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## ENVIRONMENTAL PROTECTION AND MANAGEMENT ACT

### (CHAPTER 94A, SECTION 77)

## ENVIRONMENTAL PROTECTION AND MANAGEMENT (ENERGY CONSERVATION) REGULATIONS

History	G.N. NO.S 311/2007	->	RG10 2008 REVISED EDITION
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[1st January 2008]

### Arrangement of Provisions

- 1 Citation
- 2 Definitions
- 3 Form and manner of registration
- 4 Registered supplier to notify Director-General of change in particulars
- 5 Modification of registered goods
- 6 Maintenance of records
- 7 Display and affixing of Energy Label
- 8 Misuse of Energy Label, etc.

### FIRST SCHEDULE

### SECOND SCHEDULE

### THIRD SCHEDULE

### FEES

### Actual Provisions

#### **Citation**

1. These Regulations may be cited as the Environmental Protection and Management (Energy Conservation) Regulations.

#### **Definitions**

2. In these Regulations, unless the context otherwise requires —

"air-conditioner" means a single-phase non-ducted room air-conditioner as specified in Part I of the Schedule to the Environmental Protection and Management (Registrable Goods) Order (O 2);

"clothes dryer" means a single-phase clothes dryer as specified in Part II of the Schedule to the Environmental Protection and Management (Registrable Goods) Order (O 2);

"energy efficiency" —

(a) in relation to air-conditioners, means the Coefficient of Performance as defined in the First Schedule;

(b) in relation to clothes dryers, means the Energy Consumption as defined in the First Schedule;

(c) in relation to motor vehicles, means the Fuel Consumption as defined in the First Schedule; or

(d) in relation to refrigerators, means the Annual Energy Consumption as defined in the First Schedule;

"Energy Label" means an energy label that is in accordance with the requirements specified in the First Schedule;

"motor vehicle" means a motor vehicle specified in Part II or III of the Schedule to the Environmental Protection and Management (Registrable Goods) Order (O 2);

"refrigerator" means a single-phase refrigerator as specified in Part I of the Schedule to the Environmental Protection and Management (Registrable Goods) Order (O 2);

"Registrar" has the same meaning as in the Road Traffic Act (Cap. 276);

"technical file" , in relation to any registered goods, means the file on the registered goods kept and maintained under regulation 6 (1);

"test report" , in relation to any registrable goods or registered goods, means —

(a) the report of the test carried out for the registrable goods or registered goods (as the case may be) in accordance with —

(i) the prevailing test standard or method specified in the Second Schedule; or

(ii) the equivalent of the prevailing test standard or method specified in the Second Schedule for motor vehicles, as approved by the Director-General; and

(b) where there is more than one such test report in respect of the registrable goods or registered goods (as the case may be), the test report that is the most recent;

"type-approval" means the type-approval, batch type-approval or modified type-approval granted by the Registrar under rule 3D of the Road Traffic (Motor Vehicles, Registration and Licensing) Rules (Cap. 276, R 5).

### **Form and manner of registration**

**3.** —(1) An application to be registered as a registered supplier shall be made —

(a) using the relevant form provided at <http://www.nea.gov.sg/>; and

- (b) in the manner specified by the Director-General.
- (2) Every application referred to in paragraph (1) shall be accompanied by —
- (a) such documents and information as may be required in the relevant form; and
  - (b) a fee specified in the Third Schedule, which shall not be refundable.
- (3) An application to register any registrable goods, or to renew the registration of any registered goods, shall be made using the electronic application service provided at <http://www.nea.gov.sg/>.
- (4) Every application referred to in paragraph (3) shall be accompanied by —
- (a) a test report issued in respect of the registrable goods (except a motor vehicle with no production model and without type-approval) or the registered goods (as the case may be), showing the energy efficiency of such goods and such other information as the Director-General may require;
  - (b) such other documents and information as may be required in the relevant form; and
  - (c) a fee specified in the Third Schedule, which shall not be refundable.
- (5) In the event of a malfunction or failure, or an imminent malfunction or failure, of the website referred to in paragraph (1) or the electronic application service referred to in paragraph (3), the application shall be made in such written form as the Director-General may require.
- (6) Upon the registration of any person as a registered supplier, the Director-General shall issue an identification number to the registered supplier in such form as the Director-General may determine.
- (7) Upon the registration of any registrable goods or the renewal of the registration of any registered goods, the Director-General shall issue a certificate of registration to the registered supplier in such form as the Director-General may determine.

**Registered supplier to notify Director-General of change in particulars**

4. —(1) A registered supplier shall notify the Director-General of any change to any of the particulars provided to the Director-General when making an application under regulation 3 (1) not less than 14 days before the change.

(2) Any person who, without reasonable excuse, contravenes paragraph (1) shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$2,000.

**Modification of registered goods**

5. —(1) Where any registered goods are modified in any way by the manufacturer of those registered goods, the registered supplier concerned shall do the following before the modified registered goods are supplied in Singapore:

- (a) notify the Director-General in writing of the modification to the registered goods;
- (b) where the modification alters the energy efficiency of the registered goods, submit to the Director-General a test report showing the energy efficiency of such goods, as modified, and such other information as the Director-General may require; and
- (c) update the technical file on the registered goods with details of the modification, including the test report referred to in sub-paragraph (b).

(2) Any person who contravenes paragraph (1) shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$2,000.

### **Maintenance of records**

**6.** —(1) For the purposes of section 40I of the Act, a registered supplier shall keep and maintain a technical file on each of the registered goods for the period of the registration of the registered goods.

(2) The technical file shall include —

- (a) the certificate of registration issued by the Director-General under regulation 3 (7) in respect of the registered goods;
- (b) the test report issued in respect of the registered goods in accordance with regulation 3 (4) (a);
- (c) detailed records of any modification to the registered goods, including the test report referred to in regulation 5 (1) (b), where applicable; and
- (d) such other documents and information as the Director-General may, from time to time, require by notice in writing.

### **Display and affixing of Energy Label**

**7.** —(1) Every registered supplier of any registrable goods (except a motor vehicle with no production model and without type-approval) shall affix an Energy Label in the manner specified in paragraph (2), or permitted or directed by the Director-General under paragraph (3) —

- (a) after the certificate of registration has been issued by the Director-General in respect of such goods; and
- (b) before supplying such goods in Singapore.

(2) Every Energy Label shall be affixed securely in a prominent position on the registered goods, conspicuous and unobstructed.

(3) Where the Director-General is of the opinion that —

- (a) any registered goods are of such a nature as to prevent such goods from being affixed with the Energy Label in the manner specified in paragraph (2); or
- (b) any registered goods are to be supplied in circumstances which do not require the Energy Label to be displayed to an intending purchaser or user,

the Director-General may, subject to such terms and conditions as he may impose, permit the Energy Label to be affixed —

- (i) to anything in or on the registered goods or with which the registered goods are supplied; or
- (ii) in such other manner as the Director-General may direct so as to be easily read by an intending purchaser or user.

(4) Any person who contravenes paragraph (1) shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$2,000.

### **Misuse of Energy Label, etc.**

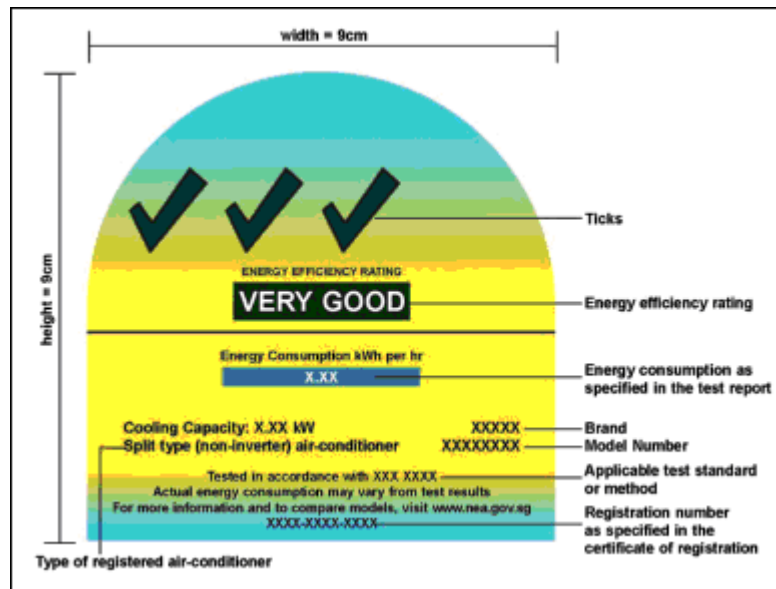
8. —(1) Any person who, without reasonable excuse, defaces, obstructs, removes or misuses any Energy Label shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$2,000.

(2) Any person who forges or alters any Energy Label shall be guilty of an offence and shall be liable on conviction to a fine not exceeding \$2,000 or to imprisonment for a term not exceeding 3 months or to both.

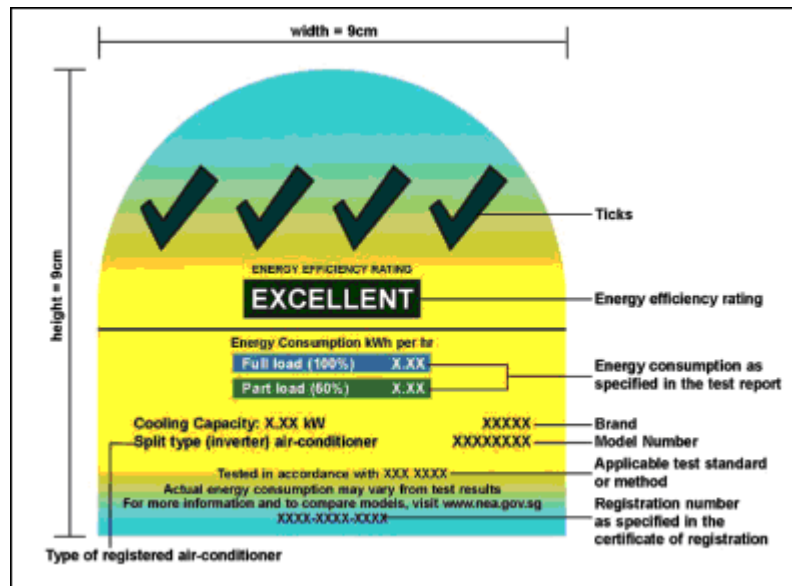
### FIRST SCHEDULE

Regulation 2

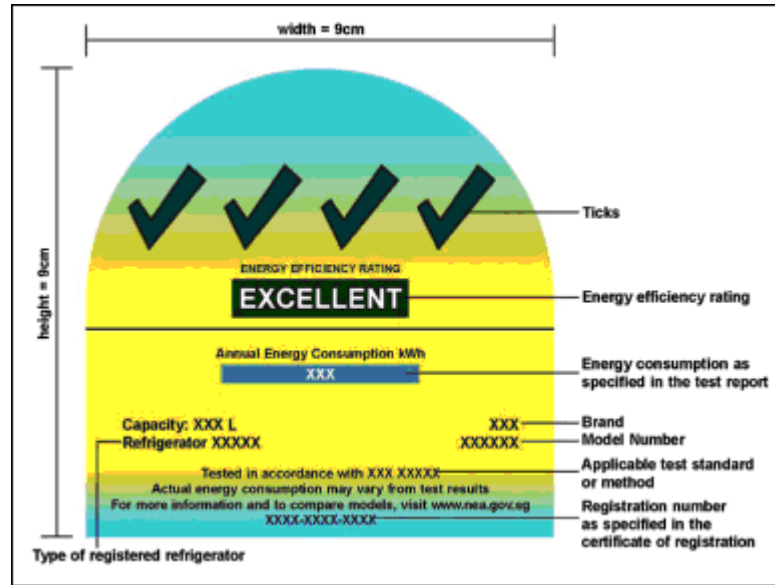
### ENERGY LABEL FOR CASEMENT, WINDOW AND SPLIT TYPE (NON-INVERTER) AIR-CONDITIONERS



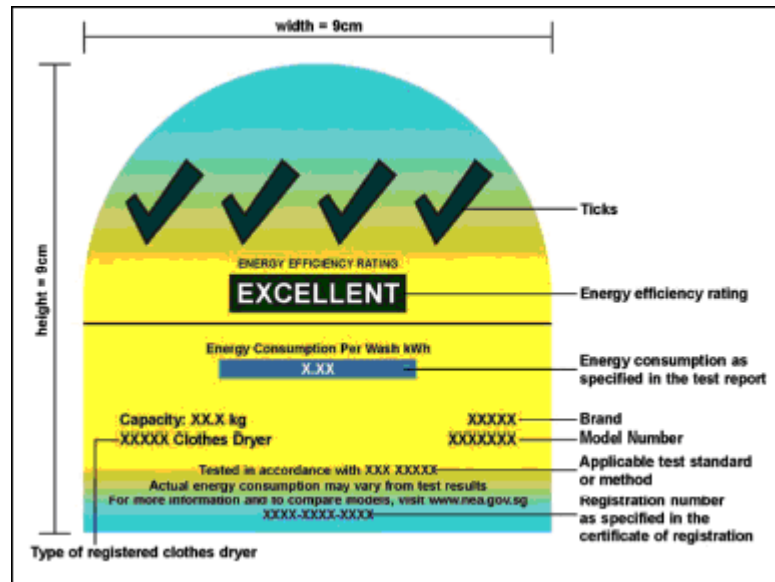
### ENERGY LABEL FOR SPLIT TYPE (INVERTER) AIR-CONDITIONERS



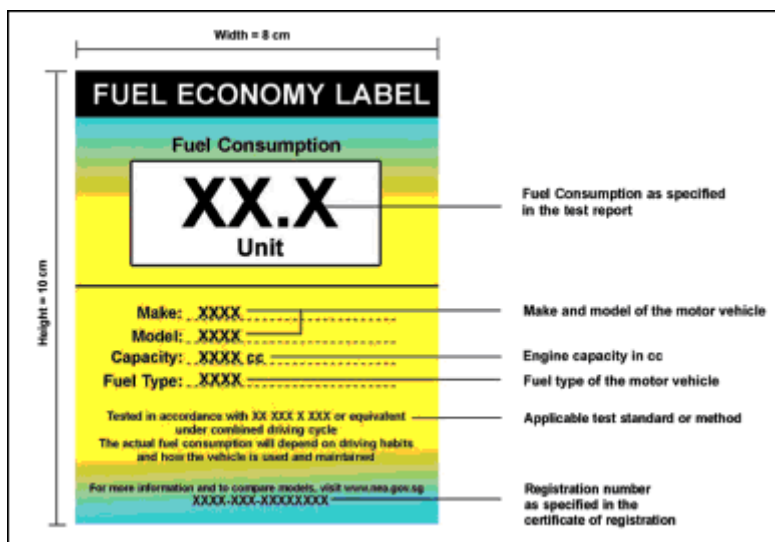
## ENERGY LABEL FOR REFRIGERATORS



## ENERGY LABEL FOR CLOTHES DRYERS



## ENERGY LABEL FOR MOTOR VEHICLES



1. Subject to these Regulations, every Energy Label —

- (a) shall be of the dimensions, shape and colour shown in this Schedule;
- (b) shall contain information that is consistent with or drawn from the relevant test report;
- (c) shall contain text that is of the same font type and size as shown in this Schedule, legible and in the English language only;
- (d) shall be printed in an indelible manner and with a minimum resolution of 300 pixels per inch; and
- (e) shall be made of such material as the Director-General may approve.

2. The number of ticks and energy efficiency rating to be shown on the Energy Label for air-conditioners, refrigerators and clothes dryers shall be determined as follows:

- (a) for casement and window type air-conditioners, and split type (non-inverter) air-conditioners with one indoor unit:

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Coefficient of Performance (COP) range</i>
0	Low	$COP < 2.50$
1	Fair	$2.50 \leq COP < 2.78$
2	Good	$2.78 \leq COP < 3.20$
3	Very Good	$COP \geq 3.20$

- (b) for split type (non-inverter) air-conditioners with more than one indoor unit:

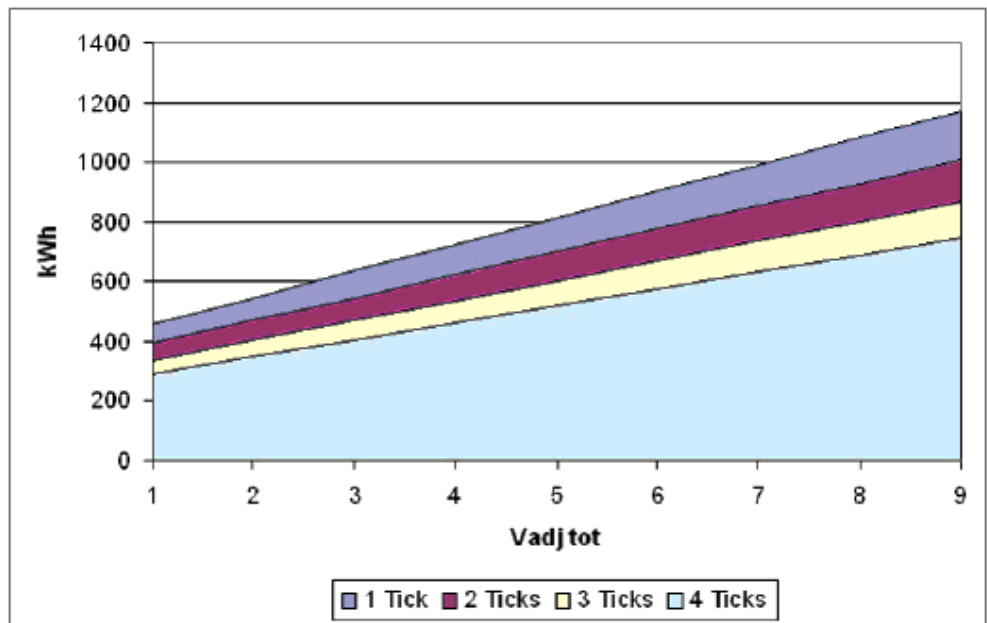
<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Coefficient of Performance (COP) range</i>
0	Low	$COP < 2.64$
1	Fair	$2.64 \leq COP < 2.92$
2	Good	$2.92 \leq COP < 3.34$
3	Very Good	$COP \geq 3.34$

- (c) for split type (inverter) air-conditioners:

<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Coefficient of Performance (COP) range</i>
0	Low	Weighted COP $< 2.64$
1	Fair	$2.64 \leq \text{Weighted COP} < 2.92$
2	Good	$2.92 \leq \text{Weighted COP} < 3.34$
3	Very Good	Weighted COP $\geq 3.34$ and Rated COP $\geq 3.06$
4	Excellent	Weighted COP $\geq 3.76$ and Rated COP $\geq 3.34$

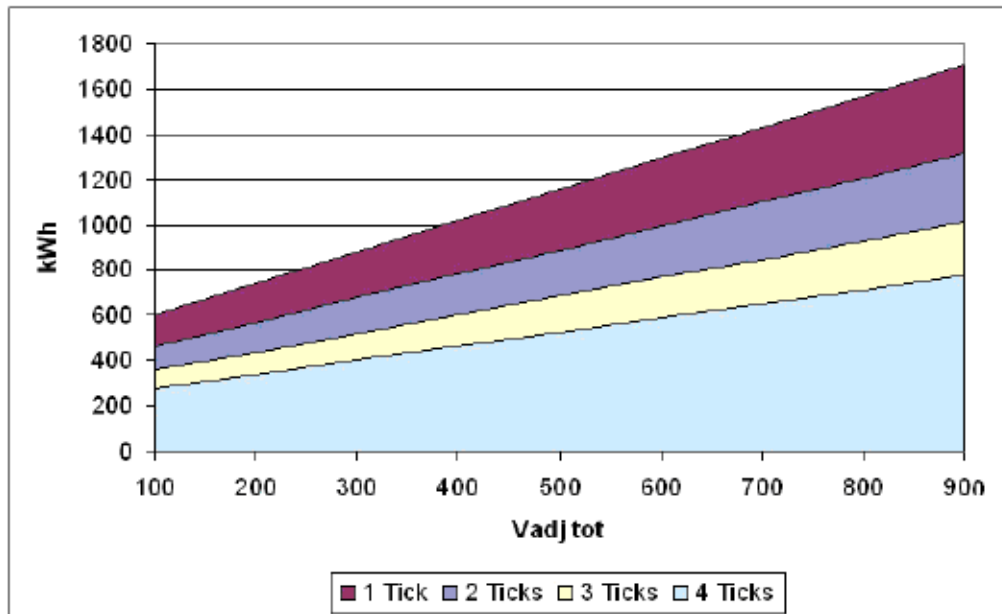
(d) for refrigerators —

(i) without freezer:



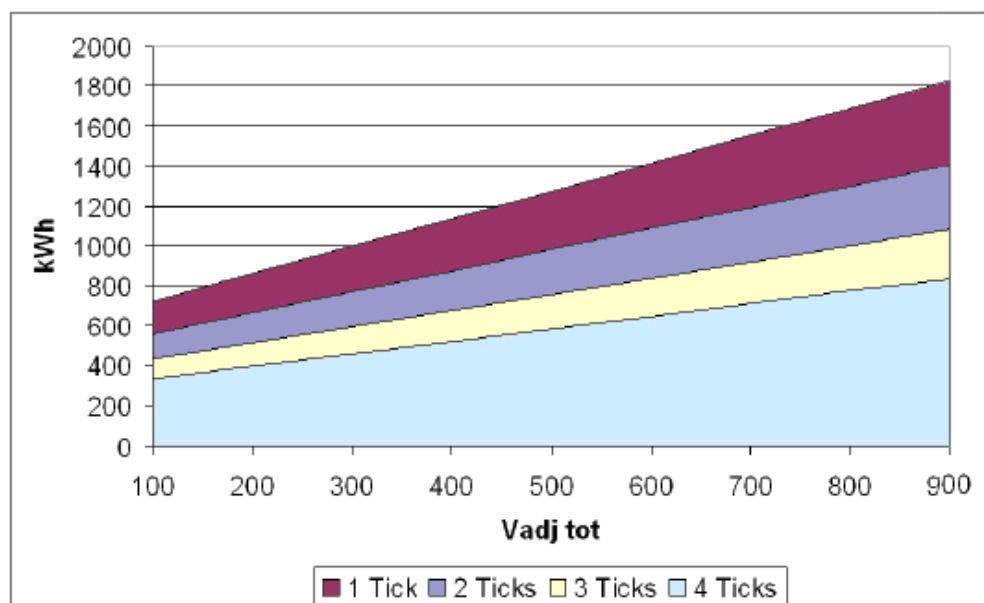
Ticks	Energy efficiency rating	Annual Energy Consumption (AEC) in kWh
0	Low	$AEC > (368 + 0.892 \times V_{adj\ tot})$
1	Fair	$(368 + 0.892 \times V_{adj\ tot}) \geq AEC > (368 + 0.892 \times V_{adj\ tot}) \times 0.86$
2	Good	$(368 + 0.892 \times V_{adj\ tot}) \times 0.86 \geq AEC > (368 + 0.892 \times V_{adj\ tot}) \times 0.74$
3	Very Good	$(368 + 0.892 \times V_{adj\ tot}) \times 0.74 \geq AEC > (368 + 0.892 \times V_{adj\ tot}) \times 0.64$
4	Excellent	$(368 + 0.892 \times V_{adj\ tot}) \times 0.64 \geq AEC$

(ii) with freezer:



Ticks	Energy efficiency rating	Annual Energy Consumption (AEC) in kWh
0	Low	$AEC > (465 + 1.378 \times V_{adj\ tot})$
1	Fair	$(465 + 1.378 \times V_{adj\ tot}) \geq AEC > (465 + 1.378 \times V_{adj\ tot}) \times 0.77$
2	Good	$(465 + 1.378 \times V_{adj\ tot}) \times 0.77 \geq AEC > (465 + 1.378 \times V_{adj\ tot}) \times 0.593$
3	Very Good	$(465 + 1.378 \times V_{adj\ tot}) \times 0.593 \geq AEC > (465 + 1.378 \times V_{adj\ tot}) \times 0.457$
4	Excellent	$(465 + 1.378 \times V_{adj\ tot}) \times 0.457 \geq AEC$

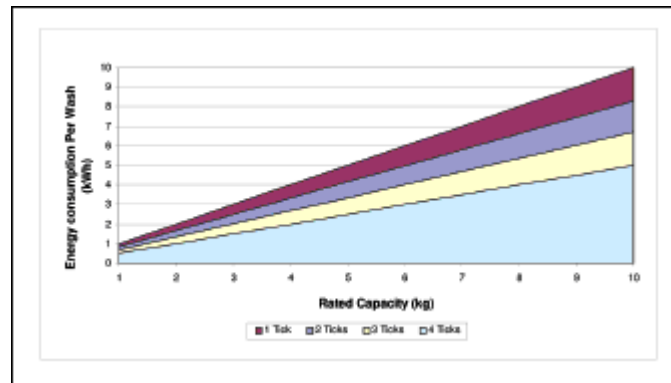
(iii) with freezer and through-the-door ice dispenser:



Ticks	Energy efficiency rating	Annual Energy Consumption (AEC) in kWh
0	Low	$AEC > (465 + 1.378 \times V_{adj\ tot})$
1	Fair	$(465 + 1.378 \times V_{adj\ tot}) \geq AEC > (465 + 1.378 \times V_{adj\ tot}) \times 0.77$
2	Good	$(465 + 1.378 \times V_{adj\ tot}) \times 0.77 \geq AEC > (465 + 1.378 \times V_{adj\ tot}) \times 0.593$
3	Very Good	$(465 + 1.378 \times V_{adj\ tot}) \times 0.593 \geq AEC > (465 + 1.378 \times V_{adj\ tot}) \times 0.457$
4	Excellent	$(465 + 1.378 \times V_{adj\ tot}) \times 0.457 \geq AEC$

0	Low	$AEC > (585 + 1.378 \times V_{adj \text{ tot}})$
1	Fair	$(585 + 1.378 \times V_{adj \text{ tot}}) \geq AEC > (585 + 1.378 \times V_{adj \text{ tot}}) \times 0.77$
2	Good	$(585 + 1.378 \times V_{adj \text{ tot}}) \times 0.77 \geq AEC > (585 + 1.378 \times V_{adj \text{ tot}}) \times 0.593$
3	Very Good	$(585 + 1.378 \times V_{adj \text{ tot}}) \times 0.593 \geq AEC > (585 + 1.378 \times V_{adj \text{ tot}}) \times 0.457$
4	Excellent	$(585 + 1.378 \times V_{adj \text{ tot}}) \times 0.457 \geq AEC$

(e) for clothes dryers —



<i>Ticks</i>	<i>Energy efficiency rating</i>	<i>Energy Consumption (EC) Per Wash in kWh</i>
0	Low	$EC > \text{Rated Capacity}$
1	Fair	$\text{Rated Capacity} \geq EC > \text{Rated Capacity} \times 0.83$
2	Good	$\text{Rated Capacity} \times 0.83 \geq EC > \text{Rated Capacity} \times 0.67$
3	Very Good	$\text{Rated Capacity} \times 0.67 \geq EC > \text{Rated Capacity} \times 0.50$
4	Excellent	$\text{Rated Capacity} \times 0.50 \geq EC$

3. The Fuel Consumption to be shown on the Energy Label for motor vehicles shall be determined and expressed as follows:

<i>Fuel Type</i>	<i>Fuel Consumption</i>	<i>Unit</i>
Diesel, liquefied petroleum gas, petrol or hybrid electric running on diesel, LPG or petrol	As specified in the test report	litres per 100 km
Natural gas or hybrid electric running on natural gas	Fuel Consumption in kilograms per 100 km to be obtained by multiplying the fuel consumption in m <sup>3</sup> per 100 km as specified in the test report with 0.654 kilogram per m <sup>3</sup>	kilograms per 100 km
Electric	As specified in the test report	watt-hours per km

4. In this Schedule, unless the context otherwise requires —

“Annual Energy Consumption” or “AEC” means the amount of energy consumed over 8,760 hours expressed in kilowatt-hour as specified in the test report;

“Coefficient of Performance” or “COP” means the ratio of the total cooling capacity expressed as Watts to the total effective input power expressed as Watts, as specified in the test report;

“Energy Consumption” or “EC”, in relation to clothes dryers, means the amount of energy consumed per cycle as specified in the test report;

"Fuel Consumption" , in relation to motor vehicles, means the fuel consumption for the combined driving cycle, as specified in the test report;

“split type (inverter) air-conditioner” and “split type (non-inverter) air-conditioner” have the same meanings as in Part I of the Schedule to the Environmental Protection and Management (Registrable Goods) Order (O 2);

"Weighted COP" means the sum of 0.4 x COP at full-load cooling capacity and 0.6 x COP at part-load cooling capacity.

## SECOND SCHEDULE

Regulation 2

### TEST STANDARD OR METHOD

1. The test report shall contain the results of tests carried out for the registrable goods in accordance with the applicable test standard or method, as follows:

<i>Registrable goods</i>	<i>Type</i>	<i>Applicable test standard or method</i>
Air-conditioner	Casement/Window type	ISO 5151 (1994)
	Split type (inverter)	JIS C 9612 (1994) The cooling tests shall be conducted at 2 points, namely, the full-load cooling capacity and the part-load cooling capacity.
	Split type (non-inverter)	ISO 5151 (1994)
Clothes Dryers	All	IEC 61121 (2005) The test shall be conducted on cotton textiles using the dry cotton drying programme.
	All	UN ECE R 101 (Revision 2) with amendment 1; or Type 1 test specified in Annex 4 of UN ECE Regulation No. 83 and methods of calculation of fuel consumption values for motor vehicles powered by internal combustion engines only, stated in UN ECE R 101 (Revision 2) with amendment 1.
Motor Vehicles	In respect of which type-	Type 1 test specified in Annex 4 of

approval has been granted by the Registrar before 1st April 2009

UN ECE Regulation No. 83 without any running-in to measure the carbon dioxide value and methods of calculation of fuel consumption values for motor vehicles powered by internal combustion engines only, stated in UN ECE R 101 (Revision 2) with amendment 1 using this carbon dioxide value multiplied by 0.92 in the calculation.

Refrigerator	All	ISO 15502 (2005)
	Without freezer	ISO 7371 (1995) with amendment 1 valid up to 30th June 2010
	With freezer	ISO 8187 (1991) with amendment 1 valid up to 30th June 2010
	With frost-free freezer	ISO 8561 (1995) valid up to 30th June 2010

2. In this Schedule, unless the context otherwise requires —

"IEC" means the International Electrotechnical Commission;

"ISO" means the International Organization for Standardization;

"JIS" means the Japanese Industrial Standard;

“casement or window type air-conditioner”, “split type (inverter) air-conditioner” and “split type (non-inverter) air-conditioner” have the same meanings as in Part I of the Schedule to the Environmental Protection and Management (Registrable Goods) Order (O 2);

"UN ECE R 101" means the United Nations Economic Commission for Europe Regulation No. 101.

### THIRD SCHEDULE

Regulation 3 (2) (b) and (4) (c)

#### FEES

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|--|------------|
| 1. Application for registration as a registered supplier           | No charge. |
| 2. Application for registration of any registrable goods           | No charge. |
| 3. Application for renewal of registration of any registered goods | No charge. |

[G.N. No. S 311/2007]