هيئة الإمارات للمواصفات و المقاييس
**EMIRATES AUTHORITY FOR STANDARDIZATION AND METROLOGY**
**(ESMA)**

المواصفة القياسية الإماراتية

# UAE.S/ DS/ 5010-6:2018

# بطاقة البيان ـ بطاقة بيان كفاءة الطاقة للأجهزة الكهربائية
# الجزء 6: غسالات الصحون

# LABELING – ENERGY EFFICIENCY LABEL FOR ELECTRICAL APPLIANCES

# PART 6: Dishwasher

دولة الإمارات العربية المتحدة
**UNITED ARAB EMIRATES**



**ICS: 31.240**

**المواصفات القياسية لدولة الإمارات العربية المتحدة**
**Standards of United Arab Emirates**

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| **تاريخ إعتماد مجلس الوزراء** | **-2018 -** |
| **صفة الإصدار** | Technical Regulation |

# FOREWORD

The Emirates Authority for Standardization and Metrology (ESMA) has a national responsibility for standardization activities. One of ESMA's main functions is to issue Emirates Standards/Technical Regulation through specialized Technical Committees.

ESMA through the "Technical Committee for Energy Efficiency and Labeling" has updated the UAE Standard No. UAE.S 5010-6:2015 Labeling – Energy Efficiency for Electrical Appliances Part 6: Dishwasher.

This Technical Regulation has been approved by Decree of UAE Cabinet No. ###:2018, held on ##/##/1439H, ##/##/2018.
The approved Standard will replace and supersede the UAE.S 5010-6:2015.

**INTRODUCTION**

With the UAE's commitment to consumer safety, energy conservation and environment protection, this regulation is developed to ensure that dishwasher are registered and monitored for their continuous compliance to the set specifications on:

- Energy Consumption;
- Water Consumption;

The requirements set are based on accepted international specifications. These are aligned with other countries in order for the manufacturer to easily comply with the star rating of dishwasher.

# 1 Scope

This regulation deals with methods for measuring the energy and water consumption for dishwasher household use. This standard also applies to those sold for built-in household dishwashers.
This document covers the requirements related to:

- Energy Consumption;
- Water Consumption;

Dishwasher intended for commercial purposes are not included.

# 2 Terms and Definitions

For the purpose of this document, the following terms and definitions apply:

## 2.1 General

2.1.1. **ESMA** – Emirates Authority for Standardization & Metrology, the national authority mandated to implement this regulation.

2.1.2. **Dishwasher** - machine which cleans, rinses, and dries dishware, glassware, cutlery, and, in some cases, cooking utensils by chemical, mechanical, thermal, and electric means. A dishwasher may ormay not have a specific drying operation at the end of the program

2.1.3. **Rated dishwasher capacity** - whole number of place settings together with the serving pieces stated by the manufacturer, which can be cleaned and dried when loaded in accordance with the manufacturer's instructions

2.1.4. **Cycle** - complete washing, rinsing, and drying process, as defined by the programme selected, consisting of a series of operations

2.1.5. **Cycle time** - cycle time is measured from the initiation of the programme (excluding any user programmed delay) until all activity ceases (i.e. the end of the cycle)

2.1.6. **Place settings -** defined set of crockery, glass and cutlery for use by one person

For other terms and definitions, details mentioned in specific UAE standards per product scope shall apply.

# 3 Product Requirements

## 3.1 Electrical Safety

This section of this Technical Regulation gives reference to the requirements set by the Emirates Conformity Assessment Scheme (ECAS) for Low Voltage Equipment (LVE).

Products covered by this Technical Regulation shall comply with the requirements set by the referenced Scheme for Low Voltage Equipment (LVE).

## 3.2 Performance: Energy Efficiency

1.2.1. Dishwasher shall comply with the requirements mentioned in this regulation.

## 3.3 UAE National Deviations

1.3.1. Voltage and Frequency Rating

Table (1)

| VOLTAGE RATING | FREQUENCY RATING |
|---|---|
| 230V | 50Hz |

1.3.2. Plug Requirements

Products covered by this regulation, if supplied with an electrical plug, shall be supplied with an electrical plug of BS 1363 type design that complies with the UAE.S IEC 60881-1 standard.

1.3.3. Instruction Manual and Markings

Instruction manuals and cautionary and/or safety warnings shall be in Arabic and English language.

# 4 Test Conditions and Standards

## 4.1 Test Conditions

In carrying out the tests as specified above, the unit shall be tested at a voltage of 230V±2% and a frequency of 50Hz±1%.

Moreover, the following test conditions shall be followed. And the cold water temperature should be 25±2˚C

### 4.2 Test Methodology and Standards

The tests specified in this regulation are required to be carried out, in accordance with UAE.S IEC 60436 to find out the energy efficiency and performance characteristics of a dishwasher with hard water.

## 5 Measurements

### 5.1 Measurement of Energy Consumption

- The Energy Efficiency Index (*EEI*) of a household dishwasher shall be calculated in accordance with :

$$EEI = ( Et / Ps ) * 1000$$

where:

Et = energy consumption for the standard cycle, in kWh and rounded to three decimal places

ps = number of place settings

The energy efficiency class of a household dishwasher shall be determined on the basis of its Energy Efficiency Index (*EEI*) as set out in Table 1.

The annual energy consumption ($AE_c$) of a household dishwasher is calculated, in (KWh) and rounded up to the nearest integer, as:

$$AE_C = Et \times 280$$

where:

*Et* = energy consumption for the standard cycle, in kWh and rounded to three decimal places;

280 = total number of standard cleaning cycles per year.

### 5-2 Calculation of the annual water Consumption

The annual water consumption (AWC) of a household dishwasher is calculated, in liters and rounded up to the nearest integer, as:

$$AWC = Wt \times 280$$

where:

Wt = water consumption for the standard cleaning cycle, in liters and rounded to one decimal place.

Identifies Table (1) the efficiency of water consumption levels in dishwashers, depending on the annual water consumption of the dishwasher.

**Table 1: Energy and water efficiency classes**

| Energy efficiency class | Energy Efficiency Index | Water Efficiency Index (liter ) |
|---|---|---|
| 5 stars (most efficient) | *EEI* < 55 | AWc < 2660 |
| 4 stars | 55 ≤ *EEI* < 65 | 2660 ≤ AWc < 2940 |
| 3 stars | 65 ≤ *EEI* < 75 | 2940 ≤ AWc < 3220 |
| 2 stars | 75 ≤ *EEI* < 85 | 3220 ≤ AWc < 3500 |
| 1 stars(least efficient) | 85 ≤ *EEI* < 95 | 3500 ≤ AWc < 3920 |

## 6- Energy labeling requirements

### 6.1 Label Location

The labels should be self-adhesive to the appliance at a prominent location. The client should ensure that the energy and water labels appears on every registered appliance on display or sale and should be easily visible.

### 6.2 Color Scheme and Dimensions

The energy and water labels should be printed on white-colored self-adhesive sheet material and should have color schemes and dimensions according ESMA requirements (see annex 1). It should be printed in English and in Arabic.

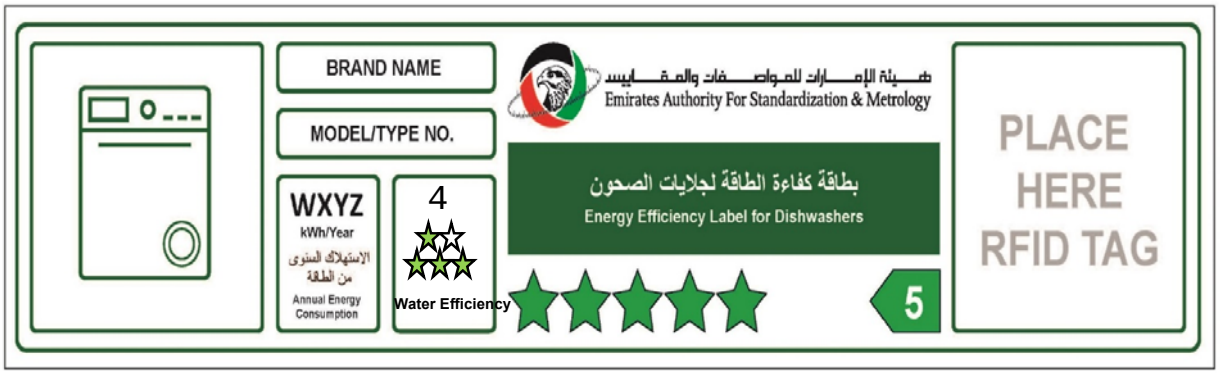
### 6.3 Following information shall be included in the label

- Supplier's trade mark;
- Supplier's model identifier
- The energy efficiency class
- The Water efficiency class
- Annual Energy Consumption in kWh per year, rounded up to the nearest integer
- Annual Water Consumption in liters per year , rounded up to the nearest integer
- rated capacity in standard place settings, for the standard cleaning cycle;,

## 7 Surveillance and market monitoring

A test report on one sample of the model shall be submitted. However, if the test results of one sample indicate that any of the measured ( energy consumption, water consumption ) is greater than the rated value by more than 6 %, Two more tests is required. In such case, for each individual test the values shall not be greater than the rated values by more than 6 %. Also, the information on the energy label shall be based on the higher values (lower efficiency)

## Annex – Energy and water Efficiency Label Design and Dimensions




**The efficiency label for energy and water consumption of dishwashers**