

**WORKING DOCUMENT**  
**ON A POSSIBLE COMMISSION DIRECTIVE**  
**IMPLEMENTING COUNCIL DIRECTIVE 92/75/EC WITH REGARD TO**  
**HOUSEHOLD DISHWASHERS**

**Explanatory Notes**

**Rationale of the draft directive**

**Scope**

The purpose of the directive is to set a revised labelling scheme on the energy efficiency and other aspects of electric mains operated household dishwashers with the aim to reduce their related consumption (as required in Directive 95/75/EEC). The directive applies also when appliances are sold for non-household uses.

In order to cope with the very different amount of dishware, glassware, cutlery, and cooking utensils that machines can treat in a washing cycle this directive, which is based on the preparatory study on domestic dishwashers developed in the framework of the ecodesign directive 2005/32/EC, uses a common functional unit represented by the 'place setting', that is a defined set of crockery, glass and cutlery for use by one person.

**Relation with product specific and "horizontal" ecodesign IMs**

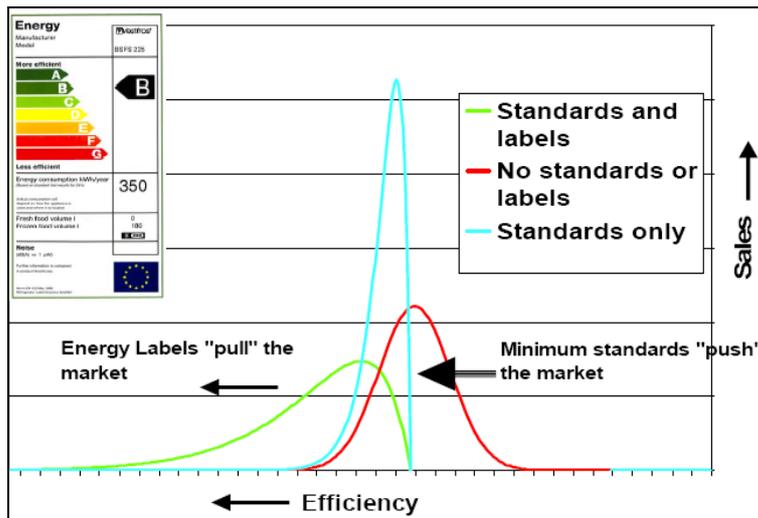
This product specific directive has relation with the horizontal standby power consumption Regulation, since it deals with two low power modes, namely 'off mode' and 'left on mode'. It is a common understanding, supported by the results of the preparatory study, that in dishwashers the off mode supports active sensor based protection function(s) to protect the user for example from accidental water leakage. The active presence of such function(s) is promoted in this directive to insure the highest level of consumer protection. The 'left on mode' is more typical of wash appliances and indicates the status when the programme has terminated and the machine has been unloaded but not switched off by a user intervention or automatically; again sensor based protection function(s) are in general active.

This directive shares the same algorithm developed for the ecodesign Regulation on dishwashers, which considers the overall annual energy consumption including the energy consumption of the two most important low power modes (the "off mode" and "left on mode"). If no protection function(s) does exist, then the standby Regulation applies and the two modes are contemporarily subject to the specific requirements of the standby Regulation and considered in the overall annual energy consumption of dishwashers under this directive.

The measurement method referred into the standby Regulation is the basis for the evaluation of the duration and the power consumption of the two modes.

## Relation with other energy efficiency policy measures

An effective coordination is necessary between this directive and the ecodesign implementing measure (under framework directive 2005/32/EC) for dishwashers. It is intended that the two policies will share not only the basic definitions but also the algorithms for the calculation of the Energy Efficiency Index. In addition, the coordination of the dynamic steps and time horizon of the two policy measures for this product will insure a synergic effect of the pushing effect of the eco-design specific requirements and the pulling effect of the new labelling energy efficiency scale, according to the qualitative but well experienced relation<sup>1</sup>:



## Labelling requirements

Appliance classification: dishwashers are classified into two main categories depending on the number of place settings,  $\geq 10$  or  $\leq 9$  respectively, which correspond to the so called 'standard machines' and the smaller 'compacts machines'. This classification is necessary because the compacts machines, due to their reduced dimensions, have technological constraints that reduce or make more difficult their technological development but, depending on the application and the available space, the two machine types are needed by consumers.

Energy efficiency classes specifications: the Energy Efficiency Index is used to specify an energy efficiency ranking divided into 10 levels going from 1 (less efficient) to 10 (more efficient). Contemporarily, energy efficiency classes from G to A are also defined for continuity with the current labelling scheme and to inform consumer about the energy efficiency range of existing products during the specific validity period of the label. The period of the validity of the label is the interval between the year of beginning and of expiring of each step, in the form '20XX-20XX'.

Label specifications: in addition to the energy efficiency ranking and energy efficiency class, information about annual energy and water consumption (on the basis of 280

<sup>1</sup> IEA, P. Waide, International use of policy instruments: country comparisons, Copenhagen, 05 April 2006.

washing cycles), drying efficiency, noise and possible presence of the eco-label are given.

Fiche specifications: are set in terms of information to be included in addition to those already present in the label: programme time, indications about the standard programme to which the information in the label and the fiche relate, and the built-in construction.

Other communication: information to be delivered where appliances are offered for sales by means which imply that the potential customer cannot be expected to see them displayed.

### **Energy labelling timing and revision**

The label is set in two stages: Step 1, to be implemented one year after the entry into force of the directive, Step 2 to be implemented six years after the entry into force of the directive. It is recommended that the two Steps correspond as much as possible with the two phase phase-out of less efficient dishwashers via the parallel ecodesign Regulation.

The one year transition period after entry into force encompassed in the first Step should allow industry to prepare the declarations, the labels and the communications for all the appliances.

#### Revision

It is planned to examine the necessity to revise the measure, including the provisions for a further Stage if needed, at the latest 7 years after adoption, that is after the second Stage of specific requirements will be implemented.

### **Rationale for the mandatory labelling**

The aim is to improve the environmental impact of dishwashers through a two step EU energy labelling scheme, which works in parallel to an Eco-design Regulation, based on the **energy efficiency index** related to the overall annual energy consumption including the most important low power modes, and the declaration of other parameters.

The LCA performed for the ecodesign preparatory study demonstrated that the use phase is responsible for most of the environmental impact of this product due to energy and water consumption. The **water consumption** is addressed through the declaration of the annual consumption and not by setting a ranking since the effect of the parallel ecodesign specific requirements would phase out also the most water consuming models, leaving no sufficient space for the definition of water consumption (efficiency) classes for the medium term. In addition, in today's dishwashers the water consumption is strictly related to the energy consumption since water is heated in the warm washing phases (washing and hot rinsing before drying), by improving the machine energy efficiency also the water efficiency will improve.

The proposed labelling adopts a unique energy efficiency scale for the two major dishwasher categories, in order to catch the maximum improvement potential and substantial energy savings in the EU. Two different standard annual energy consumption references are nevertheless used in the calculation of the EEI for the  $\geq 10$  place settings and the  $\leq 9$  place settings machines. The alternative to adopt also a

unique reference line for all the capacities would have resulted in setting out the lowest common denominator, because of the technological constraints of the smaller compact machines.

### **Verification procedure for market surveillance purposes**

European standard EN 50242/60346 describes a two-stage verification procedure which is used for the EU labelling scheme. This staged procedure is acceptable for the verification of this IM, but the values of the measurement uncertainty include the production variability, which is today considered as part of the overall equipment quality and therefore under manufacturers' responsibility, while the variability of the measurement method and in the testing shall remain under the responsibility of standardisation bodies and test laboratories.

The verification procedure for this directive foresees a set of lower uncertainty values than in the EN standard. For the moment a 10% measurement uncertainty has been established for the energy consumption for a single product while requiring that the average of the product sample under test (three more units) has to meet the limit EEI value with the same 10% uncertainty. The uncertainty values of the other parameters are set following the same principle of reduction of the measurement uncertainty. Only for the drying efficiency index a higher measurement uncertainty (19%) than in the current EN standard was defined on the basis of the latest available round robin test results.

This procedure will remain valid until a suitable harmonised standard is prepared by the relevant ESOs under a specific mandate issued by the Commission after the consultation with Member States and stakeholders.

### **Detailed explanation of the directive**

Chapter 1: the scope of the directive is described, to cover electric mains operated household dishwashers also when they are sold for non-household use. The scope is then refined through some exemptions which exclude appliances operated by batteries and other energy sources.

Chapter 2: definitions are provided for the terms used in the requirements set out in the Annexes. Some definitions have been set to complement those in EN 50242/60346, the reference standard for dishwashers in Europe, since for example low power modes are at present not addressed neither in the EN standard nor in IEC 60346 (the worldwide dishwasher standard) although under discussion for inclusion in a new revision.

Chapter 3: sets the elements to be included in the necessary technical documentation referred to in Article 2 (3) of the framework Directive 92/75/EEC .

Chapter 4: the layout and content of the label is set with a reference to Annex II, which contain the actual layout (**Part 1**) and contents (**Part 2**). The printing details are described in **Part 3**.

Chapter 5: the content of the fiche referred to in the third indent of Article 2 (1) of Directive 92/75/EEC is set with a reference to Annex III, which contain the actual layout and requirements.

Chapter 6: sets the other communication to be provided when the potential customer cannot be expected to see the appliance displayed but it is nevertheless offered for sale, hire or hire purchase by any paper or electronic mean, with a reference to Annex IV, which contain the actual layout and requirements.

Chapter 7: sets the transitory period between the directive adoption and the application of the first Step of the label in the EU, along with the further transition period when the second Step is implemented: for three months Member States shall allow the circulation of appliances bearing the previous label.

Chapter 8: a verification procedure for market surveillance purposes already exists for dishwashers set out in harmonised standard EN 50242/60346, providing compliance with measurements under the dishwasher energy label directives 97/17/EC and 1999/9/EC. Through the provisions in this Chapter and in Annex V the verification procedure covers the dishwashers under the scope of this directive and is also made more rigorous by placing under the manufacturers' responsibility the manufacturing process variability.

Chapter 9: the repeal of Directives 97/17/EC and 1999/9/EC is necessary because the current labelling scheme is replaced by this new layout and requirements.

Chapter 10: the revision of the directives foreseen no later than 7 years after its entry into force, which corresponds to the implementing of the second step of the labelling, and possibly to the second step of the specific requirements of the parallel ecodesign Regulation. This revision will review the technological progress and the feasibility of a further step in the labelling of dishwashers.

Chapter 11: the provisions for the adoption by the Member States are set in 12 months after the entry into force of the directive.

Chapters 12 and 13: deals with the entry into force and the addressee of the directive.

Annex I: sets out the energy efficiency ranking and the energy efficiency class. The energy efficiency rating is independent from the machine rated capacity and is based on the Energy Efficiency Index, calculated as described in Annex VI. The energy efficiency ranking goes from 1 (less efficient) to 10 (more efficient). Each level corresponds to an equal effort of about 10-11% efficiency improvement.

The energy efficiency ranking is complemented (Table 1) by energy efficiency classes from G to A, deriving from the current labelling scheme, which describe the appliance energy efficiency range existing during the specific validity period of the label. The period of the validity of the label is the interval between the year of beginning and of expiring of each step in the form '20XX-20XX'.

Also the drying efficiency ranking of dishwashers is set. The latest results of a round robin test developed by CENELEC reported a higher-than-expected uncertainty in the drying performance measurement. As consequence, a two-class difference in rating between the declaration under the current labelling scheme and the verification might

occur, which undermines the credibility of the labelling exercise. The drying efficiency rating has been therefore modified to take into account this higher uncertainty and a new scale is proposed in the Annex (Table 2).

Annex II: sets the layouts of the label and the elements to be included in it along with the printing and design elements.

In **Part 1** the Label layout and timing are set. A two-step implementation of the labelling is foreseen, the first Step year after the enforcement of the directive, the second Step five years later (i.e. six years after the enforcement of the directive). A part from the energy efficiency ranking and energy efficiency class, other elements in the layout are the annual energy consumption, calculated for 280 cycles plus the contribution of the most important low power modes, the annual water consumption, calculated for the same 280 cycles, the drying efficiency ranking from 1 (low) to 7 (high) and the noise in dB(A) re 1pW.

**Part 2** of the Annex includes the explanatory notes to the different elements of the label. In **Part 3** the design characteristics of the layout are described for the printing.

Annex III: sets the elements to be included in the fiche. In addition to the elements already presented in the label: programme time, indication of a common name and specific information for the standard programme to which the information in the label and the fiche relate, and the built-in construction.

Annex IV: sets the other communications (essential information) mandatory when the appliance is advertised and offered for sale, hire or hire purchase to potential customers which are not expected to see the it displayed. Any printed or written communication, mail order catalogues and other printed communications, advertisements on the Internet or on other electronic media is included.

Annex V: contains provisions on the verification procedure to be applied by the Member States' authorities when performing market surveillance checks referred to in Directive 2005/32/EC, Article 3 (2), and until a suitable harmonised standard is published for the purpose of this Annex.

Annex VI: contains the method for calculating the Energy Efficiency Index (EEI) of dishwashers.

**Part 1** contains the method for calculating the Energy Efficiency Index (EEI). The EEI of dishwashers is the ratio between its estimated annual energy consumption and the standard annual energy consumption of a machine with the same number of place settings, expressed as percentage, and rounded to one decimal place.

The estimated annual energy consumption of a dishwasher is given by the sum of the energy consumption for the standard cycle plus the energy consumption of the two most important low power modes, the 'off mode' and the 'left on mode'. To calculate this overall consumption the knowledge of the use pattern of the dishwashers is a prerequisite. The preparatory study found that on average a dishwasher is used for 280 times in a year. Once the duration (in minutes) of the standard washing cycle is known, through a test using the EU harmonised standard, the overall amount of time in a year spent for washing can be calculated. The remaining time is divided in two and each half

is then allocated to each low power mode; this time multiplied by the power of each mode gives the energy consumption in the two modes. The attribution of an equal amount of time to each of the two considered low power modes has been successfully used in other policy measures at international level.

In case a power management operates in the dishwasher, automatically reverting the left on mode to off mode, also the time the machine remains in left on mode shall be measured and the formula to be applied for the calculation of the overall annual consumption is slightly different.

This approach will assure that when sensor based protection functions are active in the low power modes their energy consumption is kept to the real minimum. When they are not present the low power modes are subject to the standby Regulation requirements.

The Standard Annual Energy Consumption of dishwashers is a linear function of the place setting number. Two reference lines are used, for the machines with  $ps \geq 10$  and  $ps \leq 9$ , derived by the linear functions already used in the current energy labelling. The intercept and the angular coefficient have been adapted since the current labelling scheme is based on a per cycle energy consumption and not on an overall annual energy consumption.

**Part 2** contains the method for calculating the annual water consumption considering 280 cycles per year. Finally **Part 3** specifies that the programme used for the purposes of this directive shall be the same programme used for the parallel ecodesign implementing measure under framework directive 2005/32/EC.

#### Other elements in the proposed directive

Rounding is indicated for all calculation steps: the cycle energy consumption ( $E_t$ ) is rounded to the three decimal places, the annual energy consumption and the standard annual energy consumption are rounded to two decimal places, the EEI value is rounded to one decimal place.

**Noise** is addressed in this directive in terms of its declaration. The preparatory study demonstrated that there is a strong correlation between noise reduction (through a better machine insulation) and a significant increase of the energy consumption. Therefore the definition of a noise ranking could have a negative impact on more energy efficiency machines. The today dishwasher on the market have a noise at about 45-50 dB(A), but values can do down to about 41 dB(A) or up to about 55 dB(A).

#### Estimated energy savings

The combined effect of the ecodesign implementing measure and of the new energy labelling scheme have been estimated in the preparatory study for the EU25 countries, compared to a reference BaU scenario foreseeing 100% of the models on market having an energy efficiency equivalent to the current A in 2015. For dishwashers the achievable savings are in the order of about 3,7% (or 1,3 TWh) in 2020, to reach a maximum of about 8% (or 3,8 TWh) in 2030, when the best performing (and still not available in the market) washing technologies are expected to dominate the market.

**WORKING DOCUMENT**  
**ON A POSSIBLE COMMISSION DIRECTIVE**  
**IMPLEMENTING COUNCIL DIRECTIVE 92/75/EC WITH REGARD TO**  
**HOUSEHOLD DISHWASHERS**

*Chapter 1*  
*Subject matter and scope*

1. This Directive shall apply to electric mains operated household dishwashers, also where these are sold for non-household uses.

Appliances that can use fuels (such as LPG, kerosene, bio-diesel, etc.) and are only battery operated are excluded

2. The information required by this Directive shall be obtained by measurements made in accordance with harmonised standards adopted by the European Standardisation Bodies (CEN, CENELEC, ETSI) under mandate from the Commission in accordance with Directive 98/34/EC of the European Parliament and of the Council (<sup>7</sup>), the reference numbers of which have been published in the Official Journal of the European Union and for which Member States have published the reference numbers of the national standards transposing those harmonised standards.

*Chapter 2*  
*Definitions*

In this Directive the definitions set out in Article 1(4) of Directive 92/75/EEC shall apply. The following definitions shall also apply:

- a) “dishwasher” means a 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 or may not have a specific drying operation at the end of the programme.
- b) “rated dishwasher capacity” means a 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.
- c) “place settings” means a defined set of crockery, glass and cutlery for use by one person.
- d) “programme” means a series of operations which are pre-defined within the dishwasher and which are declared as suitable for specified levels of soil and/or type of load and together form a complete cycle.
- e) “programme time” means the time measured from the initiation of the programme (excluding any user programmed delay) until an end of programme indicator and the user has access to the load. If there is no end of programme indicator, the programme time is equal to the cycle time.

f) “cycle” means a complete washing, rinsing, and drying process, as defined by the programme selected, consisting of a series of operations.

g) “off-mode” is a condition where the product is switched off using appliance controls or switches that are accessible and intended for operation by the user during normal use to attain the lowest power consumption that may persist for an indefinite time while connected to a mains power source and used in accordance with the manufacturer’s instructions. Where there are no controls, the dishwasher is left to revert to a steady state power consumption of its own accord.

h) “left-on mode” is the lowest power consumption mode that may persist for an indefinite time after the completion of the programme and unloading of the machine without any further intervention of the user.

i) “equivalent dishwasher” means a model placed on the market with the same rated capacity, technical and performance characteristics, energy and water consumption and noise of another model placed on the market under a different commercial code number by the same supplier.

### *Chapter 3* **Technical documentation**

1. The technical documentation referred to in Article 2 (3) of Directive 92/75/EEC shall include:

- the name and address of the supplier,
- a general description of the appliance, sufficient for it to be identified,
- information, including drawings as relevant, on the main design features of the model and in particular items which appreciably affect its energy consumption,
- reports of relevant measurement tests carried out under the standards referred to in Chapter 1 (2) of this directive,
- operating instructions, if any.

2. Where the information relating to a particular dishwasher model has been obtained by calculation on the basis of design, and/or extrapolation from other equivalent or similar dishwashers, the documentation should include details of such calculations and/or extrapolations, and of tests undertaken to verify the accuracy of the calculations undertaken (details of mathematical model for calculating performance and of measurements taken to verify this model). It shall also include a list of all other equivalent or similar dishwashers models whose information has been obtained on the same basis.

### *Chapter 4* **The Label**

1. The label referred to in Article 2 (1) of Directive 92/75/EEC shall be as specified in **Annex II** to this Directive. It shall be placed on the outside of the front or top of the appliance, in such a way as to be clearly visible, and not obscured.

2. The energy efficiency class and drying efficiency class shall be determined in accordance with **Annex I**.

*Chapter 5*  
***The Fiche***

The content and format of the fiche referred to in the third indent of Article 2 (1) of Directive 92/75/EEC shall be as specified in **Annex III** to this Directive.

*Chapter 6*  
***Other communications***

Where the appliances are offered for sale, hire or hire purchase by means of a printed or written communication, or by other means which imply that the potential customer cannot be expected to see the appliance displayed, such as a written offer, a mail order catalogue, advertisements on the Internet or on other electronic media, that communication shall include all the information specified in **Annex IV** to this Directive.

*Chapter 7*  
***Free circulation of dishwashers***

Member States shall take all necessary measures to ensure that all suppliers and dealers established in their territory fulfil their obligations under this Directive.

Member States shall allow the circulation of labels, fiches and communications referred to in Chapters 3, 4, and 5 of this Directive, no later than [*one year and one day after the entry into force of this directive*].

They shall ensure that all labels, fiches and communications referred to in Chapters 4, 5, and 6 of this Directive comply with the models in Annexes II, III and IV, no later than [*one year and a half after the entry into force of this directive*].

For three months after the entering into force of the provisions in Annex II, Part 1, point b) of this Directive, Member States shall allow the display of labels referred to in Article 4 of this Directive complying with the provisions in Annex II, Part 1, point a).

*Chapter 8*  
***Verification procedure for market surveillance purposes***

Member States shall take all necessary measures to ensure that all suppliers and dealers established in their territory fulfil their obligations under this Directive.

When performing the market surveillance checks referred to in Directive 2005/32/EC, Article 3 (2), Member State authorities shall apply the verification procedure set out in **Annex V** of this directive.

*Chapter 9*  
**Repeals**

Directives 97/17/EC and 1999/9/EC shall be repealed [one year] after the entry into force of this directive.

*Chapter 10*  
**Revision**

No later than [7] years after entry into force of this Directive the Commission shall review it (including the annexes) in the light of technological progress and present the result of this review to the Committee set up under Article 10 of Directive 92/75/EEC and Article 19 of Directive 2005/32/EC.

*Chapter 11*  
**Adoption**

Member States shall adopt and publish the provisions to comply with this Directive no later than [*one year after the entry into force of this directive*]. They shall immediately inform the Commission thereof.

When Member States adopt those provisions, they shall contain a reference to this Directive or be accompanied by such a reference on the occasion of their official publication. Member States shall determine how such reference is to be made.

*Chapter 12*  
**Entry into force**

This Regulation shall enter into force on the 20th day following that of its publication in the *Official Journal of the European Union*.

*Chapter 13*  
**Addressee**

This Directive is addressed to the Member States.

Done at Brussels,

## ANNEX I

### Energy efficiency ranking, energy efficiency class and drying efficiency ranking

#### 1. Energy efficiency ranking and energy efficiency class

The energy efficiency ranking and energy efficiency class of a dishwasher shall be determined in accordance with its Energy Efficiency Index as in the following Table 1.

Table 1: Energy efficiency ranking and energy efficiency class of a dishwasher

Energy Efficiency Ranking	Energy Efficiency Index	Energy Efficiency Class	
		Step 1	Step 2
10	$EEI < 45$	--	--
9	$45 \leq EEI < 50$	--	--
8	$50 \leq EEI < 56$	--	A
7	$56 \leq EEI < 63$	A	B
6	$63 \leq EEI < 71$	B	C
5	$71 \leq EEI < 80$	C	D
4	$80 \leq EEI < 90$	D	E
3	$90 \leq EEI < 100$	E	F
2	$100 \leq EEI < 112$	F	G
1	$EEI \geq 112$	G	--

The Energy Efficiency Index (EEI) of a dishwasher shall be determined in accordance with Annex VI

#### 2. Drying efficiency ranking

The drying efficiency ranking of a dishwasher shall be determined in accordance with its drying performance as in the following Table 2.

Table 2: Drying efficiency ranking of a dishwasher

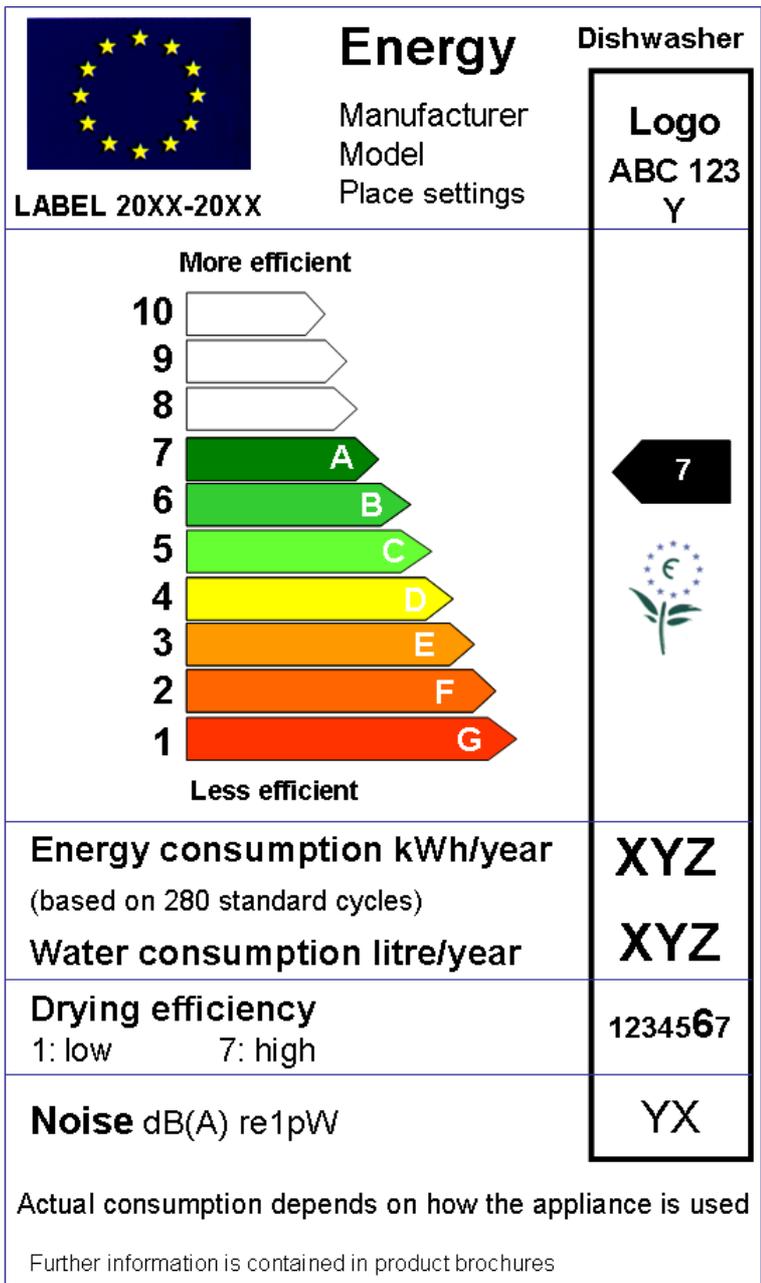
Drying efficiency ranking	Drying performance
7	$P_D > 1,08$
6	$1,08 \geq P_D > 0,86$
5	$0,86 \geq P_D > 0,69$
4	$0,69 \geq P_D > 0,55$
3	$0,55 \geq P_D > 0,44$
2	$0,44 \geq P_D > 0,33$
1	$P_D \geq 0,33$

Drying performance for the standard cycle is determined in accordance with standards referred to in Chapter 1 (2) of this directive, rounded to the two decimal places.

**ANNEX II**  
**The Label**

**1. Label layout and timing**

a) Step one: one year after the entry into force of this directive the label shall be in accordance with the following illustration:



I  
II  
III  
IV

V

VI

VII

VIII

IX

X

b) Step 2: six years after the entry into force of this directive the label shall be in accordance with the following illustration:

	<h1>Energy</h1>	<b>Dishwasher</b>
<b>LABEL 20XX-20XX</b>	Manufacturer Model Place settings	<b>Logo</b> <b>ABC 123</b> <b>Y</b>
<p style="text-align: center;"><b>More efficient</b></p> <p>10 </p> <p>9 </p> <p>8 </p> <p>7 </p> <p>6 </p> <p>5 </p> <p>4 </p> <p>3 </p> <p>2 </p> <p>1 </p> <p style="text-align: center;"><b>Less efficient</b></p>		 
<b>Energy consumption kWh/year</b> (based on 280 standard cycles)		<b>XYZ</b>
<b>Water consumption litre/year</b>		<b>XYZ</b>
<b>Drying efficiency</b> 1: low      7: high		<b>1234567</b>
<b>Noise dB(A) re1pW</b>		<b>YX</b>
<p style="text-align: center;">Actual consumption depends on how the appliance is used</p> <p style="text-align: center;">Further information is contained in product brochures</p>		

## 2. Notes on label

The following information shall be included in the label:

- I. Supplier's name or trade mark.
- II. Suppliers model identifier.

III. Period of the validity of the label, expressed as an interval in the range ‘year of beginning ‘ and ‘year of expiring’ for the two Steps described in Annex II, Part 1.

IV. Capacity of appliance in standard place settings, determined in accordance with the harmonized standards referred to in Chapter 1 (2) of this directive.

V. The energy efficiency ranking of the dishwasher, determined in accordance with Annex I, Table 1. The arrow shall be placed at the same level as the relevant energy efficiency ranking and shall show the same number.

VI. Without prejudice to any requirements under the Community Eco-label award scheme, where an appliance has been granted a ‘Community Eco-label award’ pursuant to Council Regulation (EEC) No 880/92<sup>2</sup> a copy of the Eco-award mark (the flower) may be added here.

VII. Annual Energy Consumption ( $AE_C$ ) of the dishwasher, determined in accordance to Annex VI.

VIII. Annual Water consumption ( $AW_C$ ) of the dishwasher, determined in accordance to Annex VI..

IX. Drying efficiency ranking, determined in accordance with Annex I, Table 2.

X. Noise, determined in accordance with standards referred to in Chapter 1 (2) of this directive, and expressed in dB(A) re 1 pW and rounded to the integer.

### **3. Printing**

The following defines certain aspects of the label:

*<to be added>*

---

<sup>2</sup> O.J. ....

**ANNEX III**  
**The Fiche**

The fiche shall contain the following information. The information may be given in the form of a table covering a number of dishwasher models supplied by the same supplier, in which case it shall be given in the order specified, or given in the description of the dishwasher model:

1. Supplier's name or trade mark.
2. Supplier's model identifier.
3. Capacity of appliance in standard place settings, as in Annex II.
4. The energy efficiency ranking of the model, as defined in Annex I, expressed as 'Energy efficiency ranking [*number*] on a scale of 1 (less efficient) to 10 (more efficient) which corresponds to an energy efficiency class of [*letter*] in a scale from G to A in the period [*period of validity of the label*]' according to the two steps in Annex II Part 1. The energy efficiency class is according to Table 1

Where this information is provided in a table this may be expressed by other means provided it is clear that the energy efficiency ranking is from 1 (less efficient) to 10 (more efficient) and the energy efficiency class in a scale from G to A according to Table 1, in the period [*period of validity of the label*].

5. Where the information is provided in a table, and where some of the appliances listed in the table have been granted a 'Community Eco-label award' under Regulation (EEC) No 880/92, this information may be included here. In this case the row heading shall state 'Community Eco-label award', and the entry shall consist of a copy of the Eco-award mark (the flower). This provision is without prejudice to any requirements under the Community Eco-label award scheme.

6. Annual Energy Consumption ( $AE_C$ ) of the dishwasher, determined in accordance to Annex VI, Part 1, in kWh per year, rounded to the integer; it shall be described as: 'Energy consumption XYZ kWh per year, based on 280 standard cycles using cold water fill and the consumption of the low power modes. Actual energy consumption will depend on how the appliance is used.'

7. Annual Water consumption ( $AW_C$ ) of the dishwasher, determined in accordance to Annex VI, Part 2, in litre per year, rounded to the integer; it shall be described as: 'Water consumption XYZ kWh per year, based on 280 standard cycles. Actual water consumption will depend on how the appliance is used'.

8. Drying efficiency ranking, as in Annex I, expressed as 'Spin drying efficiency ranking [*number*] on a scale from 1 (low) to 7 (high)'. This may be expressed by other means provided it is clear that the scale is from 1 (low) to 7 (high).

9. Indication that the "Eco-programme" is the standard cycle to which the information in the label and the fiche relates, that it is suitable for normal use, to clean normal soiled

tableware and that it is the most efficient programme from the combined energy and water consumptions point of view.

10. Programme time for the standard cycle, determined in accordance with the test procedures of the harmonized standards referred to in Chapter 1 (2), in minutes and rounded to the integer.

11. Noise, as in Annex II.

12. If the model is produced in order to be built-in, this should be stated.

The information contained in the label may be given in the form of a copy of the label, either in colour or in black and white. In this case the further information given only in the fiche must still be included.

**ANNEX IV**  
**Other communications**

Mail order catalogues and other printed communications referred to by Chapter 5 of this Directive shall contain the following information, given in the order specified:

1. Energy Efficiency ranking and energy efficiency class, as defined in Annex I
2. Rated capacity in standard place settings (Annex III, point 3)
2. Annual Energy consumption (Annex III, point 6)
3. Annual Water consumption (Annex III, point 7)
4. Drying efficiency ranking (Annex III, point 8)
5. Indication that the “Eco-programme” (Annex III, point 9)
6. Noise (Annex III, point 11)
7. If the model is produced in order to be built-in, this should be stated.

Where other information contained in the product information fiche is provided, it shall be in the form defined in Annex III and shall be included in the above list in the order specified for the fiche.

The size and font, in which all the information referred to above is printed, shall be legible.

**ANNEX V**  
**Verification procedure for market surveillance purposes**

In addition to the procedure laid down in the standards referred to in Chapter 1 (2) of this Directive, when performing the market surveillance checks for the energy consumption of dishwashers the authorities of the Member States shall apply the following verification procedure.

Member State authorities shall test one single unit.

**1 Annual Energy Consumption**

The value measured shall not be greater than the rated value of  $AE_C$  by more than [10]%. If the result of the test carried out on the first dishwasher is greater than the rated value plus 10 %, the test shall be carried out on a further three randomly selected dishwashers. The arithmetical mean of the values of these three dishwashers shall not be greater than the rated value plus [10] %.

Otherwise, the model and all other equivalent dishwashers shall be considered not to comply.

**2 Annual Water consumption**

The value measured shall not be greater than the rated value of  $AW_C$  by more than [10]%. If the result of the test carried out on the first dishwasher is greater than the rated value plus 10 %, the test shall be carried out on a further three randomly selected dishwashers. The arithmetical mean of the values of these three dishwashers shall not be greater than the rated value plus [10] %.

Otherwise, the model and all other equivalent dishwashers shall be considered not to comply.

**3 Drying performance index**

The value measured shall not be lower than the rated value by more than [19] %. If the result of the test carried out on the first dishwasher is lower than the rated value by more than 19%, the test shall be carried out on a further three randomly selected dishwashers. The arithmetical mean of the values of these three dishwashers shall not be less than the rated value by [19] %.

Otherwise, the model and all other equivalent dishwashers shall be considered not to comply.

**4 Energy consumption**

The value measured shall not be greater than the rated value of  $E_r$  by more than [10] %. If the result of the test carried out on the first dishwasher is greater than the rated value

plus 10 %, the test shall be carried out on a further three randomly selected dishwashers. The arithmetical mean of the values of these three dishwashers shall be equal to or less than the rated value plus [10] %.

Otherwise, the model and all other equivalent dishwashers shall be considered not to comply.

## **5 Water consumption**

The value measured shall not be greater than the rated value of  $W_r$  by more than [10]%. If the result of the test carried out on the first dishwasher is greater than the rated value plus 10 %, the test shall be carried out on a further three randomly selected dishwashers. The arithmetical mean of the values of these three dishwashers shall not be greater than the rated value plus [10] %.

Otherwise, the model and all other equivalent dishwashers shall be considered not to comply.

## **6 Programme duration**

The value measured shall not be longer than the rated values  $T_r$  by more than [10] %. If the result of the test carried out on the first dishwasher is longer than the declared values plus 10%, the test shall be carried out on a further three dishwashers, which shall be randomly selected from the market. The value of each of these three dishwashers shall not be longer than the declared value plus [10] %

Otherwise, the model and all other equivalent dishwashers shall be considered not to comply.

## **7 Power consumption in off-mode and left-on mode**

The verification of the power consumption  $P_o$  and  $P_l$  shall be done in accordance with Commission Regulation (EC) No .../.. of [...] implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment.

## **8 Duration of the left-on mode**

The value measured shall not be longer than the rated value of  $T_l$  by more than [10] %. If the result of the test carried out on the first dishwasher are longer than the declared value plus 10%, the test shall be carried out on a further three dishwashers, which shall be randomly selected from the market. The value of each of these three dishwashers shall not be longer than the declared value plus [10] %.

Otherwise, the model and all other equivalent dishwashers shall be considered not to comply.

## ANNEX VI

### Method for calculating the Energy Efficiency Index and the water consumption

#### 1. Calculation of the Energy Efficiency Index of a dishwasher

For the calculation of the EEI, the energy consumption of any given dishwasher is compared to the standard energy consumption of a dishwasher with the same number of place settings.

a) The Energy Efficiency Index is calculated as:

$$EEI = \frac{AE_C}{SAE_C} \times 100 \text{ and is rounded to one decimal place}$$

where:

- $AE_C$  = annual energy consumption of a dishwasher
- $SAE_C$  = standard annual energy consumption of a dishwasher.

b) The Annual Energy Consumption  $AE_C$  of a dishwasher in kWh/year and rounded to two decimal places, shall be calculated as:

$$AE_C = E_t \times 280 + \frac{\left[ P_o \times \frac{525.600 - (T_t \times 280)}{2} + P_l \times \frac{525.600 - (T_t \times 280)}{2} \right]}{60 \times 1.000}$$

where

- $E_t$  is the energy consumption of the standard cycle, in kWh and recorded to three decimal places, determined in accordance with standards referred to in Chapter 1 (2) of this directive;
- $P_l$  is the power of the standard cycle, in W and recorded to two decimal places, in “left-on mode”, determined in accordance with standards referred to in Chapter 1 (2) of this directive;
- $P_{of}$  is the power of the standard cycle, in W and recorded to two decimal places, in “off-mode”, determined in accordance with standards referred to in Chapter 1 (2) of this directive;
- $T_c$  is the programme time of the standard cycle, in minutes and recorded to the nearest minute, determined in accordance with standards referred to in Chapter 1(2) of this directive.

When a power management is enforced, reverting automatically the product to the ‘off mode’ after the end of the programme,  $AE_C$  shall be calculated taking into consideration the effective duration of the “left-on mode”, according to the following formula:

$$AE_C = E_t \times 280 + \frac{\{(P_l \times T_l \times 280) + P_o \times [525.600 - (T_l \times 280) - (T_l \times 280)]\}}{60 \times 1.000}$$

where  $T_l$  is the measured time in “left-on mode” for the standard cycle, in minutes and recorded to the nearest minute, determined in accordance with standards referred to in Chapter 1 (2).

The value 280 is the total number of standard washing cycles per year.

c) The Standard Annual Energy Consumption  $SAE_C$  of a dishwasher shall be calculated, in kWh/year and rounded to two decimal places, as:

$$SAE_C = 7,0 \times ps + 378$$

for  $ps \geq 10$ , where  $ps$  is the rated capacity in standard place settings;

$$SAE_C = 25,2 \times ps + 126$$

for  $ps \leq 9$ , where  $ps$  is the rated capacity in standard place settings.

## 2. Calculation of the Annual Water consumption of a dishwasher

The Annual Water Consumption  $AW_C$  of a dishwasher is calculated, in litres rounded to the integer, as:

$$AW_C = W_t \times 280$$

where  $W_t$  is the water consumption for the standard cycle, in litres and recorded to one decimal place, determined in accordance with standards referred to in Chapter 1 (2) of this directive.

## 3. Programmes to be used

The programme used for the purpose of the declaration of the energy and water consumption, the power in ‘off mode’ and in ‘left of mode’, the drying efficiency and the programme duration shall be the same used for the purposes of the Commission Regulation (EC) No .../.. of [...] implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for household dishwashers.