EUROPEAN
COMMISSION

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COMMISSION REGULATION (EU) …/…

of XXX

laying down ecodesign requirements for household dishwashers pursuant to Directive 2009/125/EC of the European Parliament and of the Council amending Commission Regulation (EC) No 1275/2008

and repealing Commission Regulation (EU) No 1016/2010

(Text with EEA relevance)

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(Text with EEA relevance)

THE EUROPEAN COMMISSION,

Having regard to Article 114 of the Treaty on the Functioning of the European Union,

Having regard to Directive 2009/125/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for the setting of ecodesign requirements for energy-related products[1], and in particular Article 15(1) thereof,

Whereas:

(1) Pursuant to Directive 2009/125/EC, the Commission should set ecodesign requirements for energy-related products which account for significant volumes of sales and trade in the Union and which have a significant environmental impact and presenting significant potential for improvement through design in terms of their environmental impact, without entailing excessive costs.

(2) The Ecodesign Working Plan 2016-2019 established by the Commission in application of Article 16(1) of Directive 2009/125/EC sets out the working priorities under the ecodesign and energy labelling framework for the period 2016-2019. The Working Plan identifies the energy-related product groups to be considered as priorities for the undertaking of preparatory studies and eventual adoption of implementing measures, as well as the review of the current regulations.

(3) Measures from the Working Plan have an estimated potential to deliver a total in excess of 260 TWh of annual final energy savings in 2030, which is equivalent to reducing greenhouse gas emissions by approximately 100 million tonnes per year in 2030. Household dishwashers is one of the product groups listed in the Working Plan, with estimated annual electricity savings of 2,1 TWh, leading to GHG emission reductions of 0,7 Mt CO_2 eq/year, and estimated water savings of 16 million m^3 in 2030.

(4) The Commission established ecodesign requirements for household dishwashers by Commission Regulation (EU) No 1016/2010[2].

(5) Pursuant to Article 7 of this Regulation, the Commission should review it in light of technological progress.

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1 OJ L 285, 31.10.2009, p. 10.

2 OJ L 293, 11.11.2010, p. 31.

(6) The Commission has reviewed this Regulation and analysed the technical, environmental and economic aspects of household dishwashers as well as real-life user behaviour. The review was carried out in close cooperation with stakeholders and interested parties from the Union and third countries. The results of the review were made public and presented to the Consultation Forum established by Article 18 of Directive 2009/125/EC.

(7) It appears from the review study that there is a need to revise the ecodesign requirements for household dishwashers, the requirements related to use of essential resources such as energy and water and also to introduce requirements related to resource efficiency and environment aspects such as reparability and recyclability.

(8) Non-household dishwashers have distinct characteristics and uses. They are subject to other regulatory work, in particular Directive 2006/42/EC of the European Parliament and of the Council on machinery[3], and should not be included in the scope of this Regulation.

(9) The environmental aspects of household dishwashers, which have been identified as significant for the purposes of this Regulation are the consumption of energy and water during the use phase, the generation of waste at the end of life, the emissions to air and water in the production phase (due to the extraction and processing of raw materials) and in the use phase (because of the consumption of electricity).

(10) The annual energy consumption of products subject to this Regulation in the Union was estimated at 31,3 TWh in the Union in 2015, corresponding to 11,1 million tonnes of CO_2 equivalent. The projected energy consumption of household dishwashers in a business as usual scenario is expected to increase to 49,0 TWh in 2030, mainly because of the increase in the total number of dishwashers in use. That increase in energy consumption may however be limited if the existing ecodesign requirements are updated. Similarly, the water consumption of household dishwashers was estimated at 318 million m^3 in 2015 and is expected to increase up to 531 million m^3 in 2030 in the absence of updated requirements. Finally, the service lifetime of household dishwashers has been estimated to have decreased in recent years to around 12,5 years and the trend is likely to continue in the absence of incentives.

(11) The Commission Communication on the circular economy[4] and the Communication on the ecodesign working plan[5] underline the importance of using the ecodesign framework in order to support the move towards more resource efficient and circular economy. Recital 11 and Article 4 of Directive 2012/19/EU[6] of the European Parliament and of the Council on waste electrical and electronic equipment (WEEE) indicate that ecodesign requirements established under Directive 2009/125/EC should facilitate the re-use, dismantling and recovery of WEEE by tackling the issues upstream. Therefore this Regulation should lay down appropriate requirements contributing to circular economy objectives.

(12) Specific requirements for the low power modes of household dishwashers should be laid down. The requirements of Commission Regulation (EC) No 1275/2008[7] should

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3 OJ L 157, 9.6.2006

4 COM/2015/0614 final of 02.12/2015

5 COM(2016) 773 final of 30.11.2016

6 OJ L 197, 24.7.2012, p. 38

7 Commission Regulation (EC) No 1275/2008 of 17 December 2008 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and

not apply to household dishwashers covered by the scope of this Regulation. Regulation (EC) No 1275/2008 should be amended accordingly.

(13) The relevant product parameters should be measured using reliable, accurate and reproducible methods. Those methods should take into account recognised state-of-the-art measurement methods including, where available, harmonised standards adopted by the European standardisation organisations, as listed in Annex I to Regulation (EU) No 1025/2012[8] of the European Parliament and of the Council.

(14) In accordance with Article 8 of Directive 2009/125/EC, this Regulation should specify the applicable conformity assessment procedures.

(15) In order to facilitate compliance checks, manufacturers should provide information in the technical documentation referred to in Annexes IV and V to Directive 2009/125/EC where that information relates to the requirements laid down in this Regulation. Where parameters of the technical documentation, as defined by this Regulation, are identical to parameters of the product information sheet defined by Commission Delegated Regulation (EU) *[OP please insert the references of the Regulation with regard to energy labelling of on household dishwashers]*, manufacturers should enter the corresponding data into the product database defined by Regulation (EU) 2017/1369 of the European Parliament and of the Council[9] and should no longer need to provide them to market surveillance authorities as part of the technical documentation.

(16) In order to ensure the effectiveness and credibility of the Regulation and to protect consumers, products that automatically alter their performance in test conditions to improve the declared parameters should not be allowed to be placed on the market.

(17) In addition to the requirements laid down in this Regulation, indicative benchmarks for best available technologies should be identified to make information on the life-cycle environmental performance of products subject to this Regulation widely available and easily accessible, in accordance with Point 2 of Part 3 of Annex I to Directive 2009/125/EC.

(18) This Regulation should be reviewed in order to assess the appropriateness and effectiveness of its provisions in achieving its goals. The timing of the review should be sufficient for all provisions to be implemented and show an effect on the market.

(19) Regulation (EC) No 1016/2010 should be repealed.

(20) In order to facilitate the transition between Regulation (EC) No 1016/2010 and this Regulation, the name ‘eco’ should be allowed to be used instead of ‘standard programme’ as from the entry into force of this Regulation. The name ‘standard programme’ should be allowed to be used instead of ‘eco’ for a 6 month period from the date of application of Part 1 of Annex II.

(21) The measures provided for in this Regulation are in accordance with the opinion of the Committee established by Article 19(1) of Directive 2009/125/EC,

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off mode electric power consumption of electrical and electronic household and office equipment (OJ L 339, 18.12.2008, p 45-52)

[8] OJ L 316, 14.11.2012, p. 12

[9] Regulation (EU) 2017/1369 of the European Parliament and of the Council of 4 July 2017 setting a framework for energy labelling and repealing Directive 2010/30/EU (OJ L 198, 28.7.2017, p. 1–23)

HAS ADOPTED THIS REGULATION:

Article 1
Subject matter and scope

1. This Regulation establishes ecodesign requirements for placing on the market and putting into service of electric mains-operated household dishwashers, including built-in household dishwashers and electric mains-operated household dishwashers that can also be powered by batteries.

2. This Regulation shall not apply to:

   (a) dishwasher in the scope of Directive 2006/42/EC;

   (b) battery-operated household dishwashers that can be connected to the mains through an AC/DC converter purchased separately;

   (c) custom-made household dishwashers made on a one-off basis and not equivalent to other household dishwasher models.

Article 2
Definitions

For the purposes of this Regulation the following definitions shall apply:

(1) 'household dishwasher' means a machine which cleans, rinses, and dries tableware, and which is declared by the manufacturer in the Declaration of Conformity to comply with the Directive 2014/35/EU of the European Parliament and of the Council[10] or with Directive 2014/53/EU of the European Parliament and of the Council[11];

(2) 'built-in household dishwasher' means a household dishwasher that is intended to be installed inside an enclosing structure such as a kitchen cupboard.

For the purposes of the annexes, additional definitions are set out in Annex I.

Article 3
Ecodesign requirements

Household dishwashers shall comply with the ecodesign requirements set out in Annex II, following the measurement and calculation methods set out in Annex III.

Article 4
Conformity assessment

1. The conformity assessment procedure referred to in Article 8 of Directive 2009/125/EC shall be the internal design control system set out in Annex IV to that Directive or the management system set out in Annex V to that Directive.

[10] Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of electrical equipment designed for use within certain voltage limits (OJ L 96, 29.3.2014, p. 357).

[11] Directive 2014/53/EU of the European Parliament and of the Council of 16 April 2014 on the harmonisation of the laws of the Member States relating to the making available on the market of radio equipment and repealing Directive 1999/5/EC (OJ L 153, 22.5.2014)

2. For the purposes of the conformity assessment pursuant to Article 8 of Directive 2009/125/EC, the technical documentation shall contain the information set out in point 7 of Annex II to this Regulation.

Article 5

Verification procedure for market surveillance purposes

Member States' authorities shall apply the verification procedure set out in Annex IV when performing the market surveillance checks referred to in Article 3(2) of Directive 2009/125/EC.

Article 6

Circumvention

The manufacturer or importer shall not place on the market products designed in such a way that a model's performance is automatically altered under test conditions with the aim of reaching a more favourable level for any of the parameters declared by the manufacturer in the technical documentation or included in any documentation provided with the product.

The consumption of energy and water of the product shall not increase after a software or firmware update when measured with the same test standard originally used for the declaration of conformity, except with explicit consent of the end-user prior to the update.

Article 7

Indicative benchmarks

The indicative benchmarks for the best-performing products and technologies available on the market at the time of adopting this Regulation are set out in Annex V.

Article 8

Review

The Commission shall review this Regulation in the light of technological progress and shall present the results of this review, including, if appropriate, a draft revision proposal, to the Consultation Forum referred to in Article 18 of Directive 2009/125/EC no later than *[OP – please insert date - five years after its entry into force]*.

The review shall in particular focus on the following:

(a) the improvement potential with regard to energy and environmental performance of household dishwashers;

(b) the effectiveness of existing requirements on material efficiency;

(c) the feasibility of new requirements on the durability of the appliance or of some of its parts.

Article 9

Amendment to Regulation (EC) No 1275/2008

In point 1 of Annex I to Regulation (EC) No 1275/2008, the entry 'Dish washing machines' is deleted.

Article 10

Repeal

Regulation (EU) No 1016/2010 is repealed with effect from *[OP – please insert the day of entry into force of this Regulation]*.

However, Articles 3 and 5 of Regulation (EU) No 1016/2010 and Annexes I to III thereto are repealed with effect from 1 April 2021.

By way of derogation to the requirement in Annex I, Point 1(1) of Regulation (EU) No 1016/2010, the name 'eco' may be used for the standard programme, instead of the name 'standard programme', as from *[OP – please insert the day of entry into force of this Regulation]*.

Article 11

Entry into force and application

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

Points 1(a), 2(a), 2(b) and 3 to 7 of Annex II shall apply from 1 April 2021.

Points 1(b) and 1(c) of Annex II shall apply from 1 October 2021.

Point 2(c) of Annex II shall apply from 1 April 2024.

This Regulation shall be binding in its entirety and directly applicable in all Member States.

Done at Brussels,

For the Commission
Jean-Claude JUNCKER
The President

EUROPEAN
COMMISSION

Brussels, XXX
[…](2018) XXX draft

ANNEXES 1 to 5

ANNEXES

to the

COMMISSION REGULATION

laying down ecodesign requirements for household dishwashers pursuant to Directive 2009/125/EC of the European Parliament and of the Council amending Commission Regulation (EC) No 1275/2008

and repealing Commission Regulation (EU) No 1016/2010

ANNEX I

Definitions applicable for the annexes

For the purposes of the annexes, the following definitions shall apply:

(1) ‘place setting’ means a set of tableware for use by one person, not including serving pieces;

(2) ‘serving pieces’ means items for the preparation and serving of food which can include pots, serving bowls, serving cutlery and a platter;

(3) ‘rated capacity’ means the maximum number of place settings together with the serving pieces, which can be cleaned and dried in a household dishwasher in one cycle when loaded in accordance with the manufacturer’s instructions;

(4) ‘programme’ means a series of operations that are pre-defined and are declared by the manufacturer as suitable for specified levels of soil or types of load, or both;

(5) ‘programme duration’ means the length of time beginning with the initiation of the programme selected, excluding any user programmed delay, until an end of programme indicator is activated and the user has access to the load;

(6) ‘cycle’ means a complete cleaning, rinsing and drying process, as defined by the programme selected, consisting of a series of operations until all activity ceases;

(7) ‘eco’ programme means the name of the programme of a household dishwasher declared by the manufacturer as suitable to clean normally soiled tableware, and to which the information on the energy label and the product information sheet relates;

(8) ‘off-mode’ means a condition in which the equipment is connected to the mains power source and is not providing any function; the following shall also be considered as off mode:

  (a) conditions providing only an indication of off-mode;

  (b) conditions providing only functionalities intended to ensure electromagnetic compatibility pursuant to Directive 2014/30/EU of the European Parliament and of the Council[1];

(9) ‘standby mode’ means a condition where the equipment is connected to the means power source, and provides only the following functions, which may persist for an indefinite time:

  (a) reactivation function, possibly through network connection, or reactivation function and only an indication of enabled reaction function; and/or

  (b) information or status display; and/or

  (c) detection function for emergency measures.

(10) ‘delay start mode’ means a condition where the user has selected a specified delay to the beginning of the cycle of the selected programme;

(11) ‘spare part’ means a separate part that can replace a part with the same or similar function in an appliance;

[1] Directive 2014/30/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to electromagnetic compatibility (OJ L 96, 29.3.2014, p. 79).

(12) ‘necessary spare part’ means a spare part necessary for the use of the appliance that cannot function as intended without that part;

(13) ‘professional repairer’ means an operator or undertaking which provides services of repair and maintenance of household dishwashers.

ANNEX II

Ecodesign requirements

1. THE ECO PROGRAMME

(a) In order to comply with the requirements set out in points 2 and 3, the eco programme shall be used. This programme shall be:

- clearly identifiable on the programme selection device of the household dishwasher or on the household dishwasher display, if any, and on the relevant network application, if any;
- set as the default programme for household dishwashers equipped with automatic programme selection or any function maintaining the selection of a programme;
- alternatively, available for selection without the need to select a specific temperature or load, if there is no automatic programme selection.

The eco programme shall not be followed by any activity altering the performance of the household dishwasher for any of the parameters related to the requirements set out in points 2 and 3, during 15 minutes after the end of the programme.

(b) The eco programme shall be named ‘eco’ on the programme selection device of the household dishwasher or on the household dishwasher display, if any, and on the relevant network application, if any.

The name ‘eco’ shall be used exclusively for this programme. The formatting of ‘eco’ is not restricted in terms of font, font size, case sensitivity, colour or accentuations. The only other additional information which may be combined with the term ‘eco’ is temperature.

(c) The indications ‘normal’, ‘daily’, ‘regular’ and ‘standard’, and their translations in all EU official languages, shall not be used on the household dishwasher, neither alone nor in combination with other information.

2. ENERGY EFFICIENCY REQUIREMENTS

(a) the Energy Efficiency Index (EEI) shall be less than 63 for household dishwashers with a rated capacity of more than 7 place settings;

(b) the EEI shall be less than 71 for household dishwashers with a rated capacity equal to or less than 7 place settings;

(c) the EEI shall be less than 58 for household dishwashers with a rated capacity equal to or more than 10 place settings and a width equal or more than 50 cm.

The EEI shall be calculated in accordance with Annex III.

3. FUNCTIONAL REQUIREMENTS

(a) the cleaning efficiency index (I_C) shall be greater than 1,12;

(b) the drying performance index (I_D) shall be greater than 1,06.

The I_C and the I_D shall be calculated in accordance with Annex III.

4. LOW POWER MODES

(a) Household dishwashers shall have an off-mode or a stand-by mode or both. The power consumption of these modes shall not exceed 0,50 W.

(b) If the stand-by mode includes the display of information or status, the power consumption of this mode shall not exceed 1,00 W.

(c) If the stand-by mode provides for network connectivity and the network connection is in the condition of networked standby as defined in Commission Regulation (EU) No 801/2013[2], the power consumption of this mode shall not exceed 2,00 W.

(d) After the equipment has been switched on or after the end of any programme and associated activities, if no other mode is triggered and there is no interaction with the equipment for 15 minutes, the equipment shall switch automatically to off-mode or standby mode.

(e) If the equipment provides for a delay start, the power consumption of this condition, including any standby mode, shall not exceed 6,00 W. The user shall not be able to programme a delay start for more than 24h.

(f) During measurements of energy consumption in low power modes, the display or not of information and the activation or not of network connection shall be checked and recorded. When assessing the delay start, it shall be checked that the user is not able to program a delay start exceeding 24 hours.

(g) The above requirements are without prejudice to emergency measures.

5. RESOURCE EFFICIENCY REQUIREMENTS

(1) Availability of necessary spare parts

Manufacturers or importers of household dishwashers shall make available necessary spare parts for household dishwashers to professional repairers, in the same conditions described for repair and maintenance information in point (3)(a), for a minimum period of seven years after placing the last unit of the model on the market.

The list of necessary spare parts concerned by this measure and the procedure for ordering them shall be publicly available, for example on the manufacturer's website, at the latest two years after the placing on the market of the first unit of a model or of an equivalent model and until the end of the period of availability of these necessary spare parts, and the list shall contain at least the following:

- motor;
- circulation and drain pump;
- heaters and heating elements;
- door hinge and seal;
- piping and related equipment including all hoses, valves and filters;
- structural and interior parts related to door assemblies, spray arms, seals and interior racks;

[2] Commission Regulation (EU) No 801/2013 of 22 August 2013 amending Regulation (EC) No 1275/2008 with regard to ecodesign requirements for standby, off mode electric power consumption of electrical and electronic household and office equipment, and amending Regulation (EC) No 642/2009 with regard to ecodesign requirements for televisions (OJ L 225, 23.8.2013)

- printed circuit boards;
- liquid crystal displays.

(2) Maximum delivery time of necessary spare parts

During the period mentioned under point (1), the manufacturer or importer shall deliver the necessary spare parts for household dishwasher to professional repairers within 15 working days after having received the order.

(3) Access to Repair and Maintenance Information

After a period of two years after the placing on the market of the first unit of a model or of an equivalent model, and until the end of the period mentioned under (1), the manufacturer or importer shall provide access to the appliance repair and maintenance information to professional repairers in the following conditions:

(a) The manufacturer's website, or an equivalent means of information, shall indicate the process for professional repairers to register for access to information; to accept such a request, manufacturers or importers may require the professional repairer to demonstrate that:

(i) the professional repairer complies with the applicable regulations for repairers of electrical equipment in the Member States where it operates. Reference to an official registration system as professional repairer, where such system exists in the Member States concerned, shall be accepted as proof;

(ii) the professional repairer is covered by relevant insurance, covering liabilities resulting from its activity.

(b) Once registered, a professional repairer shall have access, within 24 hours after requesting it, to the requested repair and maintenance information for any product model of the manufacturer in the scope of this Regulation. The information may be provided for an equivalent model or model of the same family, if relevant.

(c) The available repair and maintenance information shall include:

- the unequivocal appliance identification;
- a disassembly map or exploded view;
- list of necessary repair and test equipment;
- component and diagnosis information (such as minimum and maximum theoretical values for measurements);
- wiring and connection diagrams;
- diagnostic fault and error codes (including manufacturer-specific codes, where applicable); and
- data records of reported failure incidents stored on the dishwasher (where applicable).

(d) Manufacturers or importers may charge reasonable and proportionate fees for access to the repair and maintenance information or for receiving regular updates. A fee is reasonable if it does not discourage access by failing to take into account the extent to which the professional repairer uses it.

(4) Information requirements for refrigerant gases

Household dishwashers equipped with a heat pump shall clearly and permanently display on the exterior of the appliance, for example on the back panel, the chemical name or equivalent reference of the principal component of the refrigerant gas used. Where the refrigerant gas is covered by Regulation (EU) No 517/2014 of the European Parliament and of the Council[3], the requirements of that Regulation will apply.

(5) Requirements for dismantling for material recovery and recycling while avoiding pollution.

Manufacturers shall ensure that household dishwashers are designed in such a way that the materials and components referred to in Annex VII to Directive 2012/19/EU can be removed without the use of any tool which is not readily available for purchase.

Manufacturers shall provide information free of charge about preparation for re-use and treatment of household dishwashers to preparation for re-use facilities and to treatment and recycling facilities, as provided in Point 1 or Article 15 of Directive 2012/19/EU.

6. INFORMATION REQUIREMENTS

User instructions shall be provided on a free access website of the manufacturer, their authorised representative and importers, and possibly in the form of a user manual or set of documents, and shall include:

(1) information that the eco programme is suitable to clean normally soiled tableware, that for this use, it is the most efficient programme in terms of its combined energy and water consumption and that it is used to assess the compliance with the EU Ecodesign legislation;

(2) information that loading the machine up to the capacity indicated by the manufacturer will contribute to energy and water savings and information on correct loading of tableware and main consequences of incorrect loading;

(3) information that manual pre-rinsing of tableware items leads to increased water and energy consumption and is not recommended;

(4) information that washing tableware in a dishwasher usually consumes less energy and water in the use phase than hand dishwashing when the dishwasher is used according to the manufacturer's instructions;

(5) indicative values on the programme duration, energy and water consumption for all programmes that offer a complete cycle; information that the values given for programmes other than the eco programme are indicative only and are not verified for compliance to this Regulation.

The user instructions shall also include instructions for the user to perform maintenance operations, in addition to any instructions automatically delivered by the appliance when equipped with this feature. Such instructions shall as a minimum include instructions for:

[3] Regulation (EU) No 517/2014 of the European Parliament and of the Council of 16 April 2014 on fluorinated greenhouse gases and repealing Regulation (EC) No 842/2006 (OJ L 150, 20.5.2014, p. 195–230)

(6) correct installation (including level positioning, connection to mains, connection to water inlets, cold and/or hot if appropriate);

(7) correct use of detergent, salt and other additives, and main consequences of inadequate dosage;

(8) foreign object removal from the appliance;

(9) periodic cleaning, including optimal frequency, and procedure;

(10) periodic checks of filters, including optimal frequency, and procedure;

(11) identification of errors, the meaning of the errors, and the action required, including identification of errors requiring professional assistance;

(12) access to professional repair (internet webpages, addresses, contact details);

(13) any implications of self-repair or non-professional repair for the safety of the end-user and for the legal guarantee, and when applicable, also to the commercial guarantee;

(14) time period during which the spare parts necessary for the use of the household dishwasher are available.

7. TECHNICAL DOCUMENTATION

The technical documentation for the purpose of conformity assessment pursuant to Article 4 shall contain the following elements:

(1) The values of parameters listed in Points 2, 3 and 4 for the eco programme of the household dishwasher, a copy of the information provided in accordance with point 6 and the results of the calculations undertaken in accordance with Annex III.

The publication of the elements in the product database, according to *[OP – please insert the number of the accompanying Regulation on the energy labelling of household dishwashers]*, Article 3(1)(b), replaces the obligation of including such elements in the technical documentation.

(2) A list of all equivalent household dishwasher models.

Where the information included in the technical documentation for a particular model has been obtained by any of the following methods, or both:

(1) from a model that has the same technical characteristics relevant for the technical information to be provided but is produced by a different manufacturer;

(2) by calculation on the basis of design or extrapolation from another model of the same or a different manufacturer,

the technical documentation shall include the details of such calculation, the assessment undertaken by the manufacturer to verify the accuracy of the calculation and, where appropriate, the declaration of identity between the models of different manufacturers.

ANNEX III

Measurement and calculation methods

For the purposes of compliance and verification of compliance with the requirements of this Regulation, measurements and calculations shall be made using harmonised standards the reference numbers of which have been published for this purpose in the *Official Journal of the European Union*, or other reliable, accurate and reproducible methods, which takes into account the generally recognised state-of-the-art, and in line with the following provisions.

Numbers shall be rounded in accordance with B.3 Rule B of ISO 80000-1:2009. If the rounding takes place in decimals, the omitted places shall not be filled with zeros.

1. ENERGY EFFICIENCY INDEX

For the calculation of the Energy Efficiency Index ('EEI') of a household dishwasher model, the eco programme energy consumption ('EPEC') of the household dishwasher is compared to its standard programme energy consumption ('SPEC').

(a) The EEI is calculated as follows and rounded to one decimal place:

$$EEI = (EPEC / SPEC) \times 100$$

where:

EPEC is the eco programme energy consumption of the household dishwasher in kWh/cycle and rounded to three decimal places;

SPEC is the standard programme energy consumption of the household dishwasher.

(b) The SPEC is calculated in kWh/cycle and rounded to three decimal places as follows:

(i) for household dishwashers with rated capacity ps ≥ 10 and width > 50 cm:

$$SPEC = 0.025 \times ps + 1.350$$

(ii) for household dishwashers with rated capacity ps ≤ 9 or width ≤ 50 cm:

$$SPEC = 0.090 \times ps + 0.450$$

where ps is the number of place settings.

2. CLEANING EFFICIENCY INDEX

For the calculation of the cleaning efficiency index ('I_C') of a household dishwasher model, the cleaning efficiency of the eco programme is compared to the cleaning efficiency of a reference dishwasher.

The I_C is calculated as follows and rounded to two decimal places:

$$I_C = \exp(\ln I_C)$$

and

$$\ln I_C = \frac{1}{n} \times \sum_{i=1}^{n} \ln\left(\frac{C_{T,i}}{C_{R,i}}\right)$$

where:

$C_{T,i}$ is the cleaning efficiency of the eco programme of the household dishwasher under test for one test run (i), rounded to two decimal places;

$C_{R,i}$ is the cleaning efficiency of the reference dishwasher for one test run (i), rounded to two decimal places;

n is the number of test runs.

3. DRYING PERFORMANCE INDEX

For the calculation of the drying performance index ('I_D') of a household dishwasher model, the drying performance of the eco programme is compared to the drying performance of the reference dishwasher.

The I_D is calculated as follows and rounded to two decimal places:

$$I_D = \exp(\ln I_D)$$

and

$$\ln I_D = \frac{1}{n} \times \sum_{i=1}^{n} \ln(I_{D,i})$$

where:

$I_{D,i}$ is the drying performance index of the eco programme of the household dishwasher under test for one test run (i);

n is the number of combined cleaning and drying test runs.

The $I_{D,i}$ is calculated as follows and rounded to two decimal places:

$$\ln I_{D,i} = \ln(\frac{D_{T,i}}{D_{R,\mathrm{t}}})$$

where:

$D_{T,i}$ is the average drying performance score of the eco programme of the household dishwasher under test for one test run (i), rounded to two decimal places;

$D_{R,t}$ is the target drying score of the reference dishwasher, rounded to two decimal places.

ANNEX IV

Verification procedure for market surveillance purposes

1. Verification of ecodesign specific parameters

The verification tolerances defined in this Annex relate only to the verification of the declared parameters by Member State authorities and shall not be used by the manufacturer or importer as an allowed tolerance to establish the values in the technical documentation or in interpreting these values with a view to achieving compliance or to communicate better performance by any means.

When verifying the compliance of a product model with the requirements laid down in this Regulation pursuant to Article 3(2) of Directive 2009/125/EC, for the requirements referred to in this Annex, the authorities of the Member States shall apply the following procedure:

(1) The Member State authorities shall verify one single unit of the model.

(2) The model shall be considered to comply with the applicable requirements if the following conditions are complied with:

(a) the values given in the technical documentation pursuant to point (2) of Annex IV to Directive 2009/125/EC (declared values), and, where applicable, the values used to calculate these values, are not more favourable for the manufacturer or importer than the results of the corresponding measurements carried out pursuant to paragraph (g) thereof;

(b) the declared values meet any requirements laid down in this Regulation, and any required product information published by the manufacturer or importer does not contain values that are more favourable for the manufacturer or importer than the declared values;

(c) when the Member State authorities test the unit of the model, the determined values (the values of the relevant parameters as measured in testing and the values calculated from these measurements) comply with the respective verification tolerances as given in Table 1.

(3) If the conditions referred to in point (2)(a) or (b) are not complied with, the model and all equivalent models shall be considered not to comply with this Regulation.

(4) If the condition referred to in point (2)(c) is not complied with, the Member State authorities shall select three additional units of the same model for testing. As an alternative, the three additional units selected may be of one or more equivalent models.

(5) The model shall be considered to comply with the applicable requirements if, for these three units, the arithmetical mean of the determined values complies with the respective verification tolerances given in Table 1.

(6) If the condition referred to in point (5) is not complied with, the model and all equivalent models shall be considered not to comply with this Regulation.

(7) The Member State authorities shall provide all relevant information to the authorities of the other Member States and to the Commission without delay after a decision being taken on the non-compliance of the model according to points (3) and (6).

Member States' authorities shall use measurement procedures which take into account the generally recognised, state-of-the-art, reliable, accurate and reproducible measurement methods, including methods set out in documents whose reference numbers have been

published for that purpose in the Official Journal of the European Union. The Member State authorities shall use the measurement and calculation methods set out in Annex III.

The Member State authorities shall only apply the verification tolerances that are set out in Table 1 and shall use only the procedure described in points 1 to 7 for the requirements referred to in this Annex. No other tolerances, such as those set out in harmonised standards or in any other measurement method, shall be applied.

Table 1 - Verification tolerances

Parameter	**Verification tolerances**
Eco programme energy consumption (EPEC)	The determined value* shall not exceed the declared value of EPEC by more than 5 %.
Eco programme water consumption (EPWC)	The determined value* shall not exceed the declared value of EPWC by more than 5 %.
Cleaning efficiency index (I_C)	The determined value shall not be less than the declared value of I_C by more than 14 %.
Drying performance index (I_D)	The determined value shall not be less than the declared value of I_D by more than 12 %.
Power consumption in off mode (P_o)	The determined value of power consumption P_o shall not exceed the declared value by more than 0,10 W.
Power consumption in standby mode (P_{sm})	The determined value of power consumption P_{sm} shall not exceed the declared value by more than 10% if the declared value is higher than 1,00 W, by more than 0,10 W if the declared value is lower than or equal to 1,00 W.
Power consumption in delay start (P_{ds})	The determined value of power consumption P_{ds} shall not exceed the declared value by more than 10% if the declared value is higher than 1,00 W, by more than 0,10 W if the declared value is lower than or equal to 1,00 W.

*In the case of three additional units tested as prescribed in point 4, the determined value means the arithmetic average of the values determined for these three additional units.

2. Verification of resource efficiency parameters

When verifying the compliance of a product model with one of the requirements referred to in point 5 of Annex II, the following procedure shall apply:

(1) Availability of necessary spare parts

The verification of compliance to this requirement shall be planned by the Member States authorities at one or more times chosen randomly in the following period:

(a) more than two years after the first product of the model under verification is placed on the market;

(b) less than seven years after the last product of the model under verification is placed on the market.

The Member States authorities shall: (i) check that the list of necessary spare parts and the procedure for ordering them are publicly available and check that the list of necessary spare parts cover the items listed in point (1); (ii) select one or more of the items in the list of point

(1) and order the said item(s) from the manufacturer or importer, following the relevant procedure; (iii) check that the part delivered corresponds to the order or to a satisfactory alternative. In the event that the items delivered do not correspond to the order or to a satisfactory alternative, the order shall be repeated.

The manufacture or importer is considered as not complying with the requirement on the availability of spare parts if the list of necessary spare parts or the procedure for ordering them are not publicly available, or if the necessary spare parts selected are not available for order or if the delivered items do not correspond to the order for two separate orders of the same parts without acceptable justification or an event of force majeure.

(2) Necessary spare parts maximum delivery time

Member States authorities shall verify that the necessary spare parts ordered under the previous point (1) have been delivered within 15 working days. The date of the order shall be the starting date of the delivery period. In the event that the parts ordered are delivered correctly but not within 15 working days, the Member States authorities shall repeat the verification with another sample of necessary spare parts.

A manufacturer or importer is considered as not complying with the requirement on the maximum delivery time if, for the same product, three discrete orders of necessary spare parts are not delivered within 15 working days without acceptable justification of an event of force majeure.

(3) Access to Repair and Maintenance Information

Member States authorities shall check that the access to repair and maintenance information is provided and includes the information requested. The Member States authorities may organise a blind test with a professional repairer meeting the conditions listed under point (3)(b) to verify that the information is accessible to professional repairers in non-discriminatory conditions.

A manufacturer or importer is considered as not complying with the requirement on access to repair and maintenance information if the registration of the professional repairer is rejected, or if the conditions of access are considered discriminatory by the Member States authorities, or if the information is provided after 24 hours without an acceptable justification or an event of force majeure, or if the information provided does not correspond to the information listed under point (3)(c) or to the sub-set of information requested by the professional repairer on this list.

(4) Information requirements for refrigeration gases

Member States authorities shall access the relevant parts of the appliance (heat pump) and check that the chemical name, or an equivalent reference, of the principal component of the refrigerant gas is visibly and legibly marked on the exterior of the appliance. The Member States authorities shall ask the manufacturer to show evidence, for example through the documentation of chemicals used in production, that the name or reference corresponds to the refrigerant gas used for this model. A reference, other than the scientific name of the chemical, is considered equivalent if it is commonly used and understandable by recyclers in the Member State concerned. More than one reference can be used for the same chemical if the manufacturer considers it useful.

A manufacturer or importer is considered as not complying with the requirement on information on refrigeration gases if no marking is found, or if (at least one of) the reference(s) used is not considered understandable or if there is no evidence that the refrigerant used corresponds to the name or reference marked. Where the refrigerant gas is in

the scope of Regulation (EU) No 517/2014, the verification procedure implemented by the Member State in implementation of that Regulation replaces the procedure above.

If the compliance of a manufacturer or importer with the above-mentioned requirements is considered as unsatisfactory by the Member States authorities, the Member States authorities shall take appropriate measures to ensure compliance. The manufacturer shall then take corrective actions, amendments and/or supplements and provide proof of compliance as requested by the Member States authorities.

ANNEX V
Benchmarks

1. INDICATIVE BENCHMARKS FOR HOUSEHOLD DISWASHERS ON WATER AND ENERGY CONSUMPTION, AIRBORNE ACOUSTICAL NOISE EMISSIONS AND PROGRAMME DURATION

The best available technology on the market for household dishwashers in terms of their energy efficiency, energy and water consumption, cleaning and drying efficiency, airborne acoustical noise emissions and programme duration for the eco programme shall be identified as follows:

(1) Household dishwashers with 14 place settings (without heat pump technology):

(a) energy consumption: 0,67 kWh/cycle;

(b) water consumption: 9,9 litres/cycle;

(c) airborne acoustic noise emissions: 44 dB(A);

(d) programme duration: 222 minutes (3 hours and 42 minutes).

(2) Household dishwashers with 13 place settings (with heat pump technology):

(a) energy consumption: 0,55 kWh/cycle;

(b) water consumption: 8,8 litres/cycle;

(c) airborne acoustic noise emissions: 46 dB(A);

(d) programme time: 295 minutes (4 hours and 55 minutes).

(3) Household dishwashers with 10 place settings:

(a) energy consumption: 0,66 kWh/cycle;

(b) water consumption: 9,5 litres/cycle;

(c) airborne acoustic noise emissions: 44 dB(A);

(d) programme duration: 195 minutes (3 hours and 15 minutes).

(4) Household dishwashers with 6 place settings:

(a) energy consumption: 0,62 kWh/cycle;

(b) water consumption: 8,0 litres/cycle;

(c) airborne acoustic noise emissions: 48 dB(A);

(d) programme duration: 225 minutes (3 hours and 45 minutes).

2. INDICATIVE BENCHMARKS FOR HOUSEHOLD DISHWASHERS ON AVAILABILITY OF NECESSARY SPARE PARTS AND DELIVERABLE TIME OF SPARE PARTS

The fastest delivery times of spare parts for household dishwasher are between 7 and 10 days. The longest availability of necessary spare parts of household dishwashers is around 10 years.