balanced Type Calorimeter or Psychometric type.

The tested capacity value must be at least 90% of that declared by the manufacturer.

The EER is calculated as shown below:

$$EER = \frac{\text{Cooling Capacity (Btu/h)}}{\text{Input Power (W)}}$$

EEFaverage (1 door) = 1.37 Vadj – 62.1
EEFaverage (2 door) = 0.33 Vadj + 66.2
The Star ratings based on the EER values are as shown below.

Star rating	Star index value
5	>10.41
4	9.94-10.4
3	8.99-9.93
2	8.52 - 8.98
1	< 8.51

Source:
http://www.st.gov.my/index.php?option=com_content&view=article&id=5236&Itemid=4221&lang=en

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Refrigerator
Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Malaysia&countryid=254&product=Refrigerator&ID=2
http://www.apec-esis.org/productsummary_sl.php?country=Malaysia&countryid=254&product=Refrigerator-freezers&ID=10
Test Method: MS ISO 8561:2000
Description:
Performance Indicator and Testing Standard
Star Index based on daily energy consumption obtained from tests in accordance with MS ISO 8561:2000 (Household Frost Free Refrigerating Appliances – Refrigerators, Refrigerator-Freezers, Frozen Food Storage Cabinets and Food Freezers Cooled by Internal Forced Air Circulation – Characteristics and Test Methods)
The Star Index is calculated as follows:-

$$\text{Energy Efficiency Factor (EEF)} = \frac{\text{Adjusted Volume (litre)}}{\text{Energy consumed per day (kWh)}}$$

EEFaverage (1 door) = 1.37 Vadj – 62.1
EEFaverage (2 door) = 0.33 Vadj + 66.2
The STAR Index values for the various star ratings are as shown below.

Star rating	Star index value
5	+25%≤ STAR Index
4	+10%≤ STAR Index <+25%
3	-10%≤ STAR Index <+10%
2	-25%≤ STAR Index <-10%
1	STAR Index <-25%

Source:
http://www.st.gov.my/index.php?option=com_content&view=article&id=5242&Itemid=4218&lang=en

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Televisions
Program Type: Voluntary Label
Test Method: IEC 62087 Edition 2.0: 2008-10, MS IEC 62301:2006
Create New Page:
Description:

STAR Index based on energy consumption tests done in accordance with IEC 62087 Edition 2.0: 2008-10 for on mode power and MS IEC 62301:2006 for standby mode power.
The STAR Index is calculated as shown below:

$$\text{STAR Index} = \frac{EEF_{tested}}{EEF_{average}} - 1 \times 100\%$$

Where,

$$\text{Energy Efficiency Factor (EEF)} = \frac{\text{Screen Area (cm2)}}{\text{Annual Energy Consumption (kWh)}}$$

Annual Energy Consumption (kWh) = 0.365x[(Ponx5)+(Ppsx(19-Tas)+(PasxTas)]
Pon = Power at on mode (W)
Pps = Power at passive standby mode (W)
Pas = Power at active standby mode (W)
Tas = Time on active standby mode (hour)
EEFaverage = 0.0012 x (screen area) + 6.322
The STAR Index values for the various star ratings are as shown below.

Star rating	Star index value
5	STAR Index <-20%
4	-20%≤ STAR Index<-10%
3	-10%≤ STAR Index <+10%
2	+10%≤ STAR Index <+20%
1	+20%≤ STAR Index

Source:
http://www.st.gov.my/index.php?option=com_content&view=article&id=5243&Itemid=4222&lang=en

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Mexico

	Product	Mandatory Standard	Mandatory Label	Voluntary Label
AC	room air conditioners	Edit		Edit
	central air conditioning, package or split	Edit		Edit
Refrigerator & freezer	refrigerators and freezers appliances	Edit		Edit
	self-contained commercial refrigeration	Edit		Edit
Lighting	compact fluorescent lamps	Edit		Edit
	lighting systems in non-residential buildings	Edit		
	lighting systems in public roadways and outdoor areas	Edit		
Computers & Monitors	N/A			Edit

Televisions	N/A			Edit
Clothes washers	household electric washing machines	Edit	Edit	Edit
Clothes driers	N/A			
Water heating	water heaters for domestic and commercial	Edit		Edit

Note: Red box – create a new page; orange box – update existing page; white box – no action needed.

Room AC
Program Type: MEPS
Update Existing Page:
RAC (window): http://www.apec-esis.org/productsummary_sl.php?country=Mexico&countryid=286&product=RACs%20%28Window%29&ID=62
RAC (packaged terminal): http://www.apec-esis.org/productsummary_sl.php?country=Mexico&countryid=286&product=RACs (Packaged Terminal)&ID=79
Description:
Scope
This standard applies to the new room air conditioners, with or without heating, with air—cooled condenser and with cooling capacities up to 10 600 watts (36 000 BTU/h). It does not apply to mini-split.
Classification
The room air conditioners with or without heating are classified by their cooling capacity in Watts heat and specific design features, as follows:

Type	Class	COOLING CAPACITY in Wt
without reverse cycle and lateral grooves	1	less than or equal to 1 758
	2	greater than 1758 to 2343
	3	greater than 2344 to 4101
	4	greater than 4102 to 5859
	5	greater than 5860 to 10600
without reverse cycle and without side grooves	6	less than or equal to 1 758
	7	greater than 1759 to 2343
	8	greater than 2344 to 4101
	9	greater than 4102 to 5859
	10	greater than 5860 to 10600
with reverse cycle and lateral grooves	11	less than or equal to 5859
	13	greater than 5860-10600
with reverse cycle without side slots	12	less than or equal to 4 101
	14	from 4102 to 10600

Specifications
The energy efficiency of air conditioners covered by this standard, its value is specified by the Energy Efficiency Ratio (EER). The devices subject to compliance with this standard must have a value greater than or equal REE values specified in Table 1. The manufacturer should be marked on the label the value of REE in W / W, which must not be less than the value specified in Table 1 for the class of device.

TABLE 1 .- Values of the Energy Efficiency Ratio	
Class	**REE in Wt / We**

1	2.84
2	2.84
3	2.87
4	2.84
5	2.49
6	2.64
7	2.64
8	2.49
9	2.49
10	2.49
11	2.64
12	2.49
13	2.49
14	2.34

Source:
http://www.conae.gob.mx/work/sites/CONAE/resources/LocalContent/6933/6/NOM021ENERSCFI2008.pdf
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Sello FIDE - Room AC
Program Type: Voluntary Label
Combine Existing Pages:
http://www.apec-esis.org/programinfo_sl.php?no=809
http://www.apec-esis.org/programinfo_sl.php?no=135
Test Standard: NOM-021-ENER/SCFI/ECOL
Description:
Scope
Applicable to models of room air conditioner without reverse cycle (cooling) or reverse cycle (heating), with and without side grooves, with air-cooled condenser and refrigerant R22 or higher, with cooling capacity up to 10,600 Watts (36,000 BTU / h), fed a nominal voltage of 115 volts and 220 volts at a frequency of 60 Hz nominal.

Specifications
Allowable Limit Values for Energy Efficiency
Table 1. Energy Efficiency Ratio (EER) Minimum Equipment Reverse Cycle Air Conditioner (Cooling Only) and with side slots.

TIPO	CAPACIDAD DE ENFRIAMIENTO	VALOR MÍNIMO DE RELACIÓN DE EFICIENCIA ENERGÉTICA (REE) EN W_T/W_E (BTU/Wh)
SIN CICLO INVERSO Y CON RANURAS LATERALES	MENOR O IGUAL A 1.758 WATTS (MENOR O IGUAL A 6.000 BTU/H)	**≥ 3,00 (10,2)**
	1.759 A 4.101 WATTS (6.001 A 13.999 BTU/H)	**≥ 3,07 (10,5)**
	4.102 A 5.859 WATTS (14.000 A 19.999 BTU/H)	**≥ 3,00 (10,2)**
	5.860 A 10.600 WATTS (20.000 A 36.000 BTU/H)	**≥ 2,72 (9,3)**

Table 2. Energy Efficiency Ratio (EER) Minimum Equipment Reverse Cycle Air Conditioner (Cooling Only) and no side slots.

TIPO	CAPACIDAD DE ENFRIAMIENTO	VALOR MÍNIMO DE RELACIÓN DE EFICIENCIA ENERGÉTICA (REE) EN W_T/W_E (BTU/Wh)
SIN CICLO INVERSO Y SIN RANURAS LATERALES	MENOR O IGUAL A 1.758 WATTS (MENOR O IGUAL A 6.000 BTU/H)	**≥ 2,78 (9,5)**
	1.759 A 4.101 WATTS (6.001 A 13.999 BTU/H)	**≥ 2,72 (9,3)**
	4.102 A 5.859 WATTS (14.000 A 19.999 BTU/H)	**≥ 2,72 (9,3)**
	5.860 A 10.600 WATTS (20.000 A 36.000 BTU/H)	**≥ 2,72 (9,3)**

Table 3. Energy Efficiency Ratio (EER) and Coefficient of Performance (CDF) Minimum Equipment Air Conditioning with Reverse Cycle (with heating) and with side slots.

TIPO	CAPACIDAD DE ENFRIAMIENTO	VALOR MINIMO DE RELACION DE EFICIENCIA ENERGETICA (REE) EN W_T/W_E (BTU/Wh)	VALOR MINIMO DE COEFICIENTE DE FUNCIONAMIENTO (CDF) EN W_T/W_E (BTU/Wh)
CON CICLO INVERSO Y CON RANURAS LATERALES	MENOR O IGUAL A 5860 WATTS (MENOR O IGUAL A 20000 BTU/H)	***≥ 2.78 (9.5)***	***≥ 2.50 (8.53)***
	5861 A 10600 WATTS (20001 A 36000 BTU/H)	***≥ 2.63 (9.0)***	

Table 4. Energy Efficiency Ratio (EER) and Coefficient of Performance (CDF) Minimum Equipment Air Conditioning with Reverse Cycle (with heating) and no side slots.

TIPO	CAPACIDAD DE ENFRIAMIENTO	VALOR MINIMO DE RELACION DE EFICIENCIA ENERGETICA (REE) EN W_T/W_E (BTU/Wh)	VALOR MINIMO DE COEFICIENTE DE FUNCIONAMIENTO (CDF) EN W_T/W_E (BTU/Wh)
CON CICLO INVERSO Y SIN RANURAS LATERALES	MENOR O IGUAL A 5860 WATTS (MENOR O IGUAL A 20000 BTU/H)	***≥ 2.63 (9.0)***	***≥ 2.50 (8.53)***
	5861 A 10600 WATTS (20001 A 36000 BTU/H)	***≥ 2.49 (8.5)***	

Year Published: 30-April-2007
Source: http://fide.codice.com/home/subhome.asp?seccion=3
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Central AC
Program Type: MEPS
Update Existing Page:
(Split): http://www.apec-esis.org/productsummary_sl.php?country=Mexico&countryid=286&product=Central%20AC%20%28Split%20type%29&ID=54
(packaged terminal): http://www.apec-esis.org/productsummary_sl.php?country=Mexico&countryid=286&product=Central AC (Packaged Terminal)&ID=101
Year Published: 22-Jun-2007

Under Revision Comment: Draft Mexican Official Standard PROY-NOM-023-ENER-2008: Energy efficiency in split type, free flow, ductless air conditioners. Publication Date: 13 May 2010
Source:
http://www.conae.gob.mx/work/sites/CONAE/resources/LocalContent/6933/6/NOM011ENER2006.pdf
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Sello FIDE - Central AC
Program Type: Voluntary Label
Update Existing Page:
(Split) http://www.apec-esis.org/programinfo_sl.php?no=1137
(Packaged) http://www.apec-esis.org/programinfo_sl.php?no=1136
Test Standard: NOM-011-ENER
Description:
SCOPE
Applicable to models of Central Type Air Conditioner Split Package or without reverse cycle (cooling) or reverse cycle (heating), air-cooled condenser and refrigerant R22 or higher, with cooling capacity of 10,540 Watts (36,000 BTU / h) to 17,580 Watts (60,000 BTU / h), fed a nominal voltage of 220 volts or 230 volts at a frequency of 60 Hz nominal.
Specifications
Permissible limited values of Seasonal Energy Efficiency
Table 1. Seasonal Energy Efficiency Ratio (WEEE) minimum for FIDE Seal Equipment Reverse Cycle Air Conditioner (Cooling Only).

TIPO	CAPACIDAD DE ENFRIAMIENTO	VALOR MÍNIMO DE RELACIÓN DE EFICIENCIA ENERGÉTICA ESTACIONAL (REEE) EN W_T/W_E (BTU/Wh)
SIN CICLO INVERSO	DESDE 10.540 HASTA 17.580 WATTS TERMICOS (DESDE 36.000BTU/H HASTA 60.000 BTU/H)	**≥ 3,81 (13,00)**

Table 2. Seasonal Energy Efficiency Ratio (WEEE) and Calorific Seasonal Performance Factor (FCCE) minimum for FIDE Seal Air Conditioning Equipment With Reverse Cycle (with heater).

TIPO	CAPACIDAD DE ENFRIAMIENTO	VALOR MINIMO DE RELACION DE EFICIENCIA ENERGETICA ESTACIONAL (REEE) EN W_T/W_E (BTU/Wh)	VALOR MINIMO DEL FACTOR DE COMPORTAMIENTO CALORIFICO ESTACIONAL (FCCE) EN W_T/W_E (BTU/Wh)
CON CICLO INVERSO	DESDE 10.540 HASTA 17.580 WATTS TERMICOS (DESDE 36.000BTU/H HASTA 60.000 BTU/H)	**≥ 3,81 (13,00)**	**≥ 2,11 (7,20)**

Year Published: 30-April-2007
Source: http://fide.codice.com/home/subhome.asp?seccion=3
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Refrigerators and freezers
Program Type: MEPS

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Mexico&countryid=286&product=Refrigerator-freezers&ID=10
Test Standard: NOM-015-ENER-2002
Description:
Scope
This standard applies to electric refrigerators, refrigerator-freezers up to 1104 dm3 (39 ft3) and freezers up to 850 dm3 (30 ft3) operated by hermetic compressor.
Specifications
The limits of maximum power consumption are determined by applying the formulas in Table 1 of household appliances by type, de-icing and set volume.
The power consumption for devices with automatic defrost Adjustable, determined as described in paragraph 9, multiply by 0.965 to compare with the limit of maximum energy (Emax) of Table 1 is due.

TABLE 1. Limits maximum energy consumption for refrigerators and freezers	
Description of the appliance	**EMAX**
1 Refrigerator only, conventional and CRF (R / C) with melting manual or semiautomatic.	VA 0.31 +248.4
2 refrigerator-freezer with automatic defrost partially.	VA 0.31 +248.4
3 refrigerator-freezer with automatic defrost freezer mounted top, no ice dispenser, and refrigerators alone with melting automatic.	VA 0.35 +276.0
4 refrigerator-freezer with automatic defrost freezer mounted laterally, without ice dispenser	VA 0.17 +507.5
5 Refrigerator-freezers with automatic defrost freezer mounted bottom, no ice dispenser.	VA 0.16 +459.0
6 Refrigerator-freezer with automatic defrost freezer mounted top with ice dispenser.	VA 0.36 +356.0
7 Refrigerator-freezers with automatic defrost freezer mounted laterally, with ice dispenser.	VA 0.36 +406.0
8 Upright freezer with manual defrost.	VA 0.27 +258.3
9 Upright freezer with automatic defrost.	VA 0.44 +326.1
10 Chest freezer and all other freezers except freezer compact.	VA 0.35 +143.7
11 Refrigerators and refrigerator-freezers with manual defrost compact.	VA 0.38 +299.0
12 compact refrigerator-freezer with automatic defrost partially.	VA 0.25 +398.0
13 compact refrigerator-freezer with automatic defrost freezer mounted on the top and only compact defrost refrigerator automatic.	VA 0.45 +355.0
14 compact refrigerator-freezer with automatic defrost freezer Side mounted.	VA 0.27 +501.0
15 compact refrigerator-freezer with automatic defrost freezer mounted on the bottom.	VA 0.46 +367.0
16 Compact Upright Freezer Manual defrost.	VA 0.35 +250.8
17 Compact Upright Freezer with automatic defrost.	VA 0.40 +391.0
18 Compact Chest Freezer	VA 0.37 +152.0

Year Published: 15-Jan-2003
Year Effective: 13-May-2003
Source:
http://www.conae.gob.mx/work/sites/CONAE/resources/LocalContent/6933/6/NOM015ENER2002.pdf
Back to Summary

Sello FIDE - Refrigerators and freezers
Program Type: Voluntary Label
Combine Existing Pages:
http://www.apec-esis.org/programinfo_sl.php?no=155
http://www.apec-esis.org/programinfo_sl.php?no=812
http://www.apec-esis.org/programinfo_sl.php?no=813
Test Standard: NOM-015-ENER-2002
Description:
Scope
Applicable to models of refrigerators and freezers operated by hermetic compressor with rated input voltage of 127 volts at a frequency of 60 Hertz, with any of the following types of icing:
Manual
Semiautomatic
Partially automated
Automatic
Automatic long-term
Adjustable Automatic
Specifications
The limits of maximum power consumption are determined by applying the formulas in Table 1 of household appliances by type, de-icing and set volume.

TABLE 1. Limits maximum energy consumption for refrigerators and freezers	
Description of the appliance	**EMAX**
1 Refrigerator only, conventional and CRF (R / C) with melting manual or semiautomatic.	VA 0.295 +236.0
2 refrigerator-freezer with automatic defrost partially.	VA 0.295 +236.0
3 refrigerator-freezer with automatic defrost freezer mounted top, no ice dispenser, and refrigerators alone with melting automatic.	VA 0.333 + 262.2
4 refrigerator-freezer with automatic defrost freezer mounted laterally, without ice dispenser	VA 0.162 +482.1
5 Refrigerator-freezers with automatic defrost freezer mounted bottom, no ice dispenser.	VA 0.152 436.0
6 Refrigerator-freezer with automatic defrost freezer mounted top with ice dispenser.	VA 0.342 + 338.2
7 Refrigerator-freezers with automatic defrost freezer mounted laterally, with ice dispenser.	VA 0.342 + 385.7
8 Upright freezer with manual defrost.	VA 0.257 +245.4
9 Upright freezer with automatic defrost.	VA 0.418 309.8
10 Chest freezer and all other freezers except freezer compact.	VA 0.333 + 136.5
11 Refrigerators and refrigerator-freezers with manual defrost compact.	VA 0.361 + 284.0

12 compact refrigerator-freezer with automatic defrost partially.	VA 0.238 + 378.1
13 compact refrigerator-freezer with automatic defrost freezer mounted on the top and only compact defrost refrigerator automatic.	VA 0.428 + 337.2
14 compact refrigerator-freezer with automatic defrost freezer Side mounted.	VA 0.257 + 475.9
15 compact refrigerator-freezer with automatic defrost freezer mounted on the bottom.	VA 0.437 + 348.6
16 Compact Upright Freezer Manual defrost.	VA 0.333 + 238.2
17 Compact Upright Freezer with automatic defrost.	VA 0.380 +371.4
18 Compact Chest Freezer	VA 0.352 + 144.4

Year Published: 19-June-2007
Source: http://fide.codice.com/home/subhome.asp?seccion=3
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Commercial refrigeration
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Mexico&countryid=286&product=Refrigerators%20%28Commercial%29&ID=76
Test Standard: NOM-022-ENER/SCFI-2008
Description:
Scope
This standard applies to the following commercial refrigeration self-contained electric powered, new, used and rebuilt:
• Coolers with one or more vertical front doors
• Horizontal Coolers
• Freezers
• Upright Freezers
• Showcase closed
• ice bag Conservatives
All with capacities of 50 L or more.
Specifications
For purposes of this Standard, self-contained commercial refrigeration equipment are classified as shown in Table 1.
In the case of devices with hybrid cooling system, the manufacturer must recommend whether the device is classified as forced air or cold plates, depending on the range of ability in Table 1.

TABLE 1 .- Values limit consumption of energy per liter for self-contained commercial refrigeration			
TYPE OF UNIT	**Consumption limits. (KWh / L in 24 h)**	**Capacity Range (L)**	**LIMIT OF INTERVAL AFTER CONSUMPTION (kWh / L at 24h) (1)**
VERTICAL COOLER			
With forced air	C = 0.2463 * (V) - 0.4537	50 - 1200	0.0099
Cold plate	C = 1.0489 * (V) - 0.8763	50 - 1200	0.0021
HORIZONTAL COOLER			
With forced air	C = 4.5922 * (V) - 1.0162	100 - 500	0.0083

Cold plate	C = 1.0489 * (V) - 0.8763	100 - 500	0.0045
UPRIGHT FREEZER			
With glass door and forced air	C = 0.0725 * (V) - 0.1136	100 - 500	0.0358
With glass door and cold plate	C = 0.2378 * (V) - 0.4189	200 - 1500	0.0111
HORIZONTAL FREEZER			
With solid door	C = 0.0353 * (V)- 0.2142	100 - 700	0.0087
Medical use with a solid door (2	C = 0.0767 * (V) - 0.2839	100 - 700	0.0119
With glass door	C = 0.0767 * (V) - 0.2839	100 - 500	0.0131
CLOSED CABINET			
Average temperature	C = 0.1555 * (V) - 0.2915	200 - 1200	0.0197
Low temperature	C = 0.103 * (V) - 0.1228	200 - 1200	0.0431
CONSERVADORES DE BOLSAS DE HIELO			
	C = 0.2245 * (V) - 0.5674	250 - 2500	0.0026

Notes
1 .- These values are not calculated and are constant for all intervals capacities greater than capacity of column three.
2 .- This equipment must be tested at room temperature of 40 ° C and 65% relative humidity.
Year Published: 11-Dec-2008
Year Effective: 13-Mar-2009
Source:
http://www.conae.gob.mx/work/sites/CONAE/resources/LocalContent/6933/6/NOM022ENER2008.pdf
Back to Summary

Sello FIDE - Commercial refrigeration
Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/programinfo_sl.php?no=1138
Test Standard: NOM-022-ENER/SCFI-2008
Description:
Scope
Applicable to models of self-contained commercial refrigeration equipment such as coolers, freezers, cabinets closed and conservative ice packs supplied at a nominal voltage of 110, 115, 127 and 220 volts at a frequency of 60 Hz
Specifications
For purposes of this Standard, self-contained commercial refrigeration equipment are classified as shown in Table 1.

TABLE 1 .- Values limit consumption of energy per liter for self-contained commercial refrigeration			
TYPE OF UNIT	**Consumption limits. (KWh / L in 24 h)**	**Capacity Range (L)**	**LIMIT OF INTERVAL AFTER CONSUMPTION (kWh / L at 24h) (1)**
VERTICAL COOLER			
With forced air	C = 0.234 * (V) -	50 - 1200	0.0094

	0.4537		
Cold plate	C = 0.9965 * (V) - 0.8763	50 - 1200	0.0020
HORIZONTAL COOLER			
With forced air	C = 4.3626 * (V) - 1.0162	100 - 500	0.0079
Cold plate	C = 0.9965 * (V) - 0.8763	100 - 500	0.0044
UPRIGHT FREEZER			
With glass door and forced air	C = 0.0689 * (V) - 0.1136	100 - 500	0.0340
With glass door and cold plate	C = 0.2259 * (V) - 0.4189	200 - 1500	0.0106
HORIZONTAL FREEZER			
With solid door	C = 0.0282 * (V)- 0.2142	100 - 700	0.0069
Medical use with a solid door (2	C = 0.0744 * (V) - 0.2839	100 - 700	0.0116
With glass door	C = 0.0744 * (V) - 0.2839	100 - 500	0.0127
CLOSED CABINET			
Average temperature	C = 0.1477 * (V) - 0.2915	200 - 1200	0.0177
Low temperature	C = 0.0979 * (V) - 0.1228	200 - 1200	0.0410
CONSERVADORES DE BOLSAS DE HIELO			
	C = 0.2133 * (V) - 0.5674	250 - 2500	0.0025

Year Published: 12-March-2009
Source: http://fide.codice.com/home/subhome.asp?seccion=3
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CFLs
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Mexico&countryid=286&product=CFLs&ID=57

Description:

This standard establishes the minimum energy efficiency levels for self-ballasted compact fluorescent lamps with a power up to 28 Watts, the user safety requirements for such lamps and the test methods for verifying compliance with these requirements. Furthermore, the Standard specifies the information to be displayed on the products covered by this draft Standard and marketed in Mexico and responds to the need for such products to be conducive to energy efficiency and saving.

This standard applies to all self-ballasted compact fluorescent lamps with or without housing or with an integrated reflector, with an E12, E14, E26, E27, E39 or E40 Edison screw base or a B22 bayonet base, with supply voltages from 100V to 277V AC and of 50 Hz or 60 Hz, and

manufactured in, imported into or marketed in national territory. It does not apply to self-ballasted compact fluorescent lamps with control fixtures, such as photocells, motion sensors, remote controls or dimmer devices, incorporated in the body of the lamp or to modular compact fluorescent lamps.

The LFCA must meet minimum performance set out in Table 1.

Table 1. Limits of effectiveness for Self-Ballasted Compact Fluorescent Lamps	
LFCA without housing	
Power Ranges	**Minimum Efficiency (lm/W)**
Less than or equal to 7 W	40.5
Greater than 7 W and less than or equal to 10 W	44.5
More than 10 W and less than or equal to 14 W	46.0
Greater than 14 W and less than or equal to 18 W	47.5
Greater than 18 W and less than or equal to 22 W	52.0
Greater than 22 W	56.5
LFCA with housing	
Power Ranges	**Minimum Efficiency (lm/W)**
Less than or equal to 7 W	31.0
Greater than 7 W and less than or equal to 10 W	34.5
More than 10 W and less than or equal to 14 W	36.0
Greater than 14 W and less than or equal to 18 W	40.5
Greater than 18 W and less than or equal to 22 W	45.0
Greater than 22 W	45.0
LFCA with reflector	
Power Ranges	**Minimum Efficiency (lm/W)**
Less than or equal to 7 W	29.0
Greater than 7 W and less than or equal to 14 W	29.0
Greater than 14 W and less than or equal to 18 W	33.0
Greater than 18 W	40.0

Source:
http://www.conae.gob.mx/work/sites/CONAE/resources/LocalContent/6933/6/NOM017ENERSCFI2008.pdf
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Sello FIDE - CFLs
Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/programinfo_sl.php?no=140
Test Standard: NMX-J-295-ANCE
Description:
Scope

Applicable to models of compact fluorescent lamps not ballasts, tube-shaped single, double, triple and long twin tube T4 or T5.

Specifications

FORMA DE LAMPARA	POTENCIA DE LA LAMPARA (W)	EFICACIA MINIMA (lm/W)
SENCILLA	5	50.00
	7	57.00
	9	66.00
	13	63.00
DOBLE	13	69.00
	18	
	26	
	13	
	18	
	26	
TRIPLE	13	69.00
	18	66.00
	26	69.00
	32	75.00
	≥ 42	74.00
LONG TWIN	18	67.00
	24	75.00
	27	66.00
	36	80.00
	39	73.00
	40	78.00
	50	80.00
	55	86.00
	80	75.00

Year Published: 23-July-2007
Source: http://fide.codice.com/home/subhome.asp?seccion=3
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Lighting Systems (Indoor)
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Mexico&countryid=286&product=Lighting%20Systems%20%28Indoor%29&ID=74
Description:
Scope
This standard includes interior lighting systems and outside of new residential buildings are not wired for lighting total load greater than or = 3 kW, as well as additions and modifications to the interior lighting systems outdoor lighting connected load greater than or equal to 3 kW of existing buildings
Specifications
Density Values for Electrical Power Lighting (DPEA) must not exceed the values shown in Table 1.

Table 1. Electrical Power Densities for Illumination (DPEA)	
Building type	**DPEA (W / m2)**
Offices	

Offices	14
Schools and other educational institutions	
Schools or educational institutions	16
Library	16
Retail outlets	
Supermarkets, department and specialty	20
Hospitals	
Hospitals, nursing homes and clinics	17
Hotels	
Hotels	18
Motels	22
Restaurants	
Bars	16
Cafés and fast food	19
Restaurants	20
Wineries	
Warehouses or storage areas	13
Recreation and Culture	
Cinemas	17
Theaters	16
Convention Centers	15
Gyms and sports centers	16
Museums	17
Temples	24
Service Workshops	
Automobile service workshops	16
Workshops	27
Cargo and passenger	
Stations and freight terminals	13
Stations and passenger terminals, air and land	16

6.1 In the case of building facades the effectiveness of the light source used for lighting should not be less than 22 lm / W.
6.2 DPEA for other outdoor areas, which are part of listed buildings within the scope of this standard should not exceed 1.8 W / m2.
6.3 covered parking, enclosed or roofed as part of the buildings contemplated within the scope of this Standard, DPEA meet should not exceed 3 W / m2 and, for open parking lots should not exceed the provisions in Table 2.

Table 2. Maximum DPEA Values for Open Parking

Area to Illuminate	Power Density
m2	**W/m2**
<300	1.80
from 300 to <500	0.90
from 500 to <1000	0.70
from 1000 to <1500	0.58
from 1500 to <2000	0.54
>2000	0.52

Year Published: 15-04-2005
Source:
http://www.conae.gob.mx/work/sites/CONAE/resources/LocalContent/6933/6/NOM007ENER2004.pdf

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Lighting Systems (Ext.)
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Mexico&countryid=286&product=Lighting%20Systems%20%28Ext.%29&ID=75
Description:
Scope
The scope of this standard includes all new lighting systems for roads, public parking lots open, closed or roofed and public outdoor areas and expansions of existing plants to be built in the country, regardless of their size and load.
The applications of installations covered under this standard include:
a) Roadways
b) Public parking lots open, closed or roofed
c) Public areas
Specifications

Year Effective: 17-08-2005
Source:
http://www.conae.gob.mx/work/sites/CONAE/resources/LocalContent/6933/6/NOM013ENER2004.pdf
Back to Summary

Sello FIDE – Monitors
Program Type: Voluntary Label
Add a New Page
Test Standard: NMX-I-163-NYCE
Description:
Scope
applicable to models of monitors for personal computers, powered with a rated voltage of 100 to 240 volts at a frequency of 60 Hz in any of the following types of picture tubes construction:
- Screen Cathode Ray Tube (Cathode Ray Tube CRT)
- With Liquid Crystal Display (Liquid Crystal Display "LCD ")
- Plasma Screen
- With any other similar system Flat Screen

Specifications
Monitors models for personal computers, must have values equal to or less than indicated in the following tables:

HOW TO SAVE ELECTRICITY	ACTIVE MAXIMUM POWER INPUT	MAXIMUM DELAY TIME FOR HOME ENERGY SAVER MODE
Suspension	15 watts	30 minutes
Sleep Mode	8 watts	60 minutes

Year Effective: 30-Aug-2007
Source: http://fide.codice.com/home/subhome.asp?seccion=3
Back to Summary

Sello FIDE – Television Receivers
Program Type: Voluntary Label
Add a New Page

Test Standard: NMX-I-122-NYCE
Description:
Scope
Applicable to models of TV receivers with images in color or Black and White, stable or programmable, analog or digital, fed with a rated voltage of 110 V or 115 V or 127 V or 220 V or 230 Volts At a frequency of 60 Hz in any of the following types of picture tubes construction:
- Screen Cathode Ray Tube (Cathode Ray Tube CRT)
- With Liquid Crystal Display (Liquid Crystal Display "LCD ")
- Plasma Screen
- With any other similar system Flat Screen

Specifications
Maximum electrical power input in standby mode: 1 Watt
Year Published: 27-Oct-2009
Source: http://fide.codice.com/home/subhome.asp?seccion=3
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Household Electric Washing Machines
Program Type: MEPS & Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Mexico&countryid=286&product=Clothes%20Washers&ID=11
Test Standard: NOM-005-ENER-2010
Description:
Scope
Excluded from this Mexican Official Standard are those washing machines that do not use electric energy and washers for industrial and commercial use.
Specifications
Minimum values of energy factor (EF).
Clothes washers included in the scope of this Mexican Official Standard shall comply with the energy factor (EF) in L / kWh / cycle established in Table 1. To determine the values of Fe household electric washing machines, object of this Mexican Official Standard, it must apply only the test method described in Chapter 9.

Table 1. Minimum values of power factor in L / kWh / washing cycle for household electric		
Type		**EF**
Automatic clothes washer vertical axis, with container volume capacity of less than 45.3 L Clothing	Drive Stirrer Stirrer with heating element	0.65
Automatic clothes washer vertical axis, with container volume capacity equal to or greater clothes of 45.3 L	Drive Stirrer Stirrer with heating element	1.26
Automatic clothes washer horizontal axis	Drum Drum with heating element	1.26
Semi-automatic washing machine	Drum Mixer Drum drive with heating element	3.78

Year Published: 03-Feb-2010
Year Effective: 03-Jun-2010
Year Effective Comment: This standard replaces NOM-005-ENER-2000 (published 28/08/2000)
Source:
http://www.conae.gob.mx/work/sites/CONAE/resources/LocalContent/6933/6/NOM005ENER2010.pdf
Back to Summary

Sello FIDE - Household Electric Washing Machines
Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/programinfo_sl.php?no=161
Test Standard: NOM-005-ENER-2010
Description:
Scope
Applicable to models of washing machines of household electric drive type, agitator or drum machine operating with a nominal supply voltage of 127 volts at a frequency of 60 hertz.
Specifications
Models of household electric washing machines, must have a value equal to or better than 113 L / kWh / cycle (3.99 ft3/kWh/cycle).
Year Published: 24-Nov-2010
Source: http://fide.codice.com/home/subhome.asp?seccion=3
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Water Heaters (Gas)
Program Type: MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Mexico&countryid=286&product=Water%20Heaters%20%28Gas%29&ID=38
Description:
Scope
Water heaters for domestic and commercial, using liquefied petroleum gas or natural gas as fuel and only provide hot water in liquid phase. The water heating apparatus with a load greater than 108.0 kW thermal and absolute pressures maximum working 600.0 kPa and temperatures above 360.15 K (87.0 ºC) are considered boilers that do not fall within the scope of this Standard.
The heaters covered by this standard are classified according to their heat load and run as follows:
6.1 According to their heat load
Heater home: as a maximum thermal load of 35.0 kW.
Commercial Heating: thermal load Which Is Greater Than 35.0 kW, up to 108.0 kW.

6.2 According to its operation
Storage Heater
Fast recovery heater
Instant Heater
Specifications
Table 1. - Thermal energy efficiency for domestic and commercial heating, based on the calorific value

	Thermal Efficiency (%)	
Year	Domestic	Commercial
2000	72	77
2002	74	79

Table 2. – Hot water temperature

Heating	**Operation**	**Cutting temperature ˚C**	**Increase minimum temperature ˚C**
Domestic	Storage	70±5 (1)	
	Rapid Recovery		25 (2)
	Instant		25 (2)
Commercial	Low temperature storage	70 ± 5 (1)	
	High temperature storage	82 ± 5 (1)	
	Rapid Recovery		25 (2)

	Instant		25 (2)

1) Without water flow to the circuit court (s) by temperature (thermostat or semi-automatic valve)
2) Greater than the feed water

Source:
http://www.conae.gob.mx/work/sites/CONAE/resources/LocalContent/6933/6/NOM003ENER2000.pdf
Back to Summary

Sello FIDE - Electric Water Heaters
Program Type: Voluntary Label
Create a Page
Test Standard: NOM-003-ENER
Description:
Scope
Applicable to electric water heaters of step rate for domestic and commercial, in powers of 1 to 30KW, at voltages of 127 and 220 V and a frequency of 60Hz
Specifications
Models of Electric Water Heaters Paso, must have values of thermal efficiency equal to or greater than: 82%
Note: The thermal efficiency must be obtained at a flow of water between 4 and 10 liters per minute.
Year Published: 11-Jan-2010
Source: http://fide.codice.com/home/subhome.asp?seccion=3
Back to Summary

Thailand

	Product	Mandatory Standard	Mandatory Label	Voluntary Label
AC	Room Air Conditioners Window		Edit	Edit
	Room Air Conditioners Split		Edit	Edit
Refrigerator & Freezer	Household refrigerators		Edit	Edit
	Household refrigerators-freezers		Edit	Edit
	Commercial refrigerator	Edit		
Lighting	Self-ballasted lamps	Edit	Edit	Edit
	Single-capped fluorescent lamps	Edit		
	Double-capped fluorescent lamps	Edit		Edit
Computers & Monitors	Computers			
	Computers monitors			Edit
Televisions		Edit		Edit
Clothes washers				
Clothes driers				
Water Heating				

Note: Red box – create a new page; orange box – update existing page; white box – no action needed.

Room Air Conditoners Window

Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=RACs (Window)&ID=62
Description:
Mandatory Certification Mark
Implementing Agency: Thai Industrial Standards Institute
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Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=RACs (Window)&ID=62
Description:
Energy Efficiency Label
Implementing Agency: Electricity Generating Authority Thailand (EGAT
How to obtain additional information: www.egat.or.th
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Room Air Conditoners Split
Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=RACs (Split)&ID=5
Description:
Mandatory Certification Mark
Implementing Agency: Thai Industrial Standards Institute
Back to Summary

Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=RACs (Split)&ID=5
Description:
Energy efficiency label
Implementing Agency: Electricity Generating Authority Thailand (EGAT
How to obtain additional information: www.egat.or.th
Back to Summary

Household Refrigerator
Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=Refrigerator&ID=2
Description:
Mandatory Certification Mark
Implementing Agency: Thai Industrial Standards Institute
Back to Summary

Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=Refrigerator&ID=2
Description:
Energy efficiency label (Criteria for one- and two-door models).
Implementing Agency: Electricity Generating Authority Thailand (EGAT
How to obtain additional information: www.egat.or.th

Back to Summary

Household Refrigerator-freezers
Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=Refrigerator-freezers&ID=10
Description:
Mandatory Certification Mark
Implementing Agency: Thai Industrial Standards Institute
Back to Summary

Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=Refrigerator-freezers&ID=10
Description:
Energy efficiency label (Criteria for one- and two-door models).
Implementing Agency: Electricity Generating Authority Thailand (EGAT
How to obtain additional information: www.egat.or.th
Back to Summary

Commercial Refrigeration
Program Type: MEPS
Creating New Page:
Test Standards: EN441:1996
Description:
Under development: Minimum Allowable Values for Energy Efficiency
Back to Summary

Self-Ballasted Lamps
Program Type: Voluntary MEPS
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=CFLs&ID=57
Test Standards: TIS 2233; IEC 60969
Description:
TIS 2310-2549 (2006) Self-Ballasted Lamps for General Lighting Services: Energy Efficiency Requirements is voluntary MEPS.
Back to Summary

Program Type: Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=CFLs&ID=57
Description:
There is none mandatory label for CFLs in Thailand now.
Back to Summary

Program Type: Voluntary Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=CFLs&ID=57
Description:
Energy Efficiency Label
Implementing Agency: Electricity Generating Authority Thailand (EGAT
How to obtain additional information: www.egat.or.th
Back to Summary

Single-capped Fluorescent Lamps

Program Type: Voluntary MEPS
Creating New Page:
Testing Standards: TIS 1713
Description:
TIS 2334-2550 (2007) Single-capped fluorescent lamps: energy efficiency requirements is voluntary standard.
Back to Summary

Double-capped Fluorescent Lamps
Program Type: Voluntary MEPS
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=Fluorescent Lamps (Double-capped)&ID=176
Testing Standards: TIS 236
Description:
TIS 2309-2549 (2006) Double-capped fluorescent lamps: energy efficiency requirements is voluntary standard.
Back to Summary

Program Type: Voluntary Labels
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=Fluorescent Lamps (Double-capped)&ID=176
Description:
Energy Efficiency Label
Implementing Agency: Electricity Generating Authority Thailand (EGAT
How to obtain additional information: www.egat.or.th
Back to Summary

Computer Monitors
Program Type: Voluntary Label
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=Computer Monitors&ID=46#MEPS for Monitors (Standby Power) - Thailand
Testing Standards: IEC62301
Description:
Energy Efficiency Label for computer monitors is in pilot.
Back to Summary

Televisions
Program Type: Mandatory MEPS
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=Televisions&ID=8
Testing Standards: IEC62301
Description:
The mandatory MEPS for television (Standby power) is under development
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Program Type: Voluntary Label
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Thailand&countryid=261&product=Televisions&ID=8
Testing Standards: IEC62301
Description:
Standby Power Program for Televisions (Energy Efficiency)
Back to Summary

Peru

	Product	Mandatory Standard	Mandatory Label	Voluntary Label
AC	N/A			
Refrigerator & Freezer	refrigerators, refrigerators-freezers and freezers for domestic use	Edit	Edit	
Lighting	compact fluorescent lamps for household use	Edit	Edit	
	Double-capped fluorescent lamps	Edit	Edit	
Computers & Monitors	N/A			
Televisions	N/A			
Clothes washers	N/A			
Clothes driers	N/A			
Water Heating	electric water heaters with storage tank for domestic purposes			

Note: Red box – create a new page; orange box – update existing page; white box – no action needed.

Refrigerators and Freezers
Program Type: MEPS & Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Peru&countryid=293&product=Refrigerator&ID=2
Test Standard: NTP 399 483 2007
Description:
Minimum standard of energy efficiency in refrigerators:

Item	Most commonly traded in the country	Minimum efficiency standard CEon KW.h / year / l	Under conditions
1	Refrigerator Freezer	209	At sea level. Ambient temperature 32 ºC .
2	Frost-free refrigerator, top freezer	255	
3	Frost-free refrigerator, bottom freezer	189	
4	Domestic Cooler	205	
5	Conventional refrigerator	185	
6	Side by side refrigerator	310	
CEon: energy consumption expressed in kW.h / year / liter to a volume set to zero.			

Year Published: 12-Jan-2009
Implementing Agency: Ministry of Energy and Mines - Directorate General of Electricity
How to Obtain Additional Information: http://siee.minem.gob.pe/index.php?path=MQ==
Source: http://siee.minem.gob.pe/index.php?path=MQ==
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CFLs
Program Type: MEPS & Mandatory Label
Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=Peru&countryid=293&product=Refrigerator&ID=2
Test Standard: NTP 370.101-2 2008

Description:

Compact Fluorescent Lamps with Integrated Ballast		
Item	Lamp Power (watt)	Minimum standard of initial luminous efficiency (lm/W)
for color temperature ≥ 5000 kelvin		
01	5 ≤ P < 9	46
02	9 ≤ P < 15	52
03	15 ≤ P <25	57
04	25 ≤ P < 60	62
for color temperature < 5000 kelvin		
05	5 ≤ P < 9	50
06	9 ≤ P < 15	55
07	15 ≤ P <25	60
08	25 ≤ P < 60	65

Year Published: 12-Jan-2009
Implementing Agency: Ministry of Energy and Mines - Directorate General of Electricity
How to Obtain Additional Information: http://siee.minem.gob.pe/index.php?path=MQ==
Source: http://siee.minem.gob.pe/index.php?path=MQ==
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Double-Capped Fluorescent
Program Type: MEPS & Mandatory Label
Create a New Page
Test Standard: NTP 370.101-2 2008
Description:

Double Capped Fluorescent Lamps Type T12, T10, and T8(a)		
Item	Lamp Power (watt)	Minimum standard of initial luminous efficiency (lm/W)
for color temperature ≥ 5000 kelvin		
01	14 ≤ P < 22	55
02	22 ≤ P < 36	60
03	36 ≤ P < 65	65
for color temperature < 5000 kelvin		
04	14 ≤ P < 22	60
05	22 ≤ P < 36	65
06	36 ≤ P < 65	75

Double Capped Fluorescent Lamps Type T5 (b)		
Item	Lamp Power (watt)	Minimum standard of initial luminous efficiency (lm/W)
for color temperature ≥ 5000 kelvin		
01	14 ≤ P < 22	80
02	22 ≤ P < 36	88
for color temperature < 5000 kelvin		
03	14 ≤ P < 22	85
04	22 ≤ P < 36	93

Year Published: 12-Jan-2009
Implementing Agency: Ministry of Energy and Mines - Directorate General of Electricity
How to Obtain Additional Information: http://siee.minem.gob.pe/index.php?path=MQ==
Source: http://siee.minem.gob.pe/index.php?path=MQ==

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United States

	Product	Mandatory Standard	Mandatory Label	Voluntary Label
AC	Room Air Conditioners	Edit	N	Edit
	Central Air Conditioners(Split)	Edit	N	Edit
	Central AC and Heat Pump			N
	Packaged Terminal AC and HP	Edit		
Refrigerator & freezer	Refrigerator/Refrigerator-freezer	Edit	N	Edit
	Refrigeration Equipment (Commercial)	N		
	Refrigerator/Freezers (Commercial)			Edit
Lighting	Incandescent Lamps	Edit	N	
	Incandescent Reflector Lamps	Edit	N	
	Fluorescent Lamps	Edit	N	
	CFL	Edit	N	N
	Lamps (High Intensity Discharge)	N	N	
	Lamps (LED)			N
	Lamps (Mercury-vapor)	Edit		
	Lamps (Torchiere)	N	N	
	Light Fixtures (Residential)			N
	Light Strings (Decorative)			N
	Lighting (Solid State SSL)			N
	Ceiling Fan Lighting	N	N	Edit
Computers & Monitors	Computer (including Thin Client, Workstation, Desktop PC, Laptop PC,)			N
	Computer (Game Console)			Edit
	Computer Sever			Edit
	Monitor (Display)			Edit
Televisions	TV	N	N	N
Clothes washers	Clothes Washer	Edit	N	Edit
	Clothes Washer (Commercial)	Edit	N	
Clothes driers		Edit		
Water heating	Water Heater (oil, Instantaneous (Gas), Instantaneous (electricity))	Edit		
	Water Heater (Gas)	Edit		Edit
	Commercial Water Heater	Edit		

Note: Red box – create a new page; orange box – update existing page; white box – no action needed. Grey Box – no standards/label exists

Room Air Conditioners

Program Type: MEPS

Update Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=RACs%20(Split)&ID=5#MEPS%20for%20RACs \

http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=RACs%20(Window)&ID=62

Website suggestion: combine RAC (split) and RAC(window) page as one.

Description: Room air conditioner means a consumer product, other than a "packaged terminal air conditioner," which is powered by a single phase electric current and which is an encased assembly designed as a unit for mounting in a window or through the wall for the purpose of providing delivery of conditioned air to an enclosed space. It includes a prime source of refrigeration and may include a means for ventilating and heating.

Casement-only means a room air conditioner designed for mounting in a casement window with an encased assembly with a width of 14.8 inches or less and a height of 11.2 inches or less.

Casement-slider means a room air conditioner with an encased assembly designed for mounting in a sliding or casement window with a width of 15.5 inches or less.

Energy Efficiency Levels

Product class	Energy efficiency ratio, effective as of	
	January 1, 1990	October 1, 2000
1. Without reverse cycle, with louvered sides, and less than 6,000 Btu/h	8.0	9.7
2. Without reverse cycle, with louvered sides, and 6,000 to 7,999 Btu/h	8.5	9.7
3. Without reverse cycle, with louvered sides, and 8,000 to 13,999 Btu/h	9.0	9.8
4. Without reverse cycle, with louvered sides, and 14,000 to 19,999 Btu/h	8.8	9.7
5. Without reverse cycle, with louvered sides, and 20,000 Btu/h or more	8.2	8.5
6. Without reverse cycle, without louvered sides, and less than 6,000 Btu/h	8.0	9.0
7. Without reverse cycle, without louvered sides, and 6,000 to 7,999 Btu/h	8.5	9.0
8. Without reverse cycle, without louvered sides, and 8,000 to 13,999 Btu/h	8.5	8.5
9. Without reverse cycle, without louvered sides, and 14,000 to 19,999 Btu/h	8.5	8.5
10. Without reverse cycle, without louvered sides, and 20,000 Btu/h or more	8.2	8.5
11. With reverse cycle, with louvered sides, and less than 20,000 Btu/h	8.5	9.0
12. With reverse cycle, without louvered sides, and less than 14,000 Btu/h	8.0	8.5
13. With reverse cycle, with louvered sides, and 20,000 Btu/h or more	8.5	8.5
14. With reverse cycle, without louvered sides, and 14,000 Btu/h or more	8.0	8.0
15. Casement-Only	([1])	8.7
16. Casement-Slider	([1])	9.5

[1] Casement-only and casement-slider room air conditioners are not separate product classes under standards effective January 1, 1990. These units are subject to the applicable standards in classes 1 through 14 based on unit capacity and the presence or absence of louvered sides and a reverse cycle.

Source: http://www1.eere.energy.gov/buildings/appliance_standards/residential/pdfs/racrlbod.pdf

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Program Type: Voluntary Label

Updating the Existing Page:

Description:

Under the previous ENERGY STAR criteria, the existing eligible products were cooling-only RACs without reverse cycle, which consist of window RACs, through-the-wall RACs, and the casement and slider-casement RAC products. On October 1, 2005, the ENERGY STAR room air conditioner criterion expanded to include louvered and non-louvered reverse-cycle RACs (or heat pump RACs). Also, PTACs are not currently eligible for participation under this criterion.

[to add the table of Energy Efficiency Level to the website]

Energy Efficiency Levels

Capacity (BTU/hour)	Federal Standard EER (with louvered sides)	ENERGY STAR EER (with louvered sides)	Federal Standard EER (without louvered sides)	ENERGY STAR EER (without louvered sides)
< 6,000	≥ 9.7	≥ 10.7	≥ 9.0	≥ 9.9
6,000 to 7,999				
8,000 to 13,999	≥ 9.8	≥ 10.8	≥ 8.5	≥ 9.4
14,000 to 19,999	≥ 9.7	≥ 10.7		
≥ 20,000	≥ 8.5	> 9.4		

Casement	Federal Standard EER	ENERGY STAR EER
Casement-Only	≥ 8.7	≥ 9.6
Casement-Slider	≥ 9.5	≥ 10.5

REVERSE CYCLE				
Capacity (BTU/hour)	Federal Standard EER (with louvered sides)	ENERGY STAR EER (with louvered sides)	Federal Standard EER (without louvered sides)	ENERGY STAR EER (without louvered sides)
< 14,000			≥ 8.5	≥ 9.4
≥ 14,000			≥ 8.0	≥ 8.8
< 20,000	≥ 9.0	≥ 9.9		
≥ 20,000	≥ 8.5	≥ 9.4		

Source:
http://www.energystar.gov/ia/partners/product_specs/program_reqs/room_air_conditioners_prog_req.pdf

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Central Air Conditioners

Program Type: MEPS

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Central%20AC%20(Split%20type)&ID=54

Description:

Central air conditioner means a product, other than a packaged terminal air conditioner, which is powered by single phase electric current, air cooled, rated below 65,000 Btu per hour, not contained within the same cabinet as a furnace, the rated capacity of which is above 225,000 Btu per hour, and is a heat pump or a cooling unit only.

Heat pump means a product, other than a packaged terminal heat pump, which consists of one or more assemblies, powered by single phase electric current, rated below 65,000 Btu per hour, utilizing an indoor conditioning coil, compressor, and refrigerant-to-outdoor air heat exchanger to provide air heating, and may also provide air cooling, dehumidifying, humidifying circulating, and air cleaning.

The MEPS is applies to

1) Split central air conditioning systems (cooling-only); 2) split central air conditioning heat pump systems (two piece); 3) single packaged central air conditioning systems (cooling-only), and; 4) single packaged air conditioning heat pump systems (DOE 2002).

Energy Efficiency Levels

(1) Split System Central air conditioners and central air conditioning heat pumps manufacture after January 1, 1992, and before January 23, 2006,and single package central air conditioners and central ai r conditioning heat pumps manufactured after January 1, 1993, and before January 23, 2006, shall have Seasonal Energy Efficiency Ratio and Heating Seasonal Performance Factor no less than:

Product class	Seasonal energy efficiency ratio	Heating seasonal performance factor
(i) Split systems	10.0	6.8
(ii) Single package systems	9.7	6.6

(2) Central air conditioners and central air conditioning heat pumps manufactured on or after January 23, 2006, shall have Seasonal Energy Efficiency Ratio and Heating Seasonal Performance Factor no less than:

Product class	Seasonal energy efficiency ratio (SEER)	Heating seasonal performance factor (HSPF)
(i) Split system air conditioners	13	
(ii) Split system heat pumps	13	7.7
(iii) Single package air conditioners	13	
(iv) Single package heat pumps	13	7.7
(v)(A) Through-the-wall air conditioners and heat pumps-split system [1]	10.9	7.1
(v)(B) Through-the-wall air conditioners and heat pumps-single package [1]	10.6	7.0
(vi) Small duct, high velocity systems	13	7.7
(vii)(A) Space constrained products-air conditioners	12	
(vii)(B) Space constrained products-heat pumps	12	7.4

[1] As defined in §430.2, this product class applies to products manufactured prior to January 23, 2010.

Source:
http://www1.eere.energy.gov/buildings/appliance_standards/residential/pdfs/central_ac_hp_finalrule.pdf

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Program Type: Voluntary Label

Effective Year: 2006

Description:

Only those systems listed in Section 2 with a limited warranty that also meet the criteria below qualify as ENERGY STAR.

TIER 1 Energy-Efficiency Criteria for Qualified Residential ASHPs and Central Air Conditioners			
Product Type	SEER	EER	HSPF (for heat pumps only)
Split Systems	≥ 14	≥ 11.5	≥ 8.2
Single Package Equipment (including gas/electric package units)	≥ 14	≥ 11	≥ 8.0

TIER 2 Energy-Efficiency Criteria for Qualified Residential ASHPs and Central Air Conditioners			
Product Type	SEER	EER	HSPF (for heat pumps only)
Split Systems	≥ 14.5	≥ 12	≥ 8.2
Single Package Equipment (including gas/electric package units)	≥ 14	≥ 11	≥ 8.0

The date that central air conditioners and air source heat pump equipment may begin to qualify as ENERGY STAR under the Version 4.0 specification will be defined as the *effective date* of the agreement. Any previously executed agreement on the subject of ENERGY STAR qualified ASHP and central air conditioner equipment shall be terminated effective March 31, 2006.

A. Qualifying and Marketing Products under Tier 1 of the Version 4.0 specification: Tier 1 of the Version 4.0 specification shall commence on April 1, 2006. All equipment, including model combinations originally qualified under Version 3.0, with a date of manufacture on or after April 1, 2006, must meet the new Tier 1 Version 4.0 requirements in order to qualify for ENERGY STAR (including additional shipments of model combinations originally qualified under Version 3.0). The date of manufacture is specific to each unit, and is the date on which a unit is considered to be completely assembled.

B. Qualifying and Marketing Products Under Tier 2 of the Version 4.0 Specification: The second phase of this specification, Tier 2, shall commence on January 1, 2009. All equipment including model combinations originally qualified under Tier 1 Version 4.0 specification, with a date of manufacture on or after January 1, 2009, must meet Tier 2 Version 4.0 requirements in order to qualify for ENERGY STAR. Approximately one year before Tier 2 becomes effective, EPA will assess the performance level presented in this specification to ensure its feasibility in the marketplace.

C. Elimination of Automatic Grandfathering: EPA will not allow grandfathering under this Version 4.0 ENERGY STAR specification. ENERGY STAR qualification under Version 3.0 is not automatically granted for the life of the products model combination. Therefore any model combination sold, marketed, or identified by the manufacturing partner as ENERGY STAR must meet the current specification in effect at the time of manufacture of the equipment.

Source:
http://www.energystar.gov/ia/partners/product_specs/program_reqs/airsrc_heat_cac_prog_req.pdf

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Packaged Air Conditioners and Heat Pumps

Updating Existing page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Central%20AC%20and%20Heat%20Pumps&ID=55

Program Type: MEPS – Mandatory

Test Standard: subpart F of part 431: ARI Standard 210/240–2003;ARI Standard 340/360–2004;ISO 13256–1;ARI Standard 310/380–2004 (CSA–C744–04), ISO Standard 13256–1 (1998), ISO Standard 13256–1 (1998).

Description:

This standard is applied to

Large commercial package air-conditioning and heating equipment means commercial package air-conditioning and heating equipment that is rated—

(1) At or above 135,000 Btu per hour; and

(2) Below 240,000 Btu per hour (cooling capacity).

Single package vertical air conditioner means air-cooled commercial package air conditioning and heating equipment that—

(1) Is factory-assembled as a single package that—

(i) Has major components that are arranged vertically;

(ii) Is an encased combination of cooling and optional heating components; and

(iii) Is intended for exterior mounting on, adjacent interior to, or through an outside wall;

(2) Is powered by a single-or 3-phase current;

(3) May contain 1 or more separate indoor grilles, outdoor louvers, various ventilation options, indoor free air discharges, ductwork, well plenum, or sleeves; and

(4) Has heating components that may include electrical resistance, steam, hot water, or gas, but may not include reverse cycle refrigeration as a heating means.

Single package vertical heat pump means a single package vertical air conditioner that—

(1) Uses reverse cycle refrigeration as its primary heat source; and

(2) May include secondary supplemental heating by means of electrical resistance, steam, hot water, or gas.

Small commercial package air-conditioning and heating equipment means commercial package air-conditioning and heating equipment that is rated below 135,000 Btu per hour (cooling capacity).

.Very large commercial package air-conditioning and heating equipment means commercial package air-conditioning and heating equipment that is rated—

(1) At or above 240,000 Btu per hour; and

(2) Below 760,000 Btu per hour (cooling capacity).

Energy Efficiency Level

(a) Each commercial air conditioner or heat pump (including single package vertical air conditioners and single package vertical heat pumps) manufactured on or after January 1, 1994 (except for large commercial package air-conditioning and heating equipment, for which the effective date is January 1, 1995) must meet the applicable minimum energy efficiency standard level(s) set forth in Tables 1 and 2 of this section.

Table 1 —Minimum Cooling Efficiency Levels

Product	Category	Cooling capacity	Sub-category	Efficiency level[1]	
				Products manufactured until October 29, 2003	Products manufactured on and after October 29, 2003
Small Commercial Packaged Air Conditioning and Heating Equipment	Air Cooled, 3 Phase	<65,000 Btu/h	Split System Single Package	SEER = 10.0 SEER = 9.7	SEER = 10.0. SEER = 9.7.
	Air Cooled	≥65,000 Btu/h and <135,000 Btu/h	All	EER = 8.9	EER = 8.9.
	Water Cooled, Evaporatively Cooled, and Water-Source	<17,000 Btu/h	AC HP	EER = 9.3 EER = 9.3	EER = 12.1. EER = 11.2.
		≥17,000 Btu/h and <65,000 Btu/h	AC HP	EER = 9.3 EER = 9.3	EER = 12.1. EER = 12.0.
		≥65,000 Btu/h and <135,000 Btu/h	AC HP	EER = 10.5 EER = 10.5	EER = 11.5.[2] EER = 12.0.
Large Commercial Packaged Air Conditioning and Heating Equipment	Air Cooled	≥135,000 Btu/h and <240,000 Btu/h	All	EER = 8.5	EER = 8.5.
	Water-Cooled and Evaporatively Cooled	≥135,000 Btu/h and <240,000 Btu/h	All	EER = 9.6	EER = 9.6.[3]
Packaged Terminal Air Conditioners and Heat Pumps	All	<7,000 Btu/h	All	EER = 8.88	EER = 8.88.
		≥7,000 Btu/h and ≤15,000 Btu/h		EER = 10.0−(0.16 × capacity [in kBtu/h at 95 °F outdoor dry-bulb	EER = 10.0−(0.16 × capacity [in kBtu/h at 95 °F outdoor dry-bulb

				temperature])	temperature]).
		>15,000 Btu/h		EER = 7.6	EER = 7.6.

[1]For equipment rated according to the ARI standards, all EER values must be rated at 95 °F outdoor dry-bulb temperature for air-cooled products and evaporatively cooled products and at 85 °F entering water temperature for water-cooled products. For water-source heat pumps rated according to the ISO standard, EER must be rated at 30 °C (86 °F) entering water temperature.

[2]Deduct 0.2 from the required EER for units with heating sections other than electric resistance heat.

[3]Effective 10/29/2004, the minimum value became EER = 11.0.

Table 2 to §431.97—Minimum Heating Efficiency Levels

Product	Category	Cooling capacity	Sub-category	Efficiency level[1]	
				Products manufactured until October 29, 2003	Products manufactured on and after October 29, 2003
Small Commercial Packaged Air Conditioning and Heating Equipment	Air Cooled, 3 Phase	<65,000 Btu/h	Split System Single Package	HSPF = 6.8 HSPF = 6.6	HSPF = 6.8. HSPF = 6.6.
	Water-Source	<135,000 Btu/h	Split System and Single Package	COP = 3.8	COP = 4.2.
	Air Cooled	≥65,000 Btu/h and <135,000 Btu/h	All	COP = 3.0	COP = 3.0.
Large Commercial Packaged Air Conditioning and Heating Equipment	Air Cooled	≥135,000 Btu/h and <240,000 Btu/h	Split System and Single Package	COP = 2.9	COP = 2.9.
Packaged Terminal Heat Pumps	All	All	All	COP = 1.3 + (0.16 × the applicable minimum cooling EER prescribed in Table 1—Minimum Cooling Efficiency Levels)	COP = 1.3 + (0.16 × the applicable minimum cooling EER prescribed in Table 1—Minimum Cooling Efficiency Levels).

[1]For units tested by ARI standards, all COP values must be rated at 47 °F outdoor dry-bulb temperature for air-cooled products, and at 70 °F entering water temperature for water-source heat pumps. For heat pumps tested by the ISO Standard 13256–1, the COP values must be obtained at the rating point with 20 °C (68 °F) entering water temperature.

(b) Commercial package air conditioning and heating equipment manufactured on or after January 1, 2010 (except for air-cooled, three-phase small commercial package air-conditioning and heating equipment <65,000 Btu/h for which the effective date is June 16, 2008) must meet the applicable energy efficiency standards set forth in this section.

Product	Cooling capacity (Btu/h)	Category	Efficiency level†
Small commercial package air conditioning and heating equipment, (air-cooled, three-phase)	<65,000	AC	SEER=13.0.
		HP	SEER=13.0.
			HSPF=7.7.
Single package vertical air conditioners and single package vertical heat pumps, single-phase and three phase	<65,000	AC	EER=9.0.
		HP	EER=9.0.
			COP=3.0.
Single package vertical air conditioners and single package vertical heat pumps	≥ 65,000 and <135,000	AC	EER=8.9.
		HP	EER=8.9.
			COP=3.0.
Single package vertical air conditioners and single package vertical heat pumps	≥135,000 and <240,000	AC	EER=8.6.
		HP	EER=8.6.
			COP=2.9.
Small commercial package air-conditioning and heating equipment (air-cooled)	≥65,000 and <135,000	AC	EER = 11.2* EER = 11.0**
		HP	EER = 11.0* EER = 10.8**
Large commercial package air-conditioning and heating equipment (air-cooled)	≥135,000 and <240,000	AC	EER = 11.0* EER = 10.8**
		HP	EER = 10.6* EER = 10.4**
Very large commercial package air-conditioning and heating equipment (air-cooled)	≥ 240,000 and <760,000	AC	EER = 10.0* EER = 9.8**
		HP	EER = 9.5* EER = 9.3**
Small commercial package air-conditioning heat pump	≥65,000 and <135,000	HP	COP = 3.3
Large commercial package air-conditioning heat pump	≥135,000 and <240,000	HP	COP = 3.2
Very large commercial package air-conditioning heat pump	≥ 240,000 and <760,000	HP	COP = 3.2

*This EER level applies to equipment that has electric resistance heat or no heating.

**This EER level applies to equipment with all other heating-system types that are integrated into the unitary equipment.

†EER at a standard temperature rating of 95 °F dry-bulb and COP at a high temperature rating of 47 °F dry-bulb.

(c) Each standard size packaged terminal air conditioner or packaged terminal heat pump manufactured on or after September 30, 2012 and each non-standard size packaged terminal air conditioner or packaged terminal heat pump manufactured on or after September 30, 2010, shall have an Energy Efficiency Ratio and Coefficient of Performance no less than:

Equipment class			Energy conservation standards*
Equipment	**Category**	**Cooling capacity (British thermal units per hour [Btu/h])**	
PTAC	Standard Size	<7,000 7,000–15,000 >15,000	EER = 11.7 EER = 13.8−(0.300 × Cap**) EER = 9.3
	Non-Standard Size	<7,000 7,000–15,000 >15,000	EER = 9.4 EER = 10.9−(0.213 × Cap**) EER = 7.7
PTHP	Standard Size	<7,000 7,000–15,000 >15,000	EER = 11.9 COP = 3.3 EER = 14.0−(0.300 × Cap**) COP = 3.7−(0.052 × Cap**) EER = 9.5 COP = 2.9
	Non-Standard Size	<7,000 7,000–15,000 >15,000	EER = 9.3 COP = 2.7 EER = 10.8−(0.213 × Cap**) COP = 2.9−(0.026 × Cap**) EER = 7.6 COP = 2.5

* For equipment rated according to the DOE test procedure, all EER values must be rated at 95 °F outdoor dry-bulb temperature for air-cooled products and evaporatively-cooled products and at 85 °F entering water temperature for water cooled products. All COP values must be rated at 47 °F outdoor dry-bulb temperature for air-cooled products, and at 70 °F entering water temperature for water-source heat pumps.

** Cap means cooling capacity in thousand British thermal units per hour (Btu/h) at 95 °F outdoor dry-bulb temperature.

(d) Each water-cooled and evaporatively-cooled commercial package air conditioning and heating equipment with a cooling capacity at or above 240,000 Btu/h and less than 760,000 Btu/h manufactured on or after January 10, 2011, shall meet the following standard levels:

(1) For equipment that utilizes electric resistance heat or without heating, the energy efficiency ratio must be not less than 11.0.

(2) For equipment that utilizes all other types of heating, the energy efficiency ratio must be not less than 10.8.

Source: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=38d58540923a1b1ec3a7eda9b9203085&rgn=div5&view=text&node=10:3.0.1.4.17&idno=10#10:3.0.1.4.17.6

Year Effective: 2004

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Refrigerator-Freezer

Program Type: MEPS-Mandatory

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Refrigerator&ID=2

Deleting Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Refrigerator&ID=2 The content is duplicated with Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Refrigerator&ID=2

And delete the “Refrigerator-Freezer” category in the product list webpage: http://www.apec-esis.org/countrysummary_sl.php?country=The%20United%20States&ID=262

Product Description：

[to add] **Energy Efficiency Level**

Product class	Energy standards equations for maximum energy use (kWh/yr)	
	Effective January 1, 1993	Effective July 1, 2001
1. Refrigerators and Refrigerator-freezers with manual defrost	13.5AV+299 0.48av+299	8.82AV+248.4 0.31av+248.4
2. Refrigerator-Freezer—partial automatic defrost	10.4AV+398 0.37av+398	8.82AV+248.4 0.31av+248.4
3. Refrigerator-Freezers—automatic defrost with top-mounted freezer without through-the-door ice service and all-refrigerators—automatic defrost	16.0AV+355 0.57av+355	9.80AV+276.0 0.35av+276.0
4. Refrigerator-Freezers—automatic defrost with side-mounted freezer without through-the-door ice service	11.8AV+501 0.42AV+501	4.91AV+507.5 0.17av+507.5
5. Refrigerator-Freezers—automatic defrost with bottom-mounted freezer without through-the-door ice service	16.5AV+367 0.58av+367	4.60AV+459.0 0.16av+459.0
6. Refrigerator-Freezers—automatic defrost with top-mounted freezer with through-the-door ice service	17.6AV+391 0.62av+391	10.20AV+356.0 0.36av+356.0
7. Refrigerator-Freezers—automatic defrost with side-mounted freezer with through-the-door ice service	16.3AV+527 0.58av+527	10.10AV+406.0 0.36av+406.0
8. Upright Freezers with Manual Defrost	10.3AV+264 0.36av+264	7.55AV+258.3 0.27av+258.3
9. Upright Freezers with Automatic Defrost	14.9AV+391 0.53av+391	12.43AV+326.1 0.44av+326.1
10. Chest Freezers and all other Freezers except Compact Freezers	11.0AV+160 0.39av+160	9.88AV+143.7 0.35av+143.7
11. Compact Refrigerators and Refrigerator-Freezers with Manual Defrost	13.5AV+299[a] 0.48av+299[a]	10.70AV+299.0 0.38av+299.0
12. Compact Refrigerator-Freezer—partial automatic defrost	10.4AV+398[a] 0.37av+398[a]	7.00AV+398.0 0.25av+398.0
13. Compact Refrigerator-Freezers—automatic defrost with top-mounted freezer and compact all-refrigerators—automatic defrost	16.0AV+355[a] 0.57av+355[a]	12.70AV+355.0 0.45av+355.0
14. Compact Refrigerator-Freezers—automatic defrost with side-mounted freezer	11.8AV+501[a] 0.42[av]+501[a]	7.60AV+501.0 0.27av+501.0
15. Compact Refrigerator-Freezers—automatic defrost with bottom-mounted freezer	16.5AV+367[a] 0.58av+367[a]	13.10AV+367.0 0.46av+367.0
16. Compact Upright Freezers with Manual Defrost	10.3AV+264[a] 0.36av+264[a]	9.78AV+250.8 0.35av+250.8
17. Compact Upright Freezers with Automatic Defrost	14.9AV+391[a] 0.53av+391[a]	11.40AV+391.0 0.40av+391.0
18. Compact Chest Freezers	11.0AV+160[a] 0.39av+160[a]	10.45AV+152.0 0.37av+152.0

AV=Total adjusted volume, expressed in ft.^{3}, as determined in Appendices A1 and B1 of subpart B of this part.
av=Total adjusted volume, expressed in Liters.
[a] Applicable standards for compact refrigerator products manufactured before July 1, 2001. Compact refrigerator products are not separate product categories under the standards effective January 1, 1993.

Source:
http://www1.eere.energy.gov/buildings/appliance_standards/residential/refrigerators_freezers.html

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Program Type: Voluntary Label
Description:
Energy Efficiency Level

ENERGY STAR Criteria for Refrigerators and/or Freezers: To calculate the ENERGY STAR criteria, the equations are given in the following table:

Product Class	Current ENERGY STAR energy use (kWh/year) (as of January 1, 2004)	ENERGY STAR energy use (kWh/year) (as of April 28, 2008)
1) Refrigerator & Refrigerator-Freezer with manual defrost	≤ 7.497*AV + 211.14	≤ 7.056*AV + 198.72
2) Refrigerator-Freezer with partial automatic defrost		
3) Top Mount Freezer without through-the-door ice	≤ 8.33*AV + 234.6	≤ 7.84*AV + 220.8
4) Side Mount Freezer without through-the-door ice	≤ 4.1735*AV + 431.375	≤ 3.928*AV + 406
5) Bottom Mount Freezer without through-the-door ice	≤ 3.91*AV + 390.15	≤ 3.68*AV + 367.2
6) Top Mount Freezer with through-the-door ice	≤ 8.67*AV + 302.6	≤ 8.16*AV + 284.8
7) Side Mount Freezer with through-the-door ice	≤ 8.585*AV + 345.1	≤ 8.08*AV + 324.8
8) Upright freezer with manual defrost	≤ 6.795*AV + 232.47	≤ 6.795*AV + 232.47
9) Upright freezer with automatic defrost	≤ 11.187*AV + 293.49	≤ 11.187*AV + 293.49
10) Chest Freezers	≤ 8.892*AV + 129.33	≤ 8.892*AV + 129.33
11) Compact Refrigerator and Refrigerator-Freezer with manual defrost	≤ 8.56*AV + 239.2	≤ 8.56*AV + 239.2
12) Compact Refrigerator and Refrigerator-Freezer with partial automatic defrost	≤ 5.6*AV + 318.4	≤ 5.6*AV + 318.4
13) Compact Refrigerator-Freezer-automatic defrost with top freezer	≤ 10.16*AV + 284	≤ 10.16*AV + 284
14) Compact Refrigerator-side mounted freezer with automatic defrost	≤ 6.08*AV + 400.8	≤ 6.08*AV + 400.8
15) Compact Refrigerator-bottom mount Freezer with automatic defrost	≤ 10.48*AV + 293.6	≤ 10.48*AV + 293.6
16) Compact Upright Freezers with manual defrost	≤ 7.824*AV + 200.64	≤ 7.824*AV + 200.64
17) Compact upright freezers with automatic defrost	≤ 9.12*AV + 312.8	≤ 9.12*AV + 312.8
18) Compact Chest Freezer	≤ 8.36*AV + 121.6	≤ 8.36*AV + 121.6

AV = Adjusted Volume
Refrigerators Adjusted Volume = Fresh Volume + (1.63 x Freezer Volume)
Freezers Adjusted Volume = 1.73 x Freezer Volume

Source: http://www.energystar.gov/ia/partners/product_specs/program_reqs/refrig_prog_req.pdf

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Refrigerator/Freezers (Commercial)
Program Type: Voluntary Label
Description:
Energy Efficiency Level

Table 1: Maximum Daily Energy Consumption (MDEC) Requirements (kWh/day) for ENERGY STAR Qualified Commercial Food-grade Refrigerators and Freezers		
Product Volume (in cubic feet)	**Refrigerator**	**Freezer**
Vertical Configuration		
Solid Door Cabinets		
0 < V < 15	≤ 0.089V + 1.411	≤ 0.250V + 1.250
15 ≤ V < 30	≤ 0.037V + 2.200	≤ 0.400V – 1.000
30 ≤ V < 50	≤ 0.056V + 1.635	≤ 0.163V + 6.125
50 ≤ V	≤ 0.060V + 1.416	≤ 0.158V + 6.333
Glass Door Cabinets		
0 < V < 15	≤ 0.118V + 1.382	≤ 0.607V + 0.893
15 ≤ V < 30	≤ 0.140V + 1.050	≤ 0.733V – 1.000
30 ≤ V < 50	≤ 0.088V + 2.625	≤ 0.250V + 13.500
50 ≤ V	≤ 0.110V + 1.500	≤ 0.450V + 3.500
Chest Configuration		
Solid or Glass Door Cabinets	≤ 0.125V + 0.475	≤ 0.270V + 0.130

Note: V = AHAM volume, as defined in Section 1, in cubic feet (ft^3).

Source:
http://www.energystar.gov/ia/partners/product_specs/program_reqs/commer_refrig_glass_prog_req.pdf

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Incandescent Lamps
Program Tpye : MEPS-Mandatory
Updating Existing Page : http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Incandescent%20Lamps&ID=56
Description:
Energy Efficiency Level

TABLE I.2—SUMMARY OF THE ENERGY CONSERVATION STANDARDS FOR INCANDESCENT REFLECTOR LAMPS

Lamp wattage	Lamp type	Diameter (inches)	Voltage	Energy conservation standard (lm/W)
40W–205W	Standard Spectrum	>2.5	≥125	$6.8*P^{0.27}$
			<125	$5.9*P^{0.27}$
		≤2.5	≥125	$5.7*P^{0.27}$
			<125	$5.0*P^{0.27}$
40W–205W	Modified Spectrum	>2.5	≥125	$5.8*P^{0.27}$
			<125	$5.0*P^{0.27}$
		≤2.5	≥125	$4.9*P^{0.27}$
			<125	$4.2*P^{0.27}$

Note 1: P is equal to the rated lamp wattage, in watts.
Note 2: Standard Spectrum means any incandescent reflector lamp that does not meet the definition of "modified spectrum" in 430.2.

Source:http://www1.eere.energy.gov/buildings/appliance_standards/residential/incandescent_lamps.html

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Incandescent Reflector Lamps
Program Type: MEPs-Mandatory

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Incandescent%20Reflector%20Lamps&ID=223

Description:

Energy Efficiency Level

TABLE I.2—SUMMARY OF THE ENERGY CONSERVATION STANDARDS FOR INCANDESCENT REFLECTOR LAMPS

Lamp wattage	Lamp type	Diameter (inches)	Voltage	Energy conservation standard (lm/W)
40W–205W	Standard Spectrum	>2.5	≥125	$6.8*P^{0.27}$
			<125	$5.9*P^{0.27}$
		≤2.5	≥125	$5.7*P^{0.27}$
			<125	$5.0*P^{0.27}$
40W–205W	Modified Spectrum	>2.5	≥125	$5.8*P^{0.27}$
			<125	$5.0*P^{0.27}$
		≤2.5	≥125	$4.9*P^{0.27}$
			<125	$4.2*P^{0.27}$

Note 1: P is equal to the rated lamp wattage, in watts.
Note 2: Standard Spectrum means any incandescent reflector lamp that does not meet the definition of "modified spectrum" in 430.2.

Source:http://www1.eere.energy.gov/buildings/appliance_standards/residential/incandescent_lamps.html

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Compact Fluorescent Lamps (CFLs)

Program Type: MEPs-Mandatory

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=CFLs&ID=57

Description:

Energy Efficiency Level

TABLE I.1—SUMMARY OF THE AMENDED ENERGY CONSERVATIONS STANDARDS FOR GENERAL SERVICE FLUORESCENT LAMPS

Lamp type	Correlated color temperature	Energy conservation standard (lm/W)
4-Foot Medium Bipin	≤4,500K	89
	>4,500K and ≤7,000K	88
2-Foot U-Shaped	≤4,500K	84
	>4,500K and ≤7,000K	81
8-Foot Slimline	≤4,500K	97
	>4,500K and ≤7,000K	93
8-Foot High Output	≤4,500K	92
	>4,500K and ≤7,000K	88
4-Foot Miniature Bipin Standard Output	≤4,500K	86
	>4,500K and ≤7,000K	81
4-Foot Miniature Bipin High Output	≤4,500K	76
	>4,500K and ≤7,000K	72

Source:http://www1.eere.energy.gov/buildings/appliance_standards/residential/incandescent_lamps.html

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Fluorescent Lamps

Program Type: MEPS

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The United States&countryid=262&product=Fluorescent Lamps&ID=19

TABLE I.1—SUMMARY OF THE AMENDED ENERGY CONSERVATIONS STANDARDS FOR GENERAL SERVICE FLUORESCENT LAMPS

Lamp type	Correlated color temperature	Energy conservation standard (lm/W)
4-Foot Medium Bipin	≤4,500K	89
	>4,500K and ≤7,000K	88
2-Foot U-Shaped	≤4,500K	84
	>4,500K and ≤7,000K	81
8-Foot Slimline	≤4,500K	97
	>4,500K and ≤7,000K	93
8-Foot High Output	≤4,500K	92
	>4,500K and ≤7,000K	88
4-Foot Miniature Bipin Standard Output	≤4,500K	86
	>4,500K and ≤7,000K	81
4-Foot Miniature Bipin High Output	≤4,500K	76
	>4,500K and ≤7,000K	72

Source:http://www1.eere.energy.gov/buildings/appliance_standards/residential/incandescent_lamps.html

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Lamps (Mercury Vapor)
Change the title to “Ballasts-Mercury Vapor Lamp Ballasts”
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Lamps%20(Mercury-vapor)&ID=179
Test Standard: [Underdeveloped]

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Lamps Ceiling Fan Lighting
Program Type: Voluntary Label
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Ceiling%20Fan%20Lighting&ID=174
And, http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Fans%20(Ceiling)&ID=185
Energy Star – Ceiling Fan Light Kits
Effective Year: 2006, version 2.3
Test Standard: ANSI C81.61, IEC 60061-1
Description: Self-ballasted pin based lamps: Light kits that use a self-ballasted pin based lamp can be ENERGY STAR qualified light kits if all applicable requirements for qualifying products are met. This includes the requirement that the average rated life of the lamp must meet or exceed 10,000 hours and that the maximum measured ballast case temperature during normal operation inside the light kit does not exceed the ballast manufacturer maximum recommended temperature.

Allowance for decorative-only LEDs (LED Hybrid Light Kits): LEDs used only as decorative lighting elements in ceiling fan light kits are allowed as long as the total wattage of the LEDs does not exceed five
(5) watts, the average LED system (LED and driver) efficacy is at least 20 lumens per watt, and the LED is used to supplement a primary light source that meets all of the applicable performance characteristics outlined in the Eligibility Criteria.

Source:http://www.energystar.gov/ia/partners/product_specs/program_reqs/Ceiling_Fan_V2.3_Program_Requirements.pdf

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Computer (Game Console)
Program Type: Voluntary Label
Change the statues “U” to “Y(v)”
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Computer%20(Game%20Console)&ID=227
Description:
Delete the “This program is under consideration”

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Computer Sever
Program Type: Voluntary Label
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Computer%20Servers&ID=214
Program Requirements:
Draft 1 Version 2.0:
http://www.energystar.gov/ia/partners/prod_development/revisions/downloads/computer_servers/Draft1Version2ComputerServers.pdf
Version 1.0:
http://www.energystar.gov/ia/partners/product_specs/program_reqs/servers_prog_req.pdf

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Computer Monitor
Program Type: Voluntary Label
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Computer%20Monitors&ID=46
Test Standard: ENERGY STAR Program Requirements for Displays (Version 5.0)
Description:
Product Scope
Electronic Display (also referred to as “Display”): A commercially-available product with a display screen and associated electronics, often encased in a single housing, that as its primary function displays visual information from (i) a computer, workstation or server via one or more inputs, such as VGA, DVI, HDMI, or IEEE 1394, or (ii) a USB flash drive, a memory card, or wireless Internet connection. Common display technologies include liquid crystal display (LCD), light emitting diode (LED), cathode-ray tube (CRT), and plasma display panel (PDP).
To qualify for ENERGY STAR, the display must satisfy the following criteria:
A. Maximum viewable diagonal screen size: The display must have a viewable diagonal screen size of less than or equal to (≤) 60 inches.
B. Power Source: The display must be powered by a separate AC wall outlet, a battery unit that is sold with an AC adapter, or a data or network connection.
C. Television Tuners: If the display has an integrated television tuner, it may qualify for ENERGY STAR under this specification as long as it is primarily marketed and sold to consumers as a display or as a dual-function display and television. Any display with a television tuner that is marketed and sold exclusively as a television is not eligible to qualify under this specification. Under Tier 2 of this specification, only those displays without tuners may qualify; displays with tuners may qualify under Tier 2 of the Version 3.0 ENERGY STAR TV specification.
D. Automatic Brightness Control (ABC): To qualify for ENERGY STAR using the Automatic Brightness Control On Mode power equation, the display must ship with ABC enabled by default.
E. External Power Supply: If the display is shipped with an EPS, the EPS must be ENERGY STAR qualified or meet the no-load and active mode efficiency levels provided in the ENERGY STAR Program Requirements for Single Voltage AC-AC and AC-DC External Power Supplies. The

ENERGY STAR specification and qualified product list can be found at www.energystar.gov/powersupplies .

F. Power Management Requirements: The display must have at least one mechanism enabled by default that allows the display to automatically enter Sleep or Off Mode. For instance, data or network connections must support powering down the display according to standard mechanisms, such as Display Power Management Signaling. Displays generating their own content must have a sensor or timer enabled by default to automatically engage Sleep or Off Mode.

Year Effective: 2009

Program Requirements:

http://www.energystar.gov/ia/partners/product_specs/program_reqs/displays_spec.pdf

Source: http://www.energystar.gov/index.cfm?fuseaction=products_for_partners.showMonitors

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Clothes Washers

Program Type: MEPS-Mandatory

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Clothes%20Washers&ID=11

Test Standard: Appendix J to Subpart B of Part 430, 10 CFR Part 430 Appendix J1 to Subpart B , AHAM HWL-1 , ENERGY STAR Criteria for Clothes Washers

Description:

Energy Efficiency Level

(1) Clothes washers manufactured before January 1, 2004, shall have an energy factor no less than:

Product Class	Energy factor (cu.ft./kWh/cycle)
i. Top-Loading, Compact (less than 1.6 ft.^{3} capacity).	0.9.
ii. Top-Loading, Standard (1.6 ft.^{3} or greater capacity).	1.18.
iii. Top-Loading, Semi-Automatic.	[1] Not Applicable.
iv. Front-Loading	[1] Not Applicable.
v. Suds-saving	[1] Not Applicable.

[1] Must have an unheated rinse water option.

(2) Clothes washers manufactured on or after January 1, 2004, and before January 1, 2007, shall have a modified energy factor no less than:

Product Class	Modified energy factor (cu.ft./kWh/cycle)
i. Top-Loading, Compact (less than 1.6 ft.^{3} capacity).	0.65.
ii. Top-Loading, Standard (1.6 ft.^{3} or greater capacity).	1.04.
iii. Top-Loading, Semi-Automatic.	[1] Not Applicable.
iv. Front-Loading	1.04.
v. Suds-saving	[1] Not Applicable.

[1] Must have an unheated rinse water option.

Clothes washers manufactured on or after January 1, 2007, shall have a modified energy factor no less than:

Product Class	Modified energy factor (cu.ft./kWh/cycle)
i. Top-Loading, Compact (less than 1.6 ft.^{3} capacity).	0.65.
ii. Top-Loading, Standard (1.6 ft.^{3} or greater capacity).	1.26.
iii. Top-Loading, Semi-Automatic.	[1] Not Applicable.
iv. Front-Loading	1.26.
v. Suds-saving	[1] Not Applicable.

[1] Must have an unheated rinse water option.

Source: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=27bb7d1d90761ed97783eb7ab56b3d85&rgn=div8&view=text&node=10:3.0.1.4.16.3.9.2&idno=10

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Clothes Washers
Program Type: Voluntary Label
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Clothes%20Washers&ID=11
Description:
Energy Efficiency Level

	Current ENERGY STAR Criteria *as of January 1, 2007*	ENERGY STAR Criteria *as of July 1, 2009*	ENERGY STAR Criteria *as of January 1, 2011*
ENERGY STAR Criteria	MEF ≥ 1.72 WF ≤ 8.0	MEF ≥ 1.8 WF ≤ 7.5	MEF ≥ 2.0 WF ≤ 6.0

Source :
http://www.energystar.gov/ia/partners/product_specs/program_reqs/CW_ProgramRequirements_2009.pdf

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Commercial Clothes Washers
Program Type: MEPS-Mandatory
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Clothes%20Washers%20(Commercial)&ID=186
Description:
Energy Efficiency Level

Each CCW manufactured on or after January 8, 2013, shall have a modified energy factor no less than and a water factor no greater than:

Equipment class	**Modified energy factor,** ***cu. ft./kWh/cycle***	**Water factor,** ***gal./cu. ft./cycle***
Top-Loading	1.60	8.5

Front-Loading	2.00	5.5

Source: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=27bb7d1d90761ed97783eb7ab56b3d85&rgn=div8&view=text&node=10:3.0.1.4.16.3.9.2&idno=10

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Clothes Dryer
Program Type: MEPS-Mandatory
Description:
Energy Efficiency Level

(1) Gas clothes dryers manufactured between January 1, 1988, and May 14, 1994, shall not be equipped with a constant burning pilot.

(2) Clothes dryers manufactured on or after May 14, 1994, shall have an energy factor no less than;

Product class	Energy factor (lbs/KWh)
i. Electric, Standard (4.4 ft^3 or greater capacity)	3.01
ii. Electric, Compact (120v) (less than 4.4 ft^3 capacity)	3.13
iii. Electric, Compact (240v) (less than 4.4 ft^3 capacity)	2.90
iv. Gas	2.67

Source: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=27bb7d1d90761ed97783eb7ab56b3d85&rgn=div8&view=text&node=10:3.0.1.4.16.3.9.2&idno=10

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Water Heater

Program Type: MEPS-Mandatory

Updating Existing Page:

Water Heater (Oil) http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Water%20Heaters%20(Oil-fired)&ID=39

Water Heaters Heat Pump http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Water%20Heaters%20Heat%20Pump&ID=217

Water Heaters Instantaneous (Gas) http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Water%20Heaters%20Instantaneous%20(Gas)&ID=218

[it is preferred to integrated above four different water heater page into one, as named “water heater”]

Description:

[To add the “energy efficiency level” to each water heater web page]

Energy Efficiency Level

The energy factor of water heaters shall not be less than the following for products manufactured on or after the indicated dates.

Product class	Energy factor as of January 20, 2004	Energy factor as of April 16, 2015
Oil-fired Water Heater	0.59−(0.0019 × Rated Storage Volume in gallons)	EF = 0.68−(0.0019 × Rated Storage Volume in gallons).
Electric Water Heater	0.97−(0.00132 × Rated Storage Volume in gallons)	For tanks with a Rated Storage Volume at or below 55 gallons: EF = 0.960−(0.0003 × Rated Storage Volume in gallons). For tanks with a Rated Storage Volume above 55 gallons: EF = 2.057−(0.00113 × Rated Storage Volume in gallons).
Tabletop Water Heater	0.93−(0.00132 × Rated Storage Volume in gallons)	EF = 0.93−(0.00132 × Rated Storage Volume in gallons).
Instantaneous Gas-fired Water Heater	0.62−(0.0019 × Rated Storage Volume in gallons)	EF = 0.82−(0.0019 × Rated Storage Volume in gallons).
Instantaneous Electric Water Heater	0.93−(0.00132 × Rated Storage Volume in gallons)	EF = 0.93−(0.00132 × Rated Storage Volume in gallons).

Note: The Rated Storage Volume equals the water storage capacity of a water heater, in gallons, as specified by the manufacturer.

Source: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=27bb7d1d90761ed97783eb7ab56b3d85&rgn=div8&view=text&node=10:3.0.1.4.16.3.9.2&idno=10

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Water Heater (Gas)

Program Type : MEPS-Mandatory

Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Water%20Heaters%20(Gas)&ID=38

Description:

Energy Efficiency Level

Product class	Energy factor as of January 20, 2004	Energy factor as of April 16, 2015
Gas-fired Water Heater	0.67−(0.0019 × Rated Storage Volume in gallons)	For tanks with a Rated Storage Volume at or below 55 gallons: EF = 0.675−(0.0015 × Rated Storage Volume in gallons). For tanks with a Rated Storage Volume above 55 gallons: EF = 0.8012−(0.00078 × Rated Storage Volume in gallons).

Source: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&sid=27bb7d1d90761ed97783eb7ab56b3d85&rgn=div8&view=text&node=10:3.0.1.4.16.3.9.2&idno=10

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Water Heater (Gas)
Program Type: Voluntary Label
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Water%20Heaters%20(Gas)&ID=38
Description:
Product Scope

ENERGY STAR Residential Water Heater Product Classes		
Storage	**Gas-fired**	A nominal input of 75,000 BTU/hour or less and a rated storage volume from 20 to 100 gallons.
	Heat Pump	A maximum current rating of 24 amperes, voltage no greater than 250 volts, and a transfer of thermal energy from one temperature to a higher temperature level for the purpose of heating water. Unit must have "integrated" or "drop-in" configuration.
	Tabletop	A box enclosure designed to slide into a kitchen countertop space and dimensions of 36 inches high, 25 inches deep and 24 inches wide.
Tankless	**Gas-fired**	A nominal input of over 50,000 BTU/hour up to 200,000 BTU/hour and a rated storage volume of 2 gallons or less.
Solar	**Gas or Electric**	OG-300 rating from the SRCC.

Energy Efficiency Level

3) **ENERGY STAR Criteria**: Only those products listed in Section 2 that meet the criteria below may qualify as ENERGY STAR.

ENERGY STAR Criteria	Energy Factor	First-Hour Rating	Warranty	Safety
GAS STORAGE (ENDING 8/31/2010)	EF ≥ 0.62	FHR ≥ 67 gallons per hour	Warranty ≥ 6 years on sealed system	ANSI Z21.10.1/CSA 4.1
GAS STORAGE (BEGINNING 9/1/2010)	EF ≥ 0.67	FHR ≥ 67 gallons per hour	Warranty ≥ 6 years on sealed system	ANSI Z21.10.1/CSA 4.1

ENERGY STAR Criteria	Energy Factor	Gallons-Per-Minute	Warranty	Safety
WHOLE-HOME GAS TANKLESS	EF ≥ 0.82	GPM ≥ 2.5 over a 77°F rise	Warranty ≥ 10 years on heat exchanger and 5 years on parts	ANSI Z21.10.1/CSA 4.1 or ANSI Z21.10.3/CSA 4.3, depending on burner size

ENERGY STAR Criteria	Energy Factor	First-Hour Rating	Warranty	Safety
GAS CONDENSING	EF ≥ 0.8	FHR ≥ 67 gallons per hour	Warranty ≥ 8 years on sealed system	ANSI Z21.10.1/CSA 4.1

ENERGY STAR Criteria	Energy Factor	First-Hour Rating	Warranty	Safety
HEAT PUMP WATER HEATER	EF ≥ 2.0	FHR ≥ 50 gallons per hour	Warranty ≥ 6 years on sealed system	UL 174 and UL 1995

ENERGY STAR Criteria	Solar Fraction	Warranty	Safety
SOLAR WATER HEATER	SF ≥ 0.5	Warranty ≥ 10 years on solar collector, 6 years on storage tank, 2 years on controls and 1 year for piping and parts.	OG-300 Certification from the SRCC.

Source:
http://www.energystar.gov/ia/partners/product_specs/program_reqs/WaterHeater_ProgramRequirements.pdf

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Commercial Water Heater
Program Type: MEPS-Mandatory
Updating Existing Page: http://www.apec-esis.org/productsummary_sl.php?country=The%20United%20States&countryid=262&product=Water%20Heaters%20(Commercial)&ID=220
Description:
Energy Efficiency Level

Each commercial storage water heater, instantaneous water heater, unfired hot water storage tank and hot water supply boiler[1] must meet the applicable energy conservation standard level(s) as follows:

Any packaged boiler that provides service water, that meets the definition of "commercial packaged boiler" in subpart E of this part, but does not meet the definition of " hot water supply boiler" in subpart G, must meet the requirements that apply to it under subpart E.

Product	Size	Energy conservation standard[a](products manufactured on and after October 29, 2003)[b]	
		Minimum thermal efficiency	Maximum standby loss[c]
Electric storage water heaters	All	N/A	0.30 + 27/V_m(%/hr)

Gas-fired storage water heaters	≤155,000 Btu/hr >155,000 Btu/hr	80% 80%	Q/800 + 110(V_r)$^{1/2}$(Btu/hr) Q/800 + 110(V_r)$^{1/2}$(Btu/hr)
Oil-fired storage water heaters	≤155,000 Btu/hr >155,000 Btu/hr	78% 78%	Q/800 + 110(V_r)$^{1/2}$(Btu/hr) Q/800 + 110(V_r)$^{1/2}$(Btu/hr)
Gas-fired instantaneous water heaters and hot water supply boilers	<10 gal ≥10 gal	80% 80%	N/A Q/800 + 110(V_r)$^{1/2}$(Btu/hr)
Oil-fired instantaneous water heaters and hot water supply boilers	<10 gal ≥10 gal	80% 78%	N/A Q/800 + 110(V_r)$^{1/2}$(Btu/hr)

Product	Size	Minimum thermal insulation
Unfired hot water storage tank	All	R–12.5

[a]V_m is the measured storage volume and V_r is the rated volume, both in gallons. Q is the nameplate input rate in Btu/hr.

[b]For hot water supply boilers with a capacity of less than 10 gallons: (1) the standards are mandatory for products manufactured on and after October 21, 2005, and (2) products manufactured prior to that date, and on or after October 23, 2003, must meet either the standards listed in this table or the applicable standards in Subpart E of this Part for a “commercial packaged boiler.”

[c]Water heaters and hot water supply boilers having more than 140 gallons of storage capacity need not meet the standby loss requirement if (1) the tank surface area is thermally insulated to R–12.5 or more, (2) a standing pilot light is not used and (3) for gas or oil-fired storage water heaters, they have a fire damper or fan assisted combustion.

Source: http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr;sid=0be3d9c84cbc371cea91e89244305039;rgn=div6;view=text;node=10%3A3.0.1.4.17.7;idno=10;cc=ecfr

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