
The Hong Kong Voluntary Energy Efficiency Labelling Scheme for

Washing Machines January 2021

Energy Efficiency  **EMSD**

Electrical and Mechanical Services Department

3 Kai Shing Street, Kowloon, Hong Kong
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Preface

The Hong Kong Voluntary Energy Efficiency Labelling Scheme for “Washing Machines” (the Voluntary Scheme) was revised to cover the types of washing machines not regulated under the Energy Efficiency (Labelling of Products) Ordinance. Basically, it included the models imported to Hong Kong before 1 June 2018 and still on sale in the market. Meanwhile, the scope of the scheme will be reviewed and revised according to the market situation.

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1. Purpose

This set of document is intended to give a general description to the Hong Kong Voluntary Energy Efficiency Labelling Scheme for Washing Machines.

2. Background

- 2.1 The Energy Efficiency Labelling Scheme (EELS) is an energy conservation initiative that the Government of the Hong Kong Special Administrative Region has adopted. Under the EELS, some common types of household appliances/ gas appliances and office equipment will incorporate an energy label that serves to inform consumers of the product's energy consumption and efficiency. Consumers should then be able to take those factors into account and make their purchasing decision.
- 2.2 The concept of EELS has been implemented in several forms and in different stages of development in many countries. The EELS generally aims to achieve the following:
- greater public awareness of energy conservation and environmental improvement needs;
 - provision of readily available, pre-purchase information on energy consumption and efficiency data, where applicable, to enable ordinary consumers to select more energy efficient products;
 - stimulation to the manufacturers/market for phasing out less energy efficient models; and
 - motivation of the actual energy savings behaviours and environment improvement.
- 2.3 Hong Kong aims at achieving the above objectives. At present, the Hong Kong Voluntary Energy Efficiency Labelling Scheme covers 22 types of household appliances/ gas appliances and office equipment. Amongst them, 13 types are household appliances, 7 types are office equipment and 2 types are gas appliances.

3. Scope

3.1 The scheme will only apply to the manufacturers and importers (local agents, retailers and the related parties) who are interested to or have participated in the scheme.

3.2 The Scheme commenced on 15 December 1997. It is further revised on 1 January 2021. The existing and newly registered labels will remain valid till 31 December 2023. By then, renewal of the application may be required subject to the review of the scheme.

Remarks: The scheme will be under review with respect to the latest international/national standards.

3.3 Unless the Director provides otherwise, the scheme applies to a washing machine defined and specified in clauses 3.3.1 and 3.3.2.

3.3.1 "Washing machine", subject to clause 3.3.2 –

(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 exceeding 7 kilograms, but not exceeding 10 kilograms

whether or not they have built-in dryers for drying textiles by means of heating.

3.3.2 "Washing machine" does not include washing machines that

(a) may also use other energy sources; or

(b) have no spin extraction capability.

3.4 The scope of the scheme covers all new washing machines, 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 use, under trans-shipment or manufactured for export, etc.

3.5 The Scheme is operated as a 'Grading Type' labelling system. All participating

washing machines will be registered under this scheme provided that they have met the testing requirement specified in the scheme.

4 Definitions

Unless otherwise specified, the following definitions shall apply throughout this document:-

authority means the Electrical and Mechanical Services Department, the Government of the Hong Kong Special Administrative Region

base load means textiles load without strips of standardized soiling.

cycle means complete washing process, as defined by the programme selected, consisting of a series of different operations (wash, rinse, spin, etc.) and including any operations that occur after the completion of the programme.

Director means the Director of Electrical and Mechanical Services.

Government means the Government of the Hong Kong Special Administrative Region.

Horizontal axis washing machine means washing machine in which the load is placed in a drum which rotates around an axis which is horizontal or close to horizontal. Horizontal axis is where the angle of the axis of rotation is less than or equal to 45 degrees to horizontal.

IEC means International Electrotechnical Commission.

inspecting officer means the officer authorized by the Director to carry out inspection on washing machines under this scheme.

ISO means the International Organization for Standardization

JIS means Japanese Industrial Standard

label means the energy label as described in section 9.

mains electricity means the electricity that is supplied in Hong Kong at a voltage of 380/220 V and a frequency of 50 Hz

participants means the manufacturers, importers or the dealers of washing machines participating in the Scheme.

<i>programme</i>	means series of operations which are pre-defined within the washing machine and which are declared as suitable for washing certain textiles.
<i>rated washing capacity</i>	means the washing capacity of a washing machine as determined and declared by the manufacturer or importer of the washing machine in accordance with the standard and requirements specified in the Scheme.
<i>recognized laboratory</i>	means a laboratory that complies with the requirements as stated in section 10 and is acceptable to the Authority for carrying out tests and issuing test reports for washing machines.
<i>the Scheme</i>	means the Hong Kong Voluntary Energy Efficiency Labelling Scheme for Washing Machines.
<i>spin extraction</i>	means water-extracting function by which water is removed from textiles by centrifugal action. This is included as a function (built in operation) of an automatic washing machine but may also be performed in a spin extractor.
<i>spin extractor</i>	means water-extracting appliance in which water is removed from textiles by centrifugal action.
<i>vertical axis washing machine</i>	means washing machine in which the load is placed in a drum which rotates around an axis which is vertical or close to vertical. Vertical axis is where the angle of the axis of rotation is more than 45 degrees to horizontal. Where the drum does not rotate, the washing machine shall be classified as a vertical axis washing machine.
<i>IEC 60456</i>	means IEC 60456:2010
<i>JIS C 9606</i>	means JIS C 9606:1993

(IEC 60456 ed. 5.0 "Copyright © 2010 IEC Geneva, Switzerland.www.iec.ch")

5. Classification of Washing Machine

- 5.1 All washing machines covered under the Scheme are classified in accordance with Table 1 –

Table 1 : Classification of Washing Machines

Category	Description
1	Horizontal axis washing machine
2	Vertical axis washing machine

Note : In each category, it also includes washing machines operating with similar working principle.

6. Test Methodology and Standard

General

- 6.1 Clothes washing machines have various designs and features. Apart from load capacity, their wash programmes are also different and many are selectable by the operator. For example, temperature, inclusion of pre-wash cycles etc. can all be modified according to the operator's needs. Virtually all these aspects would affect the energy consumption of the machine (and the wash result). Therefore a common base is critical for measuring the electrical consumption of such machines.
- 6.2 Household washing machines are produced and tested according to the manufacturers' national standards (e.g. IEC, JIS, AS and AHAM) and they are not governed by any ISO standard. In Hong Kong, two major types of washing machines, i.e. Category 1 (horizontal axis type) and Category 2 (vertical axis type). In view of this market situation, the testing methodology is modelled along two standards. The testing methodology for measurement of energy consumption is based on the IEC 60456 for Category 1 or JIS C 9606 for Category 2.

Test Required to be Carried Out

- 6.3 The tests specified in this clause are required to be carried out, in accordance with IEC 60456 or JIS C 9606 or other equivalent international standards approved by the Director, in order to find out the energy efficiency and performance characteristics of a washing machine. The importer or manufacturer shall clearly indicate which test standard(s) they follow in testing their washing machines –
- (a) IEC 60456 applies to horizontal axis type washing machines (i.e. category 1)
 - (b) JIS C 9606 applies to vertical axis type washing machines (i.e. category 2)

A test report required to be submitted to the Director shall contain the results of

these tests:

- (a) Energy consumption;
- (b) Water consumption;
- (c) Washing performance; and
- (d) Spin extraction performance.

Test Conditions

6.4 In carrying out the tests as specified in clause 6.3 above, the washing machine shall be tested at a voltage and frequency of mains electricity in Hong Kong with tolerances as specified in the relevant IEC or JIS standards. Moreover, unless the Director approves otherwise, the following test conditions shall be followed –

- (a) In testing horizontal axis washing machines (category 1), the 60 °C cotton programme shall be used without pre-wash in accordance with the manufacturer's instruction.
- (b) In testing vertical axis washing machines (category 2), at the start of the test, the temperature of water shall be 30 ± 2 °C.

In cases of washing machines without any programmes, the recommended times for washing, rinsing, and spin extracting operations shall be in accordance with the manufacturer's instructions for the rated washing capacity to be tested.

Measurement of Energy Consumption

6.5 The methodology for measuring energy consumption (kWh) shall be based on:

- (a) IEC 60456;
- (b) JIS C 9606; or
- (c) Other equivalent international standards approved by the Director.

The specified international standards (IEC or JIS) shall be referred to for actual performance requirements and procedural descriptions.

The energy consumption shall be measured as follows:

- (i) For horizontal axis washing machine with built-in water heating device, the measured energy consumption (E) of the washing machine shall include the energy consumptions of both the washing function (including washing, rinsing and spin extraction processes) and the built-in water heating device for heating water. This measured energy consumption (E) shall be shown on the energy label after it is calculated to annual energy

consumption based on 260 washes / year operation.

- (ii) For horizontal axis washing machine without built-in water heating device, only the measured energy consumption (E) of the washing machine shall be shown on the energy label after it is calculated to annual energy consumption based on 260 washes / year operation.
- (iii) For vertical axis washing machine, only the measured energy consumption (E) of the washing function (including washing, rinsing and spin extraction processes) shall be shown on the energy label after it is calculated to annual energy consumption based on 260 washes / year operation.

In cases of washing machines combined with built-in dryers for drying textiles by means of heating, only the energy consumption (E) of the washing machine shall be measured and the drying function is excluded.

Measurement of Water Consumption

- 6.6 The water consumption (litres/cycle) shall be measured during the energy consumption test in accordance with IEC 60456, JIS C 9606, or other equivalent international standards approved by the Director.

Measurement of Washing Performance and Water Extraction Performance

- 6.7 The washing performance and water extraction performance shall be measured and evaluated during the test period in accordance with IEC 60456, JIS C 9606, or other equivalent international standards approved by the Director.

Calculation of Specific Energy Consumption

- 6.8 The specific energy consumption of a washing machine shall be calculated as follows:
- (a) For horizontal axis washing machine with built-in water heating device and vertical axis washing machine, the specific energy consumption is calculated as follows:

$$\text{Specific Energy Consumption (E}_{sp}\text{)} = \frac{E}{W_r} \dots\dots\dots(\text{Equation 1})$$

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

W_r = rated washing capacity (kg)

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

$$\text{Specific Energy Consumption (E}_{sp}\text{)} = \frac{E + W_h}{W_r} \dots\dots\dots \text{(Equation 2)}$$

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 °C to 60 °C and shall be calculated as follows:

$$W_h = \frac{(V_h \times (t_h - 15))}{860} \dots\dots\dots \text{(Equation 3)}$$

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

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7. Energy Efficiency Grading

- 7.1 The energy efficiency grading of a washing machine shall be determined as shown in Table 2, with Grade 1 having the best performance and Grade 5 having the worst performance.

Table 2 – Derivation of Energy Efficiency Grades

Specific Energy Consumption, E_{SP} (kWh/kg/cycle)		Energy Efficiency Grade ^(Note)
Horizontal Axis Type Category 1	Vertical Axis Type Category 2	
$E_{SP} \leq 0.130$	$E_{SP} \leq 0.0160$	1
$0.130 < E_{SP} \leq 0.150$	$0.0160 < E_{SP} \leq 0.0184$	2
$0.150 < E_{SP} \leq 0.172$	$0.0184 < E_{SP} \leq 0.0208$	3
$0.172 < E_{SP} \leq 0.195$	$0.0208 < E_{SP} \leq 0.0232$	4
$0.195 < E_{SP}$	$0.0232 < E_{SP}$	5

Note: In order to obtain Grade 1 to 4, the washing machine concerned shall also meet all the performance requirements as stipulated in 8.1(c), i.e. washing performance and water extraction performance. Only Grade 5 will be accorded if the washing machine does not meet any one of these performance requirements or $E_{sp} > 0.195$ for horizontal axis washing machine or $E_{sp} > 0.0232$ for vertical axis washing machine.

An example illustrating the method on how to determine the energy efficiency grade of a washing machine is shown in Annex 8.

8. Performance Requirements

8.1 In the test report submitted to the Director under clause 11.4, the results of the tests carried out in accordance with IEC 60456 or JIS C 9606 or other equivalent international standards approved by the Director shall show that the concerned model conforms with the following performance requirements:

- (a) The measured energy consumption (kWh/cycle) shall not be greater than the rated energy consumption by more than 15%.
- (b) The measured water consumption (litres/cycle) shall not be greater than the rated water consumption by more than 15%.
- (c) The measured washing performance and measured spin extraction performance shall conform with the minimum requirements in accordance with the respective test standards as shown in Table 3 for Grade 1 to 4:

Table 3 : Performance Requirements

Category	Category 1	Category 2
Performance Requirements <i>Note (1)</i>		
Test Standard	IEC 60456 <i>Note (4)</i>	JIS C 9606
Washing Performance <i>Note (2)</i>	$q \geq 0.7$	$C \geq 0.55$
Water Extraction Performance <i>Note (3)</i>	$RM \leq 1.1$	Water extracting efficiency ≥ 0.47

Note:

- (1) Each of the performance shall be determined in accordance with the test standard of the respective category.
- (2) The washing performance shall be determined in accordance with the following equations (extracted from the respective test standards):

$$\text{錯誤! 尚未定義書籤} \circ q = \frac{\bar{C}_{test}}{\bar{C}_{ref}}, \text{ or } C = \frac{D_r}{D_s}$$

where q = ratio of the average sum of the reflectance values

\bar{C}_{test} = average sum of the reflectance values for the washing machine under test

\bar{C}_{ref} = average sum of the reflectance values for the reference washing machine

C = washability ratio

D_r = washability by the washing machine under test

D_s = washability by the reference washing machine

For details on the definitions of the parameters and their calculation, the respective test standards shall be referred to.

- (3) The water extraction performance shall be determined in accordance with the following equations (extracted from the respective test standards):

$$RM = \frac{M_r - M}{M}, \text{ or}$$

$$\text{Water extracting efficiency} = \frac{\text{Mass of cloth in dry state}}{\text{Mass of cloth after water extraction}}$$

Where RM = remaining moisture

M = the mass of the conditioned base load

M_r = the mass of the base load after spin extraction

For details on the definitions of the parameters and their calculation, the respective test standards shall be referred to.

- (4) IEC 60456 ed.5.0 "Copyright © 2010 IEC Geneva, Switzerland. www.iec.ch"

In order to obtain Grade 1 to 4, the washing machine concerned shall also meet all the above performance requirements, i.e. washing performance and water extraction performance. Only Grade 5 will be accorded if the washing machine does not meet anyone of the above performance requirements or $E_{SP} > 0.195$ for horizontal axis washing machine or $E_{SP} > 0.0232$ for vertical axis washing machine.

- 8.2 The rated energy consumption and rated water consumption as declared by the manufacturer or importer shall meet the requirements specified in clause 8.1.

Safety Requirements

- 8.3 In addition to the energy efficiency performance requirements, all washing machines shall comply with the Electrical Products (Safety) Regulation, Chapter 406G of the Laws of Hong Kong, and the safety standards specified under the Regulation, and all other legislations concerning the safety of the washing machines.

Number of Samples to be Tested

- 8.4 For submission of product information of a model under clause 11.4, subject to clause 8.5, a test report on one sample of the model shall be submitted.
- 8.5 However, if the test results of one sample indicate that the measured energy consumption is greater than the rated energy consumption by more than 10%, the test report shall include the tests of two samples of the same model. In such case, each individual sample shall meet all the performance requirements in clause 8.1 and clause 8.2. Also, the information on the energy label shall be based on the test results of the tested sample with a higher specific energy consumption (E_{sp}).

9. Energy Label

- 9.1 The specification of the energy label for washing machines is shown in Annex 1. After a reference number has been assigned to a product model in the name of a participant and included in the Director's record, the participant shall produce the energy label for his/her products showing the energy efficiency grade and associated information in accordance with the requirements in Annex 1.

- 9.2 (a) Subject to clause 9.2(c), the energy label is to be attached or affixed to a prominent position of the washing machine and is to be clearly visible. The participant should ensure that the label appears on every registered washing machine on display, sale or hire.
- (b) For the avoidance of doubt, if only part of the washing machine is being exhibited, the energy label is to be attached or affixed to a prominent position of that part and is to be clearly visible.
- (c) The energy label may be attached to the washing machine or its packaging in a manner specified by the Director where the Director has approved its being so attached.
- 9.3 The energy label shall be of cardboard, if it is to be attached as a swing tag, or be self-adhesive and shall be cut to the outline shown in Annex 1 or otherwise approved by the Director. A trim or die cut margin of up to 2 mm around the energy label is acceptable.
- 9.4 The paper used for the energy label shall be durable with good wear and tear characteristics.
- 9.5 The energy label should be printed in both Chinese and English. Soft copy of the energy label can be obtained from Energy Efficiency Office, Electrical and Mechanical Services Department.

10. Testing Facilities, Laboratories and Accreditation Bodies

- 10.1 The testing shall be carried out either by independent test institutes or by the manufacturers or by the importers themselves at their own test facilities. The Authority will accept the results and certificates issued by the test laboratory which fulfils one of the following criteria as specified in clauses 10.2, 10.3 or 10.4.
- 10.2 The laboratory is accredited by the Hong Kong Accreditation Service (HKAS) for the relevant test under the Hong Kong Laboratory Accreditation Scheme (HOKLAS) or a scheme for which HKAS has concluded a mutual recognition arrangement (MRA) #, and the results are issued in a test report or certificate bearing the accreditation mark.

- 10.3 The Authority will also consider :
- (a) Self-declaration by original manufacturer that the operations of their in-house laboratory followed principally the requirements of ISO/IEC 17025; and
 - (b) The manufacturer currently operating according to a recognized international quality system (such as ISO 9001); and
 - (c) The manufacturer's in-house laboratory had been successful in carrying out tests on washing machines based on IEC 60456 or JIS C 9606 or other equivalent international standards approved by the Director and where these tests had been evaluated and certified by internationally recognised independent certification body.
- 10.4 The Authority will also consider the tests results issued by a laboratory which is accredited by the HKAS for the relevant HOKLAS (or is accredited by a laboratory accreditation body with which HKAS has concluded MRA) for the relevant tests on electrical and mechanical appliances other than the tests based on technical standards stipulated in the Scheme, if the laboratory can demonstrate their capability of carrying out tests on washing machines in accordance with the technical standards.

: HKAS has concluded mutual recognition arrangements with overseas accreditation bodies for testing laboratory accreditation. The list of mutual recognition arrangement partners may change from time to time and the up-to-date list is available from the HKAS website of www.info.gov.hk/itc/hkas. Partners to these arrangements recognise the accreditations granted by one another as equivalent.

Laboratory Accreditation

- 10.5 The Government takes cognizance of the need to ensure acceptable and compatible quality standards of testing laboratories, and considers that they need to be accredited by some independent bodies.
- 10.6 The criteria of accreditation should be based on ISO/IEC 17025 and the certification body should operate in accordance with ISO/IEC 17011.
- 10.7 The Authority will recognize the accreditation granted by the HKAS under the HOKLAS and by overseas accreditation bodies with which HKAS has concluded MRA. For the accreditation by other certification bodies, the Authority will consider on a case-by-case basis.

Energy Efficiency Certification Service

- 10.8 An increasing number of countries now accept, as proof of product conformance, energy efficiency certification services provided by the organisation that has been accredited as a certification body. In accordance with this trend, the Authority will also consider test results that have been evaluated and certified according to the respective IEC standards of the Scheme by reputable certification organisations.

11. Registration and Participation

Registration Procedures

- 11.1 All manufacturers, importers and the other parties involved in the washing machines distribution network are welcomed and encouraged to participate in the Scheme. The Authority will send invitation to those known manufacturers and importers. However, no matter whether invited or not, any interested parties may submit their applications for the registration.

- 11.2 The proforma letter of invitation is shown in Annex 2.

- 11.3 Applicant should submit formal application to

*Chief Engineer/Energy Efficiency A
Energy Efficiency Office
Electrical and Mechanical Services Department
3 Kai Shing Street,
Kowloon, Hong Kong*

by means of an application letter through mail, facsimile or electronic mail. In order to ensure effective implementation of the Scheme, the applicant must commit himself to fully comply with the duties, responsibilities and obligations set out in the Scheme. The proforma letter of application as shown in Annex 3 details the aforesaid obligations and should be used for application. To facilitate the application process, the application form can be downloaded from EMSD website.

Information/Documents to be Submitted for Registration

11.4 Each make and model of a washing machine participating in the Scheme should be provided with a test report issued by a recognized laboratory. The test report should contain energy consumption test and performance test results. The details of the technical information to be submitted together with the application are listed as follows:

- (a) Information on the company
Name, Address, Telephone number, Fax, E-mail, Contact person, Importer, Distributor, etc.
- (b) Products to apply for participating in the Scheme
Names of products, types, brand names, model references, countries of origin
- (c) The parties which will be responsible for making and fixing the Energy Labels
- (d) Commencement date to affix energy label on washing machine
Year _____, Month _____
- (e) Completion all the Information stated in the Energy Label for each product including the following:
Brand (English and Chinese)
Model
Country of Origin
Category of Washing Machine
Annual Energy Consumption
Energy Efficiency Grade
Washing Capacity
Water Consumption
- (f) Supporting Technical Information and Calculations
Test reports: Energy Consumption Test * and Performance Tests
(* For test reports which indicate the measured energy consumption is 10% more than the rate value, additional test reports for the same model may be required.)
Calculations: Specific Energy Consumption and Energy Efficiency Grading

- (g) Miscellaneous Technical Information:
Product information catalogue
Information of driving motor
Brand and model of the reference washing machine
Others
- (h) Certificate of Safety Compliance prescribed by the Electrical Products (Safety) Regulation.

The above list of information can also be found in Annex 4, Information to be submitted to Energy Efficiency Office.

- 11.5 Company's name and chop should be stamped on all the documents provided. All photocopy test reports submitted to the Authority shall be certified true copy by appropriate organization.

Acceptance of Registration

- 11.6 On receipt of the application, the Authority will process the application and verify whether the washing machine to be registered falls into the appropriate category of the washing machine, and the energy efficiency grade is correctly obtained based on the submitted data. The accuracy of the energy consumption data and the washing performance, their inconsistencies and non-compliance will be dealt with in accordance with clause 13.2.
- 11.7 If the application is accepted, the participants will be notified of the result in writing within 17 working days. The participants will then be allowed to affix the label onto the 'registered' washing machines. Both manufacturer and importer of the registered washing machine should ensure that the energy label is correctly printed and affixed on the washing machine in accordance with Section 9. The proforma letter of acceptance is shown in Annex 5.
- 11.8 If the application is rejected, the notification letter (proforma letter of rejection as shown in Annex 6) will also be given within 17 working days upon receipt of all necessary information requested.
- 11.9 The flow chart for registration is shown in Annex 7.

Participant's Duties, Responsibilities and Obligations

- 11.10 The participant is obliged to:
- (a) submit application and information including test results in accordance with format and procedures set out in clause 11.3 to clause 11.5;
 - (b) conduct tests via recognized laboratories and to comply with the specified test methodology and classification scheme;
 - (c) produce and affix labels at his own costs;
 - (d) fully inform other sales agents in his distribution network once the particular make and model of a washing machine is registered under the Scheme;
 - (e) allow random/ad-hoc inspection to be conducted by persons authorized by the Authority on registered washing machine at his premises;
 - (f) conduct re-test(s) at his own costs at some recognized laboratories, if non-compliance is found on his appliance. The result of re-test(s) shall reach the Authority within the prescribed period of time specified by the Authority, normally three months;
 - (g) inform the Authority of any change in the technical information and data that were previously submitted to the Authority together with the application letter;
 - (h) accept the fact that if washing machine fails to perform in accordance with the requirements as given in section 8 and this cannot be readily rectified, the Authority may order it be de-registered from the Scheme; and
 - (i) remove all labels from the de-registered washing machines immediately.
- 11.11 The details of the registered washing machine will be kept in a register list maintained by the Authority. The registration records will be regularly uploaded and maintained in the EMSD internet for public and interested parties for browsing and reference.

Termination

- 11.12 Under circumstances of poor performance such as:
- (a) (repeated) failure to fulfill the obligations set out under clause 11.10; or
 - (b) false, inaccurate or misleading information is given on the label; or

- (c) in any other case where the Director is of the opinion that registration of the particular washing machine is contrary to the public interest

the Authority may de-register that washing machine from the Scheme with immediate effect by giving the participant a notice in writing. Once the washing machine is de-registered, energy label is not allowed to fix on it. However, participant will normally be given a grace period of three months to remove all labels from the de-registered washing machines.

The concerned washing machine could be de-registered even when there is no legal action taken under either the Trade Descriptions Ordinance (Chapter 362) or the Copyright Ordinance (Chapter 528).

- 11.13 Participant who decides to discontinue participating in the Scheme or to withdraw any registered model from the registered washing machine list shall give at least three months' advance notice to the Authority.

12. Legal Provisions

- 12.1 The Scheme is a voluntary scheme. However, a participant who abuses the Scheme by giving false information on a label may contravene provisions of the Trade Descriptions Ordinance (Cap. 362).
- 12.2 No one could take advantage of the Scheme by using the label on his washing machines without authorization of the Authority as that shall constitute an infringement of copyright under the Copyright Ordinance (Cap. 528).

13. Compliance, Monitoring and Inspection

Purpose

- 13.1 To uphold the credibility of the Scheme and to continue maintaining the confidence of the consumers, compliance check on energy labels on those washing machines participating in the Scheme are needed. Also, to avoid the non-participating parties from taking advantage of the Scheme by using unauthorized labels, suitable form of inspection shall be conducted on those washing machines which have not been registered under the Scheme.

Scope

- 13.2 The scope of inspection includes sample checking and testing the following items:
- (a) whether the energy label is affixed on the registered washing machine;
 - (b) whether the energy label on the registered washing machine is affixed at a prominent position in accordance with clause 9.2;
 - (c) whether the energy label being displayed is of correct format in accordance with clause 9.2;
 - (d) whether the information on energy label accords with record;
 - (e) whether the registered washing machine complies with the energy consumption and performance requirements;
 - (f) whether the data submitted by the participants are correct by random re-testing; and
 - (g) whether unregistered washing machines display unauthorized energy label.
- 13.3 The participants will be requested to take immediate remedial action and report the follow-up action taken if non-compliance is found on their washing machines.
- 13.4 For a registered washing machine which is found with inaccurate energy performance data (i.e. discrepancy between the registration data record and the test result is more than 10%) on the label during random checking, the Authority may request the participant to conduct a separate energy consumption test at his own cost, in accordance with the test methodology as stated in section 6 in one of the testing laboratories agreed by the Authority. In case the energy grading of the refrigerating appliance is found 2 level or more lower than the declared energy grading, the test should be carried out further on at least three similar refrigerating appliances. The energy grading from the average of these three refrigerating appliances should be the same as the declared grading level. Otherwise, the Authority will require the participant to take appropriate remedial action including replacing a label with correct grading value for the registered washing machine.

Inspecting Officers

- 13.5 The Authority will authorize inspecting officers to carry out compliance monitoring and inspection on washing machines. The officers will carry proper identification cards which will be produced upon request during their inspection operations. However, the officers will not inform the participants in advance of their intended inspection operation.
- 13.6 It is the participants' obligation to allow the inspecting officers to gain access to their premises to carry out inspection.

Mode of Inspection

- 13.7 Inspections will be carried out on registered washing machines under the Scheme on random basis. Based on the record of the registration, random inspection programmes will be developed.
- 13.8 In addition to the random inspections, the inspecting officers will carry out ad-hoc inspections in response to complaints. The items to be inspected in such a case will depend upon the nature of complaint and may include all types of inspection as stated in clause 13.2.
- 13.9 Inspections will normally be carried out at the retail outlets and washing machine showrooms. Where necessary, inspection will also be done at warehouses.
- 13.10 The inspection results will be properly recorded for future analysis as well as on evaluation of the effectiveness of the Scheme.

Compliance

- 13.11 During the compliance monitoring testing carried out by the Director, a registered model of washing machine will be accepted as conformance if the test results of a single sample of the registered model meet the following criteria:
- (a) The tested energy consumption (kWh/cycle) being not greater than the rated energy consumption by more than 15%.
 - (b) The tested water consumption (litres/cycle) being not greater than the rated water consumption by more than 15%.

- (c) The tested washing performance and tested water extraction performance conforming with the minimum requirements in accordance with the respective test standards as shown in Table 3 for Grade 1 to 4.
- (d) The tested energy efficiency grade meeting either one of the following:
 - (i) The energy efficiency grade calculated in the compliance monitoring testing being equal to or better than the energy efficiency grade determined by the test results submitted to the Director by the participant; or
 - (ii) If the energy efficiency grade calculated in the compliance monitoring testing being not equal to nor better than the energy efficiency grade determined by the test results submitted to the Director, the tested specific energy consumption calculated in the compliance monitoring testing being not greater than 115% of the measured specific energy consumption calculated by the test results submitted to the Director, and in any cases not greater than the highest specific energy consumption allowed in the next lower energy efficiency grade.

13.12 The Director may remove from the registered record of washing machine, if he has reasonable grounds to believe that the washing machine does not conform to the specified information or a specified document, or their updates if any, submitted to the Director. The participant may provide explanation on the failure of a product to pass the compliance monitoring testing stipulated in clause 13.11 above and apply for further testing of the concerned model for the Director's consideration.

13.13 If further testing is approved to be carried out, three samples of the same model shall be tested at the participant's own costs. A registered model of washing machine will be accepted as conformance if the results of further testing meet the following criteria:

- (a) The tested energy consumption (kWh/cycle) of each sample being not greater than the rated energy consumption by more than 15%.
- (b) The tested water consumption (litres/cycle) of each sample being not greater than the rated water consumption by more than 15%.
- (c) The tested washing performance and tested water extraction performance of each sample conforming with the minimum requirements in accordance with the respective test standards as shown in Table 3 for Grade 1 to 4.

- (d) The tested energy efficiency grade meeting either one of the following:
- (i) The energy efficiency grade of each sample calculated in the further testing being equal to or better than the energy efficiency grade determined by the test results submitted to the Director by the participant; or
 - (ii) If the energy efficiency grade of any sample calculated in the further testing being not equal to nor better than the energy efficiency grade determined by the test results submitted to the Director, the tested specified energy consumption of that sample calculated in the further testing being not greater than 115% of the measured specific energy consumption calculated by the test results submitted to the Director, and in any cases not greater than the highest specific energy consumption allowed in the next lower energy efficiency grade.

(Remark: The participant can choose to accept the results of further testing undertaken on fewer than three samples if the results of each sample subsequently tested also do not meet the acceptance criteria as stated above.)

14. Complaints and Appeal

- 14.1 The Authority will be responsible for dealing with the complaints from participants and other parties against matters related to the Scheme.

Complaints Handling Procedure

- 14.2 The Director shall ensure that complaints are properly recorded and handled without undue delay.
- 14.3 The Authority shall carry out preliminary investigation on complaints and reply to the complainants within a reasonable time. For complaints that require site inspection and laboratory test, the complainant shall be notified through an interim reply.
- 14.4 The Authority shall inform the complainant of the results or decisions made on the complaint.

Appeal Procedure

- 14.5 A participant who feels aggrieved by the decision or action given by the Authority according to section 13 may appeal to the Director in writing stating the reason for the appeal.
- 14.6 The Director may decide to suspend the decision or action given by the Authority from the day on which the appeal is made until such appeal is disposed of, withdrawn or abandoned unless such suspension would, in the opinion of the Director, be contrary to public interest.
- 14.7 The Director may by notice to the appellant require that appellant to attend meeting with him or his representatives, provide documents and evidence relevant to the appeal.
- 14.8 The Director shall notify the appellant of his decision and the reasons for it. The decision will be final and binding.

15. Maintenance of Scheme

- 15.1 To ensure that the Scheme can continue to operate effectively and efficiently after its introduction, a proper system of maintenance is needed.
- 15.2 The maintenance system consists essentially of:
- (a) Continuous updating of the following relevant information of the participants in the Scheme –
 - i) Details of the registered washing machines such as registration number in the scheme, date of registration or de-registration if it occurs, energy consumption data, energy efficiency data, performance data, make, model and other related information; and
 - ii) Details of the registered importers, manufacturers, local agents etc. in the distribution network such as address, date of registration or de-registration if it occurs, etc.
 - (b) Periodic review of the test methodology, and procedures for application of registration and compliance monitoring, etc., to bring them in line with the latest needs of the manufacturers, importers and retailers, etc.

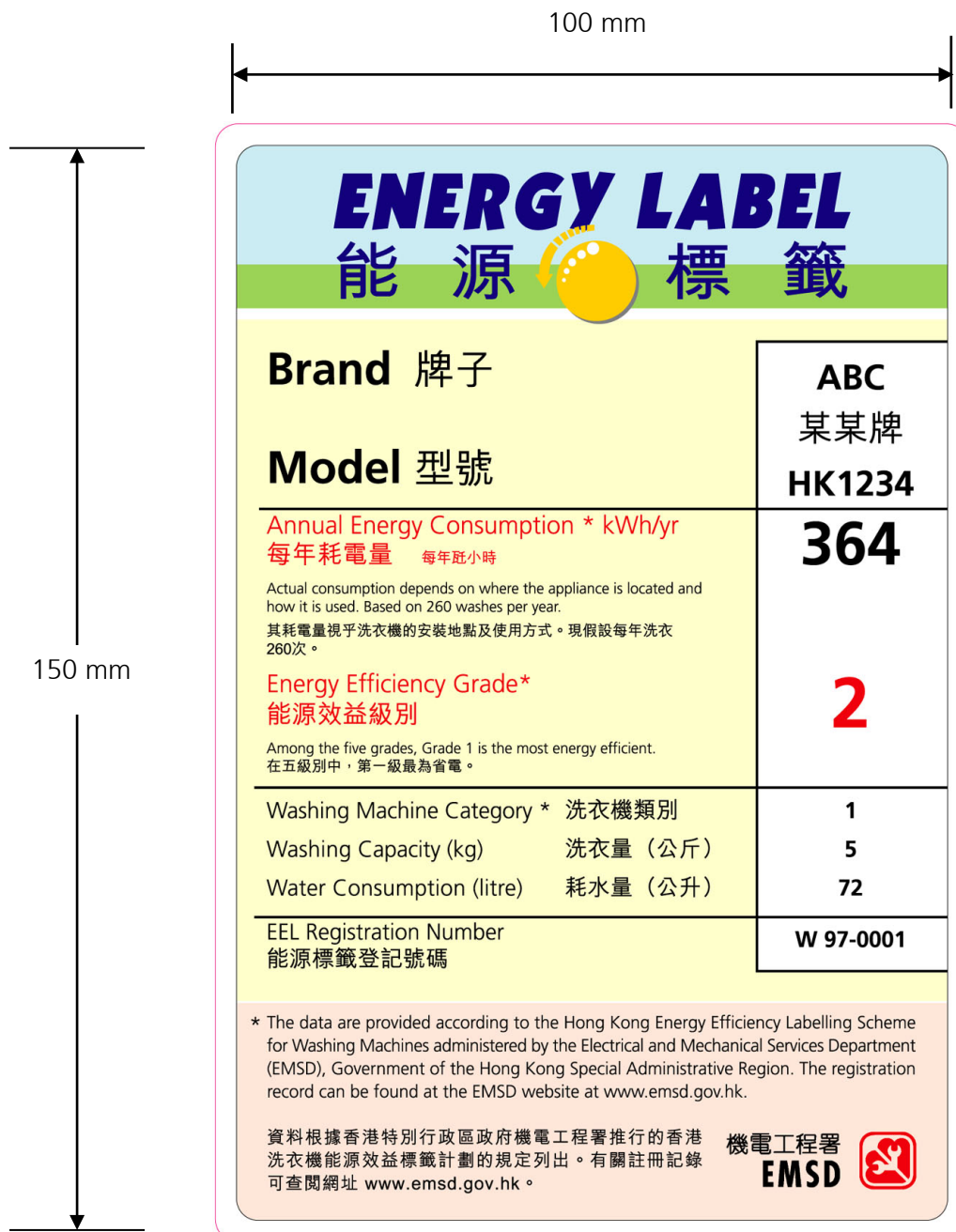
- (c) Continuous evaluation of the effectiveness of the Scheme and assessment of what changes are necessary.

16. Future Development

- 16.1 It is hoped that following the implementation of the Scheme, the market will phase out models of low efficiency appliances and public awareness of using energy efficient products will be much improved.
- 16.2 To further facilitate the public in choosing energy efficient appliances and raise public awareness on energy saving, the Government has introduced a mandatory Energy Efficiency Labelling Scheme (EELS) through the Energy Efficiency (Labelling of Products) Ordinance.
- 16.3 Under the mandatory EELS, energy labels are required to be shown on prescribed products for supply in Hong Kong to inform consumers of their energy efficiency performance. Eight types of prescribed products covered in the mandatory EELS are room air conditioners, refrigerating appliances, compact fluorescent lamps, washing machines, dehumidifiers, televisions, storage type of electric water heaters and induction cookers.

The Hong Kong Voluntary Energy Efficiency Labelling Scheme for Washing Machines

Energy Label Format



Not to Scale

The figure of the energy label is shown not to scale.

Soft copy of this label can be obtained from Energy Efficiency Office, Electrical and Mechanical Services Department.

Proforma Letter of Invitation

Our ref. EEO/LB/03

Your ref.

Tel.

Fax.

Date

[Name and Address of
Manufacturers/Importers/Agents]

Dear Sir/Madam,

Invitation of Application for Registration to Participate in Voluntary Energy Efficiency Labelling Scheme for Washing Machines

Having gone through the necessary consultations and duly considered the views from various concerned parties, the government has decided to introduce a voluntary energy efficiency labelling scheme for washing machines to Hong Kong with effect from (_____). The details of the scheme^① have been finalized and I enclose herewith a guide of the scheme for your reference.

Being one of the major washing machine manufacturers / importers / agents^② in Hong Kong, you are invited to participate in the scheme so as to take part in promoting public awareness in energy conservation and environmental improvement to Hong Kong. If you are interested to participate in the scheme, please apply in accordance with the proforma letter of application (Annex 3) and submit details including technical information in accordance with the attached Annex 4 to the 'Chief Engineer / Energy Efficiency A' at the following address.

Energy Efficiency Office
Electrical and Mechanical Services Department
3 Kai Shing Street, Kowloon
Hong Kong

Please be reminded to submit accurate test data to support your application. Under this Scheme, routine compliance monitoring and checking will be performed and if a registered washing machine is found to be non-compliant, we may consider deregistering the washing machine from the Scheme.

Should you need further clarification or information, you are most welcome to contact the undersigned or Mr. _____, at the telephone number _____.

Yours faithfully,

for Director of Electrical & Mechanical Services

(Note : ^① 'scheme' means 'The Voluntary Energy Efficiency Labelling Scheme for Washing Machines'

^② delete as appropriate)

Proforma Letter of Application

Your ref. EEO/LB/03

Our ref.

Tel.

Date

Chief Engineer/Energy Efficiency A
Electrical & Mechanical Services Department
3 Kai Shing Street, Kowloon
Hong Kong

Dear Sir/Madam,

Application for Registration to Participate in Voluntary Energy Efficiency Labelling Scheme for Washing Machines

Our company is the (manufacturer/importer/agent*) of _____ in Hong Kong. We support the introduction of the labelling scheme to Hong Kong and would like to be one of the participants in the scheme to promote energy efficiency.

I understand fully the obligations and duties stated in the scheme and will comply with all relevant requirements, in particular those specified below:

- i) conduct tests via recognized laboratories and to comply with the specified test standards;
- ii) produce and affix specified labels at my own costs;
- iii) allow random/ad-hoc inspection to be conducted by persons authorized by the issuing Authority on registered appliance at my premises;
- iv) conduct re-test(s) at my own costs at some recognized laboratories, if the results of inspection suggest inaccurate energy label information being displayed. The result of re-test(s) shall reach the Authority within the prescribed period of time specified by the Authority;
- v) inform the Authority of any change in the technical information and data that were previously submitted to the Authority together with the application letter; and
- vi) accept the fact that if appliance fails to perform in accordance with the required energy efficiency standards and performance as given in Section 6 and this cannot be readily rectified, the Authority may order it be de-registered from the scheme.

The details of information of those washing machines which we intend to register with the Authority are shown in the attached document, (Annex 4) and are submitted herewith for your vetting.

Yours faithfully,

(Manufacturer/Importer/Agent's Name and Company Chop)

* *delete as appropriate*

Information to be Submitted to Energy Efficiency Office

1. Information on the company:
Name, Address, Telephone number, Fax number, E-mail address, Contact person, Importer, Distributor, etc.
2. Product to apply for participating in the scheme:
Name of products, types, make, model references, countries of origin
3. Parties which will be responsible for making and fixing the Energy Label
4. Commencement date to affix Energy Labels on appliance
Year _____, Month _____
5. Completion of the Information stated in the Energy Label for each product including the following:
 - Brand (English & Chinese)
 - Model
 - Countries of origin
 - Appliance category
 - Annual energy consumption
 - Energy efficiency grading
 - Washing capacity
 - Water consumption
6. Supporting Technical Information and Calculations:
 - Test reports: Energy Consumption Test *
 - Performance Tests

(* For test reports which indicate the measured energy consumption is 15% more than the rate value, additional test reports for the same model may be required.)

 - Calculations: Specific energy consumption
 - Washing capacity, if by calculation
 - Specific Energy consumption
 - Energy efficiency grading

7. Miscellaneous Technical Information:
 - Product information catalogue
 - Information of driving motor
 - Brand and model of the reference washing machine
 - Others

8. Certificate of Safety Compliance prescribed by the Electrical Products (Safety) Regulation of HKSAR for the concerned washing machines in the application.

*Note: Company's name and chop should be stamped on the all documents provided.
All test reports submitted to the office should be certified true copy by appropriate organization.*

Proforma Letter of Acceptance

Your ref.

Our ref. EEO/LB/03

Tel:

Fax:

Date

[
Manufacturers/Importers/Agents

]

Dear Sir/Madam,

Acceptance of Application for Registration to Participate in Voluntary Energy Efficiency Labelling Scheme for Washing Machines

With reference to your letter of ref. _____ dated _____, I am pleased to inform you that your application to participate in the captioned scheme has been accepted.

I enclose herewith the registration certificates of washing machines registered. The registered washing machines are as follows:

<u>Brand/Make/Model</u>	<u>Registration No.</u>	<u>Effective date</u>
(_____)	(_____)	(_____)

You are allowed to affix a specified energy label onto each and every appliance registered under the scheme. The contents of the energy label should be based on the information that you have provided in your application ref. _____ and dated _____.

Should you have any queries regarding the scheme, please contact this office.

Yours faithfully,

for Director of Electrical & Mechanical Services

Proforma Letter of Rejection

Your ref.

Our ref. EEO/LB/03

Tel.

Fax.

Date

[
Manufacturers/Importers/Agents

]

Dear Sir/Madam,

Rejection of Application for Registration to Participate in Voluntary Energy Efficiency Labelling Scheme for Washing Machines

With reference to your letter of application ref. _____ dated _____, I regret to inform you that your application for registration to participate in the scheme has not been accepted for the following reasons:-

1. _____ etc.

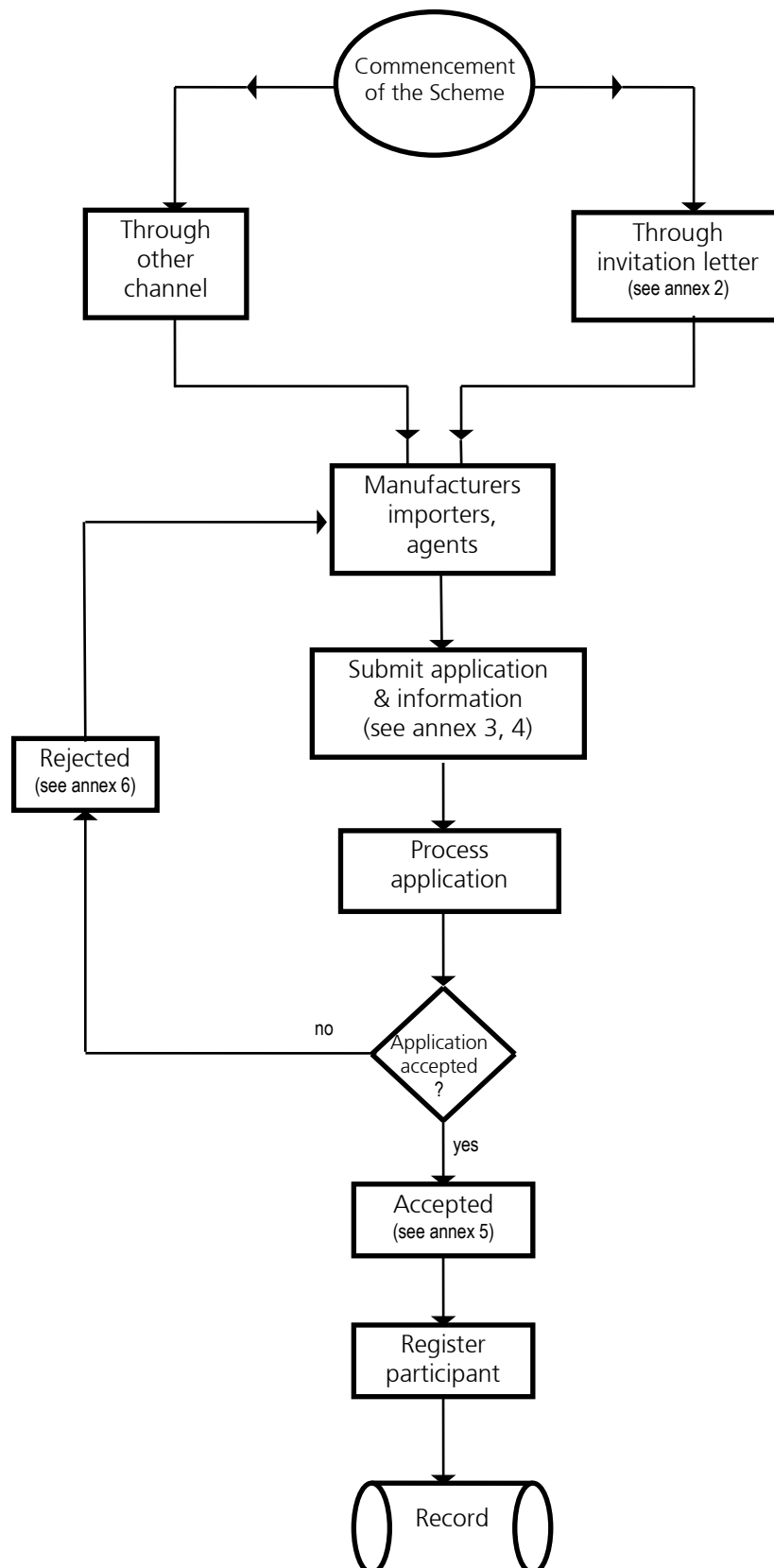
You are most welcome to submit new application again in future, when you have the necessary documents / information to support your application.

Yours faithfully,

for Director of Electrical & Mechanical Services

The Hong Kong Voluntary Energy Efficiency Labelling Scheme for Washing Machines

Flow Chart Registration



Example of Calculating the Energy Efficiency Grade for Washing Machine

The given washing machine is of Category 1 (i.e. horizontal axis washing machine) with built-in water heating device.

Rated washing capacity (W_r)	5 kg
Measured energy consumption (E)	0.6 kWh/cycle
Measured water consumption	72 litres
Measured washing performance (q)	1.1
Measured spin extraction performance (RM)	0.8
Annual energy consumption = $E \times 260$	156 kWh
Specific energy consumption (E_{sp}) = E / W_r	0.12 kWh/kg/cycle

Also the washing performance and spin extraction performance meet the requirements in Table 3 in clause 8.1 of the Scheme.

$$E_{sp} \leq 0.130$$

According to Table 2 in clause 7 of the Scheme, the washing machine is rated as a Grade 1 washing machine.