

SCHEDULES

SCHEDULE 1

Regulation 4

Ecodesign requirements for welding equipment

Interpretation

1. In this Schedule and Schedule 2—

“control panel” means an overall operating interface, containing controls and indicators, between the user and the welding equipment;

“electricity supply cable” means an electric energy supply cable meeting the performance and safety requirements of internationally recognised welding cable standards;

“equipment housing” means a casing intended to protect the product from the environment, including ambient humidity and possible shock impacts;

“equivalent model” means a model which has the same technical characteristics relevant for the technical information to be provided, but which is placed on the market or put into service by the same manufacturer or authorised representative or importer as another model with a different model identifier;

“fan” means a rotary bladed machine used to maintain a continuous flow of gas, typically air, passing through it and acts for instance as the internal cooling system for the power source;

“gas supply hose” means a supply hose specifically designed for supply of fuel gases (such as acetylene), compressed air and shielding gases used in welding, normally consisting of a tube and a protective cover, often specific to the gas type used, and sometimes to the operating conditions;

“gas supply regulator” means a device which reduces the higher pressure of the supplied compressed gases to the lower pressure that can be safely used in the welding equipment, often equipped with a metering valve or flowmeter to measure or control gas flow;

“idle state” means the operating state in which the power is switched on and the welding circuit is not energised;

“idle state power consumption” means the power demand, in watts, in idle state;

“model identifier” means the code, usually alphanumeric, which distinguishes a specific product model from other models with the same trade mark or the same manufacturer’s, authorised representative’s or importer’s name;

“power source” means a device that, for the purpose of powering welding equipment—

- (a) utilises alternating current (“AC”) to either power one or more AC power outputs, or
- (b) convert AC to one or more direct current (“DC”) power outputs;

“power source efficiency” means the ratio, expressed in a percentage, of the output power at standardised welding conditions and standardised welding load voltages, to the highest power consumption of the power source;

“professional repairer” means a person who provides services of repair and professional maintenance for welding equipment;

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“spare part” means a separate part that can replace a part with the same or similar function in welding equipment;

“welding torch” means a device which delivers the welding current to the electrode, which may include transferring the current to a consumable electrode, where used, and which also delivers the shielding gas, where used, to the electric arc area;

“welding wire drive” means a device, used to feed welding wire or filler material, that may be of the type of push, pull or a push-pull combination.

Energy efficiency requirements

- 2. From 1 January 2023—
 - (a) the power source efficiency of welding equipment must not be lower than the values set out in column 2 of Table 1; and
 - (b) the idle state power consumption of welding equipment must not exceed the values set out in column 3 of Table 1.

Table 1

Power source efficiency and idle state power consumption

	<i>Minimum power source efficiency</i>	<i>Maximum idle state power consumption</i>
Welding equipment powered by three-phase power sources with DC output	85 per cent	50W
Welding equipment powered by single-phase power sources with DC output	80 per cent	50W
Welding equipment powered by single-phase and three phase power sources with AC output	80 per cent	50W

Resource efficiency requirements

- 3.—(1) Welding equipment must meet the following requirements.

Availability of spare parts

(2) Manufacturers, authorised representatives or importers of welding equipment must make available to professional repairers the following spare parts for a minimum period of 10 years after the production of the last unit of a welding equipment model—

- (a) batteries;
- (b) control panels;
- (c) electricity supply cables;
- (d) equipment housing;
- (e) fans;
- (f) gas supply hoses;
- (g) gas supply regulators;
- (h) power sources;
- (i) software and firmware including reset software.

- (j) welding torches;
 - (k) welding wire drives.
- (3) Manufacturers must ensure that spare parts can be replaced with the use of commonly available tools and without permanent damage to the equipment or the part.
- (4) The manufacturer, authorised representative or importer must—
- (a) no later than two years after the first unit of a model is placed on the market, publish the list of spare parts for that product and the procedure for ordering them on a website which is accessible to the public without charge; and
 - (b) ensure that the information referred to in paragraph (a) remains accessible throughout the period that the spare parts remain available.

Access to repair and maintenance information

(5) From no later than two years after the first unit of a model is placed on the market until the end of the period referred to in sub-paragraph (2), a manufacturer, authorised representative or importer of welding equipment must make repair and maintenance information available to professional repairers in accordance with paragraphs (6) to (10).

(6) The website of the manufacturer, authorised representative or importer must set out the process for professional repairers to register for access to repair and maintenance information.

(7) Before granting access to the information, manufacturers, authorised representatives or importers may require the professional repairer to demonstrate that—

- (a) the repairer has the technical expertise to repair and maintain welding equipment and complies with the Electricity at Work Regulations 1989⁽¹⁾;
- (b) the professional repairer is covered by insurance for liabilities resulting from its activities.

(8) The request for registration must be accepted or refused within 5 working days from the date of the request.

(9) Once registered, a professional repairer must be given access to requested repair and maintenance information within one working day of any request. The information may be provided for an equivalent model or model of the same family, if appropriate. The available repair and maintenance information must include—

- (a) component and diagnosis information (such as minimum and maximum theoretical values for measurement);
- (b) data records of reported failure incidents stored in the welding equipment (where applicable);
- (c) diagnostic fault and error codes (including manufacturer-specific codes where applicable);
- (d) a disassembly map or exploded view;
- (e) instructions for installation of relevant software and firmware including reset software;
- (f) a list of necessary repair and test equipment;
- (g) the unequivocal welding equipment identification information;
- (h) wiring and connection diagrams.

(10) Manufacturers, authorised representatives 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 the information.

(1) [S.I. 1989/635](#).

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Maximum delivery time for spare parts

(11) Subject to sub-paragraph (12), during the period referred to in sub-paragraph (2), the manufacturer, importer or authorised representative must ensure delivery of spare parts for welding equipment to professional repairers within 15 working days of receiving an order.

(12) Sub-paragraph (11) does not apply to repairers who have not registered with the manufacturer, importer or authorised representative in accordance with sub-paragraph (6).

Information on the display of welding equipment

(13) Where a display is provided for a welding equipment, it must provide indication of the use of welding wire or filler material in grams per minute or equivalent standardised units of measurement.

Requirements for dismantling for material recovery and recycling

(14) Manufacturers must ensure that welding equipment is designed in such a way that the materials and components referred to in Annex 7 of the WEEE Directive can be removed with the use of commonly available tools.

Information requirements

4.—(1) Manufacturers, their authorised representatives or importers of welding equipment must provide the information specified in sub-paragraph (2) for each piece of equipment—

- (a) in instruction manuals for installers and end-users; and
- (b) for at least 10 years after the first unit of a model is placed on the market, on a website which is accessible to the public without charge.

(2) The information referred to in sub-paragraph (1) is—

- (a) idle state power consumption (in watts);
- (b) indicative shielding gas utilisation for representative welding schedules and programmes;
- (c) indicative welding wire or filler material utilisation for representative welding schedules and programmes,
- (d) information relevant to recycling and disposal at end-of-life;
- (e) a list of critical raw materials present in indicative amounts higher than 1 gram at component level, if any, and an indication of the component(s) in which these critical raw materials are present;
- (f) a list of equivalent models;
- (g) manufacturer's name, registered trade name and registered address at which they can be contacted;
- (h) power source efficiency (in per cent);
- (i) product model identifier;
- (j) product type.

(3) The year of manufacture must be provided on the rating plate of welding equipment.

(4) The instruction manuals referred to in sub-paragraph (1)(a) must be provided with the product when it is placed on the market.

Technical documentation requirements

5.—(1) The technical documentation file required for the conformity assessment of the product must comply with the following.

(2) Where the information in the technical documentation for a particular model has been obtained—

- (a) from a model that has the same technical characteristics relevant for the technical information to be provided but is produced by a different manufacturer;
- (b) by calculation on the basis of design or extrapolation from another model of the same or a different manufacturer; or
- (c) by both paragraphs (a) and (b);

the technical documentation must include the details of any such calculation and 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.

(3) The technical documentation must include a list of all equivalent models, including the model identifiers.

SCHEDULE 2

Regulation 6

Verification procedure for market surveillance purposes for welding equipment

Interpretation

1. In this Schedule—

“declared values” means the values provided by the manufacturer, importer or authorised representative for the stated, calculated or measured technical parameters in the technical documentation, in accordance with the conformity assessment procedure referred to in regulation 5;

“determined values” means the values of the relevant parameters as measured by the market surveillance authority in testing and the values calculated from these measurements.

Verification procedure

2. The market surveillance authority must apply the procedure set out in the following paragraphs when verifying the compliance of a product with these Regulations.

3. The market surveillance authority must initially test one single unit of the model of the product to be verified.

4. Subject to paragraph 5, the model conforms to these Regulations if all the following conditions are satisfied in respect of the tested unit—

- (a) the declared values and, where applicable, the values used to calculate the declared values, are not more favourable for the manufacturer, importer, or authorised representative than the corresponding measurements carried out pursuant to paragraph 1(2)(b)(vii) or 5(2)(d) of Schedule 1A to the 2010 Regulations;
- (b) the manufacturer, importer or authorised representative has put in place a system that complies with the requirements of regulation 8(2), (3) and (4) (software updates);
- (c) the unit complies with the resource efficiency and information requirements set out in Schedule 1;
- (d) any product information published by the manufacturer, importer, or authorised representative complies with the requirements of Schedule 1;

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- (e) any product information published by the manufacturer, importer, or authorised representative does not contain values more favourable for the manufacturer, importer, or authorised representative than the declared values;
- (f) the determined values meet the verification tolerances set out in Table 2 below.

5.—(1) If a unit complies with all the conditions of paragraph 4 except sub-paragraph (f), the market surveillance authority must test three additional units of the model to be verified, or three units of equivalent models.

(2) A model subject to additional testing under this paragraph is deemed to comply with paragraph 4(f) if the arithmetical mean of the determined values for the three additional units meets the verification tolerances set out in Table 2.

(3) If a model fails to meet the test set out in sub-paragraph (2), the model and all equivalent models do not conform to these Regulations.

6. Where a model has been designed to be able to detect it is being tested (for example by recognising test conditions or test cycles), and to react specifically by automatically altering its performance during the test with the objective of reaching a more favourable level for any of the parameters specified in these Regulations or included in the technical documentation or included in any of the documentation provided, the model and all equivalent models do not conform to these Regulations.

Verification tolerances

7.—(1) The verification tolerances set out in Table 2 must be used only by the market surveillance authority and only for the purposes of this Schedule.

(2) The manufacturer, authorised representative or importer of a product must not use the verification tolerances—

- (a) as allowed tolerances to establish the declared values;
- (b) in order to interpret the declared values with a view to achieving compliance; or
- (c) to communicate better performance.

Table 2

Verification tolerances

<i>Parameter</i>	<i>Verification tolerance</i>
Power source efficiency (per cent)	The determined value must not be lower than the declared value by more than 2 per cent.
Idle state power consumption (watt)	The determined value must not exceed the declared value by more than 10 per cent.

SCHEDULE 3

Regulation 10

Ecodesign requirements for refrigerating appliances with a direct sales function

Interpretation

1. In this Schedule and Schedules 4 and 5—

Status: This is the original version (as it was originally made). This item of legislation is currently only available in its original format.

“annual energy consumption” (“AE”) means the average daily energy consumption multiplied by 365 (days per year), expressed in kilowatt hours per year (“kWh/a”), calculated in accordance with paragraph 2 of Schedule 4;

“beverage cooler” means a refrigerating appliance with a direct sales function—

- (a) which is designed to cool, at a specified speed, packaged non-perishable beverages, excluding wine, loaded at ambient temperature, for sale at specified temperatures below the ambient temperature;
- (b) which allows access to the beverages directly through open sides or through one or more doors, drawers or both;
- (c) in which the temperature may increase during periods of no demand, for the purpose of energy saving, in view of the non-perishable nature of the beverages;

“chilled operating temperature” means a temperature—

- (a) between -3.5 degrees Celsius (°C) and 15 °C for appliances equipped with energy management systems for saving energy; and
- (b) between -3.5 °C and 10 °C for appliances not so equipped;

“climate class factor” (“CC”) means a correction factor that accounts for the difference in ambient conditions for which the refrigerating appliance with a direct sales function is designed;

“carousel cabinet” means a round or circular shape supermarket cabinet equipped with a turning system which provides a 360° display of foodstuff, and can be installed as—

- (a) a standalone unit, or
- (b) a unit connecting two linear supermarket cabinets;

“combined cabinet” means a refrigerating appliance with a direct sales function which combines display and opening directions from a vertical and a horizontal cabinet;

“corner or curved cabinet” means a refrigerating appliance with a direct sales function—

- (a) which is used to achieve geometrical continuity between two linear cabinets that are at an angle to each other or that form a curve;
- (b) which does not have a recognisable longitudinal axis or length since it consists only of a filling shape (wedge or similar) and is not designed to function as a stand-alone refrigerated unit;
- (c) in which the two ends of the corner or curved cabinet are inclined at an angle between 30 ° and 90 °;

“daily energy consumption” (“E_{daily}”) means the energy used by a refrigerating appliance with a direct sales function over 24 hours at reference conditions, expressed in kilowatt hours per day (kWh/24h);

“declared values” means the values provided by the manufacturer, importer or authorised representative for the stated, calculated or measured technical parameters in the technical documentation, in accordance with the conformity assessment procedure referred to in regulation 11;

“door gasket” means a mechanical seal which fills the space between the door and the cabinet of the refrigerating appliance with a direct sales function to prevent leakage from the cabinet to the outdoor air;

“energy efficiency index” (“EEI”) means an index number for the relative energy efficiency of a refrigeration appliance with a direct sales function expressed as a percentage, calculated in accordance with paragraph 2 of Schedule 4;

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“equivalent model” means a model which has the same technical characteristics relevant for the technical information to be provided, but which is placed on the market or put into service by the same manufacturer, importer or authorised representative as another model with a different model identifier;

“freezer” means a refrigerating appliance with a direct sales function that continuously maintains the temperature of the products stored in the cabinet at frozen operating temperature;

“frozen operating temperature” means a temperature below $-12\text{ }^{\circ}\text{C}$;

“gelato-scooping cabinet” means a refrigerating appliance with a direct sales function in which ice-cream can be stored, displayed and scooped, within prescribed temperature limits as set out in Part 1 of Table 7 in Schedule 4;

“guarantee” means any undertaking by the retailer or a manufacturer, importer or authorised representative to the consumer, to—

(a) reimburse the price paid for the appliance; or

(b) repair or replace refrigerating appliances with a direct sales function in any way,

if they do not meet the specifications set out in the guarantee statement or in the relevant advertising;

“horizontal cabinet” means a refrigerating appliance with a direct sales function with horizontal display, opening on its top, and accessible from above;

“horizontal serve-over counter with integrated storage” means a horizontal cabinet for assisted service, which includes refrigerated storage which is of at least 100 litres (L) per metre (m) length and which is normally placed at the serve-over counter’s base;

“ice-cream freezer” means a horizontal cabinet intended to store or display and sell pre-packed ice cream, where access by the consumer to the pre-packed ice cream is achieved by opening a non-transparent or transparent lid from the top, with a net volume ≤ 600 litres (L) and, only in the case of transparent lid ice-cream freezers, a net volume divided by the total display area ≥ 0.35 meters (m);

“integral cabinet” means a refrigerating appliance with a direct sales function that has an integrated refrigeration system which incorporates a compressor and condensing unit;

“M” and “N” mean modelling parameters that take into account the total display area or volume-dependence of the energy use, with values as set out in Table 6 in Schedule 4;

“M-package” means a test package fitted with a temperature measuring device;

“model identifier” means the code, usually alphanumeric, which distinguishes a specific product model from other models with the same trade mark or the same manufacturer’s, importer’s or authorised representative’s name;

“multi-temperature vending machine” means a refrigerated vending machine including at least two compartments with different operating temperatures;

“P” means a correction factor that accounts for the differences between integral and remote cabinets;

“professional repairer” means a person who provides services of repair and professional maintenance of refrigerating appliances with a direct sales function;

“refrigerated drum vending machine” means a refrigerated vending machine with rotating drums each divided in partitions, in which the foodstuffs and other items are placed on a horizontal surface, and are retrieved through individual delivery doors;

“refrigerator” means a refrigerating appliance with a direct sales function that continuously maintains the temperature of the products stored in the cabinet at chilled operating temperature;

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“roll-in cabinet” means a supermarket cabinet which enables goods to be displayed directly on their pallets or rolls which can be placed inside by lifting, swinging, or removing the lower front part, where fitted;

“saladette” means a refrigerating appliance with a direct sales function with one or more doors or drawer fronts in the vertical plane that has cut-outs in the top surface into which temporary storage bins can be inserted for easy access storage of foodstuffs such as pizza toppings or salad items;

“serve-over fish counter with flaked ice” means a cabinet for horizontal assisted service, designed and marketed specifically for fresh fish display. It is characterised by having on its top a bed of flaked ice used to maintain the temperature of the displayed fresh fish, and it also has a built in drain outlet;

“spare part” means a separate part that can replace a part with the same or similar function in a product;

“standard annual energy consumption” (“SAE”) means the reference annual energy consumption of a refrigeration appliance with a direct sales function, expressed in kilowatt hours per year (kWh/a), calculated in accordance with paragraph 2 of Schedule 4;

“supermarket cabinet” means a refrigerating appliance with a direct sales function intended for the sale and display of foodstuffs and other items in retail applications, such as in supermarkets, but does not include beverage coolers, refrigerated vending machines, gelato-scooping cabinets and ice-cream freezers;

“temperature coefficient” (“C”) means a correction factor that accounts for the difference in operating temperature;

“total display area” (“TDA”) means the total visible foodstuffs and other items area, including visible area through glazing, defined by the sum of horizontal and vertical projected surface areas of the net volume, expressed in square meters (m²);

“transparent lid” means a door made of a transparent material that covers at least 75 per cent of the door surface and that allows the end-user to see items through it;

“vacuum insulation panel” (“VIP”) means an insulation panel consisting of a firm, highly-porous material encased in a thin, gas-tight outer envelope, from which the gases are evacuated and which is sealed to prevent outside gases from entering the panel;

“vertical cabinet” means a refrigerating appliance with a direct sales function with a vertical or inclined display opening from the front.

Energy efficiency requirements

2.—(1) Subject to paragraph 6, until 31 August 2023 the EEI of refrigerating appliances with a direct sales function must not be above the values as set out in Table 3.

Table 3

Maximum EEI

	EEI (per cent)
Ice-cream freezers	80
All other refrigerating appliances with a direct sales function	100

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(2) Subject to sub-paragraph (3) and paragraph 6, from 1 September 2023 the EEI of refrigerating appliances with a direct sales function, must not be above the values as set out in Table 4.

(3) Sub-paragraph (2) does not apply to refrigerated drum vending machines.

Table 4

Maximum EEI

	EEI (per cent)
Ice-cream freezers	50
All other refrigerating appliances with a direct sales function	80

Resource efficiency requirements

3.—(1) Refrigerating appliances with a direct sales function must meet the following resource efficiency requirements.

Availability of spare parts

(2) Manufacturers, authorised representatives or importers of refrigerating appliances with a direct sales function must make available to professional repairers at least the following spare parts for a minimum period of eight years after placing the last unit of the model on the market—

- (a) light sources;
- (b) no-frost heating resistors;
- (c) printed circuit boards;
- (d) software and firmware, including reset software;
- (e) starting relays;
- (f) temperature sensors; and
- (g) thermostats.

(3) Manufacturers, authorised representatives or importers of refrigerating appliances with a direct sales function must make available to professional repairers and end-users at least the following spare parts for a minimum period of eight years after placing the last unit of the model on the market—

- (a) door gaskets;
- (b) door handles and hinges;
- (c) knobs, dials and buttons; and
- (d) peripheral trays, baskets and racks for storage,

(4) Manufacturers, authorised representatives or importers of refrigerating appliances with a direct sales function must ensure that the spare parts mentioned in sub-paragraphs (2) and (3) can be replaced with the use of commonly available tools and without permanent damage to the appliance.

(5) The manufacturer, authorised representative or importer must, no later than two years after the first unit of a model is placed on the market—

- (a) publish for that product the list of spare parts referred to in sub-paragraph (2) and the procedure for ordering them on a website which is accessible to the public without charge; and

- (b) ensure that the information referred to in paragraph (a) remains accessible throughout the period that the spare parts remain available.
- (6) When the first unit of a model is placed on the market, the manufacturer, authorised representative or importer must—
 - (a) publish for that product—
 - (i) the list of spare parts referred to in sub-paragraph (3);
 - (ii) the procedure for ordering them; and
 - (iii) the repair instructions;
 - on a website which is accessible to the public without charge; and
 - (b) ensure that the information referred to in paragraph (a) remains accessible throughout the period that the spare parts remain available.

Maximum delivery time for spare parts

(7) Subject to sub-paragraph (8), during the period referred to in sub-paragraph (2), the manufacturer, importer or authorised representative must ensure delivery of spare parts for refrigerating appliances with a direct sales function within 15 working days of receiving an order.

(8) In relation to products specified in sub-paragraph (2), sub-paragraph (7) does not apply to repairers who have not registered with the manufacturer, importer or authorised representative in accordance with sub-paragraph (10).

Access to repair and maintenance information

(9) From no later than two years after the placing on the market of the first unit of a model or of an equivalent model until the end of the period referred to in sub-paragraph (2), the manufacturer, importer or authorised representative must provide access to the appliance repair and maintenance information to professional repairers in accordance with the following provisions.

(10) The manufacturer's, importer's or authorised representative's website must set out the process for professional repairers to register for access to repair and maintenance information.

(11) Before granting access to the information, the manufacturer, authorised representative or importer may require the professional repairer to demonstrate that –

- (a) the professional repairer has the technical competence to repair refrigerating appliances with a direct sales function and complies with the Electricity at Work Regulations 1989;
- (b) the professional repairer is covered by insurance for liabilities resulting from its activities.

(12) The request for registration must be accepted or refused within 5 working days from the date of the request.

(13) Once registered, a professional repairer must be given access to requested repair and maintenance information within one working day of any request. The information may be provided for an equivalent model or model of the same family, if appropriate. The available repair and maintenance information must include—

- (a) component and diagnosis information (such as minimum and maximum theoretical values for measurements);
- (b) diagnostic fault and error codes (including manufacturer-specific codes, where applicable);
- (c) a disassembly map or exploded view;
- (d) information on how to access data records of reported failure incidents stored on the refrigerating appliance with a direct sales function (where applicable);
- (e) instructions for installation of relevant software and firmware including reset software;

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- (f) list of necessary repair and test equipment;
- (g) technical manual of instructions for repair;
- (h) unequivocal appliance identification; and
- (i) wiring and connection diagrams.

(14) Manufacturers, authorised representatives 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 the information.

Requirements for dismantling for material recovery and recycling

(15) Manufacturers, importers or authorised representatives must ensure that refrigerating appliances with a direct sales function are designed in such a way that the materials and components referred to in Annex 7 of the WEEE Directive can be removed with the use of commonly available tools.

(16) If the refrigerating appliance with a direct sales function contains vacuum insulation panels, the appliance must be labelled with the letters “VIP”, in such a way that the labelling is clearly visible, legible and indelible.

Information requirements

4.—(1) Manufacturers, their authorised representatives or importers of refrigerating appliances with a direct sales function must provide the information specified in sub-paragraph (2)—

- (a) in instruction manuals for installers and end-users; and
 - (b) on a website which is accessible to the public without charge.
- (2) The information referred to in sub-paragraph (1) is—
- (a) for beverage coolers, the following statement: “This appliance is intended to operate in climates where the maximum temperature and the humidity are [fill in the applicable warmest temperature of the beverage cooler and the applicable relative humidity of the beverage cooler from Table 9 in Schedule 4] respectively”;
 - (b) an estimate of the impact of temperature settings on food waste;
 - (c) how to access professional repair such as internet web pages, addresses and contact details;
 - (d) for ice-cream freezers, the following statement: “This appliance is intended to operate in climates where the temperature and the humidity ranges from [fill in the applicable minimum temperature of Table 11 in Schedule 4] to [fill in the applicable maximum temperature of Table 11] and from [fill in the applicable minimum relative humidity of Table 11] to [fill in the applicable maximum relative humidity of Table 11] respectively”;
 - (e) instructions for the correct installation and end-user maintenance, including cleaning, of the refrigerating appliance with a direct sales function;
 - (f) subject to paragraph 6, instructions on how to find the model information on a publicly accessible website;
 - (g) for integral cabinets, the recommended frequency for cleaning the condenser coil, expressed in times per year, and a statement that if the condenser coil is not cleaned, the efficiency of the appliance will decrease significantly;
 - (h) the minimum duration of the guarantee of the refrigerating appliance with a direct sales function offered by the manufacturer, importer or authorised representative;
 - (i) the minimum period during which spare parts, necessary for the repair of the refrigerating appliance with a direct sales function, are available;

- (j) the recommended setting of temperatures in each compartment for optimum food preservation; and
 - (k) relevant information for ordering spare parts, directly or through other channels provided by the manufacturer, importer or authorised representative such as internet web pages, addresses and contact details.
- (3) The instruction manuals referred to in sub-paragraph (1)(a) must be provided with the product when it is placed on the market.

Technical documentation requirements

5.—(1) The technical documentation file required for the conformity assessment of the product must comply with sub-paragraphs (2) to (4).

(2) Where the information in the technical documentation for a particular model has been obtained—

- (a) from a model that has the same technical characteristics relevant for the technical information to be provided but is produced by a different manufacturer;
- (b) by calculation on the basis of design or extrapolation from another model of the same or a different manufacturer; or
- (c) by both paragraphs (a) and (b);

the technical documentation must include the details of any such calculation and 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.

(3) The technical documentation must include a list of all equivalent models, including the model identifiers.

(4) The technical documentation must include the information in the order and as set out in Schedule 25.

Exemptions

6. Paragraphs 2 and 4(2)(f) of this Schedule do not apply to—

- (a) refrigerating appliances with a direct sales function that do not use a vapour compression refrigeration cycle;
- (b) refrigerating appliances with a direct sales function for the sale and display of live foodstuffs, such as refrigerating appliances for the sale and display of living fish and shellfish, refrigerated aquaria and water tanks;
- (c) saladettes;
- (d) horizontal serve-over counters with integrated storage designed to work at chilled operating temperatures;
- (e) corner/curved and carousel cabinets;
- (f) vending machines designed to work at frozen operating temperatures;
- (g) serve-over fish counters with flaked ice.

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SCHEDULE 4

Regulations 11 and 49

Measurement methods and calculations for refrigerating appliances with a direct sales function

1.—(1) Sub-paragraphs (2) to (5) apply for the purposes of the measurements and calculations referred to in paragraph 2.

(2) The ambient conditions must correspond to—

- (a) for ice-cream freezers and gelato-scooping cabinets, Set 2 in Table 5;
- (b) for all other products, Set 1 in Table 5.

(3) Where a compartment can be set to different temperatures, it must be tested at the lowest operating temperature.

(4) Refrigerated vending machines with compartments with variable volumes must be tested with the net volume of the compartment with the highest operating temperature adjusted to its minimum net volume.

(5) For beverage coolers, the specified cooling speed must be according to the half reload recovery time.

Table 5

Ambient conditions

	<i>Dry bulb temperature, °C</i>	<i>Relative humidity, per cent</i>	<i>Dew point, °C</i>	<i>Water vapour mass in dry air, g/kg</i>
Set 1	25	60	16.7	12.0
Set 2	30	55	20.0	14.8

2.—(1) The EEI is determined as follows.

(2) For all refrigerating appliances with a direct sales function, the EEI, expressed in per cent and rounded to the first decimal place, is the ratio of the AE (in kWh/a) and the reference SAE (in kWh/a) and is calculated as—

$$EEI = AE/SAE.$$

(3) For the purposes of sub-paragraph (2) the AE, expressed in kWh/a and rounded to two decimal places, is calculated as follows—

$$AE = 365 \times E_{\text{daily}};$$

where E_{daily} is the energy consumption of the refrigerating appliance with a direct sales function over 24 hours, expressed in kWh/24h and rounded to three decimal places.

(4) For the purposes of sub-paragraph (2) the SAE, expressed in kWh/a and rounded to two decimal places, is calculated as follows—

(a) for refrigerating appliances with a direct sales function where all compartments have the same temperature class, and for refrigerated vending machines, the SAE is calculated as—

$$SAE = 365 \times P \times (M + N \times Y) \times C;$$

(b) for all other refrigerating appliances with a direct sales function, the SAE is calculated as—

$$SAE = 365 \times P \times \sum_{c=1}^n (M + N \times Y_c) \times C_c$$

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- (5) For the purposes of sub-paragraph (4)—
- (a) c is the index number for a compartment type ranging from 1 to n , with n being the total number of compartment types;
 - (b) the values of M and N are as set out in Table 6;
 - (c) the values of C (the temperature coefficient) are set out in Table 7; for any appliance not listed in Table 7, the value of C is 1;
 - (d) coefficient Y is calculated as follows—
 - (i) for beverage coolers, Y_c is the equivalent volume of the compartments of the beverage cooler with target temperature T_c , (Veq_c), calculated as follows—

$$Y_c = Veq_c = \text{GrossVolume}_c \times ((25 - T_c)/20) \times CC;$$
 where—
 - T_c is the average compartment temperature and CC is the climate class factor; the values for T_c are as set out in Table 8;
 - the values for CC are as set out in Table 9;
 - (ii) for ice-cream freezers, Y_c is the equivalent volume of the compartments of the ice-cream freezer with target temperature T_c , (Veq_c), calculated as follows—

$$Y_c = Veq_c = \text{NetVolume}_c \times ((12 - T_c)/30) \times CC;$$
 where—
 - T_c is the average compartment temperature and CC is the climate class factor; the values for T_c are as set out in Table 10;
 - the values for CC are as set out in Table 11;
 - (iii) for refrigerated vending machines, Y is the net volume of the refrigerated vending machine, which is the sum of the volumes of all compartments within which the products directly available for vending are contained and the volume through which the products pass during the dispensing process, expressed in litres (L) and rounded to the nearest integer;
 - (iv) for all other refrigerating appliances with direct sales function, Y_c is the sum of the TDA of all compartments of the same temperature class of the refrigerating appliance with a direct sales function, expressed in square meters (m^2), and rounded to two decimal places;
 - (e) the values of P are set out in Table 12.

Table 6

M and N values

<i>Category</i>	<i>Value for M</i>	<i>Value for N</i>
Beverage coolers	2.1	0.006
Ice-cream freezers	2.0	0.009
Refrigerated vending machines	4.1	0.004
Gelato-scooping cabinets	25.0	30.4
Vertical and combined supermarket refrigerator cabinets	9.1	9.1
Horizontal supermarket refrigerator cabinets	3.7	3.5

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<i>Category</i>	<i>Value for M</i>	<i>Value for N</i>
Vertical and combined supermarket freezer cabinets	7.5	19.3
Horizontal supermarket freezer cabinets	4.0	10.3
Roll-in cabinets (until 31 August 2023)	9.2	11.6
Roll-in cabinets (from 1 September 2023)	9.1	9.1

Table 7

Temperature conditions and corresponding coefficient (C) values

Part 1 – supermarket and gelato cabinets

<i>Category</i>	<i>Temperature class</i>	<i>Highest temperature of warmest M-package (°C)</i>	<i>Lowest temperature of coldest M-package (°C)</i>	<i>Highest minimum temperature of all M-packages (°C)</i>	<i>Value for C</i>
Vertical and combined supermarket refrigerator cabinets	M2	$\leq +7$	≥ -1	N/A	1.00
	H1 and H2	$\leq +10$	≥ -1	N/A	0.82
	M1	$\leq +5$	≥ -1	N/A	1.15
Horizontal supermarket refrigerator cabinets	M2	$\leq +7$	≥ -1	N/A	1.00
	H1 and H2	$\leq +10$	≥ -1	N/A	0.92
	M1	$\leq +5$	≥ -1	N/A	1.08
Vertical and combined supermarket freezer cabinets	L1	≤ -15	N/A	≤ -18	1.00
	L2	≤ -12	N/A	≤ -18	0.9
	L3	≤ -12	N/A	≤ -15	0.9
Horizontal supermarket freezer cabinets	L1	≤ -15	N/A	≤ -18	1.00
	L2	≤ -12	N/A	≤ -18	0.92
	L3	≤ -12	N/A	≤ -15	0.92
Vertical and combined refrigerator supermarket cabinets	M0	$\leq +4$	≥ -1	N/A	1.30
Horizontal refrigerator supermarket cabinets	M0	$\leq +4$	≥ -1	N/A	1.13
Gelato-scooping cabinets	G1	-10	-14	N/A	1.00
	G2	-10	-16	N/A	1.00
	G3	-10	-18	N/A	1.00
	L1	-15	N/A	-18	1.00

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Category	Temperature class	Highest temperature of warmest M-package (°C)	Lowest temperature of coldest M-package (°C)	Highest minimum temperature of all M-packages (°C)	Value for C
	L2	-12	N/A	-18	1.00
	L3	-12	N/A	-15	1.00
	S (special classification)				1.00

Temperature conditions and corresponding coefficient (C) values

Part 2 – Refrigerated vending machines

Temperature class	Maximum measured product temperature (T _v) (°C)	Value for C
Category 1	7	1+(12-T _v)/25
Category 2	12	
Category 3	3	
Category 4	(T _{v1} +T _{v2})/2	
Category 6	(T _{v1} +T _{v2})/2	

(6) For the purposes of Table 7—

- (a) “N/A” means “not applicable”;
- (b) for multi-temperature vending machines, T_v is the average of T_{v1} (the maximum measured product temperature in the warmest compartment) and T_{v2} (the maximum measured product temperature in the coldest compartment), rounded to one decimal;
- (c) the categories of temperature class in Part 2 are—
 - category 1: refrigerated closed fronted can and bottle machines where the products are held in stacks;
 - category 2: refrigerated glass fronted can and bottle, confectionery & snack machines;
 - category 3: refrigerated glass fronted machines entirely for perishable foodstuffs;
 - category 4: refrigerated multi-temperature glass fronted machines;
 - category 6: combination machines consisting of different categories of machine in the same housing and powered by one chiller.

Table 8

Temperature classes and corresponding average compartment temperatures (T_c) for beverage coolers

Temperature class	T _c (°C)
K1	+3.5
K2	+2.5

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<i>Temperature class</i>	<i>Tc (°C)</i>
K3	-1.0
K4	+5.0

Table 9

Operating conditions and corresponding CC values for beverage coolers

<i>Warmest ambient temperature (°C)</i>	<i>Ambient relative humidity (per cent)</i>	<i>CC</i>
+25	60	1.00
+32	65	1.05
+40	75	1.10

Table 10

Temperature classes and corresponding average compartment temperatures (Tc) for ice-cream freezers

<i>Temperature class</i>	<i>Temperature class</i>	<i>Tc (°C)</i>
Warmest M-package temperature colder or equal to in all tests (except lid opening test) (°C)	Warmest M-package maximum temperature rise allowed during the lid opening test (°C)	
-18	2	-18.0
-7	2	-7.0

Table 11

Operating conditions and corresponding CC values for ice-cream freezers

	<i>Minimum ambient temperature (°C)</i>	<i>Minimum ambient relative humidity (per cent)</i>	<i>Maximum ambient temperature (°C)</i>	<i>Maximum ambient relative humidity (per cent)</i>	<i>CC</i>
Ice-cream freezer with transparent lid	16	80	30	55	1.00
			35	75	1.10
			40	40	1.20
Ice-cream freezer with non-transparent lid	16	80	30	55	1.00
			35	75	1.04
			40	40	1.10

Table 12

P values

<i>Cabinet type</i>	<i>P</i>
Integral supermarket cabinets	1.10
Other refrigerating appliances with a direct sales function	1.00

SCHEDULE 5

Regulation 12

Verification procedure for market surveillance purposes
for refrigerating appliances with a direct sales function

Interpretation

1. In this Schedule “determined values” means the values of the relevant parameters as measured by the market surveillance authority in testing and the values calculated from these measurements.

Verification procedure

2. The market surveillance authority must apply the procedure in the following paragraphs when verifying the compliance of a product with these Regulations, using the measurement and calculation methods provided for in Schedule 4.

3. The market surveillance authority must initially test one single unit of the model of the product to be verified.

4. Subject to paragraph 5, the model conforms to these Regulations if all the following conditions are satisfied in respect of the tested unit—

- (a) the declared values and, where applicable, the values used to calculate the declared values, are not more favourable for the manufacturer, importer, or authorised representative than the corresponding measurements carried out pursuant to paragraph 1(2)(b)(vii) or 5(2)(d) of Schedule 1A to the 2010 Regulations;
- (b) the manufacturer, importer or authorised representative has put in place a system that complies with the requirements of regulation 14(2), (3) and (4) (software updates);
- (c) the unit complies with the resource efficiency and information requirements set out in Schedule 3;
- (d) any product information published by the manufacturer, importer, or authorised representative complies with the requirements of Schedule 3;
- (e) any product information published by the manufacturer, importer, or authorised representative does not contain values more favourable for the manufacturer, importer, or authorised representative than the declared values;
- (f) the determined values meet the verification tolerances set out in the Table below.

5.—(1) If a unit complies with all the conditions of paragraph 4 except sub-paragraph (f), the market surveillance authority must test three additional units of the model to be verified, or three units of equivalent models.

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(2) A model subject to additional testing under this paragraph is deemed to comply with paragraph 4(f) if the arithmetical mean of the determined values for the three additional units meets the verification tolerances set out in Table 13.

(3) If a model fails to meet the test set out in sub-paragraph (2), the model and all equivalent models do not conform to these Regulations.

6. Where a model has been designed to be able to detect it is being tested (for example by recognising test conditions or test cycles), and to react specifically by automatically altering its performance during the test with the objective of reaching a more favourable level for any of the parameters specified in these Regulations or included in the technical documentation or included in any of the documentation provided, the model and all equivalent models do not conform to these Regulations.

Verification tolerances

7.—(1) The verification tolerances set out in Table 13 must be used only by the market surveillance authority and only for the purposes of this Schedule.

(2) The manufacturer, authorised representative or importer of a product must not use the verification tolerances—

- (a) as allowed tolerances to establish the declared values;
- (b) in order to interpret the declared values with a view to achieving compliance; or
- (c) to communicate better performance.

Table 13

Verification tolerances

<i>Parameters</i>	<i>Verification tolerances</i>
Net volume, and net compartment volume where applicable	The determined value must not be more than the greater of 3 per cent or 1L lower than the declared value.
Gross volume, and gross compartment volume where applicable	The determined value must not be more than the greater of 3 per cent or 1L lower than the declared value.
TDA, and compartment TDA where applicable	The determined value must not be more than 3 per cent lower than the declared value.
E_{daily}	The determined value must not be more than 10 per cent higher than the declared value.
AE	The determined value must not be more than 10 per cent higher than the declared value.

SCHEDULE 6

Regulation 16

Ecodesign requirements for household dishwashers

Interpretation

1. In this Schedule and Schedules 7 and 8—

“cleaning performance index” (“I_C”) means the ratio of the cleaning performance of a household dishwasher to the cleaning performance of a reference household dishwasher;

“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;

“declared values” means the values provided by the manufacturer, importer or authorised representative for the stated, calculated or measured technical parameters in the technical documentation, in accordance with the conformity assessment procedure referred to in regulation 17;

“delay start” means a condition where the user has selected a specified delay to the beginning of the cycle of the selected programme;

“drying performance index” (“I_D”) means the ratio of the drying performance of a household dishwasher to the drying performance of a reference household dishwasher;

“eco” means the name of the programme of a household dishwasher declared by the manufacturer, importer or authorised representative as suitable to clean normally soiled tableware, and to which the ecodesign requirements on energy efficiency, cleaning and drying performance relate;

“eco programme energy consumption” (“EPEC”) means the energy consumption of a household dishwasher for the eco programme, expressed in kilowatt hour per cycle;

“eco programme water consumption” (“EPWC”) means the water consumption of a household dishwasher for the eco programme, expressed in litres per cycle;

“Energy Efficiency Index” (“EEI”) means the ratio of the eco programme energy consumption to the standard programme energy consumption;

“equivalent model” means a model which has the same technical characteristics in respect of the technical information to be provided, but which is placed on the market or put into service by the same manufacturer, importer or authorised representative as another model with a different model identifier;

“guarantee” means any undertaking by the retailer or a manufacturer to the consumer to—

- (a) reimburse the price paid for a household dishwasher; or
- (b) replace, repair or handle household dishwashers in any way;

if they do not meet the specifications set out in the guarantee statement or in the relevant advertising;

“model identifier” means the code, usually alphanumeric, which distinguishes a specific product model from other models with the same trade mark or the same manufacturer’s, importer’s or authorised representative’s name;

“network” means a communication infrastructure with a topology of links and an architecture that includes physical components, organisational principles, communication procedures and formats (protocols);

“networked standby” means a condition in which the household dishwasher is able to resume a function by way of a remotely initiated trigger from a network connection;

“off mode” means a condition in which the household dishwasher is connected to the mains and is not providing any function; the following must also be considered as off mode—

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

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- (b) conditions providing only functionalities intended to ensure electromagnetic compatibility in accordance with the Electromagnetic Compatibility Regulations 2016(2);

“place setting” (“ps”) means a set of tableware for use by one person, not including serving pieces;

“professional repairer” means a person who provides services of repair and professional maintenance of household dishwashers;

“programme” means a series of operations that are pre-defined and are declared by the manufacturer, importer or authorised representative as suitable for specified levels of soil or types of load, or both;

“programme duration” (“ T_t ”) means the length of time beginning with the initiation of the programme selected, excluding any user programmed delay, until the end of the programme is indicated and the user has access to the load;

“rated capacity” means the maximum number of place settings together with the serving pieces, which can be cleaned, rinsed and dried in a household dishwasher in one cycle when loaded in accordance with the manufacturer’s, importer’s or authorised representative’s instructions;

“serving pieces” means items for the preparation and serving of food which can include pots, serving bowls, serving cutlery and platters;

“spare part” means a separate part that can replace a part with the same or similar function in a product;

“standard programme energy consumption” (“SPEC”) means the energy consumption of the programme taken as a reference as a function of the rated capacity, expressed in kilowatt hours per cycle;

“standby mode” means a condition where the household dishwasher is connected to the mains, and provides only one or more of the following functions, which may persist for an indefinite time—

- (a) reactivation function, or reactivation function and a mere indication of enabled reactivation function;
- (b) reactivation function through a connection to a network;
- (c) information or status display;
- (d) detection function for emergency measures.

Programme requirements

2. Household dishwashers must provide an eco programme that meets the following requirements.

3. The eco programme must be—

- (a) named “eco” on the programme selection device of the dishwasher, on the dishwasher display, if any, and on the relevant network application, if any; and
- (b) set as the default programme for dishwashers equipped with automatic programme selection or any function maintaining the selection of a programme, or, if there is no automatic programme selection, available for direct selection without the need for any other selection such as a specific temperature or load.

4. The name “eco” must be used exclusively for this programme. No additional information may be combined with the term “eco” other than the temperature of the eco programme.

(2) [S.I. 2016/1091](#).

5. The indications “normal”, “daily”, “regular” and “standard” must not be used in programme names for the dishwasher, either alone or in combination with other information.

Energy efficiency requirements

6. The EEI of household dishwashers must be less than 63.
7. From 1 March 2024, the EEI of household dishwashers with a rated capacity equal to or more than 10 place settings must be less than 56.
8. The EEI of a dishwasher is calculated in accordance with Schedule 7.

Functional requirements

9. The cleaning performance index (I_C) of household dishwashers must be greater than 1.12.
10. The drying performance index (I_D) must be—
 - (a) greater than 1.06 for household dishwashers with a rated capacity of more than 7 place settings;
 - (b) greater than 0.86 for household dishwashers with a rated capacity equal to or less than 7 place settings.
11. The I_C and the I_D are calculated in accordance with Schedule 7.

Low power modes

- 12.—(1) Household dishwashers must meet the following power requirements.
- (2) Dishwashers must have—
 - (a) an off mode;
 - (b) a standby mode; or
 - (c) off and standby modes.

The power consumption of these modes must not exceed 0.50 W.

(3) Where the standby mode includes the display of information or status, the power consumption of this mode must not exceed 1.00 W.

(4) Where the standby mode provides for a connection to a network and provides networked standby, the power consumption of this mode must not exceed 2.00 W.

(5) The dishwasher must switch automatically to off mode or standby mode no later than 15 minutes after—

- (a) the end of any programme and associated activities; or
- (b) any interaction with the dishwasher, if no other mode, including emergency measures, is triggered.

(6) Where the dishwasher provides for a delay start, the power consumption in this condition, including any standby mode, must not exceed 4.00 W. The delay start must not be programmable by the user for more than 24 hours.

(7) Any dishwasher that can be connected to a network must provide the option to activate and deactivate the network connection. The network connection must be deactivated by default.

Resource efficiency requirements

- 13.—(1) Household dishwashers must meet the following requirements.

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Availability of spare parts

(2) Manufacturers, authorised representatives or importers of household dishwashers must make available to professional repairers at least the following spare parts, for a minimum period of seven years after placing the last unit of the model on the market—

- (a) circulation and drain pump;
- (b) electronic displays;
- (c) heaters and heating elements, including heat pumps (separately or bundled);
- (d) motor;
- (e) piping and related equipment including all hoses, valves, filters and aquastops;
- (f) pressure switches;
- (g) printed circuit boards;
- (h) software and firmware including reset software;
- (i) structural and interior parts related to door assemblies (separately or bundled);
- (j) thermostats and sensors.

(3) Manufacturers, authorised representatives or importers of household dishwashers must make available to professional repairers and end-users at least the following spare parts, for a minimum period of 10 years after placing the last unit of the model on the market—

- (a) door hinges and door seals;
- (b) drain filters;
- (c) interior racks and plastic peripherals such as baskets and lids;
- (d) other seals;
- (e) spray arms.

(4) Manufacturers, authorised representatives or importers of household dishwashers must ensure that the spare parts mentioned in sub-paragraphs (2) and (3) can be replaced with the use of commonly available tools and without permanent damage to the appliance.

(5) The manufacturer, authorised representative or importer must—

- (a) no later than two years after the first unit of a model is placed on the market, publish for that product the list of spare parts referred to in sub-paragraph (2) and the procedure for ordering them on a website which is accessible to the public without charge; and
- (b) ensure that the information referred to in paragraph (a) remains accessible throughout the period that the spare parts remain available.

(6) When the first unit of a model is placed on the market, the manufacturer, authorised representative or importer must—

- (a) publish for that product—
 - (i) the list of spare parts referred to in sub-paragraph (3);
 - (ii) the procedure for ordering them; and
 - (iii) the repair instructions;on a website which is accessible to the public without charge; and
- (b) ensure that the information referred to in paragraph (a) remains accessible throughout the period that the spare parts remain available.

Maximum delivery time for spare parts

(7) Subject to sub-paragraph (8), during the period referred to in sub-paragraphs (2) or (3) (as applicable), the manufacturer, importer or authorised representative must ensure delivery of spare parts for dishwashers within 15 working days of receiving an order.

(8) In relation to products specified in sub-paragraph (2), paragraph (7) does not apply to repairers who have not registered with the manufacturer, importer or authorised representative in accordance with sub-paragraph (10).

Access to repair and maintenance information

(9) From no later than two years after the placing on the market of the first unit of a model or of an equivalent model until the end of the period referred to in sub-paragraph (2), the manufacturer, importer or authorised representative must provide access to appliance repair and maintenance information to professional repairers in accordance with sub-paragraphs (10) to (14).

(10) The manufacturer's, importer's or authorised representative's website must set out the process for professional repairers to register for access to repair and maintenance information.

(11) Before granting access to the information, the manufacturer, authorised representative or importer may require the professional repairer to demonstrate that –

- (a) the professional repairer has the technical competence to repair household dishwashers and complies with the Electricity at Work Regulations 1989;
- (b) the professional repairer is covered by insurance for liabilities resulting from its activities.

(12) The request for registration must be accepted or refused within 5 working days from the date of the request.

(13) Once registered, a professional repairer must be given access to requested repair and maintenance information within one working day of any request. The information may be provided for an equivalent model or model of the same family, if appropriate. The available repair and maintenance information must include—

- (a) component and diagnosis information (such as minimum and maximum theoretical values for measurements);
- (b) diagnostic fault and error codes (including manufacturer-specific codes, where applicable);
- (c) a disassembly map or exploded view;
- (d) information on how to access data records of reported failure incidents stored on the household dishwasher (where applicable);
- (e) instructions for installation of relevant software and firmware including reset software;
- (f) list of necessary repair and test equipment;
- (g) the unequivocal appliance identification;
- (h) wiring and connection diagrams.

(14) Manufacturers, authorised representatives 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 the information.

Information requirements for refrigerant gases

(15) Without prejudice to [Regulation \(EU\) No 517/2014](#)(3) of the European Parliament and of the Council, where a household dishwasher is equipped with a heat pump, the chemical name of the refrigerant gas used, or an equivalent reference such as a commonly used and understood symbol,

(3) EUR 517/2014; relevant amending instrument is [S.I. 2019/1583](#).

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label or logo, must be displayed permanently and in a visible and readable way on the exterior of the appliance, for example on the back panel, and for this purpose more than one reference may be used for the same chemical name.

Requirements for dismantling for material recovery and recycling

(16) Manufacturers, importers or authorised representatives must ensure that dishwashers are designed in such a way that the materials and components referred to in Annex 7 of the WEEE Directive can be removed with the use of commonly available tools.

Information requirements

14.—(1) Manufacturers, their authorised representatives or importers of household dishwashers must provide the information specified in sub-paragraph (3) in the form of instruction manuals for installers and end-users.

(2) The information referred to in sub-paragraph (1) must be made available on a website which is accessible to the public without charge.

(3) The information referred to in sub-paragraph (1) is—

- (a) a statement that the eco programme is suitable to clean normally soiled tableware, and 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 compliance with ecodesign legislation;
- (b) a statement that loading the household dishwasher up to the capacity indicated by the manufacturer will contribute to energy and water savings, together with information on the correct loading of tableware and main consequences of incorrect loading;
- (c) a statement that manual pre-rinsing of tableware items leads to increased water and energy consumption, and is not recommended;
- (d) a statement that washing tableware in a household dishwasher usually consumes less energy and water in the use phase than hand dishwashing when the household dishwasher is used according to the manufacturer's instructions;
- (e) values on the programme duration, energy and water consumption for all programmes that offer a cycle;
- (f) a statement that the values given for programmes other than the eco programme are indicative only; and
- (g) instruction on how to find the model information on a publicly accessible website.

(4) The user instructions must also include instructions on the performance of maintenance operations, including—

- (a) correct installation (including level positioning, connection to mains, connection to water inlets, cold and/or hot if appropriate);
- (b) use of correct detergent, salt and other additives, and main consequences of incorrect dosage;
- (c) removal of foreign objects from the dishwasher;
- (d) periodic cleaning, including procedure, limescale prevention, and optimal frequency;
- (e) periodic checks of filters, including procedure and optimal frequency;
- (f) identification and meaning of errors and action required to remedy errors, including identification of errors requiring professional assistance;
- (g) how to access professional repair (internet webpages, addresses, contact details).
- (h) any implications of self-repair or non-professional repair for the safety of the end-user and for the guarantee;

- (i) the minimum period during which spare parts for the household dishwasher are available.
- (5) The instruction manuals referred to in sub-paragraph (1) must be provided with the product when it is placed on the market.

Technical documentation requirements

15.—(1) The technical documentation file required for the conformity assessment of the product must comply with the following.

(2) Where the information in the technical documentation for a particular model has been obtained—

- (a) from a model that has the same technical characteristics relevant for the technical information to be provided but is produced by a different manufacturer;
- (b) by calculation on the basis of design or extrapolation from another model of the same or a different manufacturer; or
- (c) by both paragraphs (a) and (b);

the technical documentation must include the details of any such calculation and 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.

(3) The technical documentation must include a list of all equivalent models, including the model identifiers.

(4) The technical documentation must include all the information specified in Annex 6 of Commission Delegated Regulation (EU) 2019/2017 of 11 March 2019(4) supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of household dishwashers (the labelling regulation).

(5) The information referred to in paragraph (4) must be provided in the order and format set out in Annex 6 of the labelling regulation.

SCHEDULE 7

Regulation 17

Measurement methods and calculations for household dishwashers

General conditions

1.—(1) Sub-paragraphs (2) to (4) apply for the purposes of the measurements and calculations referred to in paragraphs 2 to 5.

(2) The eco programme at rated capacity must be used for the measurement and calculation of the Energy Efficiency Index (EEI), water consumption, programme duration, cleaning and drying performance of a household dishwasher model.

(3) The energy consumption, water consumption, programme duration, cleaning and drying performance must be measured concurrently.

(4) In this Schedule—

- (a) the EPWC is expressed in litres per cycle and rounded to one decimal place;
- (b) the duration of the eco programme (T_1) is expressed in hours and minutes and rounded to the nearest minute.

(4) EUR 2019/2017; relevant amending instrument is [S.I. 2020/1528](#).

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Energy efficiency index

2.—(1) The EEI is determined as follows.

(2) For all household dishwasher models, the EEI is calculated by comparing the eco programme energy consumption at rated capacity (“EPEC”) of the dishwasher to its standard programme energy consumption (“SPEC”).

(3) The EEI must be rounded to one decimal place and is calculated as follows—

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

(4) For the purposes of sub-paragraph (3)—

(a) EPEC and SPEC are measured in kWh/cycle and rounded to three decimal places;

(b) SPEC is calculated as follows—

(i) for household dishwashers with rated capacity $ps \geq 10$ and width > 50 cm—

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

(ii) for household dishwashers with rated capacity $ps \leq 9$ or width ≤ 50 cm—

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

where ps is the number of place settings.

Cleaning performance index

3.—(1) The cleaning performance index (“ I_C ”) is determined as follows.

(2) For all household dishwasher models, the I_C is calculated by comparing the cleaning performance of the eco programme to the cleaning performance of a reference dishwasher.

(3) The I_C must be rounded to three decimal places and is calculated as follows—

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

$$\ln I_C = (1/n) \times \sum_{i=1}^n \ln(C_{T,i}/C_{R,i}).$$

(4) For the purposes of sub-paragraph (3)—

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

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

(c) n is the number of test runs.

Drying performance index

4.—(1) The drying performance index (“ I_D ”) is determined as follows.

(2) For all household dishwasher models, the I_D is calculated by comparing the drying performance of the eco programme to the drying performance of a reference dishwasher.

(3) The I_D must be rounded to three decimal places and is calculated as follows—

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

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

(4) For the purposes of sub-paragraph (3)—

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

(b) n is the number of combined cleaning and drying test runs;

- (c) the $I_{D,i}$ is rounded to three decimal places and calculated as follows—
- $\ln I_{D,i} = \ln (D_{T,i}/D_{R,t})$, where—
- (i) $D_{T,i}$ is the average drying performance score of the eco programme of the household dishwasher under test for one test run (i), rounded to three decimal places;
 - (ii) $D_{R,t}$ is the target drying score of the reference dishwasher, rounded to three decimal places.

Low power modes

- 5.—(1) Where applicable the power consumption of the off mode (P_o), standby mode (P_{sm}) and delay start (P_{ds}) must be measured.
- (2) The measured values must be expressed in W and rounded to two decimal places.
- (3) During measurements of the power consumption in low power modes, the following must be checked and recorded—
- (a) the display (or not) of information; and
 - (b) the activation (or not) of a network connection.

SCHEDULE 8

Regulation 18

Verification procedure for market surveillance purposes for household dishwashers

Interpretation

1. In this Schedule “determined values” means the values of the relevant parameters as measured by the market surveillance authority in testing and the values calculated from these measurements.

Verification procedure

2. The market surveillance authority must apply the procedure set out in the following paragraphs when verifying the compliance of a product with these Regulations, using the measurement and calculation methods provided for in Schedule 7.

3. The market surveillance authority must initially test one single unit of the model of the product to be verified.

4. Subject to paragraph 5, the model conforms to these Regulations if all the following conditions are satisfied in respect of the tested unit—

- (a) the declared values and, where applicable, the values used to calculate the declared values, are not more favourable for the manufacturer, importer, or authorised representative than the corresponding measurements carried out pursuant to paragraph 1(2)(b)(vii) or 5(2)(d) of Schedule 1A to the 2010 Regulations;
- (b) the manufacturer, importer or authorised representative has put in place a system that complies with the requirements of regulation 20(2), (3) and (4) (software updates);
- (c) the unit complies with the programme requirements, resource efficiency and information requirements set out in Schedule 6;
- (d) any product information published by the manufacturer, importer, or authorised representative complies with the requirements of Schedule 6;

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- (e) any product information published by the manufacturer, importer, or authorised representative does not contain values more favourable for the manufacturer, importer, or authorised representative than the declared values;
- (f) the determined values meet the verification tolerances set out in Table 14.

5.—(1) If a unit complies with all the conditions of paragraph 4 except sub-paragraph (f), the market surveillance authority must test three additional units of the model to be verified, or three units of equivalent models.

(2) A model subject to additional testing under this paragraph is deemed to comply with paragraph 4(f) if the arithmetical mean of the determined values for the three additional units meets the verification tolerances set out in Table 14.

(3) If a model fails to meet the test set out in sub-paragraph (2), the model and all equivalent models do not conform to these Regulations.

6. Where a model has been designed to be able to detect it is being tested (for example by recognising test conditions or test cycles), and to react specifically by automatically altering its performance during the test with the objective of reaching a more favourable level for any of the parameters specified in these Regulations or included in the technical documentation or included in any of the documentation provided, the model and all equivalent models do not conform to these Regulations.

Verification tolerances

7.—(1) The verification tolerances set out in Table 14 must be used only by the market surveillance authority and only for the purposes of this Schedule.

(2) The manufacturer, authorised representative or importer of a product must not use the verification tolerances—

- (a) as allowed tolerances to establish the declared values;
- (b) in order to interpret the declared values with a view to achieving compliance; or
- (c) to communicate better performance.

Table 14

Verification tolerances

<i>Parameter</i>	<i>Verification tolerances</i>
Eco programme energy consumption (EPEC)	The determined value must not exceed the declared value of EPEC by more than 5 per cent.
Eco programme water consumption (EPWC)	The determined value must not exceed the declared value of EPWC by more than 5 per cent.
Cleaning performance index (I_C)	The determined value must not be less than the declared value of I_C by more than 14 per cent.
Drying performance index (I_D)	The determined value must not be less than the declared value of I_D by more than 12 per cent.
Programme duration (T_t)	The determined value must not exceed the declared value by more than 5 per cent or 10 minutes, whichever is the longer.
Power consumption in off mode (P_o)	The determined value of power consumption P_o

<i>Parameter</i>	<i>Verification tolerances</i>
	must 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} must not exceed the declared value by more than 10 per cent if the declared value is higher than 1.00 W, or 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} must not exceed the declared value by more than 10 per cent if the declared value is higher than 1.00 W, or by more than 0.10 W if the declared value is lower than or equal to 1.0 W.

SCHEDULE 9

Regulation 22

Ecodesign requirements for household washing machines and washer-dryers

Interpretation and application**1.—(1)** In this Schedule and Schedules 10 to 12—

“complete cycle” means a washing and drying process, consisting of a washing cycle and a drying cycle;

“continuous cycle” means a complete cycle without interruption of the process and with no need for user intervention at any point during the programme;

“cupboard dry” means the status of treated textiles dried in a drying cycle to a final moisture content of 0 per cent;

“cycle duration” (“ t_{WD} ”) means, for the complete cycle of a household washer-dryer, the length of time beginning with the initiation of the programme selected for the washing cycle, excluding any user programmed delay, until the end of the drying cycle is indicated and the user has access to the load;

“declared values” means the values provided by the manufacturer, importer or authorised representative for the stated, calculated or measured technical parameters in the technical documentation, in accordance with the conformity assessment procedure referred to in regulation 23;

“delay start” (“ P_{ds} ”) means a condition where the user has selected a specified delay to the beginning or end of the cycle of the selected programme;

“drying cycle” means a complete drying process as defined by the required programme, consisting of a series of different operations including heating and tumbling;

“eco 40-60” means the name of the programme declared by the manufacturer, importer or authorised representative as able to clean normally soiled cotton laundry declared to be washable at 40 °C or 60 °C, together in the same washing cycle, and to which the ecodesign requirements on energy efficiency, washing efficiency, rinsing effectiveness, programme duration, maximum temperature inside the laundry and water consumption relate;

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“Energy Efficiency Index” (“EEI”) means the ratio of the weighted energy consumption to the standard cycle energy consumption;

“equivalent model” means a model which has the same technical characteristics relevant for the technical information to be provided, but which is placed on the market or put into service by the same manufacturer, importer or authorised representative as another model with a different model identifier;

“final moisture content” means for household washer-dryers the amount of moisture contained in the load at the end of the drying cycle;

“guarantee” means any undertaking by the retailer or a manufacturer to the consumer to—

- (a) reimburse the price paid; or
- (b) replace, repair or handle the household washing machine and the household washer-dryer in any way,

if they do not meet the specifications set out in the guarantee statement or in the relevant advertising;

“model identifier” means the code, usually alphanumeric, which distinguishes a specific product model from other models with the same trade mark or the same manufacturer’s, importer’s or authorised representative’s name;

“multi-drum household washing machine” means a household washing machine equipped with more than one drum, whether in separate units or in the same casing;

“multi-drum household washer-dryer” means a household washer-dryer equipped with more than one drum, whether in separate units or in the same casing;

“network” means a communication infrastructure with a topology of links and an architecture that includes physical components, organisational principles, communication procedures and formats (protocols);

“networked standby” means a condition in which the household washing machine or washer-dryer is able to resume a function by way of a remotely initiated trigger from a network connection;

“off mode” (“P_o”) means a condition in which the household washing machine or the household washer-dryer is connected to the mains and is not providing any function, including—

- (a) conditions providing only an indication of off mode;
- (b) conditions providing only functionalities intended to ensure electromagnetic compatibility pursuant Electromagnetic Compatibility Regulations 2016;

“professional repairer” means a person who provides services of repair and professional maintenance of household washing machines or of household washer-dryers;

“programme” means a series of operations that are pre-defined and which are declared by the manufacturer, importer or authorised representative as suitable for washing, drying or continuously washing and drying certain types of textile;

“programme duration” (“t_w”) means the length of time beginning with the initiation of the programme selected, excluding any user programmed delay, until the end of the programme is indicated and the user has access to the load;

“rated capacity” means the maximum mass in kilograms stated by the manufacturer, importer or authorised representative at 0.5 kg intervals of dry textiles of a particular type, which can be treated in one washing cycle of a household washing machine, or in one complete cycle of a household washer-dryer respectively, on the selected programme, when loaded in accordance with the manufacturer’s, importer’s or authorised representative’s instructions;

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“rated drying capacity” means the maximum mass in kilograms stated by the manufacturer, importer or authorised representative at 0.5 kg intervals of dry textiles of a particular type, which can be treated in one drying cycle of a household washer-dryer on the selected programme, when loaded in accordance with the manufacturer’s, importer’s or authorised representative’s instructions;

“rated washing capacity” means the maximum mass in kilograms stated by the manufacturer, importer or authorised representative at 0.5 kg intervals of dry textiles of a particular type, which can be treated in one washing cycle of a household washing machine, or in one washing cycle of a household washer-dryer respectively, on the selected programme, when loaded in accordance with the manufacturer’s, importer’s or authorised representative’s instructions;

“remaining moisture content” means for household washing machines and for the washing cycle of household washer-dryers, the amount of moisture contained in the load at the end of the washing cycle;

“rinsing effectiveness” means the concentration of the residual content of linear alkylbenzene sulfonate (“LAS”) in the treated textiles after the washing cycle of a household washing machine or of a household washer-dryer (“IR”), or after the complete cycle of a household washer-dryer (“JR”), expressed in gram per kilogram of dry textile;

“spare part” means a separate part that can replace a part with the same or similar function in a product;

“standard cycle energy consumption” (“SCE”) means the energy consumption taken as a reference as a function of the rated capacity of a household washing machine or of a household washer-dryer, expressed in kilowatt hours per cycle;

“standby mode” (“ P_{sm} ”) means a condition where the household washing machine or the household washer-dryer is connected to the mains, and provides only one or more of the following functions, which may persist for an indefinite time—

- (a) reactivation function, or reactivation function and a mere indication of enabled reactivation function;
- (b) reactivation function through a connection to a network;
- (c) information or status display;
- (d) detection function for emergency measures;

“wash and dry” means the name of the complete cycle of a household washer-dryer, which consists of the eco 40-60 programme for the washing cycle, and of a drying cycle achieving cupboard dry status;

“washing cycle” means a complete washing process as defined by a selected programme, consisting of a series of different operations including washing, rinsing, and spinning;

“washing efficiency index” means the ratio of the washing efficiency of the washing cycle of a household washing machine or of a household washer-dryer (“ I_W ”), or of the complete cycle of a household washer-dryer (“ J_W ”), to the washing efficiency of a reference household washing machine;

“weighted energy consumption” in relation to washing machines (“ E_W ”) means the weighted average of the energy consumption of the washing cycle of a household washing machine or a household washer-dryer for the eco 40-60 programme, expressed in kilowatt hours per cycle, at—

- (a) rated washing capacity;
- (b) half of the rated washing capacity; and
- (c) one quarter of the rated washing capacity;

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“weighted energy consumption” in relation to washer-dryers (“E_{WD}”) means the weighted average of the energy consumption of the household washer-dryer for the wash and dry cycle at rated capacity and at half of the rated capacity, expressed in kilowatt hours per cycle;

“weighted water consumption” in relation to the washing cycle of a household washing machine or of a household washer-dryer (“W_W”) means the weighted average of the water consumption of the washing cycle for the eco 40-60 programme at—

- (a) rated washing capacity;
 - (b) half of the rated washing capacity; and
 - (c) one quarter of the rated washing capacity,
- expressed in litres per cycle;

“weighted water consumption” in relation to the wash and dry cycle of a household washer-dryer (“W_{WD}”) means the weighted average of the water consumption of the wash and dry cycle at rated capacity and at half of the rated capacity, expressed in litres per cycle;

“wrinkle guard function” means an operation of the household washing machine or of the household washer-dryer after completion of a programme to prevent excessive wrinkle building in the laundry.

- (2) Paragraphs 2 to 16, 19(3)(a) and (c) and (5)(a) and (g) of this Schedule do not apply to—
 - (a) washing machines with a rated capacity lower than 2 kg; or
 - (b) washer-dryers with a rated washing capacity lower than 2 kg.

Programme requirements

2. Household washing machines and household washer-dryers must meet the following requirements.

3.—(1) All machines must provide—

- (a) a washing cycle called “eco 40-60”, which is able to clean normally soiled cotton laundry declared to be washable at 40 °C or 60 °C, together in the same cycle;
- (b) a washing cycle called “20 °C”, which is able to clean lightly soiled cotton laundry, at a nominal temperature of 20 °C;

(2) The above cycles must be clearly identifiable on the programme selection, on the display and through the network connection, as applicable.

4. The eco 40-60 programme must be used for the purposes of paragraphs 13(1)(a) and (2)(a), 14(2), (3) and (6), 15 and 16(2).

5. The eco 40-60 programme must be set as the default programme for automatic programme selection or any function maintaining the selection of a programme, or, if there is no automatic programme selection, must be available for direct selection without the need for any other selection such as a specific temperature or load.

6. The name “eco 40-60” must be used exclusively for this programme. No other programme may have the term “eco” in its name.

7. The indications “normal”, “daily”, “regular” and “standard” must not be used in programme names for household washing machines or household washer-dryers, either alone or in combination with other information.

Wash and dry cycle

8. Household washer-dryers must meet the following requirements.

- 9.—(1) All machines must provide a complete cycle for cotton laundry, named “wash and dry”—
- (a) which is continuous if the household washer-dryer provides a continuous cycle;
 - (b) where the washing cycle is the eco 40-60 programme referred to above; and
 - (c) where the drying cycle achieves cupboard dry status.

(2) The wash and dry cycle must be clearly identifiable in the user instructions referred to in paragraph 19 of this Schedule.

10. If the washer-dryer provides a continuous cycle, the rated capacity of the wash and dry cycle is the rated capacity for the continuous cycle.

11. If the washer-dryer does not provide a continuous cycle, the rated capacity of the wash and dry cycle is the lower value of—

- (a) the rated washing capacity of the eco 40-60 programme; and
- (b) the rated drying capacity of the drying cycle which achieves cupboard dry status;

12. The wash and dry cycle must be used for the purposes of paragraphs 13(1)(b) and (2)(b), 14(4), (5) and (7) and 16(4).

Energy efficiency requirements

13.—(1) Household washing machines and household washer-dryers must meet the following requirements—

- (a) the Energy Efficiency Index (EEI_W) for household washing machines and the washing cycle of household washer-dryers must be lower than 105;
- (b) the Energy Efficiency Index (EEI_{WD}) for the wash and dry cycle of household washer-dryers must be lower than 105.

(2) From 1 March 2024, household washing machines with a rated capacity higher than 3 kg and household washer-dryers with a rated washing capacity higher than 3 kg must meet the following requirements—

- (a) the EEI_W for household washing machines and the washing cycle of household washer-dryers must be lower than 91;
- (b) the EEI_{WD} for the wash and dry cycle of household washer-dryers must be lower than 88.

(3) The EEI_W and EEI_{WD} must be calculated in accordance with Schedule 10.

Functional requirements

14.—(1) Household washing machines and household washer-dryers must meet the following requirements.

(2) For—

- (a) washing machines with a rated capacity higher than 3 kg; and
- (b) the washing cycle of household washer-dryers with a rated capacity higher than 3 kg;

the Washing Efficiency Index (IW) of the eco 40-60 programme must be greater than 1.03 for each of the loading sizes specified in sub-paragraph (3).

(3) The loading sizes referred to in sub-paragraph (2) are—

- (a) the rated washing capacity;
- (b) half of the rated washing capacity;
- (c) one quarter of the rated washing capacity.

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(4) For—

- (a) household washing machines with a rated capacity lower than or equal to 3 kg; and
- (b) the washing cycle of household washer-dryers with a rated capacity lower than or equal to 3 kg;

the Washing Efficiency Index (I_W) of the eco 40-60 programme must be greater than 1.00 at rated washing capacity.

(5) For household washer-dryers with a rated capacity higher than 3 kg, the Washing Efficiency Index (J_W) of the wash and dry cycle must be greater than 1.03 at—

- (a) the rated capacity; and
- (b) half of the rated capacity.

(6) For household washer-dryers with a rated capacity lower than or equal to 3 kg, the Washing Efficiency Index (J_W) of the wash and dry cycle must be greater than 1.00 at rated capacity.

(7) For—

- (a) household washing machines with a rated capacity higher than 3 kg; and
- (b) the washing cycle of household washer-dryers with a rated capacity higher than 3 kg;

the Rinsing Effectiveness (I_R) of the eco 40-60 programme must be smaller than or equal to 5.0 g/kg for each of the loading sizes specified in sub-paragraph (8).

(8) The loading sizes referred to in sub-paragraph (7) are—

- (a) the rated washing capacity;
- (b) half of the rated washing capacity; and
- (c) one quarter of the rated washing capacity.

(9) For household washer-dryers with a rated capacity higher than 3 kg, the Rinsing Effectiveness (J_R) of the wash and dry cycle must be smaller than or equal to 5.0 g/kg at—

- (a) the rated capacity; and
- (b) half of the rated capacity.

(10) I_W , J_W , I_R and J_R must be calculated in accordance with Schedule 10.

Duration requirements

15.—(1) Household washing machines and household washer-dryers must meet the following requirements.

(2) The duration of the eco 40-60 programme (t_w), expressed in hours and minutes and rounded to the nearest minute, must be lower than or equal to the time limit t_{cap} , which depends on the rated capacity as follows—

(a) for the rated washing capacity, the time limit is given by the following equation—

$$t_{cap}(\text{in min}) = 137 + c \times 10.2$$

with a maximum of 240 minutes;

(b) for—

- (i) half of the rated washing capacity; and
- (ii) one quarter of the rated washing capacity,

the time limit is given by the following equation—

$$t_{cap}(\text{in min}) = 120 + c \times 6$$

with a maximum of 180 minutes.

- (3) For the purposes of sub-paragraph (2), c is—
- (a) the rated capacity of the household washing machine; or
 - (b) the rated washing capacity of the household washer-dryer;
- for the eco 40-60 programme.

Weighted water consumption requirement

16.—(1) Household washing machines and household washer-dryers must meet the following requirements.

- (2) For—
- (a) household washing machines; and
 - (b) the washing cycle of household washer-dryers,
- the weighted water consumption (W_W , in litres/cycle) for the eco 40-60 programme must be—
- $$W_W \leq 2.25 \times c + 30.$$

- (3) For the purposes of sub-paragraph (2), c is—
- (a) the rated capacity of the household washing machine; or
 - (b) the rated washing capacity of the household washer-dryer;
- for the eco 40-60 programme.

(4) For household washer-dryers, the weighted water consumption (W_{WD} , in litres/cycle) for the wash and dry cycle must be:

$$W_{WD} \leq 10 \times d + 30.$$

(5) For the purposes of sub-paragraph (4), d is the rated capacity of the household washer-dryer for the wash and dry cycle.

(6) W_W and W_{WD} must be calculated in accordance with Schedule 10.

Low power modes

17.—(1) Household washing machines and household washer-dryers must meet the following requirements.

- (2) All machines must have—
- (a) an off-mode;
 - (b) a stand-by mode; or
 - (c) both.
- (3) Subject to the following provisions of this paragraph, the power consumption of modes referred to in sub-paragraph (2) must not exceed 0.50 W.
- (4) Where the stand-by mode includes the display of information or status, the power consumption of this mode must not exceed 1.00 W.
- (5) Where the stand-by mode provides for a connection to a network and provides networked standby, the power consumption of this mode must not exceed 2.00 W.
- (6) The machine must switch automatically to off mode or standby mode no later than 15 minutes after—
- (a) the end of any programme and associated activities;
 - (b) interruption of the wrinkle guard function; or

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(c) any other interaction with the machine, if no other mode, including emergency measures, is triggered;

(7) Where the machine provides for a delay start, the power consumption of this condition, including any standby mode, must not exceed 4.00 W. The delay start must not be programmable by the user for more than 24 hours.

(8) Any machine that can be connected to a network must provide the option to activate and deactivate the network connection. The network connection must be deactivated by default.

Resource efficiency requirements

18.—(1) Household washing machines and household washer-dryers must meet the following requirements.

Availability of spare parts

(2) Manufacturers, authorised representatives or importers of household washing machines and household washer-dryers must make available to professional repairers at least the following spare parts, for a minimum period of 10 years after placing the last unit of the model on the market—

- (a) motor and motor brushes;
- (b) transmission between motor and drum;
- (c) pumps;
- (d) shock absorbers and springs;
- (e) washing drum, drum spider and related ball bearings (separately or bundled);
- (f) heaters and heating elements, including heat pumps (separately or bundled);
- (g) piping and related equipment including all hoses, valves, filters and aquastops (separately or bundled);
- (h) printed circuit boards;
- (i) electronic displays;
- (j) pressure switches;
- (k) thermostats and sensors;
- (l) software and firmware including reset software.

(3) Manufacturers, authorised representatives and importers of household washing machines and household washer-dryers must make available to professional repairers and end-users at least the following spare parts, for a minimum period of 10 years after placing the last unit of the model on the market—

- (a) door, door hinge and door seals;
- (b) other seals;
- (c) door locking assembly and plastic peripherals such as detergent dispensers.

(4) Manufacturers, authorised representatives and importers of household washing machines and household washer-dryers must ensure that the spare parts referred to in sub-paragraphs (2) and (3) can be replaced with the use of commonly available tools and without permanent damage to the machine.

(5) The manufacturer, authorised representative or importer must—

- (a) no later than two years after the first unit of a model is placed on the market, publish for that product the list of spare parts referred to in sub-paragraph (2) and the procedure for ordering them, on a website which is accessible to the public without charge; and

- (b) ensure that the information referred to in paragraph (a) information remains accessible throughout the period that the spare parts remain available.
- (6) When the first unit of a model is placed on the market, the manufacturer, authorised representative or importer must—
 - (a) publish for that product—
 - (i) the list of spare parts referred to in sub-paragraph (3);
 - (ii) the procedure for ordering them; and
 - (iii) the repair instructions;
 - on a website which is accessible to the public without charge; and
 - (b) ensure that the information referred to in paragraph (a) remains accessible throughout the period that the spare parts remain available.

Maximum delivery time of spare parts

(7) Subject to sub-paragraph (8), during the period referred to in sub-paragraphs (2) and (3), the manufacturer, importer or authorised representative must ensure delivery of spare parts within 15 working days of receiving an order.

(8) In relation to products specified in sub-paragraph (2), sub-paragraph (7) does not apply to repairers who have not registered with the manufacturer, importer or authorised representative in accordance with sub-paragraph (10).

Access to repair and maintenance information:

(9) From no later than two years after the placing on the market of the first unit of a model or of an equivalent model until the end of the period referred to in sub-paragraph (2), the manufacturer, importer or authorised representative must provide access to appliance repair and maintenance information to professional repairers in accordance with the following provisions.

(10) The manufacturer's, importer's or authorised representative's website must set out the process for professional repairers to register for access to repair and maintenance information.

(11) Before granting access to the information, the manufacturer, authorised representative or importer may require the professional repairer to demonstrate that –

- (a) the professional repairer has the technical competence to repair household washing machines and washer-dryers, and complies with the Electricity at Work Regulations 1989;
- (b) the professional repairer is covered by insurance for liabilities resulting from its activities.

(12) The request for registration must be accepted or refused within 5 working days from the date of the request.

(13) Manufacturers, authorised representatives 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 the information.

(14) Once registered, a professional repairer must be given access to requested repair and maintenance information within one working day of any request. The information may be provided for an equivalent model or model of the same family, if appropriate. The available repair and maintenance information must include—

- (a) the unequivocal household washing machine or household washer-dryer identification;
- (b) a disassembly map or exploded view;
- (c) technical manual of instructions for repair;
- (d) list of necessary repair and test equipment;

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- (e) component and diagnosis information (such as minimum and maximum theoretical values for measurements);
- (f) wiring and connection diagrams;
- (g) diagnostic fault and error codes (including manufacturer-specific codes, where applicable);
- (h) instructions for installation of relevant software and firmware including reset software; and
- (i) information on how to access data records of reported failure incidents stored on the household washing machine or washer-dryer (where applicable).

Information requirements for refrigerant gases:

(15) Without prejudice to [Regulation \(EU\) No 517/2014](#) of the European Parliament and of the Council, for household washing machines and household washer-dryers equipped with a heat pump, the chemical name of the refrigerant gas used, or equivalent reference such as a commonly used and understood symbol, label or logo, must be displayed permanently and in a visible and readable way on the exterior of the household washing machines or household washer-dryers, for example on the back panel, and for this purpose more than one reference can be used for the same chemical name.

Requirements for dismantling for material recovery and recycling

(16) Manufacturers, importers or authorised representatives must ensure that household washing machines and household washer-dryers are designed in such a way that the materials and components referred to in Annex 7 of the WEEE Directive can be removed with the use of commonly available tools.

Information requirements

19.—(1) Manufacturers, their authorised representatives or importers of household washing machines and washer-dryers must provide the information specified in sub-paragraphs (3) to (7) in the form of instruction manuals for installers and end-users.

(2) The information referred to in sub-paragraph (1) must be made available on a website which is accessible to the public without charge.

(3) The information referred to in sub-paragraph (1) is—

- (a) a statement that the eco 40-60 programme is able to clean normally soiled cotton laundry declared to be washable at 40 °C or 60 °C, together in the same cycle, and that this programme is used to assess the compliance with ecodesign legislation;
- (b) a statement that the most efficient programmes in terms of energy consumption are generally those that perform at lower temperatures and longer duration;
- (c) for household washer-dryers, a statement that the wash and dry cycle is able to clean normally soiled cotton laundry declared to be washable at 40 °C or 60 °C, together in the same cycle, and to dry it in such a way that it can be immediately stored in a cupboard, and that this programme is used to assess the compliance with ecodesign legislation;
- (d) a statement that loading the household washing machine or the household washer-dryer up to the capacity indicated by the manufacturer for the respective programmes will contribute to energy and water savings;
- (e) recommendations on the type of detergents suitable for the various washing temperatures and washing programmes;
- (f) a statement that noise and remaining moisture content are influenced by the spinning speed, and that the higher the spinning speed in the spinning phase, the higher the noise and the lower the remaining moisture content;

- (g) information on how to activate and deactivate the network connection (if applicable) and impact on energy consumption;
 - (h) instruction on how to find the model information on a publicly accessible website.
- (4) The user manual must also include values for the following parameters—
- (a) rated capacity in kg;
 - (b) programme duration, expressed in hours and minutes;
 - (c) energy consumption, expressed in kilowatt-hour (kWh)/cycle;
 - (d) water consumption, expressed in litres/cycle;
 - (e) maximum temperature reached for minimum 5 minutes inside the laundry being treated in the washing cycle, expressed in degrees centigrade; and
 - (f) remaining moisture content after the washing cycle, expressed in percentage of water content, and spinning speed at which this was achieved.
- (5) The values referred to in sub-paragraph (4) must be provided for each of the following programmes—
- (a) the eco 40-60 programme at—
 - (i) the rated capacity;
 - (ii) half of the rated capacity; and
 - (iii) one quarter of the rated capacity;
 - (b) the 20 °C programme at the rated capacity for this programme;
 - (c) one cotton programme at nominal temperature higher than or equal to 60 °C (if present) at the rated capacity for this programme;
 - (d) one programme for—
 - (i) textiles other than cotton; or
 - (ii) a mix of textiles (if present),at the rated capacity for this programme;
 - (e) one programme for the quick washing of lightly soiled laundry (if present) at the rated capacity for this programme;
 - (f) one programme for heavily soiled textiles (if present) at the rated capacity for this programme;
 - (g) for household washer-dryers, the wash and dry cycle at—
 - (i) the rated capacity; and
 - (ii) half of the rated capacity; and
- (6) The information referred to in sub-paragraphs (4) and (5) must be accompanied by a statement that the values given for programmes other than the eco 40-60 programme and the wash and dry cycle are indicative only.
- (7) The user instructions must also include instructions on the performance of maintenance operations, including—
- (a) correct installation (including level positioning, connection to mains, connection to water inlets, cold and/or hot if appropriate);
 - (b) correct use of detergent, softeners and other additives, and main consequences of incorrect dosage;
 - (c) removal of foreign objects from the household washing machine or washer-dryer;
 - (d) periodic cleaning, including optimal frequency, and limescale prevention and procedure;

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- (e) door opening between cycles, if appropriate;
 - (f) periodic checks of filters, including optimal frequency, and procedure;
 - (g) identification of errors, the meaning of the errors, and the action required, including identification of errors requiring professional assistance;
 - (h) how to access professional repair (internet webpages, addresses, contact details);
 - (i) any implications of self-repair or non-professional repair for the safety of the end-user and for the guarantee;
 - (j) the minimum period during which the spare parts for the household washing machine or the household washer-dryer are available.
- (8) The instruction manuals referred to in sub-paragraph (1) must be provided with the product when it is placed on the market.

Technical documentation requirements

20.—(1) The technical documentation file required for the conformity assessment of the product must comply with the following.

(2) Where the information in the technical documentation for a particular model has been obtained—

- (a) from a model that has the same technical characteristics relevant for the technical information to be provided but is produced by a different manufacturer;
- (b) by calculation on the basis of design or extrapolation from another model of the same or a different manufacturer; or
- (c) by both paragraphs (a) and (b);

the technical documentation must include the details of any such calculation and 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.

(3) The technical documentation must include a list of all equivalent models, including the model identifiers.

(4) The technical documentation must include all the information specified in Annex 6 of Commission Delegated Regulation (EU) 2019/2014 of 11 March 2019⁽⁵⁾ supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of household washing machines and household washer-dryers (the labelling regulation).

(5) The information referred to in paragraph (4) must be provided in the order and format set out in Annex 6 of the labelling regulation.

SCHEDULE 10

Regulation 23

Measurement methods and calculations for household washing machines and washer-dryers

1.—(1) Sub-paragraphs (2) to (4) apply for the purposes of the measurements and calculations referred to in paragraphs 2 to 7.

(2) Subject to sub-paragraph (4), for the measurement and calculation of the parameters in Schedule 9 and this Schedule for the eco 40-60 programme and the wash and dry cycle, the highest spin speed option for the eco 40-60 programme must be used at—

(5) EUR 2019/2014; relevant amending instrument is [S.I. 2020/1528](#).

- (a) rated capacity;
- (b) half of the rated capacity; and
- (c) one quarter of the rated capacity.

(3) For—

- (a) washing machines with a rated capacity lower than or equal to 3 kg; and
- (b) washer-dryers with a rated washing capacity lower than or equal to 3 kg;

the parameters for the eco 40-60 programme and for the wash and dry cycle must be measured at rated capacity only.

(4) The duration of the eco 40-60 programme (t_w) and the wash and dry cycle (t_{WD}) must be expressed in hours and minutes, and rounded to the nearest minute.

*Energy efficiency index of household washing machines
and the washing cycle of household washer-dryers (EEI_w)*

Energy efficiency index

2.—(1) For the calculation of the EEI_w , the weighted energy consumption of the eco 40-60 programme at—

- (a) the rated washing capacity;
- (b) half of the rated washing capacity; and
- (c) one quarter of the rated washing capacity;

must be compared to its standard cycle energy consumption.

(2) The EEI_w must be rounded to one decimal place and calculated as follows—

$$EEI_w = (E_w / SCE_w) \times 100.$$

(3) For the purposes of sub-paragraph (2)—

- (a) E_w is the weighted energy consumption of the household washing machine or of the washing cycle of the household washer-dryer;
- (b) SCE_w is the standard cycle energy consumption of the household washing machine or the washing cycle of the household washer-dryer.

(4) The SCE_w must be rounded to three decimal places and calculated in kWh per cycle as follows—

$$SCE_w = -0.0025 \times c^2 + 0.0846 \times c + 0.3920.$$

(5) For the purposes of sub-paragraph (4), c is—

- (a) the rated capacity of the washing machine; or
- (b) the rated washing capacity of the washer-dryer;

for the eco 40-60 programme.

(6) The E_w must be rounded to three decimal places and calculated in kWh per cycle as follows—

$$E_w = A \times E_{w,full} + B \times E_{w,\frac{1}{2}} + C \times E_{w,\frac{1}{4}}$$

(7) For the purposes of sub-paragraph (6)—

- (a) $E_{w,full}$ is the energy consumption of—
 - (i) the washing machine; or

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- (ii) the washing cycle of the household washer-dryer;
for the eco 40-60 programme at the rated washing capacity, rounded to three decimal places;
- (b) $E_{W,1/2}$ is the energy consumption of—
 - (i) household washing machine; or
 - (ii) the washing cycle of the household washer-dryer;
for the eco 40-60 programme at half of the rated washing capacity, rounded to three decimal places;
- (c) $E_{W,1/4}$ is the energy consumption of—
 - (i) the washing machine; or
 - (ii) the washing cycle of the household washer-dryer;
for the eco 40-60 programme at a quarter of the rated washing capacity, rounded to three decimal places;
- (d) A is the weighting factor for the rated washing capacity and rounded to three decimal places;
- (e) B is the weighting factor for half of the rated washing capacity and rounded to three decimal places;
- (f) C is the weighting factor for a quarter of the rated washing capacity and rounded to three decimal places;
- (g) for washing machines with a rated capacity lower than or equal to 3 kg and washer-dryers with a rated washing capacity lower than or equal to 3 kg—
 - (i) A is equal to 1;
 - (ii) B and C are be equal to 0;
- (h) for other washing machines and washer-dryers, the values of the weighting factors depend on the rated capacity according to the following equations—
 - (i) $A = -0.0391 \times c + 0.6918$;
 - (ii) $B = -0.0109 \times c + 0.3582$;
 - (iii) $C = 1 - (A + B)$;
 where c is the rated capacity of the washing machine or the rated washing capacity of the washer dryer.

Energy efficiency index (EEI_{WD}) of the complete cycle of household washer-dryers

- 3.—**(1) For the calculation of the EEI_{WD} of a household washer-dryer model, the weighted energy consumption of the wash and dry cycle at—
- (a) the rated capacity; and
 - (b) half of the rated capacity;
- must be compared to its standard cycle energy consumption.
- (2) The EEI_{WD} must be rounded to one decimal place and calculated as follows—
- $$EEI_{WD} = (E_{WD}/SCE_{WD}) \times 100.$$
- (3) For the purposes of sub-paragraph (2)—

- (a) E_{WD} is the weighted energy consumption of the complete cycle of the household washer-dryer;
- (b) SCE_{WD} is the standard cycle energy consumption of the complete cycle of the household washer-dryer.

(4) The SCE_{WD} must rounded to three decimal places and calculated in kWh per cycle as follows—

$$SCE_{WD} = -0.0502 \times d^2 + 1.1742 \times d - 0.644.$$

where d is the rated capacity of the household washer-dryer for the wash and dry cycle.

(5) For household washer-dryers with a rated washing capacity lower than or equal to 3 kg, the weighted energy consumption is the energy consumption at rated capacity, rounded to three decimal places.

(6) For other household washer-dryers, the weighted energy consumption (E_{WD}) must be rounded to three decimal places and calculated in kWh per cycle as follows—

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$$E_{WD} = \frac{[3 \times E_{WD,full} + 2 \times E_{WD,\frac{1}{2}}]}{5}$$

(7) For the purposes of sub-paragraph (6)—

- (a) $E_{WD,full}$ is the energy consumption of the household washer-dryer for the wash and dry cycle at rated capacity, rounded to three decimal places;
- (b) $E_{WD,\frac{1}{2}}$ is the energy consumption of the household washer-dryer for the wash and dry cycle at half of the rated capacity, rounded to three decimal places.

Washing efficiency index

(8) The washing efficiency index of household washing machines and the washing cycle of household washer-dryers (I_W) and the washing efficiency index of the complete cycle of household washer-dryers (J_W) must be rounded to three decimal places.

Rinsing effectiveness

(9) The rinsing effectiveness of household washing machines and of the washing cycle of household washer-dryers (I_R) and the rinsing effectiveness of the complete cycle of household washer-dryers (J_R) must based on the detection of the linear alkylbenzene sulfonate (LAS) marker, and rounded to one decimal place.

Maximum temperature

(10) The maximum temperature reached for 5 minutes inside the laundry being treated in household washing machines and the washing cycle of household washer-dryers must be rounded to the nearest integer.

Weighted water consumption

4.—(1) The weighted water consumption (W_W) of a household washing machine or of the washing cycle of a household washer-dryer must be rounded to the nearest integer and calculated in litres as follows—

$$W_W = (A \times W_{W,full} + B \times W_{W,1/2} + C \times W_{W,1/4}).$$

(2) For the purposes of sub-paragraph (1)—

- (a) $W_{W,full}$ is the water consumption of—

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- (i) a washing machine, or
 - (ii) the washing cycle of a household washer-dryer,
- for the eco 40-60 programme at rated washing capacity, in litres and rounded to one decimal place;
- (b) $W_{W,1/2}$ is the water consumption of—
 - (i) a household washing machine, or
 - (ii) the washing cycle of a household washer-dryer,
 for the eco 40-60 programme at half of the rated washing capacity, in litres and rounded to one decimal place;
 - (c) $W_{W,1/4}$ is the water consumption of—
 - (i) a household washing machine, or
 - (ii) the washing cycle of a household washer-dryer,
 for the eco 40-60 programme at a quarter of the rated washing capacity, in litres and rounded to one decimal place;
 - (d) A, B and C are the weighting factors referred to in paragraph 2(7).

(3) For household washer-dryers with a rated washing capacity lower than or equal to 3 kg, the weighted water consumption of the wash and dry cycle is the water consumption at rated capacity, rounded to the nearest integer.

(4) For all other washer-dryers, the weighted water consumption (W_{WD}) of the wash and dry cycle must be rounded to the nearest integer and calculated as follows—

$$W_{WD} = \frac{[3 \times W_{WD,full} + 2 \times W_{WD,1/2}]}{5}$$

- (5) For the purposes of sub-paragraph (4)—
 - (a) $W_{WD,full}$ is the water consumption of the wash and dry cycle of a household washer-dryer at rated capacity, in litres and rounded to one decimal place;
 - (b) $W_{WD,1/2}$ is the water consumption of the wash and dry cycle of a household washer-dryer at half of the rated capacity, in litres and rounded to one decimal place.

Remaining moisture content

5.—(1) The weighted remaining moisture content after washing (D) of—

- (a) a washing machine, or
- (b) the washing cycle of a household washer-dryer,

must be calculated as a percentage as follows, and rounded to one decimal place—

$$D = \left[A \times D_{full} + B \times D_{1/2} + C \times D_{1/4} \right]$$

- (2) For the purposes of sub-paragraph (1)—
 - (a) D_{full} is the remaining moisture content for the eco 40-60 programme at rated washing capacity, as a percentage and rounded to two decimal places;
 - (b) $D_{1/2}$ is the remaining moisture content of the eco 40-60 programme at half of the rated washing capacity, as a percentage and rounded to two decimal places;
 - (c) $D_{1/4}$ is the remaining moisture content of the eco 40-60 programme at a quarter of the rated washing capacity, as a percentage and rounded to two decimal places;

- (d) A, B and C are the weighting factors referred to in paragraph 2(7).

Final moisture content

6.—(1) For the drying cycle of a household washer-dryer, cupboard dry status corresponds to 0 per cent final moisture content.

(2) For the purposes of sub-paragraph (1), 0 per cent final moisture content is the thermodynamic equilibrium of the load in ambient air conditions of—

- (a) temperature (tested at 20 ± 2 °C); and
 - (b) relative humidity (tested at 65 ± 5 per cent).
- (3) The final moisture content is rounded to one decimal place.

Low power modes

7.—(1) Where applicable, the power consumption of the off mode (P_o), standby mode (P_{sm}) and delay start (P_{ds}) must be measured.

(2) The measured values must be expressed in Watts and rounded to two decimal places.

(3) During measurements of the power consumption in low power modes, the following must be checked and recorded—

- (a) the display or not of information;
- (b) the activation or not of a network connection.

(4) Where the washing machine or washer-dryer provides a wrinkle guard function, this operation must be interrupted by opening the machine door, or any other appropriate intervention 15 minutes before the measurement of power consumption.

SCHEDULE 11

Regulation 24

Verification procedure for market surveillance purposes - household washing machines and washer-dryers

Interpretation

1. In this Schedule “determined values” means the values of the relevant parameters as measured by the market surveillance authority in testing and the values calculated from these measurements.

Verification procedure

2. The market surveillance authority must apply the procedure set out in the following paragraphs when verifying the compliance of a product with these Regulations, using the measurement and calculation methods provided for in Schedule 10.

3. The market surveillance authority must initially test one single unit of the model of the product to be verified.

4. Subject to paragraph 5, the model conforms to these Regulations if all the following conditions are satisfied in respect of the tested unit—

- (a) the declared values and, where applicable, the values used to calculate the declared values, are not more favourable for the manufacturer, importer, or authorised representative than

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- the corresponding measurements carried out pursuant to paragraph 1(2)(b)(vii) or 5(2)(d) of Schedule 1A to the 2010 Regulations;
- (b) the manufacturer, importer or authorised representative has put in place a system that complies with the requirements of regulation 26(2), (3) and (4) (software updates);
- (c) the unit complies with the programme, resource efficiency and information requirements set out in Schedule 9;
- (d) any product information published by the manufacturer, importer, or authorised representative complies with the requirements of Schedule 9;
- (e) any product information published by the manufacturer, importer, or authorised representative does not contain values more favourable for the manufacturer, importer, or authorised representative than the declared values;
- (f) the determined values meet the verification tolerances set out in Table 15.

5.—(1) If a unit complies with all the conditions of paragraph 4 except sub-paragraph (f), the market surveillance authority must test three additional units of the model to be verified, or three units of equivalent models.

(2) A model subject to additional testing under this paragraph is deemed to comply with paragraph 4(f) if the arithmetical mean of the determined values for the three additional units meets the verification tolerances set out in the Table below.

(3) If a model fails to meet the test set out in sub-paragraph (2), the model and all equivalent models do not conform to these Regulations.

6. Where a model has been designed to be able to detect it is being tested (for example by recognising test conditions or test cycles), and to react specifically by automatically altering its performance during the test with the objective of reaching a more favourable level for any of the parameters specified in these Regulations or included in the technical documentation or included in any of the documentation provided, the model and all equivalent models do not conform to these Regulations.

Verification tolerances

7.—(1) The verification tolerances set out in Table 15 must be used only by the market surveillance authority and only for the purposes of this Schedule.

(2) The manufacturer, authorised representative or importer of a product must not use the verification tolerances—

- (a) as allowed tolerances to establish the declared values;
- (b) in order to interpret the declared values with a view to achieving compliance; or
- (c) to communicate better performance.

Table 15

Verification tolerances

<i>Parameter</i>	<i>Verification tolerances</i>
$E_{W,full}$, $E_{W,1/2}$, $E_{W,1/4}$, $E_{WD,full}$, $E_{WD,1/2}$	The determined value must not exceed the declared value of $E_{W,full}$, $E_{W,1/2}$, $E_{W,1/4}$, $E_{WD,full}$ and $E_{WD,1/2}$, respectively, by more than 10 per cent.

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<i>Parameter</i>	<i>Verification tolerances</i>
Weighted energy consumption (E_W and E_{WD})	The determined value must not exceed the declared value of E_W , or E_{WD} , respectively, by more than 10 per cent.
$W_{W,full}$, $W_{W,1/2}$, $W_{W,1/4}$, $W_{WD,full}$, $W_{WD,1/2}$	The determined value must not exceed the declared value of $W_{W,full}$, $W_{W,1/2}$, $W_{W,1/4}$, $W_{WD,full}$ and $W_{WD,1/2}$, respectively, by more than 10 per cent.
Weighted water consumption (W_W and W_{WD})	The determined value must not exceed the declared value of W_W , or W_{WD} , respectively, by more than 10 per cent.
Washing efficiency index (I_W and J_W) at all relevant loads	The determined value must not be less than the declared value of I_W , or J_W , respectively, by more than 8 per cent.
Rinsing effectiveness (I_R and J_R) at all relevant loads	The determined value must not exceed the declared value of I_R , or J_R , respectively, by more than 1.0 g/kg.
Duration of the eco 40-60 programme (t_W) at all relevant loads	The determined value of the programme duration must not exceed the declared value of t_W by more than 5 per cent or by more than 10 minutes, whichever is the smaller.
Duration of the wash and dry cycle (t_{WD}) at all relevant loads	The determined value of the cycle duration must not exceed the declared value of t_{WD} by more than 5 per cent or by more than 10 minutes, whichever is the smaller.
Maximum temperature inside the laundry (T) during the washing cycle at all relevant loads	The determined value must not be less than the declared values of T by more than 5 K and it must not exceed the declared value of T by more than 5 K.
Weighted remaining moisture content after washing (D)	The determined value must not exceed the declared value of D by more than 10 per cent.
Final moisture content after drying at all relevant loads	The determined value must not exceed 3 per cent.
Spin speed (S) at all relevant loads	The determined value must not be less than the declared values of S by more than 10 per cent
Power consumption in off mode (P_o)	The determined value of power consumption P_o must 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} must not exceed the declared value by more than 10 per cent if the declared value is higher than 1.00 W, or 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} must not exceed the declared value by more than 10 per cent if the declared value is higher than 1.00 W, or by more than 0.10 W if the declared value is lower than or equal to 1.00 W.

SCHEDULE 12

Regulation 22

Multi-drum household washing machines and washer-dryers

1.—(1) For multi-drum household washing machines and multi-drum household washer-dryers—

- (a) subject to sub-paragraph (2), paragraphs 2 to 16 and 19(4) to (6) of Schedule 9 apply to any drum;
- (b) paragraphs 17, 18 and 19(3) and (7) of Schedule 9 apply to all multi-drum machines.

(2) Paragraphs 2 to 16 and 19(4) to (6) of Schedule 9 apply to each of the drums independently, except where the drums are built in the same casing and can, in the eco 40-60 programme or in the wash and dry cycle, only operate simultaneously. In the latter case, paragraphs 17, 18 and 19(2) of Schedule 9 apply to the multi-drum household washing machine or to the multi-drum household washer-dryer as a whole, as follows—

- (a) the rated washing capacity is the sum of the rated washing capacities of each drum;
- (b) for washer-dryers, the rated capacity is the sum of the rated capacities of each drum;
- (c) the energy and water consumption of a washing machine and the washing cycle of a washer-dryer is the sum of the energy consumption, or water consumption, of each drum;
- (d) the energy and water consumption of the complete cycle of a washer-dryer is the sum of the energy consumption, or water consumption, of each drum;
- (e) for washing machines, the Energy Efficiency Index is calculated using the rated washing capacity and energy consumption;
- (f) for washer-dryers, the Energy Efficiency Index is calculated using the rated capacity and energy consumption;
- (g) each drum must comply with the minimum washing efficiency and the minimum rinsing effectiveness requirements;
- (h) each drum must comply with the duration requirement applicable to the drum with the largest rated capacity;
- (i) the requirements on low power modes apply to the whole machine;
- (j) the remaining moisture content after washing is calculated as the weighted average, according to each drum's rated capacity;
- (k) for washer-dryers, the requirement on final moisture content after drying applies individually to each drum.

2. The verification procedure set out in Schedule 11 applies to the machine as a whole, with the verification tolerances applying to each of the parameters determined in application of this Schedule.

SCHEDULE 13

Regulation 28

Ecodesign requirements for refrigerating appliances

Interpretation

1. In this Schedule and Schedules 14 and 15—

“2-star section” means part of a 3-star or 4-star compartment which—

- (a) does not have its own individual access door or lid; and

- (b) has a target temperature and storage conditions of $-12\text{ }^{\circ}\text{C}$;
- “airborne acoustical noise emission” means the sound power level of a refrigerating appliance, expressed in A-weighted decibel referred to 1 pico watt (dB(A) re 1 pW);
- “ambient controlled anti-condensation heater” means an anti-condensation heater where the heating capacity depends on the ambient temperature or the ambient humidity, or both;
- “annual energy consumption” (“AE”) means the average daily energy consumption multiplied by 365 (days per year), expressed in kilowatt hours per year (kWh/a), as calculated in accordance with paragraph 3 of Schedule 14;
- “anti-condensation heater” means a heater which prevents condensation on the refrigeration appliance;
- “auto-defrost” means a feature by which compartments are defrosted without user intervention to—
- (a) initiate the removal of frost accumulation at all temperature-control settings; or
- (b) restore normal operation,
- where the disposal of the defrosted water is automatic;
- “auxiliary energy” (“ E_{aux} ”) means the energy used by an ambient controlled anti-condensation heater, expressed in kilowatt-hours per year (kWh/a);
- “built-in appliance” means a refrigerating appliance that is designed, tested and marketed exclusively to be—
- (a) installed in cabinetry or encased (top, bottom and sides) by panels;
- (b) securely fastened to the sides, top or floor of the cabinetry or panels; and
- (c) equipped with an integral factory-finished face or to be fitted with a custom front panel;
- “built-in factor” (“ B_c ”) means a compensation factor that takes into account whether the refrigerating appliance is built-in or freestanding, with values as set out Table 19 in Schedule 14.
- “cellar compartment” means an unfrozen compartment with a target temperature of $12\text{ }^{\circ}\text{C}$ and storage conditions ranging from $2\text{ }^{\circ}\text{C}$ to $14\text{ }^{\circ}\text{C}$, as set out in Table 17 in Schedule 14;
- “chill compartment” means a compartment which is able to control its average temperature within a certain range without user-adjustments of its control, with—
- (a) a target temperature equal to $2\text{ }^{\circ}\text{C}$; and
- (b) storage conditions ranging from $-3\text{ }^{\circ}\text{C}$ to $3\text{ }^{\circ}\text{C}$, as set out in Table 17 in Schedule 14;
- “climate class” means the range of ambient temperatures, as set out paragraph 1(10) of Schedule 14, in which the refrigerating appliances are intended to be used, and for which the required storage temperatures specified in Table 17 in Schedule 14 are met simultaneously in all compartment(s);
- “combi appliance” means a refrigerating appliance that has more than one compartment type of which at least one is an unfrozen compartment;
- “combi parameter” (“C”) means a modelling parameter that takes into account the synergy effect when different compartment types are combined in one appliance, with values as set out in Table 18 in Schedule 14;
- “daily energy consumption” (“ E_{daily} ”) means the electricity used by a refrigerating appliance over 24 hours at reference conditions, expressed in kilowatt hours per day (“kWh/24 h”), as calculated in accordance with paragraph 3(4) of Schedule 14;
- “declared values” means the values provided by the manufacturer, importer or authorised representative for the stated, calculated or measured technical parameters in the technical

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documentation, in accordance with the conformity assessment procedure referred to in regulation 29;

“dedicated refrigerating appliance” means a refrigerating appliance with only one type of compartment;

“defrost and recovery period” means the period from the initiation of a defrost control cycle until stable operating conditions are re-established;

“defrost factor” (“ A_c ”) means a compensation factor that takes into account whether the refrigerating appliance has an auto-defrost or a manual defrost, with values as set out in Table 19 in Schedule 14;

“defrost interval” (“ t_{d-f} ”) means the representative average interval, expressed in hour (h), between—

- (a) one time of activation of the defrost heater and the next in two subsequent defrost and recovery cycles; or
- (b) where there is no defrost heater, one time of deactivation of the compressor and the next in two subsequent defrost and recovery cycles;

“defrosting type” means the method to remove frost accumulation on the evaporator of a refrigerating appliance, being either auto-defrost or manual defrost;

“dispenser” means a device that dispenses chilled or frozen load on demand from a refrigerating appliance, such as ice-cube dispensers or chilled water dispensers;

“door heat loss factor” (“ D ”) means a compensation factor for combi appliances according to—

- (a) the number of different temperature compartments; or
- (b) the number of external doors,

whichever is lower, as set out in Table 19 in Schedule 14; for the purposes of this definition “compartment” does not include sub-compartment;

“energy efficiency index” (“EEI”) means an index number for the relative energy efficiency of a refrigeration appliance expressed in per cent, as set out in paragraph 7 of Schedule 14;

“equivalent model” means a model which has the same technical characteristics relevant for the technical information to be provided, but which is placed on the market or put into service by the same manufacturer, importer or authorised representative as another model with a different model identifier;

“fast freeze” means a feature that can be activated by the user according to the manufacturer’s, the importer’s or authorised representative’s instructions, which decreases the storage temperature of freezer compartment(s) to achieve a faster freezing of unfrozen foodstuffs;

“freestanding appliance” means a refrigerating appliance that is not a built-in appliance;

“fresh food compartment” means an unfrozen compartment with a target temperature of 4 °C and storage conditions ranging from 0 °C and 8 °C, as set out in Table 17 in Schedule 14;

“guarantee” means any undertaking by the retailer or a manufacturer, importer or authorised representative to the consumer to—

- (a) reimburse the price paid for the appliance; or
- (b) replace, repair or handle refrigerating appliances in any way,

if they do not meet the specifications set out in the guarantee statement or in the relevant advertising;

“incremental defrost and recovery energy consumption” (“ ΔE_{d-f} ”) means the extra average energy consumption for a defrost and recovery operation, expressed in watt hour (“Wh”);

“load factor” (“L”) means a factor accounting for the extra cooling load from introducing warm foodstuffs (beyond what is already anticipated through the higher average ambient temperature for testing), with values as set out in paragraph 3(7) of Schedule 14;

“low noise refrigerating appliance” means a refrigerating appliance—

- (a) without vapour compression; and
- (b) with airborne acoustical noise emission lower than 27 A-weighted decibel referred to 1 pico watt (dB(A) re 1 pW);

“manual defrost” means not having an auto-defrost function;

“maximum temperature” (“ T_{\max} ”) means the maximum temperature inside a compartment during storage testing, as set out in Table 17 in Schedule 14;

“ M_c ” and “ N_c ” are modelling parameters that take into account the volume-dependence of the energy use, with values as set out in Table 18 in Schedule 14;

“minimum temperature” (“ T_{\min} ”) means the minimum temperature inside a compartment during storage testing, as set out in Table 17 in Schedule 14;

“model identifier” means the code, usually alphanumeric, which distinguishes a specific product model from other models with the same trade mark or the same supplier’s name;

“network” means a communication infrastructure with a topology of links and an architecture that includes physical components, organisational principles, communication procedures and formats (protocols);

“pantry compartment” means an unfrozen compartment with a target temperature of 17 °C and storage conditions ranging from 14 °C to 20 °C, as set out in Table 17 in Schedule 14;

“professional repairer” means a person who provides services of repair and professional maintenance of refrigerating appliances;

“refrigerator-freezer” means a combi appliance that has at least one freezer compartment and at least one fresh food compartment;

“spare part” means a separate part that can replace a part with the same or similar function in a product;

“standard annual energy consumption” (“SAE”) means the reference annual energy consumption of a refrigerating appliance, expressed in kilowatt hours per year (kWh/a), as calculated in accordance with paragraph 4 of Schedule 14;

“steady-state power consumption” (“ P_{ss} ”) means the average power consumption in steady-state conditions, expressed in watt (“W”);

“thermodynamic parameter” (“ r_c ”) means a modelling parameter which corrects the standard annual energy consumption to an ambient temperature of 24 °C, with values as set out in Table 18 in Schedule 14;

“transparent door” means an external door made of a transparent material which allows the user to see items through it where—

- (c) at least 75 per cent of the internal cabinet height; and
- (d) 75 per cent of the internal cabinet width,

measured at the front of the cabinet, are transparent;

“unfrozen compartment” means a compartment type with a target temperature equal to or above 4 °C, including a pantry, wine storage, cellar or fresh food compartment with storage conditions and target temperatures, as set out in Table 17 in Schedule 14;

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“vacuum insulation panel” (“VIP”) means an insulation panel consisting of a firm, highly-porous material encased in a thin, gas-tight outer envelope from which the gases are evacuated, and which is sealed to prevent outside gases from entering the panel;

“variable temperature compartment”—

- (a) means a compartment—
 - (i) intended for use as two or more alternative compartment types (for example a compartment that can be either a fresh food compartment or freezer compartment); and
 - (ii) which is capable of being set by a user to continuously maintain the operating temperature range applicable for each declared compartment type;
- (b) does not include a compartment intended for use as a single compartment type that can also meet storage conditions of other compartment types (for example a chill compartment that may also fulfil the requirements of a 0-star compartment);

“wine storage appliance” means a dedicated refrigerating appliance for the storage of wine, with precision temperature control for the storage conditions and target temperature of a wine storage compartment, and equipped with anti-vibration measures;

“wine storage compartment” means an unfrozen compartment with—

- (a) a target temperature of 12 °C;
- (b) an internal humidity range from 50 per cent to 80 per cent; and
- (c) storage conditions ranging from 5 °C to 20 °C, as specified in Table 17 in Schedule 14;

“winter setting” means a control feature for a combi appliance with one compressor and one thermostat, which—

- (a) according to the manufacturer’s, importer’s or authorised representative’s instructions can be used in ambient temperatures below +16 °C; and
- (b) consists of a switching device or function that guarantees, even if it would not be required for the compartment where the thermostat is located, that the compressor will continue to maintain the proper storage temperatures in all compartments.

Energy efficiency requirements

2.—(1) The EEI of refrigerating appliances specified in Table 16 must not be above—

- (a) until 29 February 2024, the values set out in column 2 of Table 16;
- (b) from 1 March 2024, the values set out in column 3 of Table 16.

Table 16

Maximum EEI for refrigerating appliances, expressed in per cent

	<i>EEI until 29 February 2024</i>	<i>EEI from 1 March 2024</i>
Dedicated low noise refrigerating appliances with fresh food compartments	375	312
Low noise refrigerating appliances with transparent doors	380	300
Other low noise refrigerating appliances, except low noise combi appliances with a frozen compartment	300	250

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	<i>EEI until 29 February 2024</i>	<i>EEI from 1 March 2024</i>
Wine storage appliances with transparent doors	190	172
Other wine storage appliances	155	140
All other refrigerating appliances, with the exception of low noise combi appliances with a frozen compartment	125	100

Functional requirements

3.—(1) Subject to sub-paragraph (8), refrigerating appliances must meet the following requirements.

(2) Any fast freeze facility, or any similar function achieved through modification of the temperature settings in freezer compartments, must automatically revert to the manufacturer setting no more than 72 hours after being activated by the user according to the manufacturer's instructions.

(3) Winter settings must be automatically activated or de-activated in order to maintain frozen compartments at the correct temperature.

(4) Each compartment must be marked with the appropriate identification symbol, as follows—

- (a) for frozen compartments, the number of stars of the compartment;
- (b) for chill and unfrozen compartments, an indication, provided by the manufacturer, authorised representative or importer, of the type of food that should be stored in the compartment.

(5) If the refrigerating appliance contains vacuum insulation panels, the refrigerating appliance must be clearly labelled with the letters "VIP", in such a way that the labelling is clearly visible, legible and indelible.

(6) For 2-star sub-compartments or 2-star sections—

- (a) a 2-star sub-compartment or 2-star section must be separated from the 3-star or 4-star compartment by a partition, container, or similar construction;
- (b) the volume of the 2-star sub-compartment or 2-star section must not exceed 20 per cent of the total volume of the compartment in which it is contained.

(7) For 4-star compartments, the freezing time to bring the temperature of a light load from +25 to -18 °C at an ambient temperature of 25 °C must be such that the resulting freezing capacity is not lower than 4.5 kg per 24 h per 100 litres of volume of the freezer compartment, with a minimum of 2.0 kg/24 h;

(8) Until 1 March 2024, sub-paragraphs (2) and (3) do not apply to combi appliances with one electromechanical thermostat and one compressor which are not equipped with an electronic control board.

Resource efficiency requirements

4.—(1) Refrigerating appliances must meet the following requirements.

Availability of spare parts

(2) Manufacturers, authorised representatives or importers of refrigerating appliances must make available to professional repairers at least the following spare parts, for a minimum period of seven years after placing the last unit of the model on the market—

- (a) light sources;

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- (b) printed circuit boards;
- (c) temperature sensors;
- (d) thermostats.

(3) Manufacturers, authorised representatives and importers of refrigerating appliances must make available to professional repairers and end-users at least the following spare parts, for a minimum period of 10 years after placing the last unit of the model on the market—

- (a) door handles;
- (b) door hinges;
- (c) trays and baskets.

(4) Manufacturers must ensure that the spare parts referred to in sub-paragraphs (2) and (3) can be replaced with the use of commonly available tools and without permanent damage to the machine.

(5) The manufacturer, authorised representative or importer must—

- (a) no later than two years after the first unit of a model is placed on the market, publish for that product the list of spare parts referred to in sub-paragraph (2) and the procedure for ordering them on a website which is accessible to the public without charge; and
- (b) ensure that the information referred to in paragraph (a) remains accessible throughout the period that the spare parts remain available.

(6) When the first unit of a model is placed on the market, the manufacturer, authorised representative or importer must—

- (a) publish for that product—
 - (i) the list of spare parts referred to in sub-paragraph (3);
 - (ii) the procedure for ordering them; and
 - (iii) the repair instructions;on a website which is accessible to the public without charge; and
- (b) ensure that the information referred to in paragraph (a) remains accessible throughout the period that the spare parts remain available.

Maximum delivery time of spare parts

(7) Subject to sub-paragraph (8), during the periods referred to in sub-paragraphs (2) and (3), the manufacturer, importer or authorised representative must ensure delivery of spare parts within 15 working days of receiving an order.

(8) In relation to products specified in sub-paragraph (2), sub-paragraph (7) does not apply to repairers who have not registered with the manufacturer, importer or authorised representative in accordance with sub-paragraph (10).

Access to repair and maintenance information

(9) From no later than two years after the placing on the market of the first unit of a model or of an equivalent model until the end of the period referred to in sub-paragraph (2), the manufacturer, importer or authorised representative must provide access to appliance repair and maintenance information to professional repairers in accordance with the following provisions.

(10) The manufacturer's, importer's or authorised representative's website must set out the process for professional repairers to register for access to repair and maintenance information.

(11) Before granting access to the information, manufacturer, authorised representative or importer may require the professional repairer to demonstrate that—

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- (a) the professional repairer has the technical competence to repair refrigerating appliances, and complies with the Electricity at Work Regulations 1989;
 - (b) the professional repairer is covered by insurance for liabilities resulting from its activities.
- (12) The request for registration must be accepted or refused within 5 working days from the date of the request.

(13) Manufacturers, authorised representatives 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 the information.

(14) Once registered, a professional repairer must be given access to requested repair and maintenance information within one working day of any request. The information may be provided for an equivalent model or model of the same family, if appropriate. The available repair and maintenance information must include—

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

Requirements for dismantling for material recovery and recycling

(15) Manufacturers, importers or authorised representatives must ensure that refrigerating appliances are designed in such a way that the materials and components referred to in Annex 7 of the WEEE Directive can be removed with the use of commonly available tools.

Information requirements

5.—(1) Manufacturers, their authorised representatives or importers of refrigerating appliances must provide the information specified in sub-paragraph (3) in the form of instruction manuals for installers and end-users.

(2) The information referred to in sub-paragraph (1) must be made available on a website which is accessible to the public without charge.

(3) The information referred to in sub-paragraph (1) is—

- (a) the combination of drawers, baskets and shelves that result in the most efficient use of energy for the refrigerating appliance;
- (b) guidance about where and how to store foodstuffs in a refrigerating appliance for best preservation over the longest period, to avoid food waste;
- (c) the recommended setting of temperatures in each compartment for optimum food preservation. These settings must accord with the storage conditions set out in Table 17 in Schedule 14;
- (d) an estimation of the impact of temperature settings on food waste;
- (e) a description of the effects of special modes and features, and in particular how temperatures are affected in each compartment and for how long;

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- (f) for wine storage appliances, a statement that the appliance is intended to be used exclusively for the storage of wine;
 - (g) instructions for the correct installation and end-user maintenance, including cleaning, of the refrigerating appliance;
 - (h) for a freestanding refrigerating appliance, a statement that it is not intended to be used as a built-in appliance;
 - (i) for appliances without a 4-star compartment, a statement that the appliance is not suitable for freezing foodstuffs;
 - (j) how to access professional repair such as internet web pages, addresses and contact details;
 - (k) relevant information for ordering spare parts, directly or through other channels provided by the manufacturer, importer or authorised representative;
 - (l) the minimum period during which spare parts, necessary for the repair of the appliance, are available;
 - (m) the minimum duration of the guarantee of the refrigerating appliance offered by the manufacturer, importer or authorised representative;
 - (n) for refrigerating appliances with climate class, the following statements—
 - (i) extended temperate: ‘this refrigerating appliance is intended to be used at ambient temperatures ranging from 10 °C to 32 °C’;
 - (ii) temperate: ‘this refrigerating appliance is intended to be used at ambient temperatures ranging from 16 °C to 32 °C’;
 - (iii) subtropical: ‘this refrigerating appliance is intended to be used at ambient temperatures ranging from 16 °C to 38 °C’;
 - (iv) tropical: ‘this refrigerating appliance is intended to be used at ambient temperatures ranging from 16 °C to 43 °C’;
 - (o) instructions on how to find the model information on a publicly accessible website.
- (4) The instruction manuals referred to in sub-paragraph (1) must be provided with the product when it is placed on the market.

Technical documentation requirements

6.—(1) The technical documentation file required for the conformity assessment of the product must comply with the following.

(2) Where the information in the technical documentation for a particular model has been obtained—

- (a) from a model that has the same technical characteristics relevant for the technical information to be provided but is produced by a different manufacturer;
- (b) by calculation on the basis of design or extrapolation from another model of the same or a different manufacturer; or
- (c) by both paragraphs (a) and (b);

the technical documentation must include the details of any such calculation and 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.

(3) The technical documentation must include a list of all equivalent models, including the model identifiers.

(4) The technical documentation must include all the information specified in Annex 6 of Commission Delegated Regulation (EU) 2019/2016 of 11 March 2019⁽⁶⁾ supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of refrigerating appliances (the labelling regulation).

(5) The information referred to in paragraph (4) must be provided in the order and format set out in Annex 6 of the labelling regulation.

SCHEDULE 14

Regulation 29

Measurement methods and calculations for refrigerating appliances

1.—(1) Sub-paragraphs (2) to (5) apply for the purposes of the measurements and calculations referred to in paragraphs 2 to 7.

(2) For refrigerating appliances with anti-condensation heaters that can be switched on and off by the end-user, the anti-condensation heaters must be—

- (a) switched on;
- (b) if adjustable, set at maximum heating; and
- (c) included in the annual energy consumption as daily energy consumption (E_{daily});

(3) For refrigerating appliances with ambient controlled anti-condensation heaters, the ambient controlled anti-condensation heaters must be switched off or otherwise disabled, where possible, during the measurement of energy consumption.

(4) For refrigerating appliances with dispensers that can be switched on and off by the end-user, the dispensers must be switched on but not operating during the energy consumption test.

(5) For the measurement of energy consumption, variable temperature compartments must operate at the lowest temperature that can be set by the end-user to continuously maintain the temperature range of the compartment type which has the lowest temperature, as set out in Table 17.

(6) For the energy consumption test of refrigerating appliances that can be connected to a network, the communication module must be activated and the unit must be connected, but it is not a requirement that any communication or data exchange should take place during the test.

(7) For the performance of chill compartments—

- (a) in the case of a variable temperature compartment rated as a fresh food or chill compartment, the energy efficiency index (EEI) must be determined for each temperature condition and the highest value must be applied;
- (b) a chill compartment must be able to control its average temperature within a certain range without user adjustments; this must be checked during the energy consumption tests at 16 °C and 32 °C ambient temperature.

(8) For adjustable volume compartments, where the volumes of two compartments are adjustable relative to one another by the end-user, the energy consumption and the volume must be tested when the volume of the compartment with the higher target temperature is adjusted to its minimum volume.

(9) The specific freezing capacity must be calculated as 24 times the light load weight, divided by the freezing time to bring the temperature of the light load from +25 °C to -18 °C at an ambient temperature of 25 °C, expressed in kg/24 h and rounded to one decimal place.

(10) For the determination of climate classes, the ambient temperature ranges SN, N, ST or T are as follows—

(6) EUR 2019/2016; relevant amending instrument is [S.I. 2020/1528](#).

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- (a) the extended temperate (SN) has a temperature range from 10 °C to 32 °C;
 - (b) the temperate (N) has a temperature range from 16 °C to 32 °C;
 - (c) the subtropical (ST) has a temperature range from 16 °C to 38 °C; and
 - (d) the tropical (T) has a temperature range from 16 °C to 43 °C.
- (11) The light load weight for each 4-star compartment must be—
- (a) 3.5 kg/100 l of the volume of the 4-star compartment evaluated, rounded up to the nearest 0.5 kg; and
 - (b) 2 kg for a 4-star compartment with a volume for which 3.5 kg/100 l leads to a value lower than 2 kg.
- (12) Where a refrigerating appliance includes a combination of 3-star and 4- star compartments, the sum of the light load weights is increased so that the sum of the light load weights for all the 4-star compartments must be—
- (a) 3.5 kg/100 l of the total volume of all 3-star and 4-star compartments, rounded up to the nearest 0.5 kg; and,
 - (b) 2 kg for a total volume of all 3-star and 4-star compartments for which 3.5 kg/100 l leads to a value lower than 2 kg.

Storage conditions and target temperatures per compartment type

2.—(1) Table 17 sets out the storage conditions and target temperature per compartment type.

Table 17

Storage conditions and target temperature per compartment type

<i>Group</i>	<i>Compartment type</i>	<i>Storage conditions</i>		<i>T_c</i>
		<i>T_{min}</i>	<i>T_{max}</i>	
		°C	°C	°C
Unfrozen compartments	Pantry	+14	+20	+17
	Wine storage	+5	+20	+12
	Cellar	+2	+14	+12
	Fresh food	0	+8	+4
Chill compartment	Chill	-3	+3	+2
Frozen compartments	0-star and ice-making	N/A	0	0
	1-star	N/A	-6	-6
	2-star	N/A	-12	-12
	3-star	N/A	-18	-18
	Freezer (4-star)	N/A	-18	-18

(2) For the purposes of Table 17—

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- (a) for the entries relating to pantry, cellar and fresh food, T_{\min} and T_{\max} are the average values measured over the test period (average over time and over a set of sensors);
- (b) for the entry relating to wine storage—
 - (i) T_{\min} and T_{\max} are the average values measured over the test period (average over time for each sensor) and define the maximum allowed temperature operating range;
 - (ii) the average temperature variation over the test period for each sensor must be no more than ± 0.5 kelvin (K); during a defrost and recovery period the average of all sensors must not rise more than 1.5 K above the average value of the compartment;
- (c) for the entry relating to chill, T_{\min} and T_{\max} are the instantaneous values during the test period;
- (d) for all the entries relating to frozen compartments, T_{\max} is the maximum value measured over the test period (maximum over time and over a set of sensors);
- (e) for the entries relating to 2-star, 3-star and 4-star frozen compartments, where the compartment is of the auto-defrosting type, the temperature (defined as the maximum of all sensors) must not rise more than 3.0 K during a defrost and recovery period.

Determination of the *AE*

3.—(1) For all refrigerating appliances other than low noise appliances, the energy consumption must be determined as follows.

(2) Testing must be carried out at ambient temperatures of 16 °C and 32 °C.

(3) The average air temperatures in each compartment must be equal to or below the target temperatures specified in Table 17 for each compartment type claimed by the manufacturer, the importer or authorised representative. Values above and below target temperatures may be used to estimate the energy consumption at the target temperature for each relevant compartment by interpolation, as appropriate.

(4) The main components of energy consumption to be determined are—

- (a) a set of steady state power consumption values (P_{ss}), expressed in Watts and rounded to one decimal place, each at a specific ambient temperature and at a set of compartment temperatures, which are not necessarily the target temperatures;
- (b) the representative incremental defrost and recovery energy consumption (ΔE_{d-f}), expressed in watt-hours (Wh) and rounded to one decimal place, for products with one or more auto-defrost system (each with its own defrost control cycle) measured at an ambient temperature of 16 °C (ΔE_{d-f16}) and 32 °C (ΔE_{d-f32});
- (c) defrost interval (t_{d-f}), expressed in hours (h) and rounded to three decimal places, for products with one or more defrost systems (each with its own defrost control cycle) measured at an ambient temperature of 16 °C ($td-f16$) and 32 °C ($td-f32$); $td-f$ must be determined for each system under a certain range of conditions;
- (d) for each test performed the P_{ss} and ΔE_{d-f} are added together to form a daily energy consumption at a certain ambient temperature (ET) as follows—

$$ET = 0.001 \times 24 \times (P_{ss} + \Delta E_{d-f}/td-f),$$

expressed in kilowatt-hours per day (kWh/24 h), specific to the settings applied;

- (e) E_{aux} , expressed in kilowatt-hours per year (kWh/a) and rounded to three decimal places.

(5) Each of the parameters in sub-paragraph (4) must be determined through tests.

(6) For the purposes of sub-paragraph (5)—

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- (a) measurement data must be averaged over a test period which is taken after the appliance has been in operation for a certain time;
 - (b) to improve the efficiency and accuracy of testing, the length of the test period is not fixed; it must be such that the appliance is in steady state condition during this test period;
 - (c) the steady state condition is validated by examining all data within this test period against a set of stability criteria determined in accordance with regulation 31.
- (7) AE, expressed in kWh/a, must be rounded to two decimal places and calculated as follows—
- $$AE = 365 \times E_{\text{daily}}/L + E_{\text{aux}}$$

Where—

- (a) the load factor L is—
 - (i) 0.9 for refrigerating appliances with only frozen compartments; and
 - (ii) 1.0 for all other appliances;
- (b) E_{daily} is rounded to three decimal places expressed in kWh/24 h, and calculated from E_T at an ambient temperature of 16 °C (E_{16}) and at an ambient temperature of 32 °C (E_{32}) as follows—

$$E_{\text{daily}} = 0.5 \times (E_{16} + E_{32})$$

(8) For the purposes of sub-paragraph (7) E_{16} and E_{32} are derived by interpolation of the energy test at the target temperatures set out in Table 17.

(9) For low noise refrigerating appliances, the energy consumption is determined in accordance with the preceding provisions of this paragraph except—

- (a) testing must be carried out at an ambient temperature of 25 °C;
- (b) E_{daily} , expressed in kWh/24 h and rounded to three decimal places for the calculation of the AE is E_{25} ,

where E_{25} is E_T at an ambient temperature of 25 °C and derived by interpolation of the energy tests at the target temperatures listed in Table 17.

Determination of the standard annual energy consumption (SAE)

4.—(1) For all refrigerating appliances, SAE, expressed in kWh/a and rounded to two decimal places, is calculated as follows—

$$SAE = C \times D \times \sum_{c=1}^n A_c \times B_c \times [V_c/V] \times (N_c + V \times r_c \times M_c)$$

where—

- (a) c is the index number for a compartment type ranging from 1 to n, with n the total number of compartment types;
- (b) V_c , expressed in dm³ or litres and rounded to the first decimal place is the compartment volume;
- (c) V, expressed in dm³ or litres and rounded to the nearest integer, is the total volume where—

$$V \leq \sum_{c=1}^n V_c$$

- (d) r_c , N_c , M_c and C are modelling parameters specific to each compartment with values as set out in Table 18; and

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(e) A_c , B_c and D are the compensation factors with values as set out in Table 19.

(2) When carrying out the calculations in this paragraph, for the variable temperature compartments, the compartment type with the lowest target temperature for which the manufacturer has declared it suitable must be chosen.

Modelling parameters per compartment type for the calculation of SAE

5.—(1) Table 18 sets out the modelling parameters per compartment type for the calculation of SAE.

Table 18

The values of the modelling parameters per compartment type

Compartment type	r_c	N_c	M_c	C
Pantry	0.35	75	0.12	(a) between 1.15 and 1.56 for combi appliances with 3- or 4-star compartments;
Wine storage	0.6			
Cellar	0.6			
Fresh food	1.00			
Chill	1.10	138	0.12	(b) 1.15 for other combi appliances;
0-star and ice-making	1.20			
1-star	1.50			
2-star	1.80			
3-star	2.10			
Freezer (4-star)	2.10			
				(c) 1.00 for other refrigerating appliances.

(2) For the purposes of table 18—

(a) r_c is $(T_a - T_c)/20$, where $T_a = 24$ °C and T_c is the determined value as set out in Table 17;

(b) C for combi appliances is determined as follows—

(i) $frzf = V_{fr}/V$, where—

(aa) V_{fr} is the 3- or 4-star compartment volume;

(bb) V is the total volume of the appliance;

(ii) if $frzf \leq 0.3$, $C = 1.3 + 0.87 \times frzf$;

(iii) if $0.3 < frzf < 0.7$, $C = 1.87 - 1.0275 \times frzf$;

(iv) in any other case, $C = 1.15$.

Compensation factors per compartment type in the calculation of SAE:

6. Table 19 sets out the compensation factors per compartment type.

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Table 19

Values of compensation factors per compartment type

Compartment type	A_c	A_c	B_c	B_c	D			
	Manual defrost	Auto-defrost	Freestanding appliance	Built-in appliance	≤ 2	3	4	> 4
Pantry	1		1	1.02	1	1.02	1.035	1.05
Wine storage								
Cellar								
Fresh food								
Chill				1.03				
0-star and ice-making	1	1.10		1.05				
1-star								
2-start								
3-star								
Freezer (4-star)								

For the purposes of Table 19, the numbers in the second row of the column headed “D” are the number of external doors or compartments, whichever is lower.

Determination of the EEI

7. EEI, expressed in per cent and rounded to the first decimal place, is calculated as—

$$EEI = AE/SAE.$$

SCHEDULE 15

Regulation 30

Verification procedure for market surveillance purposes –refrigerating appliances

Interpretation

1. In this Schedule “determined values” means the values of the relevant parameters as measured by the market surveillance authority in testing and the values calculated from these measurements.

Verification procedure

2. The market surveillance authority must apply the procedure set out in the following paragraphs when verifying the compliance of a product with these Regulations, using the measurement and calculation methods provided for in Schedule 14.

3. The market surveillance authority must initially test one single unit of the model of the product to be verified.

4. Subject to paragraph 5, the model conforms to these Regulations if all the following conditions are satisfied in respect of the tested unit—

- (a) the declared values and, where applicable, the values used to calculate the declared values, are not more favourable for the manufacturer, importer, or authorised representative than the corresponding measurements carried out pursuant to paragraph 1(2)(b)(vii) or 5(2)(d) of Schedule 1A to the 2010 Regulations;
- (b) the manufacturer, importer or authorised representative has put in place a system that complies with the requirements of regulation 32(2), (3) and (4) (software updates);
- (c) the unit complies with the functional and resource efficiency and information requirements set out in Schedule 13;
- (d) any product information published by the manufacturer, importer or authorised representative does not contain values more favourable for the manufacturer, importer or authorised representative than the declared values;
- (e) the determined values meet the verification tolerances set out in Table 20.

5.—(1) If a unit complies with all the conditions of paragraph 4 except sub-paragraph (e), the market surveillance authority must test three additional units of the model to be verified or three units of equivalent models.

(2) A model subject to additional testing under this paragraph is deemed to comply with paragraph 4(e) if the arithmetical mean of the determined values for the three additional units meets the verification tolerances set out in Table 20.

(3) If a model fails to meet the test set out in sub-paragraph (2), the model and all equivalent models do not conform to these Regulations.

6. Where a model has been designed to be able to detect it is being tested (for example by recognising test conditions or test cycles), and to react specifically by automatically altering its performance during the test with the objective of reaching a more favourable level for any of the parameters specified in these Regulations or included in the technical documentation or included in any of the documentation provided, the model and all equivalent models do not conform to these Regulations.

Verification tolerances

7.—(1) The verification tolerances set out in Table 20 must be used only by the market surveillance authority and only for the purposes of this Schedule.

(2) The manufacturer, authorised representative or importer of a product must not use the verification tolerances—

- (a) as allowed tolerances to establish the declared values;
- (b) in order to interpret the declared values with a view to achieving compliance; or
- (c) to communicate better performance.

(3) Where three additional units are tested in accordance with paragraph 5, the determined value for the purposes of Table 20 means the arithmetic mean of the values determined for those three additional units.

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Table 20**Verification tolerances**

<i>Parameters</i>	<i>Verification tolerances</i>
Total volume and compartment volume	The determined value must not be more than 3 per cent or 1 litre (whichever is the greater value) lower than the declared value.
Freezing capacity	The determined value must not be more than 10 per cent lower than the declared value.
E_{32}	The determined value must not be more than 10 per cent higher than the declared value.
E_{aux}	The determined value must not be more than 10 per cent higher than the declared value.
Annual energy consumption	The determined value must not be more than 10 per cent higher than the declared value.
Internal humidity of wine storage appliances (per cent)	The determined value must not differ from the limits of the declared range by more than 10 per cent.
Airborne acoustical noise emission	The determined value must not be more than 2 dB(A) re 1 pW more than the declared value.
Temperature rise time	The determined value must not be more than 15 per cent lower than the declared value.

SCHEDULE 16

Regulation 34

Ecodesign requirements for electric motors and variable speed drives

Energy efficiency requirements for motors

1.—(1) From 1 July 2021, three-phase motors must meet the following requirements.

(2) In this Schedule “IE” means energy efficiency for motors, expressed in International Energy efficiency classes in accordance with the following provisions.

(3) The energy efficiency of three-phase motors—

- (a) with a rated output equal to or above 0.75 kW and equal to or below 1,000 kW;
- (b) with 2, 4, 6 or 8 poles; and
- (c) which are not Ex eb increased safety motors,

must correspond to at least the IE3 efficiency level set out in Table 22 or Table 25, as applicable.

(4) The energy efficiency of three-phase motors—

- (a) with a rated output equal to or above 0.12 kW and below 0.75 kW;
- (b) with 2, 4, 6 or 8 poles; and
- (c) which are not Ex eb increased safety motors,

must correspond to at least the IE2 efficiency level set out in Table 21 or Table 24, as applicable.

2.—(1) From 1 July 2023, motors must meet the following requirements.

(2) The energy efficiency of

(a) Ex eb increased safety motors—

(i) with a rated output equal to or above 0.12 kW and equal to or below 1,000 kW; and

(ii) with 2, 4, 6 or 8 poles; and

(b) single-phase motors with a rated output equal to or above 0.12 kW,

must correspond to at least the IE2 efficiency level set out in Table 21 or Table 24, as appropriate.

(3) The energy efficiency of three-phase motors—

(a) which are not—

(i) brake motors;

(ii) Ex eb increased safety motors; or

(iii) other explosion-protected motors;

(b) with a rated output equal to or above 75 kW and equal to or below 200 kW; and

(c) with 2, 4, or 6 poles,

must correspond to at least the IE4 efficiency level set out in Table 23 or Table 26, as appropriate.

3.—(1) IE is set out in Tables 21 to 26, for different values of the motor rated output power P_N at 50 Hz or 60 Hz.

(2) IE classes are determined at rated output power (P_N), rated voltage (U_N), and based on 25 °C ambient reference temperature.

(3) For 50/60 Hz motors, the requirements in Tables 21 to 26 must be met at both 50Hz and 60 Hz at the rated output power specified for 50 Hz.

(4) For 50Hz motors the requirements in Tables 21 to 23 must be met at 50 Hz at the rated output power specified for 50 Hz.

(5) For 60Hz motors the requirements in Tables 24 to 26 must be met at 60 Hz at the rated output power specified for 60 Hz.

(6) Losses must be determined in accordance with Schedule 17.

Table 21

Minimum efficiencies (η_n) for IE2 efficiency level at 50 Hz (per cent)

Rated output power P_N [kW]	2 poles	4 poles	6 poles	8 poles
0.12	53.6	59.1	50.6	39.8
0.18	60.4	64.7	56.6	45.9
0.20	61.9	65.9	58.2	47.4
0.25	64.8	68.5	61.6	50.6
0.37	69.5	72.7	67.6	56.1
0.40	70.4	73.5	68.8	57.2
0.55	74.1	77.1	73.1	61.7
0.75	77.4	79.6	75.9	66.2

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<i>Rated output power P_N [kW]</i>	<i>2 poles</i>	<i>4 poles</i>	<i>6 poles</i>	<i>8 poles</i>
1.1	79.6	81.4	78.1	70.8
1.5	81.3	82.8	79.8	74.1
2.2	83.2	84.3	81.8	77.6
3	84.6	85.5	83.3	80.0
4	85.8	86.6	84.6	81.9
5.5	87.0	87.7	86.0	83.8
7.5	88.1	88.7	87.2	85.3
11	89.4	89.8	88.7	86.9
15	90.3	90.6	89.7	88.0
18.5	90.9	91.2	90.4	88.6
22	91.3	91.6	90.9	89.1
30	92.0	92.3	91.7	89.8
37	92.5	92.7	92.2	90.3
45	92.9	93.1	92.7	90.7
55	93.2	93.5	93.1	91.0
75	93.8	94.0	93.7	91.6
90	94.1	94.2	94.0	91.9
110	94.3	94.5	94.3	92.3
132	94.6	94.7	94.6	92.6
160	94.8	94.9	94.8	93.0
200 up to 1,000	95.0	95.1	95.0	93.5

Table 22

Minimum efficiencies (η_n) for IE3 efficiency level at 50 Hz (per cent)

<i>Rated output power P_N [kW]</i>	<i>2 poles</i>	<i>4 poles</i>	<i>6 poles</i>	<i>8 poles</i>
0.12	60.8	64.8	57.7	50.7
0.18	65.9	69.9	63.9	58.7
0.20	67.2	71.1	65.4	60.6
0.25	69.7	73.5	68.6	64.1
0.37	73.8	77.3	73.5	69.3
0.40	74.6	78.0	74.4	70.1
0.55	77.8	80.8	77.2	73.0

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<i>Rated output power P_N [kW]</i>	<i>2 poles</i>	<i>4 poles</i>	<i>6 poles</i>	<i>8 poles</i>
0.75	80.7	82.5	78.9	75.0
1.1	82.7	84.1	81.0	77.7
1.5	84.2	85.3	82.5	79.7
2.2	85.9	86.7	84.3	81.9
3	87.1	87.7	85.6	83.5
4	88.1	88.6	86.8	84.8
5.5	89.2	89.6	88.0	86.2
7.5	90.1	90.4	89.1	87.3
11	91.2	91.4	90.3	88.6
15	91.9	92.1	91.2	89.6
18.5	92.4	92.6	91.7	90.1
22	92.7	93.0	92.2	90.6
30	93.3	93.6	92.9	91.3
37	93.7	93.9	93.3	91.8
45	94.0	94.2	93.7	92.2
55	94.3	94.6	94.1	92.5
75	94.7	95.0	94.6	93.1
90	95.0	95.2	94.9	93.4
110	95.2	95.4	95.1	93.7
132	95.4	95.6	95.4	94.0
160	95.6	95.8	95.6	94.3
200 up to 1,000	95.8	96.0	95.8	94.6

Table 23

Minimum efficiencies (η_n) for IE4 efficiency level 50 Hz (per cent)

<i>Rated output power P_N [kW]</i>	<i>2 poles</i>	<i>4 poles</i>	<i>6 poles</i>	<i>8 poles</i>
0.12	66.5	69.8	64.9	62.3
0.18	70.8	74.7	70.1	67.2
0.20	71.9	75.8	71.4	68.4
0.25	74.3	77.9	74.1	70.8
0.37	74.3	77.9	74.1	70.8
0.40	78.9	81.7	78.7	74.9

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<i>Rated output power P_N [kW]</i>	<i>2 poles</i>	<i>4 poles</i>	<i>6 poles</i>	<i>8 poles</i>
0.55	81.5	83.9	80.9	77.0
0.75	83.5	85.7	82.7	78.4
1.1	85.2	87.2	84.5	80.8
1.5	86.5	88.2	85.9	82.6
2.2	88.0	89.5	87.4	84.5
3	89.1	90.4	88.6	85.9
4	90.0	91.1	89.5	87.1
5.5	90.9	91.9	90.5	88.3
7.5	91.7	92.6	91.3	89.3
11	92.6	93.3	92.3	90.4
15	93.3	93.9	92.9	91.2
18.5	93.7	94.2	93.4	91.7
22	94.0	94.5	93.7	92.1
30	94.5	94.9	94.2	92.7
37	94.8	95.2	94.5	93.1
45	95.0	95.4	94.8	93.4
55	95.3	95.7	95.1	93.7
75	95.6	96.0	95.4	94.2
90	95.8	96.1	95.6	94.4
110	96.0	96.3	95.8	94.7
132	96.2	96.4	96.0	94.9
160	96.3	96.6	96.2	95.1
200 up to 249	96.5	96.7	96.3	95.4
250 up to 314	96.5	96.7	96.5	95.4
315 up to 1,000	96.5	96.7	96.6	95.4

Table 24

Minimum efficiencies (η_n) for IE2 efficiency level at 60 Hz (per cent)

<i>Rated output power P_N [kW]</i>	<i>2 poles</i>	<i>4 poles</i>	<i>6 poles</i>	<i>8 poles</i>
2	4	6	8	
0.12	59.5	64.0	50.5	40.0
0.18	64.0	68.0	55.0	46.0

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<i>Rated output power P_N [kW]</i>	<i>2 poles</i>	<i>4 poles</i>	<i>6 poles</i>	<i>8 poles</i>
0.25	68.0	70.0	59.5	52.0
0.37	72.0	72.0	64.0	58.0
0.55	74.0	75.5	68.0	62.0
0.75	75.5	78.0	73.0	66.0
1.1	82.5	84.0	85.5	75.5
1.5	84.0	84.0	86.5	82.5
2.2	85.5	87.5	87.5	84.0
3.7	87.5	87.5	87.5	85.5
5.5	88.5	89.5	89.5	85.5
7.5	89.5	89.5	89.5	88.5
11	90.2	91.0	90.2	88.5
15	90.2	91.0	90.2	89.5
18.5	91.0	92.4	91.7	89.5
22	91.0	92.4	91.7	91.0
30	91.7	93.0	93.0	91.0
37	92.4	93.0	93.0	91.7
45	93.0	93.6	93.6	91.7
55	93.0	94.1	93.6	93.0
75	93.6	94.5	94.1	93.0
90	94.5	94.5	94.1	93.6
110	94.5	95.0	95.0	93.6
150	95.0	95.0	95.0	93.6
185	95.4	95.4	95.0	93.6
220	95.4	95.4	95.0	93.6
250	95.4	95.4	95.0	93.6
300	95.4	95.4	95.0	93.6
335	95.4	95.4	95.0	93.6
375 up to 1000	95.4	95.8	95.0	94.1

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Table 25

Minimum efficiencies (η_n) for IE3 efficiency level at 60 Hz (per cent)

Rated output power P_N [kW]	2 poles	4 poles	6 poles	8 poles
	4	6	8	
0.12	62.0	66.0	64.0	59.5
0.18	65.6	69.5	67.5	64.0
0.25	69.5	73.4	71.4	68.0
0.37	73.4	78.2	75.3	72.0
0.55	76.8	81.1	81.7	74.0
0.75	77.0	83.5	82.5	75.5
1.1	84.0	86.5	87.5	78.5
1.5	85.5	86.5	88.5	84.0
2.2	86.5	89.5	89.5	85.5
3.7	88.5	89.5	89.5	86.5
5.5	89.5	91.7	91.0	86.5
7.5	90.2	91.7	91.0	89.5
11	91.0	92.4	91.7	89.5
15	91.0	93.0	91.7	90.2
18.5	91.7	93.6	93.0	90.2
22	91.7	93.6	93.0	91.7
30	92.4	94.1	94.1	91.7
37	93.0	94.5	94.1	92.4
45	93.6	95.0	94.5	92.4
55	93.6	95.4	94.5	93.6
75	94.1	95.4	95.0	93.6
90	95.0	95.4	95.0	94.1
110	95.0	95.8	95.8	94.1
150	95.4	96.2	95.8	94.5
185	95.8	96.2	95.8	95.0
220	95.8	96.2	95.8	95.0
250	95.8	96.2	95.8	95.0
300	95.8	96.2	95.8	95.0
335	95.8	96.2	95.8	95.0

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Rated output power P_N [kW]	2 poles	4 poles	6 poles	8 poles
375 up to 1000	95.8	96.2	95.8	95.0

Table 26

Minimum efficiencies (η_n) for IE4 efficiency level at 60 Hz (per cent)

Rated output power P_N [kW]	2 poles	4 poles	6 poles	8 poles
2	4	6	8	
0.12	66.0	70.0	68.0	64.0
0.18	70.0	74.0	72.0	68.0
0.25	74.0	77.0	75.5	72.0
0.37	77.0	81.5	78.5	75.5
0.55	80.0	84.0	82.5	77.0
0.75	82.5	85.5	84.0	78.5
1.1	85.5	87.5	88.5	81.5
1.5	86.5	88.5	89.5	85.5
2.2	88.5	91.0	90.2	87.5
3.7	89.5	91.0	90.2	88.5
5.5	90.2	92.4	91.7	88.5
7.5	91.7	92.4	92.4	91.0
11	92.4	93.6	93.0	91.0
15	92.4	94.1	93.0	91.7
18.5	93.0	94.5	94.1	91.7
22	93.0	94.5	94.1	93.0
30	93.6	95.0	95.0	93.0
37	94.1	95.4	95.0	93.6
45	94.5	95.4	95.4	93.6
55	94.5	95.8	95.4	94.5
75	95.0	96.2	95.8	94.5
90	95.4	96.2	95.8	95.0
110	95.4	96.2	96.2	95.0
150	95.8	96.5	96.2	95.4
185	96.2	96.5	96.2	95.4
220	96.2	96.8	96.5	95.4

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Rated output power P_N [kW]	2 poles	4 poles	6 poles	8 poles
250	96.2	96.8	96.5	95.8
300	96.2	96.8	96.5	95.8
335	96.2	96.8	96.5	95.8
375 up to 1000	96.2	96.8	96.5	95.8

4.—(1) To determine the minimum efficiency of 50 Hz motors with rated power outputs (P_N) of between 0.12 and 200 kW not provided in Tables 21 to 26, the following formula must be used—

$$\eta_n = A \times [\log_{10}(P_N/1kW)]^3 + B \times [\log_{10}(P_N/1kW)]^2 + C \times \log_{10}(P_N/1kW) + D$$

(2) For the purposes of paragraph (1), A, B, C and D are interpolation coefficients to be determined according to Tables 27 and 28.

(3) The minimum efficiency of a motor with a rated power output (P) between 0.55 kW and 0.75 kW must be calculated by linear interpolation from the obtained minimum efficiencies of a motor with a rated power output of 0.55 kW and a motor with a rated power output of 0.75 kW.

5. The minimum efficiency of 60 Hz motors at a rated power not provided in Tables 24 to 26 must be determined as follows—

- the efficiency of a rated power at, or above, the midpoint between two consecutive values in the tables is the highest of the two efficiencies;
- the efficiency of a rated power below the midpoint between two consecutive values in the tables is the lowest of the two efficiencies.

Table 27

Interpolation coefficients for motors with rated power output P from 0.12 kW up to 0.55 kW

IE code	Coefficients	2 poles	4 poles	6 poles	8 poles
IE2	A	22.4864	17.2751	-15.9218	6.4855
	B	27.7603	23.978	-30.258	9.4748
	C	37.8091	35.5822	16.6861	36.852
	D	82.458	84.9935	79.1838	70.762
IE3	A	6.8532	7.6356	-17.361	-0.5896
	B	6.2006	4.8236	-44.538	-25.526
	C	25.1317	21.0903	-3,0554	4.2884
	D	84.0392	86.0998	79.1318	75.831
IE4	A	-8.8538	8.432	-13.0355	-4.9735
	B	-20.3352	2.6888	-36.9497	-21.453
	C	8.9002	14.6236	-4.3621	2.6653
	D	85.0641	87.6153	82.0009	79.055

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Table 28

Interpolation coefficients for motors with rated power output P from 0.75 kW up to 200 kW

<i>IE code</i>	<i>Coefficients</i>	<i>2 poles</i>	<i>4 poles</i>	<i>6 poles</i>	<i>8 poles</i>
IE2	A	0.2972	0.0278	0.0148	2.1311
	B	-3.3454	-1.9247	-2.4978	-12.029
	C	13.0651	10.4395	13.247	26.719
	D	79.077	80.9761	77.5603	69.735
IE3	A	0.3569	0.0773	0.1252	0.7189
	B	-3.3076	-1.8951	-2.613	-5.1678
	C	11.6108	9.2984	11.9963	15.705
	D	82.2503	83.7025	80.4769	77.074
IE4	A	0.34	0.2412	0.3598	0.6556
	B	-3.0479	-2.3608	-3.2107	-4.7229
	C	10.293	8.446	10.7933	13.977
	D	84.8208	86,8321	84.107	80.247

Product information requirements for motors

6.—(1) The product information on motors set out in sub-paragraphs (3) and (6) must be visibly displayed on—

- (a) the technical data sheet or user manual supplied with the motor, unless an internet link to that information is supplied with the product;
 - (b) the technical documentation for the purposes of conformity assessment pursuant to regulation 35;
 - (c) subject to sub-paragraph (10), websites of the manufacturer of the motor, its authorised representative or the importer, and for this purpose websites must be accessible to the public without charge; and
 - (d) the technical data sheet supplied with products in which the motor is incorporated.
- (2) In the technical documentation, the information in sub-paragraphs (3) and (6)—
- (a) must be provided in the order set out in those paragraphs; and
 - (b) may be displayed using clearly understandable graphs figures or symbols instead of text.
- (3) The information to be displayed is—
- (a) rated efficiency (η_N) at the full, 75 per cent and 50 per cent rated load, and voltage (U_N), determined based on 25 °C ambient reference temperature, rounded to one decimal place;
 - (b) efficiency level IE2, IE3 or IE4, as determined in paragraphs 3 to 5;
 - (c) manufacturer's name or trade mark, commercial registration number and address;
 - (d) the model identifier of the product;
 - (e) the number of poles of the motor;

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- (f) the rated power outputs (P_N) or range of rated power output in kW;
- (g) the rated input frequency of the motor in Hz;
- (h) the rated voltage or range of rated voltage in V;
- (i) the rated speed or range of rated speed in rpm;
- (j) whether the motor is single-phase or three-phase;
- (k) information on the range of operating conditions for which the motor is designed, including—
 - (i) altitudes above sea-level;
 - (ii) minimum and maximum ambient air temperatures including for motors with air cooling;
 - (iii) water coolant temperature at the inlet to the product, where applicable;
 - (iv) maximum operating temperature;
 - (v) potentially explosive atmospheres;
- (l) if the motor is considered exempt from efficiency requirements in accordance with paragraph 10, the specific reason why it is considered exempt.
- (4) The information in sub-paragraph (3) must be displayed—
 - (a) from 1 July 2021 in respect of motors to which paragraph 1 applies; and
 - (b) from 1 July 2023 in respect of motors to which paragraph 2 applies.
- (5) From 1 July 2022, the information in sub-paragraph (6) must also be displayed.
- (6) The information referred to in sub-paragraph (5) is the power losses expressed in percentage (per cent) of the rated output power at the following different operating points for speed versus torque—
 - (a) (25;25);
 - (b) (25;100);
 - (c) (50;25);
 - (d) (50;50);
 - (e) (50;100);
 - (f) (90;50);
 - (g) (90;100)

determined based on 25 °C ambient reference temperature, rounded to one decimal place, and for this purpose losses must be determined in accordance with Schedule 17.

(7) If the motor is not suited for operation at any of the operating points for speed versus torque in sub-paragraph (6), “N/A” or “Not Applicable” must be indicated for such points.

(8) Subject to sub-paragraph (9), the information referred to sub-paragraph (3)(a) and (b) and the year of manufacture must be durably marked on or near the rating plate of the motor.

(9) If the size of the rating plate and surrounding area makes it impossible to mark all the information referred to in sub-paragraph (3)(a) and (b), only—

- (a) the rated efficiency at full rated load and voltage; and
- (b) the information referred to in sub-paragraph (3)(b);

must be marked.

(10) The information in sub-paragraphs (3) and (6) is not required to be published on free access websites for tailor-made motors with a special mechanical and electrical design manufactured on the

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basis of a specific customer request if this information is included in the commercial offers provided to the customers.

(11) Manufacturers must provide information in the technical data sheet or user manual supplied with the motor on any specific precautions that must be taken when motors are—

- (a) assembled;
- (b) installed;
- (c) maintained; or
- (d) used,

with VSDs.

(12) For motors exempt from the efficiency requirements in accordance with paragraph 10(1)(m), the motor or its packaging, and the technical documentation, must clearly indicate “Motor to be used exclusively as spare part for” and the unique model identification of the product for which it is intended.

(13) For 50 Hz and 60 Hz motors, the information set out above must be provided at the applicable frequency.

(14) For 50/60 Hz motors the information set out above must be provided at 50 Hz, except for the rated efficiency at full load, which must be specified at both 50Hz and 60Hz.

Efficiency requirements for variable speed drives

7.—(1) From 1 July 2021, VSDs must meet the following requirements.

(2) The power losses of VSDs rated for operating with motors with a rated output power equal to or above 0.12 kW and equal to or below 1,000 kW must not exceed the maximum power losses corresponding to the IE2 efficiency level.

(3) Energy efficiency for VSDs, expressed in International Energy efficiency classes (IE), is determined based on the power losses as follows—

- (a) the maximum power losses of the IE2 class are 25 per cent lower than the reference value referred to in Table 29;
- (b) where the apparent output power of a VSD is between two values in Table 29, the higher power loss value and the lower value of the test load displacement factor must be used for the IE class determination; and
- (c) losses are determined in accordance with Schedule 17.

Table 29

Reference VSD losses and test load displacement factor for the IE class determination of VSDs

<i>Apparent output power of VSD (kVA)</i>	<i>Rated power of motor (kW) (indicative)</i>	<i>Reference power losses (kW), at 90 per cent rated motor stator frequency and 100 per cent rated torque-producing current</i>	<i>Test load displacement factor cos phi (+/- 0.08)</i>
0.278	0.12	0.100	0.73
0.381	0.18	0.104	0.73
0.500	0.25	0.109	0.73

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<i>Apparent output power of VSD (kVA)</i>	<i>Rated power of motor (kW) (indicative)</i>	<i>Reference power losses (kW), at 90 per cent rated motor stator frequency and 100 per cent rated torque-producing current</i>	<i>Test load displacement factor cos phi (+/- 0.08)</i>
0.697	0.37	0.117	0.73
0.977	0.55	0.129	0.73
1.29	0.75	0.142	0.79
1.71	1.1	0.163	0.79
2,29	1.5	0.188	0.79
3.3	2.2	0.237	0.79
4.44	3	0.299	0.79
5.85	4	0.374	0.79
7.94	5.5	0.477	0.85
9.95	7.5	0.581	0.85
14.4	11	0.781	0.85
19.5	15	1.01	0.85
23.9	18.5	1.21	0.85
28.3	22	1.41	0.85
38.2	30	1.86	0.85
47	37	2.25	0.85
56.9	45	2.70	0.86
68.4	55	3.24	0.86
92.8	75	4.35	0.86
111	90	5.17	0.86
135	110	5.55	0.86
162	132	6.65	0.86
196	160	8.02	0.86
245	200	10.0	0.87
302	250	12.4	0.87
381	315	15.6	0.87
429	355	17.5	0.87
483	400	19.8	0.87
604	500	24.7	0.87
677	560	27.6	0.87

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<i>Apparent output power of VSD (kVA)</i>	<i>Rated power of motor (kW) (indicative)</i>	<i>Reference power losses (kW), at 90 per cent rated motor stator frequency and 100 per cent rated torque-producing current</i>	<i>Test load displacement factor cos phi (+/- 0.08)</i>
761	630	31.1	0.87
858	710	35.0	0.87
967	800	39.4	0.87
1,088	900	44.3	0.87
1,209	1,000	49.3	0.87

Product information requirements for variable speed drives

8.—(1) From 1 July 2021 the product information set out in sub-paragraph (3) must be visibly displayed on—

- (a) the technical data sheet or user manual supplied with the VSD, unless an internet link to that information is supplied with the product;
 - (b) the technical documentation for the purposes of the conformity assessment pursuant to regulation 35;
 - (c) subject to paragraph (4), websites of the manufacturer of the VSD, its authorised representative or the importer, and for this purpose websites must be accessible to the public without charge; and
 - (d) the technical data sheet supplied with products in which the VSD is incorporated.
- (2) In the technical documentation, the information in sub-paragraph (3)—
- (a) must be provided in the order set out in that paragraph; and
 - (b) may be displayed using clearly understandable graphs figures or symbols instead of text.
- (3) The information to be displayed is—
- (a) power losses, determined in accordance with Schedule 17 and rounded to one decimal place, in per cent of the rated apparent output power at the following different operating points for relative motor stator frequency versus relative torque-producing current—
 - (i) (0;25);
 - (ii) (0;50);
 - (iii) (0;100);
 - (iv) (50;25);
 - (v) (50;50);
 - (vi) (50;100);
 - (vii) (90;50);
 - (viii) (90;100);
 - (b) standby losses, rounded to one decimal place, in per cent of the rated apparent output power, generated when the VSD is powered up but is not providing current to the load;
 - (c) efficiency level IE2, as determined in accordance with paragraph 3;
 - (d) the manufacturer's name or trade mark, commercial registration number and address;

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- (e) the model identifier of the product;
- (f) the apparent output power or range of apparent output power in kVA;
- (g) the indicative motor rated power outputs (P_N) or range of rated power output in kW;
- (h) rated output current (A);
- (i) maximum operating temperature in °C;
- (j) rated supply frequencies (Hz);
- (k) rated supply voltage or range of rated supply voltages in V;
- (l) if the VSD is considered exempt from the efficiency requirements in accordance with paragraph 10, the specific reason why it is considered exempt.

(4) The information in sub-paragraph (3) is not required to be published on free access websites for tailor-made VSDs with a special electrical design manufactured on the basis of a specific customer request if this information is included in the commercial offers provided to the customers.

(5) Subject to sub-paragraph (6), the information referred to sub-paragraph (3)(a) and (b) and the year of manufacture must be durably marked on or near the rating plate of the VSD.

(6) If the size of the rating plate and surrounding area makes it impossible to mark all the information referred to in sub-paragraph (3)(a) and (b), only—

- (a) the power losses in per cent of the rated apparent output power at (90:100), rounded to one decimal place; and
- (b) the information referred to in sub-paragraph (3)(c);

must be marked.

Technical documentation requirements

9.—(1) The technical documentation file required for the conformity assessment of the product must comply with the following.

(2) Where the information in the technical documentation for a particular model has been obtained—

- (a) from a model that has the same technical characteristics relevant for the technical information to be provided but is produced by a different manufacturer;
- (b) by calculation on the basis of design or extrapolation from another model of the same or a different manufacturer; or
- (c) by both paragraphs (a) and (b);

the technical documentation must include the details of any such calculation and 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.

(3) The technical documentation must include a list of all equivalent models, including the model identifiers.

Exemptions

10.—(1) Paragraphs 1 to 5, 6(3)(a), (b), (e) to (k) and (5) of this Schedule do not apply to—

- (a) motors completely integrated into a product and whose energy performance cannot be tested independently from the product, even with the provision of a temporary end-shield and drive-end bearing, and for this purpose the motor must—
 - (i) share common components (apart from connectors) with the driven unit; and

- (ii) not be designed in such a way that the motor can be separated in its entirety from the driven unit and operate independently;
 - (b) motors with an integrated VSD (compact drives) whose energy performance cannot be tested independently from the VSD;
 - (c) motors with an integrated brake which forms an integral part of the inner motor construction and can neither be removed nor powered by a separate power source during the testing of the motor efficiency;
 - (d) motors specifically designed and specified to operate exclusively—
 - (i) at altitudes exceeding 4,000 metres above sea-level;
 - (ii) where ambient air temperatures exceed 60 °C;
 - (iii) in maximum operating temperature above 400 °C;
 - (iv) where ambient air temperatures are less than -30 °C; or
 - (v) where the water coolant temperature at the inlet to a product is below 0 °C or above 32 °C;
 - (e) motors specifically designed and specified to operate wholly immersed in a liquid;
 - (f) motors specifically qualified for the safety of nuclear installations;
 - (g) explosion-protected motors specifically intended for use in mining, in accordance with paragraph 1 of Schedule 1A to the Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016(7);
 - (h) motors in cordless or battery-operated equipment;
 - (i) motors in hand-held equipment whose weight is supported by hand during operation;
 - (j) motors in hand-guided mobile equipment moved while in operation;
 - (k) motors with mechanical commutators;
 - (l) totally enclosed non-ventilated motors;
 - (m) motors placed on the market before 1 July 2029 as substitutes for motors identical to those integrated in products placed on the market before—
 - (i) in the case of motors referred to in paragraph 1, 1 July 2021,
 - (ii) in the case of motors referred to in paragraph 2, 1 July 2023,and specifically marketed as such;
 - (n) multi-speed motors, which are motors with multiple windings or with a switchable winding, providing a different number of poles and speeds;
 - (o) motors designed specifically for the traction of electric vehicles.
- (2) Paragraphs 7, 8(3)(a) to (c) and (f) to (k) of this Schedule do not apply to—
- (a) VSDs integrated into a product and whose energy performance cannot be tested independently from the product, such that an attempt to do so would render the VSD or the product inoperative;
 - (b) VSDs qualified specifically for the safety of nuclear installations;
 - (c) regenerative drives;
 - (d) drives with sinusoidal input current;
 - (e) VSDs consisting of a single cabinet, comprising VSDs which all comply with these Regulations.

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(3) In this paragraph “nuclear installation” has the meaning given in section 26 of the Nuclear Installations Act 1965⁽⁸⁾.

SCHEDULE 17

Regulation 35

Measurement methods and calculations for electric motors and variable speed drives

1. The measurement methods and calculations for electric motors and VSDs are as follows.

Electric motors

2.—(1) The difference between the output mechanical power and the input electrical power due to losses occurring in the motor must be determined using the following methods, based on a 25 °C reference ambient temperature—

- (a) in the case of single-phase motors, by direct measurement of input minus output;
- (b) in the case of three-phase motors, by measuring the losses through the “summation of losses” test procedure set out in British Standard BS EN 60034.

(2) For the eight operating points referred to in paragraph 8(3)(a) of Schedule 16, the losses must be determined by either direct input-output measurement or by calculation.

Variable speed drives

3.—(1) For the determination of the IE class, the power losses of VSDs (“VSD losses”) must be determined at 100 per cent rated torque-producing current and 90 per cent rated motor stator frequency.

(2) The VSD losses must be determined according to one of the following methods—

- (a) the input minus output method; or
- (b) the calorimetric method (calculating power losses by measuring the heat emitted by the VSD).

(3) The test switching frequency must be 4 kilohertz (kHz) when power is at 111 kVA (90 kW) or below, and 2 kHz when power is above 111 kVA (90 kW), or at the default factory settings as defined by the manufacturer.

(4) VSD losses may be measured at a frequency of up to 12 Hz instead of zero.

(5) Manufacturers or their authorised representatives may also use the single loss determination method for determining VSD losses.

(6) For the purposes of sub-paragraph (5)—

- (a) calculations must be performed with respect to component manufacturer’s data with typical values of power semiconductors at the actual VSD operating temperature or at the maximum operating temperature specified in the datasheet;
- (b) where no component manufacturer data is available, losses must be determined by measurement, as follows—
 - (i) a combination of calculated and measured losses may be used;
 - (ii) the different individual losses must be calculated or measured separately, and the total losses determined as the sum of all individual losses.

(8) 1965 c.57.

SCHEDULE 18

Regulation 36

Verification procedure for market surveillance purposes – electric motors and variable speed drives

Interpretation

1. In this Schedule “determined values” means the values of the relevant parameters as measured by the market surveillance authority in testing and the values calculated from these measurements.

Verification procedure

2. The market surveillance authority must apply the procedure set out in the following paragraphs when verifying the compliance of a product with these Regulations, using the measurement and calculation methods provided for in Schedule 17.

3. The market surveillance authority must initially test one single unit of the model of the product to be verified.

4. Subject to paragraph 5, the model conforms to these Regulations if all the following conditions are satisfied in respect of the tested unit—

- (a) the declared values and, where applicable, the values used to calculate the declared values, are not more favourable for the manufacturer, importer, or authorised representative than the corresponding measurements carried out pursuant to paragraph 1(2)(b)(vii) or paragraph 5(2)(d) of Schedule 1A to the 2010 Regulations;
- (b) the unit complies with the requirements set out in Schedule 16;
- (c) any product information published by the manufacturer, importer or authorised representative complies with the requirements of Schedule 16;
- (d) any product information published by the manufacturer, importer or authorised representative does not contain values more favourable for the manufacturer, importer or authorised representative than the declared values;
- (e) the determined values meet the verification tolerances set out in Table 30.

5.—(1) If a unit complies with all the conditions of paragraph 4 except sub-paragraph (e)—

- (a) for models that are produced in quantities of less than five per year, including equivalent models, the model and all equivalent models do not conform to these Regulations;
- (b) subject to paragraph 6(5), for models that are produced in quantities of five or more per year including equivalent models, the market surveillance authority must test three additional units of the model to be verified, or three units of equivalent models.

(2) A model subject to additional testing under this paragraph is deemed to comply with paragraph 4(e) if the arithmetical mean of the determined values for the three additional units meets the verification tolerances set out in Table 30.

(3) If a model fails to meet the test set out in sub-paragraph (2), the model and all equivalent models do not conform to these Regulations.

6.—(1) For motors with a rated power output of 375 to 1,000 kW, the market surveillance authority may decide to undertake the verification procedure at the premises of manufacturers, authorised representatives or importers before the products are put into service.

(2) The market surveillance authority may undertake verification under sub-paragraph (1) using its own testing equipment.

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(3) Where factory acceptance tests are planned for motors to which this paragraph applies, and such tests will assess whether the requirements of Schedule 16 are met, the market surveillance authority may decide to use witnessed testing during these tests to gather test results which can be used to verify compliance of the motor under investigation.

(4) The market surveillance authority may require a manufacturer, authorised representative or importer to disclose information on any planned factory acceptance tests relevant for witnessed testing.

(5) In a case to which this paragraph applies, the market surveillance authority must test one single unit of the model.

(6) If a requirement imposed by the market surveillance authority under sub-paragraph (4) is not complied with, the authority may determine that the model concerned does not conform to these Regulations.

7. Where a model has been designed to be able to detect it is being tested (for example by recognising test conditions or test cycles), and to react specifically by automatically altering its performance during the test with the objective of reaching a more favourable level for any of the parameters specified in these Regulations or included in the technical documentation or included in any of the documentation provided, the model and all equivalent models do not conform to these Regulations.

Verification tolerances

8.—(1) The verification tolerances set out in Table 30 must be used only by the market surveillance authority and only for the purposes of this Schedule.

(2) The manufacturer, authorised representative or importer of a product must not use the verification tolerances—

- (a) as allowed tolerances to establish the declared values;
- (b) in order to interpret the declared values with a view to achieving compliance; or
- (c) to communicate better performance.

(3) Where three additional units are tested in accordance with paragraph 5, the determined value for the purposes of Table 30 means the arithmetic mean of the values determined for those three additional units.

Table 30

Verification tolerances

<i>Parameters</i>	<i>Verification tolerances</i>
Total losses (1- η) for motors with a rated output equal to or above 0.12 kW and equal to or below 150 kW	The determined value must not exceed the value (1- η) calculated based on the declared η by more than 15 per cent.
Total losses (1- η) for motors with a rated output of above 150 kW and equal to or below 1,000 kW	The determined value must not exceed the value (1- η) calculated based on the declared η by more than 10 per cent.
Total losses for VSDs	The determined value must not exceed the declared value by more than 10 per cent.

SCHEDULE 19

Regulation 40

Ecodesign requirements for electronic displays

Interpretation

1. In this Schedule and Schedules 20 and 21—

“Automatic Brightness Control” (“ABC”) means the automatic mechanism that, when enabled, controls the brightness of an electronic display as a function of the ambient light level illuminating the front of the display;

“brightest on mode configuration” means the configuration of the electronic display, set by the manufacturer, which provides an acceptable picture with the highest measured peak white luminance;

“broadcast display” means an electronic display which—

- (a) is designed and marketed for professional use by broadcasters and video production houses for video content creation; and
- (b) includes all of the following characteristics—
 - (i) a colour calibration function;
 - (ii) input signal analysis function for input signal monitoring and error detection, such as wave-form monitor/vector scope, RGB cut off, facility to check the video signal status at actual pixel resolution, interlace mode and screen marker;
 - (iii) Serial Digital Interface or Video over internet Protocol integrated with the product;
 - (iv) is not intended for use in public areas;

“close viewing” means a viewing distance comparable to that obtained when viewing an electronic display held in the hand or when sitting at a desk;

“control panel” means an electronic display whose main function is to display images associated with product operational status, including—

- (a) a display that provides user interaction by touch or other means to control the product operation;
- (b) a system which is—
 - (i) integrated into the product; or
 - (ii) specifically designed and marketed to be used exclusively with the product;

“declared values” means the values provided by the manufacturer, importer or authorised representative for the stated, calculated or measured technical parameters in the technical documentation, in accordance with the conformity assessment procedure referred to in regulation 41.

“default”, referring to a specific feature or setting, means the value of a specific feature as set at the factory and available—

- (a) when the customer uses the product for the first time; and
- (b) after performing a “reset to factory settings” action, where the product permits this;

“digital interactive whiteboard” means an electronic display which allows direct user interaction with the displayed image and—

- (a) is designed primarily to provide presentations, lessons or remote collaboration, including the transmission of audio and video signals; and
- (b) includes all of the following features—

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- (i) is primarily designed to be installed hanging, mounted on a ground stand, set on a shelf or desk or fixed to a physical structure for viewing by multiple people;
- (ii) must be used with computer software with specific functionalities to manage content and interaction;
- (iii) is integrated or designed to be specifically used with a computer for running the software referred to in paragraph (ii);
- (iv) has a display screen area greater than 40 square decimetres (dm²);
- (v) enables user interaction by finger or pen touch or other means such as hand, arm gesture or voice;

“digital photo frame” means an electronic display which displays exclusively still visual information;

“disassembling” means the form of dismantling which is reversible and does not cause functional damage that would preclude reassembling, reuse or refurbishment of the product;

“dismantling” means taking apart of an assembled product into its constituent materials and/or components;

“equivalent model” means a model which has the same technical characteristics relevant for the technical information to be provided, but which is placed on the market or put into service by the same manufacturer, importer or authorised representative as another model with a different model identifier;

“External Power Supply” (“EPS”) has the meaning given in Commission Regulation (EU) 2019/1782 of 1 October 2019⁽⁹⁾ laying down ecodesign requirements for external power supplies;

“flame retardant” means a substance that markedly retards the propagation of a flame;

“forced menu” means a specific menu, appearing upon initial start-up of the display or upon a reset to factory settings, which offers a set of alternative display settings that are pre-defined by the manufacturer;

“halogenated flame retardant” means a flame retardant that contains any halogen;

“HD resolution” means 1920 x 1080 pixels or 2,073,600 pixels;

“homogeneous material” means—

- (a) one material of uniform composition throughout; or
- (b) a material consisting of a combination of materials;

that cannot be disjointed or separated into different materials by mechanical actions such as unscrewing, cutting, crushing, grinding and abrasive processes;

“luminance” means the photometric measure of the luminous intensity per unit area of light traveling in a given direction, expressed in units of candelas per square metre (“cd/m²”);

“microLED display” means an electronic display in which individual pixels are lit using microscopic LED technology;

“model identifier” means the code, usually alphanumeric, which distinguishes a specific product model from other models with the same trade mark or the same manufacturer’s, importer’s or authorised representative’s name;

“network” means a communication infrastructure with a topology of links and an architecture that includes physical components, organisational principles and communication procedures and formats (protocols);

(9) EUR 2019/1782; relevant amending instruments are [S.I. 2019/539](#) and [2020/1528](#).

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“network availability” means the capability of an electronic display to activate functions after a remotely initiated trigger has been detected by a network interface;

“network interface” or “network port” means—

- (a) wired or wireless physical interface providing a network connection, through which functions of the electronic display can be remotely activated and data received or sent; and

does not include—

- (b) interfaces to input data such as video and audio signals which are not originated from a network source and not using a network address;

“networked display” means an electronic display that can connect to a network using one of its network interfaces, if enabled;

“networked standby mode” means a condition in which the electronic display is able to resume a function by way of a remotely initiated trigger from a network interface;

“normal configuration” means a display setting which—

- (a) is recommended to the end-user by the manufacturer from the initial set up menu or the factory setting that the electronic display has for the intended product use;
- (b) delivers the optimal quality for the end user in the intended environment and for the intended use; and
- (c) is the condition in which the values for off, standby, networked standby and on mode are measured;

“off mode” means a condition in which the electronic display is connected to the mains power source and is not providing any function, and includes—

- (a) conditions providing only an indication of off mode condition;
- (b) conditions providing only functionalities intended to ensure electromagnetic compatibility in accordance with the Electromagnetic Compatibility Regulations 2016;

“on mode” or “active mode” means a condition in which the electronic display is connected to a power source, has been activated and is providing one or more of its display functions;

“organic light emitting diode” (“OLED”) means a technology in which—

- (a) light is produced from a solid state device embodying a pn junction of organic material; and
- (b) a junction emits optical radiation when excited by electric current;

“pixel (picture element)” means the area of the smallest element of a picture that can be distinguished from its neighbouring elements;

“PMMA” means PolyMethylMethAcrylate;

“Printed Circuit Board” (“PCB”) means an assembly that mechanically supports and electrically connects electronic or electrical components using conductive tracks, pads and other features etched from one or more sheet layers of conductive metal laminated onto or between sheet layers of a non-conductive substrate;

“professional display” means an electronic display which—

- (a) is designed and marketed for professional use for editing video and graphic images; and
- (b) includes all of the following features—
 - (i) a contrast ratio of at least—
 - (aa) 1000:1 measured at a perpendicular to the vertical plane of the screen; and

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- (bb) 60:1 measured at a horizontal viewing angle of at least 85° relative to that perpendicular; and
- (cc) on a curved screen, 83° from the perpendicular, with or without a screen cover glass;
- (ii) a native resolution of at least 2.3 mega pixels;
- (iii) colour Gamut support greater or equal to 38.4 per cent of CIE LUV;
- (iv) colour and luminance uniformity is appropriate for the professional application of the display;

“professional repairer” means a person who provides services of repair and professional maintenance of electronic displays;

“reactivation function” means a function that provides a switch from standby mode or networked standby mode to a mode (other than off-mode) which provides additional functions, via—

- (a) a remote switch;
- (b) a remote control unit;
- (c) an internal sensor;
- (d) a timer; or
- (e) for networked displays in networked standby mode, the network;

“room presence sensor” means a sensor which monitors and reacts to movements in the space around the product where—

- (a) the sensor’s signal can trigger the product switching to on mode; and
- (b) lack of movement detection for a predetermined time can trigger the product switching into standby mode or networked standby mode;

“security display” means an electronic display which includes all of the following features—

- (a) self-monitoring function capable of communicating at least one of the following information to a remote server—
 - (i) power status;
 - (ii) internal temperature from anti-overload thermal sensing;
 - (iii) video source;
 - (iv) audio source and audio status, including volume and mute, where applicable;
 - (v) model and firmware version;
- (b) user-specified specialist form factor facilitating the installation of the display into professional housings or consoles;

“shop configuration” means the configuration for use specifically in the context of demonstrating the electronic display, for example in high illumination (retail) conditions and not involving an auto power-off if no user action or presence is detected. This configuration must not be accessible through a displayed menu;

“spare part” means a separate part that can replace a part with the same function in a product;

“standby mode” means a condition in which the electronic display—

- (a) is connected to a power source;
- (b) depends on energy input from that source to work as intended; and
- (c) provides only the following functions, which may persist for an indefinite time—

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- (i) reactivation function, or reactivation function and only an indication of enabled reactivation function;
- (ii) information or status display; or
- (iii) both (i) and (ii);

“status display”—

- (a) means a display used to show simple but changing information such as selected channel, time or power consumption; and
- (b) does not include a simple light indicator;

“step” referring to dismantling or disassembling, means an operation that finishes with a change of tool or with the removal of a component or part;

“touch functionality” means the possibility of inputting commands using a touch-sensitive device, that generally is in the form of a transparent film layered on top of an electronic display panel;

“UHD resolution” means 3840 x 2160 pixels or 8,294,400 pixels

“USB” means Universal Serial Bus.

Energy efficiency requirements

Energy efficiency index limits for on-mode

2.—(1) The energy efficiency index (EEI) of an electronic display must be calculated using the following equation—

$$EEI = \frac{(P_{measured} + 1)}{(3 \times [90 \times \tanh(0,02 + 0,004 \times (A - 11)) + 4] + 3) + corr}$$

- (2) For the purposes of sub-paragraph (1)—
 - (a) A represents the screen area in dm²;
 - (b) $P_{measured}$ is the measured power in Watts in on mode in the normal configuration, in standard dynamic range (SDR);
 - (c) tanh is the hyperbolic tangent function;
 - (d) corr is—
 - (i) for displays placed on the market before 1 March 2023, a correction factor of 10 for OLED electronic displays that do not apply the ABC allowance in paragraph 3;
 - (ii) zero in all other cases.

(3) The EEI of an electronic display must not, from the dates specified in Table 31, exceed the maximum EEI (“ EEI_{max} ”) in accordance with the limits in that Table.

(4) The declared values of the on mode power ($P_{measured}$) and viewing surface area (A) in the technical documentation must be used for the calculation of EEI.

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Table 31

EEI limits for on-mode

	<i>EEI_{max} for electronic displays with resolution up to HD</i>	<i>EEI_{max} for electronic displays with resolution above HD and up to UHD</i>	<i>EEI_{max} for electronic displays with resolution above UHD and for MicroLED displays</i>
Up to and including 28 February 2023	0.90	1.10	N/A
1 March 2023	0.75	0.90	0.90

Allowances and adjustments for the purpose of the EEI calculation, and functional requirements

3.—(1) Electronic displays must meet the following requirements.

Electronic displays with automatic brightness control

(2) Electronic displays with ABC qualify for a 10 per cent reduction in P_{measured} if they meet all of the following requirements—

- (a) ABC is enabled in the normal configuration of the electronic display and persists in any other standard dynamic range configuration available to the end-user;
- (b) the value of P_{measured} , in the normal configuration, is measured with ABC disabled or, if ABC cannot be disabled, in an ambient light condition of 100 lux measured at the ABC sensor;
- (c) the value of P_{measured} with ABC disabled, if applicable, must be equal to or greater than the on mode power measured with ABC enabled in an ambient light condition of 100 lux measured at the ABC sensor;
- (d) with ABC enabled, the measured value of the on mode power must decrease by 20 per cent or more when the ambient light condition, measured at the ABC sensor, is reduced from 100 lux to 12 lux; and
- (e) the ABC control of the display screen luminance meets all of the following characteristics when the ambient light condition measured at the ABC sensor changes—
 - (i) the measured screen luminance at 60 lux is between 65 per cent and 95 per cent of the screen luminance measured at 100 lux;
 - (ii) the measured screen luminance at 35 lux is between 50 per cent and 80 per cent of the screen luminance measured at 100 lux; and
 - (iii) the measured screen luminance at 12 lux is between 35 per cent and 70 per cent of the screen luminance measured at 100 lux.

Forced menu and set-up menus

4.—(1) Electronic displays may be placed on the market with a forced menu on initial activation offering alternative settings.

(2) Where a forced menu is provided, the normal configuration must be set as default choice; if there is no forced menu, the normal configuration must be the default setting.

(3) If the user selects a configuration other than the normal configuration and this configuration results in a higher power demand than the normal configuration, a warning message about the likely increase in energy use must appear and confirmation of the action must be explicitly requested.

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(4) If the user selects a setting other than those that are part of the normal configuration and this setting results in a higher energy consumption than the normal configuration, a warning message about the likely increase in energy consumption must appear and confirmation of the action must explicitly requested.

(5) A change by the user in a single parameter in any setting must not trigger any change in any other energy-relevant parameter, unless unavoidable. In such a case a warning message must appear about the change of other parameters and the confirmation of the change must be explicitly requested.

Peak white luminance ratio

5.—(1) In the normal configuration, the peak white luminance of the electronic display in a 100 lux ambient light viewing environment must not be less than—

- (a) if the electronic display is primarily intended for close viewing by a single user, 150 cd/m².
- (b) in any other case, 220 cd/m².

(2) If the electronic display’s peak white luminance in the normal configuration is set to lower values, it must not be less than 65 per cent of the peak white luminance of the display, in a 100 lux ambient light viewing environment in the brightest on mode configuration.

Off mode, standby and networked standby mode requirements

6.—(1) Electronic displays must meet the following requirements.

Power demand limits other than on-mode

(2) Electronic displays must not exceed the power demand limits, in Watts, in the modes and conditions specified in Table 32.

Table 32

Power demand limits other than on-mode

	<i>Off mode</i>	<i>Standby mode</i>	<i>Networked standby mode</i>
Maximum limits	0.3	0.5	2.00
Allowances for additional functions when present and enabled			
Status display	0	0.2	0.2
Deactivation using room presence detection	0	0.5	0.5
Touch functionality, if usable for activation	0	1.00	1.00
HiNA function	0	0	4.00
Total maximum power demand with all additional functions when present and enabled	0.3	2.20	7.70

Availability of off, standby and networked standby modes

7.—(1) Electronic displays must provide—

- (a) off mode;

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- (b) standby mode;
- (c) a networked standby mode; or
- (d) other modes which do not exceed the applicable power demand requirements for standby mode.

(2) The configuration menu, instruction manuals and other documentation, if any, must refer to off mode, standby mode or networked standby mode using those terms.

(3) Automatic power-down to any of—

- (a) off mode;
- (b) standby mode; or
- (c) another mode which does not exceed the applicable power demand requirements for standby mode;

must be set as default, including for networked displays where the network interface is enabled when in on mode.

(4) Networked standby mode must be disabled in normal configuration of a networked television.

(5) Where networked standby is needed for a remotely chosen activated function, the end user must be—

- (a) prompted to confirm the activation; and
- (b) able to disable it.

(6) Networked electronic displays must comply with the requirements for networked standby mode with the reactivation trigger device connected to the network and ready to activate a trigger instruction when required. When networked standby mode is disabled, networked electronic displays must comply with the requirements of standby mode.

Automatic power-down in televisions

8.—(1) Televisions must provide a power management function, enabled as the default setting, that must within 4 hours following the last user interaction, power down the television from on mode into—

- (a) standby mode; or
- (b) networked standby mode; or
- (c) another mode which does not exceed the applicable power demand requirements for standby or networked standby mode.

(2) Before the automatic power-down referred to in sub-paragraph (1), televisions must show for at least 20 seconds an alert message warning the user of the impending switch, with the possibility of delaying or temporarily cancelling it.

(3) If the television provides a function allowing the user to shorten, extend or disable the 4-hour period for the automatic power-down referred to in sub-paragraph (1)—

- (a) a warning message must appear about a potential increase in energy use; and
- (b) a confirmation of the new setting must be requested;

when an extension beyond the 4-hour period or disabling is selected.

(4) If the television is equipped with a room presence sensor, the automatic power-down referred to in sub-paragraph (1) must operate if no presence is detected for a maximum of 1 hour.

(5) Televisions with various selectable input sources must prioritise the power management protocols of the signal source selected and displayed over those default power management mechanisms referred to in sub-paragraphs (1) to (4).

Automatic power-down in displays other than televisions

9.—(1) Electronic displays other than televisions with various selectable input sources must power down, in the normal configuration, into—

- (a) standby mode;
- (b) networked standby mode; or
- (c) another mode which does not exceed the applicable power demand requirements respectively for standby or networked standby mode;

in the circumstances specified in paragraph (2).

(2) The circumstances referred to in paragraph (1) are when no input is detected by any input source for—

- (a) over 60 minutes, for digital interactive whiteboards and for broadcast displays;
- (b) in any other case, over 10 seconds.

(3) The power-down referred to in sub-paragraph (1) must—

- (a) display a warning message before it is triggered; and
- (b) be completed within 10 minutes.

Material efficiency requirements

10. Electronic displays must meet the following requirements.
Design for dismantling, recycling and recovery

11.—(1) Subject to sub-paragraph (2), manufacturers, importers or their authorised representatives must ensure that joining, fastening or sealing techniques do not prevent the removal, using commonly available tools, of the components indicated in point 1 of Annex 7 of the WEEE Directive, when present.

(2) Sub-paragraph (1) does not apply where for safety, performance, medical or data integrity reasons, a permanent connection between the appliance and the battery is necessary.

(3) Manufacturers, importers or their authorised representatives must, without prejudice to regulation 24 of the WEEE Regulations, make available, on a website which is accessible to the public without charge, the dismantling information needed to access any of the product's components referred to in point 1 of Annex 7 of the WEEE Directive.

(4) The dismantling information referred to in sub-paragraph (3) must include—

- (a) the sequence of dismantling steps; and
- (b) any tools or technologies needed to access the targeted components.

(5) The information referred to in paragraph (3) must be available for at least 15 years after the placing on the market of the last unit of a product model.

Marking of plastic components

12.—(1) Subject to sub-paragraphs (2) and (3), plastic components heavier than 50 g must be legibly marked by specifying the type of polymer, with the appropriate standard symbols or abbreviated terms, as specified in standards produced by an international standardising body, and set between the punctuation marks “>” and “<”.

(2) Plastic components are exempt from marking requirements in the following circumstances—

- (a) marking is not possible because of the shape or size of the component;
- (b) the marking would impact on the performance or functionality of the plastic component; or
- (c) marking is not possible because of the moulding method.

(3) For the following plastic components no marking is required—

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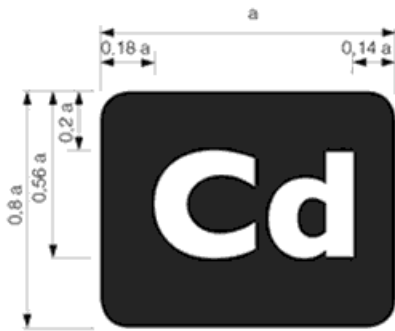
- (a) packaging, tape, labels and stretch wraps;
- (b) wiring, cables and connectors, rubber parts and any item where there is insufficient appropriate surface area available for the marking to be of a legible size;
- (c) PCB assemblies, PMMA boards, optical components, electrostatic discharge components, electromagnetic interference components, and speakers;
- (d) transparent parts where the marking would obstruct the function of the part in question.

(4) Components containing flame retardants must additionally be legibly marked with the abbreviated term of the polymer followed by a hyphen, then the symbol 'FR' followed by the code number of the flame retardant in parentheses. The marking on the enclosure and stand components must be clearly visible and readable.

Cadmium logo

13.—(1) Electronic displays with a screen panel in which concentration values of Cadmium (Cd) by weight in homogeneous materials exceed 0.01 per cent must be labelled with the “Cadmium inside” logo as specified in paragraph (2).

(2) The logo referred to in sub-paragraph (1) must be clearly visible, legible and indelible, and must be in the form of the following graphic (figure 1)—

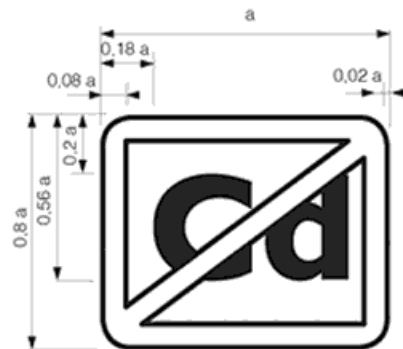


(3) An additional “Cadmium inside” logo must be firmly attached—

- (a) internally on the display panel; or
- (b) moulded in a position clearly visible to workers when dismantling the product,

once the external back cover bearing the external logo is removed.

(4) Where concentration values of Cadmium (Cd) by weight in any homogeneous material part of the display do not exceed 0.01 per cent, a “Cadmium free” logo must be displayed, in the form of the following graphic (figure 2)—



(5) In figures 1 and 2—

- (a) the dimension of “a” must be greater than 9 mm; and
- (b) the typeface must be “Gill Sans”.

Halogenated flame retardants

14. The use of halogenated flame retardants is not permitted in the enclosure and stand of electronic displays.

Design for repair and reuse

Availability of spare parts

15.—(1) Manufacturers, authorised representatives or importers of electronic displays must make available to professional repairers at least the following spare parts—

- (a) internal power supply;
- (b) connectors to connect external equipment (including cable, antenna, USB, DVD and Blu-ray);
- (c) capacitors above 400 microfarads, batteries and accumulators;
- (d) DVD/Blu-ray module if applicable; and
- (e) hard drive or solid state drive (HD/SSD) module if applicable;

for a minimum period of seven years after placing the last unit of the model on the market.

(2) Manufacturers, authorised representatives or importers of electronic displays must make available to professional repairers and end-users at least the following spare parts—

- (a) external power supply; and
- (b) remote control;

for a minimum period of seven years after placing the last unit of the model on the market.

(3) Manufacturers must ensure that the spare parts mentioned in sub-paragraphs (1) and (2) can be replaced with the use of commonly available tools and without permanent damage to the appliance.

(4) The manufacturer, authorised representative or importer must—

- (a) no later than two years after the first unit of a model is placed on the market, publish for that product the list of spare parts referred to in sub-paragraph (1) and the procedure for ordering them on a website which is accessible to the public without charge; and
- (b) ensure that the information referred to in paragraph (a) remains accessible throughout the period that the spare parts remain available.

(5) When the first unit of a model is placed on the market, the manufacturer, authorised representative or importer must—

- (a) publish for that product—
 - (i) the list of spare parts referred to in sub-paragraph (2);
 - (ii) the procedure for ordering them; and
 - (iii) the repair instructions;on a website which is accessible to the public without charge; and
- (b) ensure that the information referred to in paragraph (a) remains accessible throughout the period that the spare parts remain available.

Access to repair and maintenance information

16.—(1) From no later than two years after the placing on the market of the first unit of a model or of an equivalent model until the end of the period referred to in sub-paragraph (1), the manufacturer,

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importer or authorised representative must provide access to the appliance repair and maintenance information to professional repairers in accordance with the following provisions.

(2) The manufacturer's, importer's or authorised representative's website must set out the process for professional repairers to register for access to repair and maintenance information.

(3) Before granting access to the information, manufacturer, authorised representative or importer may require the professional repairer to demonstrate that –

- (a) the professional repairer has the technical competence to repair electronic displays, and complies with the Electricity at Work Regulations 1989;
- (b) the professional repairer is covered by insurance for liabilities resulting from its activities.

(4) The request for registration must be accepted or refused within 5 working days from the date of the request.

(5) Once registered, a professional repairer must be given access to requested repair and maintenance information within one working day of any request. The available repair and maintenance information must include—

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

(6) Manufacturers, authorised representatives 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 the information.

Maximum delivery time of spare parts

17.—(1) Subject to sub-paragraph (2), during the period referred to in paragraph 15(1) and (2), the manufacturer, importer or authorised representative must ensure delivery of spare parts for electronic displays within 15 working days of receiving an order.

(2) In relation to products specified in paragraph 15(1), sub-paragraph (1) does not apply to repairers who have not registered with the manufacturer, importer or authorised representative in accordance with paragraph 16(2).

Software and firmware update availability requirements

18.—(1) Manufacturers, their authorised representatives or importers of electronic displays must make the updates listed in sub-paragraphs (3) to (5) available when the first unit of a model is placed on the market.

(2) The information and updates referred to in sub-paragraph (1) must be provided without charge to persons dealing with professional repair and reuse of electronic displays (including persons carrying out repair or maintenance, brokers and spare parts providers).

(3) The latest available version of the firmware must be made available for a minimum period of eight years after the after placing the last unit of the model on the market.

- (4) The firmware referred to in sub-paragraph (3) must be available—
 - (a) free of charge; or
 - (b) except where sub-paragraph (2) applies, at a reasonable cost.
- (5) The latest available security update to the firmware must be made available free of charge for a minimum period of eight years after placing the last unit of the model on the market.

Technical documentation requirements

19.—(1) The technical documentation file required for the conformity assessment of the product must comply with the following.

- (2) Where the information in the technical documentation for a particular model has been obtained—
 - (a) from a model that has the same technical characteristics relevant for the technical information to be provided but is produced by a different manufacturer;
 - (b) by calculation on the basis of design or extrapolation from another model of the same or a different manufacturer; or
 - (c) by both paragraphs (a) and (b);

the technical documentation must include the details of any such calculation and 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.

(3) The technical documentation must include a list of all equivalent models, including the model identifiers.

(4) The technical documentation must include all the information specified in Annex 6 of Commission Delegated Regulation (EU) 2019/2013 of 11 March 2019⁽¹⁰⁾ supplementing Regulation (EU) 2017/1369 of the European Parliament and of the Council with regard to energy labelling of electronic displays (the labelling regulation).

(5) The information referred to in paragraph (4) must be provided in the order and format set out in Annex 6 of the labelling regulation.

Exemptions

- 20.**—(1) Paragraphs 2 to 5 of this Schedule do not apply to—
 - (a) broadcast displays;
 - (b) professional displays;
 - (c) security displays;
 - (d) digital interactive whiteboards;
 - (e) digital photo frames; and
 - (f) digital signage displays.
- (2) Paragraphs 2 to 9 of this Schedule do not apply to—
 - (a) status displays; and
 - (b) control panels.

⁽¹⁰⁾ EUR 2019/2013; relevant amending instrument is [S.I. 2020/1528](#).

SCHEDULE 20

Regulation 41

Measurement methods for electronic displays

1. The measurement methods for electronic displays are as follows.

General conditions

2.—(1) Measurements for electronic displays must meet the technical definitions, conditions, equations and parameters set out in this Schedule.

(2) Electronic displays which can operate in both 2D and 3D modes must be tested in 2D mode.

(3) An electronic display which is split into two or more physically separate units, but placed on the market in a single package, must be treated as a single electronic display for the purposes of this Schedule.

(4) Where multiple electronic displays that can be placed on the market separately are combined in a single system, the individual electronic displays must be treated as single displays.

(5) Measurements must be made at an ambient temperature of 23 °C +/- 5 °C.

Measurements of on mode power demand

3.—(1) Measurements of the power demand (“ P_{measured} ”) referred to paragraph 2 of Schedule 19 must meet the following conditions.

(2) Measurements must be made in the normal configuration.

(3) Measurements must be—

(a) made using a dynamic broadcast-content video signal representing typical broadcast content for electronic displays in standard dynamic range (SDR); and

(b) the average power consumed over 10 consecutive minutes.

(4) Measurements must be made after the electronic display has been in the off mode or, if an off-mode is not available, in standby mode, for a minimum of 1 hour immediately followed by a minimum of 1 hour in the on mode and must be completed before a maximum of 3 hours in on-mode.

(5) The relevant video signal must be displayed during the entire on mode duration.

(6) For electronic displays that are known to stabilise within 1 hour, the durations referred to in sub-paragraph (4) may be reduced if the resulting measurement can be shown to be within 2 per cent of the results that would otherwise be achieved using the full durations.

(7) Where ABC is available, measurements must—

(a) be made with ABC switched off; or

(b) if ABC cannot be switched off, must be performed in an ambient light condition of 100 lux measured at the ABC sensor.

Measurements of peak white luminance

4. Measurements of peak white luminance referred to paragraph 5 of Schedule 19 must be made—

(a) with a luminance meter, detecting that portion of the screen exhibiting a full (100 per cent) white image, which is part of a ‘full screen test’ pattern that does not exceed the average picture level (APL) point where any power limiting or other irregularity occurs in the electronic display luminance drive system affecting the electronic display luminance; and

- (b) without disturbing the luminance meter’s detection point on the electronic display whilst switching between any of the conditions referred to in paragraph 5 of Schedule 19.

SCHEDULE 21

Regulation 42

Verification procedure for market surveillance purposes – electronic displays

Interpretation

1. In this Schedule “determined values” means the values of the relevant parameters as measured by the market surveillance authority in testing and the values calculated from these measurements.

Verification procedure – general

2. The market surveillance authority must apply the procedure set out in the following paragraphs when verifying the compliance of a product with these Regulations, using the measurement methods provided for in Schedule 20.

3. The market surveillance authority must initially test one single unit of the model of the product to be verified.

4. Subject to paragraph 15, the model conforms to these Regulations if all the following conditions, together with the further provisions of this Schedule where applicable, are satisfied in respect of the tested unit—

- (a) the declared values and, where applicable, the values used to calculate the declared values, are not more favourable for the manufacturer, importer, or authorised representative than the corresponding measurements carried out pursuant to paragraph 1(2)(b)(vii) or 5(2)(d) of Schedule 1A to the 2010 Regulations;
- (b) the declared values comply with the requirements of Schedule 19;
- (c) any product information published by the manufacturer, importer, or authorised representative does not contain values more favourable for the manufacturer, importer, or authorised representative than the declared values;
- (d) the determined values meet the verification tolerances in Table 33.
- (e) the unit complies with the functional, repair, dismantling and information requirements in paragraphs 3(1) and 4 to 18 of Schedule 19.

5. Where a model has been designed to be able to detect it is being tested (for example by recognising test conditions or test cycles), and to react specifically by automatically altering its performance during the test with the objective of reaching a more favourable level for any of the parameters specified in these Regulations or included in the technical documentation or included in any of the documentation provided, the model and all equivalent models do not conform to these Regulations.

Verification procedure for requirements of paragraph 3 of Schedule 19

6. The model conforms to paragraph 3(2) of Schedule 19 (displays with automatic brightness control) where—

- (a) the ABC of the product is enabled by default and persists in all SDR (standard dynamic range) modes, except in the shop configuration;

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- (b) the measured on mode power of the product decreases by 20 per cent or more when the ambient light condition measured at the ABC sensor is reduced from 100 lux to 12 lux; and
- (c) the ABC control of display screen luminance meets the requirements of paragraph 3(2)(e) of that Schedule.

Verification procedure for requirements of paragraph 4 of Schedule 19

7. The model conforms to paragraph 4 of Schedule 19 (forced menu and setup menus) where—
- (a) the normal configuration is provided as the default choice on initial activation of the electronic display; and
 - (b) if the user selects a mode other than normal configuration, a second selection process is prompted to confirm the choice.

Verification procedure for requirements of paragraph 5 of Schedule 19

8. The model conforms to paragraph 5 of Schedule 19 (peak white luminance ratio) where the determined value of the peak white luminance or, if applicable, the peak white luminance ratio, meets the value required by that paragraph.

Verification procedure for requirements of paragraph 6 of Schedule 19

9. The model conforms to paragraph 6(2) of Schedule 19 (power demand limits other than on-mode) where, when connected to the power source—
- (a) the off mode and/or standby mode and/or another mode which does not exceed the applicable power demand requirements for off mode and/or standby mode, is set as default;
 - (b) if the unit provides networked standby mode with HiNA, the unit does not exceed the applicable power demand requirements for HiNA when networked standby is enabled; and
 - (c) if the unit provides networked standby mode without HiNA, the unit does not exceed the applicable power demand requirements without HiNA when networked standby is enabled.

Verification procedure for requirements of paragraph 7 of Schedule 19

10. The model conforms to paragraph 7 of Schedule 19 (availability of off, standby and networked standby modes) where—
- (a) it provides—
 - (i) off mode;
 - (ii) standby mode; or
 - (iii) another mode which does not exceed the applicable power demand requirements respectively for standby or networked standby mode;when the electronic display is connected to the power source;
 - (b) the activation of the network availability requires the end-user's intervention;
 - (c) the network availability can be disabled by the end-user; and
 - (d) it complies with the requirements for standby mode when networked standby mode is not enabled.

Verification procedure for requirements of paragraph 8 of Schedule 19

11.—(1) The model conforms to paragraph 8 of Schedule 19 (automatic power-down in televisions) where—

- (a) within 4 hours in on mode following the last user interaction, the television automatically powers down from on mode to—
 - (i) standby mode;
 - (ii) off mode;
 - (iii) networked standby mode, if enabled; or
 - (iv) another mode which does not exceed the applicable power demand requirements for standby mode;
- (b) the power-down function referred to in paragraph (a) is set as default;
- (c) in on mode, the television shows an alert message before automatically powering down from on mode to the applicable mode;
- (d) if the television provides a function allowing the user to modify the 4-hour period for automatic mode power-downs referred to in paragraph (a)—
 - (i) a warning message is prompted about a potential increase in energy use; and
 - (ii) a confirmation of the new setting is requested when an extension beyond the 4-hour period or disabling is selected;
- (e) if the television is equipped with a room presence sensor, the automatic power-down from on mode into any mode referred to in paragraph (a) applies if no presence is detected for no more than 1 hour; and
- (f) in televisions with various selectable input sources, the power management protocols of the signal source selected is prioritised over the default power management mechanisms referred to in paragraph (a).

(2) For the purposes of sub-paragraph (1)(a), the market surveillance authority must use the applicable procedure to measure the power demand after the automatic power-down functionality switches the television into the applicable power mode.

Verification procedure for requirements of paragraph 9 of Schedule 19

12. The model conforms to paragraph 9 of Schedule 19 (automatic power-down in displays other than televisions) where—

- (a) the model is tested for—
 - (i) each end user selectable signal input interface type which has specified that it can carry power management control signals or data; or
 - (ii) if there are two or more identical signal interfaces not labelled for a specific host product type, one of these signal interfaces is selected at random for testing;
- (b) if there are labelled or menu designated signal interfaces (such as a computer, set top box or analogous) the appropriate host signal source device is connected to the designated signal interface for the test; and
- (c) no signal by any input source is detected and the model switches into standby mode, off mode or networked standby mode.

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Verification procedure for requirements of paragraphs 10 to 18 of Schedule 19

13. The model conforms to paragraphs 10 to 18 of Schedule 19 (material efficiency requirements and software and firmware update availability requirements) where, when the market surveillance authority tests the model, it meets the applicable requirements.

14. Paragraph 14 of Schedule 19 (halogenated flame retardants) must be considered to be complied with if—

- (a) the determined value for halogen flame retardants (HFRs) identified in the Restriction of the Use of Hazardous Substances in Electrical and Electronic Equipment Regulations 2012 does not exceed the relevant maximum concentration values defined in Schedule A1 to those Regulations⁽¹¹⁾; and
- (b) in the case of other HFRs, the determined value for any homogenous material does not exceed 0.1 per cent by weight of halogen content. Where the determined value for any homogenous material exceeds 0.1 per cent by weight of halogen content, the model may still be considered compliant where documentary checks or any other appropriate, reproducible methods show that the halogen content is not attributable to flame retardant.

Procedure if requirements are not achieved

15.—(1) If a unit/model complies with the conditions of paragraph 4 except sub-paragraph (d) or (e), or both—

- (a) where the conditions which are not met include requirements that do not involve measured values, the model and all equivalent models do not conform to these Regulations;
- (b) where the conditions which are not met relate to requirements that involve measured values, the market surveillance authority must test three additional units of the model to be verified, or three units of equivalent models.

(2) A model subject to additional testing under this paragraph is deemed to comply with the relevant condition if the arithmetical mean of the determined values for the three additional units meets the verification tolerances set out in Table 33 below.

(3) If a model fails to meet the test set out in sub-paragraph (2), the model and all equivalent models do not conform to these Regulations.

Verification tolerances

16.—(1) The verification tolerances set out in Table 33 must be used only by the market surveillance authority and only for the purposes of this Schedule.

(2) The manufacturer, authorised representative or importer of a product must not use the verification tolerances—

- (a) as allowed tolerances to establish the declared values;
- (b) in order to interpret the declared values with a view to achieving compliance; or
- (c) to communicate better performance.

(3) Where three additional units are tested in accordance with paragraph 15, the determined value for the purposes of Table 33 means the arithmetic mean of the values determined for those three additional units.

(11) *SI 2012/2032*; Schedule A1 was inserted by *S.I. 2020/1647*.

Table 33**Verification tolerances**

<i>Parameter</i>	<i>Verification tolerances</i>
On mode power demand, ($P_{measured}$, Watts) excluding allowances and adjustments in paragraphs 3 to 5 of Schedule 19, for the purposes of the EEI calculation in paragraph 2 of that Schedule	The determined value must not exceed the declared value by more than 7 per cent.
Off mode, standby mode and networked standby mode power demand (Watts), as applicable	The determined value must not exceed the declared value by more than 0.10 Watt if the declared value is 1.00 W or less, or by more than 10 per cent if the declared value is more than 1.00 W
Peak white luminance ratio	Where applicable, the determined value must not be lower than 60 per cent of the peak white luminance of the brightest on mode configuration provided by the electronic display
Peak white luminance (cd/m^2)	The determined value must not be lower than the declared value by more than 8 per cent
Visible screen diagonal in centimetres	The determined value must not be lower than the declared value by more than 1 cm
Screen area in dm^2	The determined value must not be lower than the declared value by more than 0.1 dm^2
Timed functions as set out in paragraphs 8 and 9 of Schedule 19	The power down or switch must be completed within 5 seconds of the set out values
Weight of plastic components as specified in paragraph 12 of Schedule 19	The determined value must not be different from the declared value by more than 5 grams

SCHEDULE 22

Regulation 46

Energy labelling of refrigerating appliances with a direct sales function – energy efficiency classes

1.—(1) The energy efficiency class of a refrigerating appliance with a direct sales function must be determined on the basis of its EEI as set out in the Table below.

(2) The EEI is determined in accordance with paragraph 2 of Schedule 4.

Table 34**Energy efficiency classes of refrigerating appliances with a direct sales function**

<i>Energy efficiency class</i>	<i>EEI</i>
A	$\text{EEI} < 10$
B	$10 \leq \text{EEI} < 20$

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Energy efficiency class	EEI
C	$20 \leq EEI < 35$
D	$35 \leq EEI < 50$
E	$50 \leq EEI < 65$
F	$65 \leq EEI < 80$
G	$EEI \geq 80$

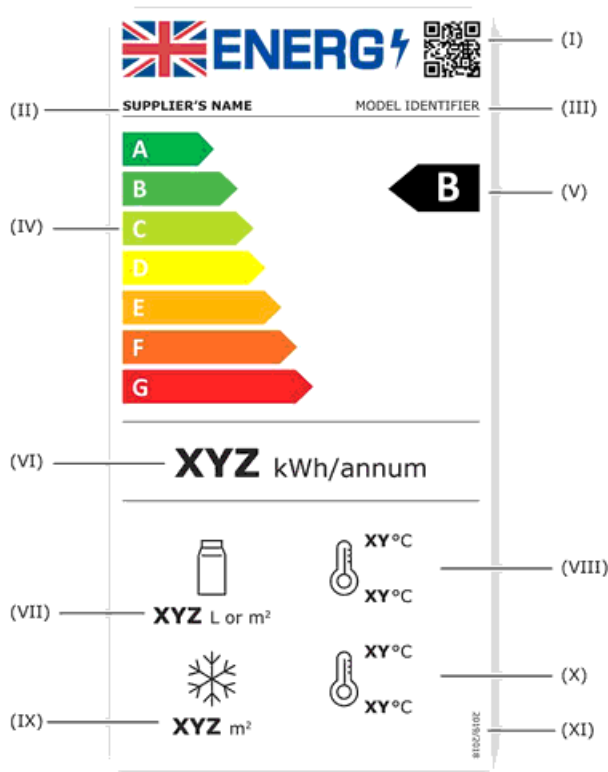
SCHEDULE 23

Regulation 46

Labels for refrigerating appliances with a direct sales function

Label contents for appliances other than beverage coolers and ice-cream freezers

1. The content of the label for refrigerating appliances with a direct sales function other than beverage coolers and ice-cream freezers is as follows.



2. The following information must be included in the label at the points specified in the diagram above—

- (a) point I: QR-code;
- (b) point II: the supplier's name or trade mark;
- (c) point III: the supplier's model identifier;

- (d) point IV: the scale of energy efficiency classes from A to G;
- (e) point V: the energy efficiency class determined in accordance with Schedule 4;
- (f) point VI: AE in kWh per year and rounded to the nearest integer;
- (g) point VII: for—
 - (i) refrigerated vending machines, the sum of the net volumes of all compartments with chilled operating temperatures, expressed in litres (L) and rounded to the nearest integer;
 - (ii) all other refrigerating appliances with a direct sales function, subject to subparagraph (iii), the sum of the display areas with chilled operating temperatures, expressed in square meters (m²) and rounded to two decimal places;
 - (iii) for refrigerating appliances with a direct sales function which do not contain compartments with chilled operating temperatures, omit the pictogram and the values in litres (L) or square meters (m²);
- (h) point VIII: for—
 - (i) refrigerating appliances with a direct sales function in which all compartments with chilled operating temperature have the same temperature class, except refrigerated vending machines—
 - (aa) for the temperature at the top: the highest temperature of the warmest M-package of the compartment(s) with chilled operating temperatures, in degrees Celsius (°C) and rounded to the nearest integer, as set out in Table 7 in Schedule 4;
 - (bb) for the temperature at the bottom—
 - the lowest temperature of the coldest M-package of the compartment(s) with chilled operating temperatures, in degrees Celsius (°C) and rounded to the nearest integer; or
 - the highest minimum temperature of all M-packages of the compartment(s) with chilled operating temperatures, in degrees Celsius (°C) and rounded to the nearest integer;as set out in Table 7 in Schedule 4;
 - (ii) refrigerated vending machines—
 - (aa) the temperature at the top: the maximum measured product temperature of the compartment(s) with chilled operating temperatures, in degrees Celsius (°C) and rounded to the nearest integer, as set out in Table 7 in Schedule 4;
 - (bb) omit the temperature at the bottom;
 - (iii) refrigerating appliances with a direct sales function which do not contain compartments with chilled operating temperatures, omit the pictogram and the values in degrees Celsius (°C) in VIII;
- (i) point IX: for—
 - (i) refrigerating appliances with a direct sales function which do not contain compartments with frozen operating temperatures, omit the pictogram and the values in square meters (m²) in IX;
 - (ii) all other refrigerating appliances with a direct sales function except vending machines, the sum of the display areas with frozen operating temperatures, expressed in square meter (m²) and rounded to two decimal places;
- (j) point X: for—

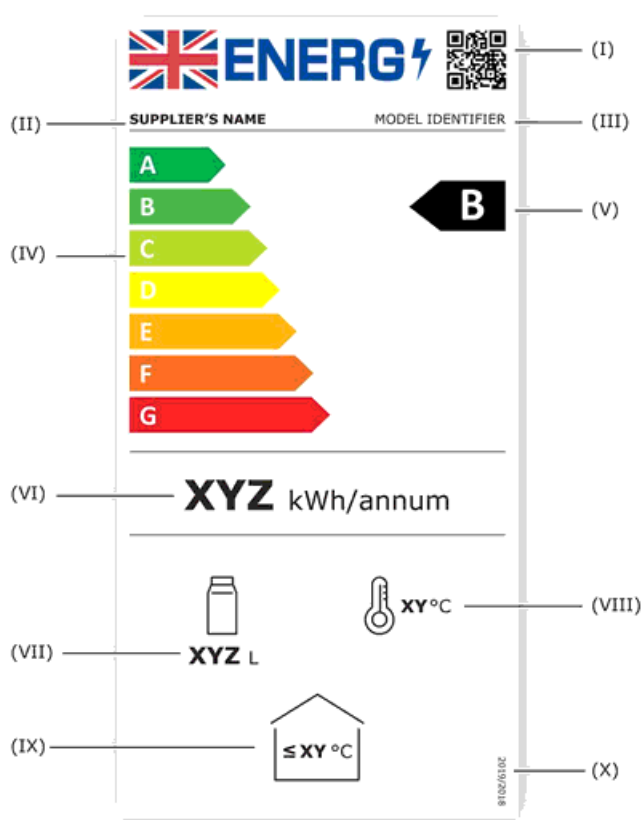
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- (i) refrigerating appliances with a direct sales function with all compartments with frozen operating temperatures having the same temperature class, with the exception of refrigerated vending machines—
 - (aa) the temperature at the top: the highest temperature of the warmest M-package of the compartment(s) with frozen operating temperatures, in degrees Celsius (°C) and rounded to the nearest integer, as set out in Table 7 in Schedule 4;
 - (bb) the temperature at the bottom—
 - the lowest temperature of the coldest M-package of the compartment(s) with frozen operating temperatures, in degrees Celsius (°C) and rounded to the nearest integer; or
 - the highest minimum temperature of all M-packages of the compartment(s) with frozen operating temperatures, in degrees Celsius (°C) and rounded to the nearest integer;as set out in Table 7 in Schedule 4;
- (ii) refrigerated vending machines—
 - (aa) the temperature at the top: the maximum measured product temperature of the compartment(s) with frozen operating temperatures, in degrees Celsius (°C) and rounded to the nearest integer, as set out in Table 7 in Schedule 4;
 - (bb) omit temperature at the bottom;
- (iii) refrigerating appliances which do not contain compartments with frozen operating temperatures, omit the pictogram and the values in degrees Celsius (°C) in X;
- (k) point XI: the S.I. number of these Regulations.

Label contents for beverage coolers

- 3. The content of the label for beverage coolers is as follows.

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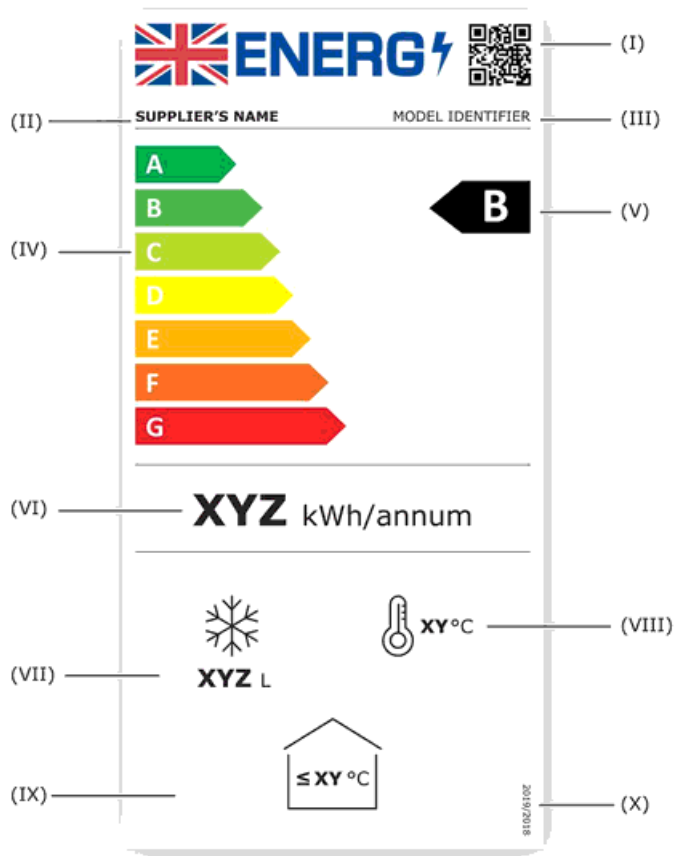
4. The following information must be included in the label at the points specified in the diagram above—

- (a) point I: the QR code;
- (b) point II: the supplier's name or trade mark;
- (c) point III: the supplier's model identifier;
- (d) point IV: the scale of energy efficiency classes from A to G;
- (e) point V: the energy efficiency class determined in accordance with Schedule 4;
- (f) point VI: AE in kWh per year and rounded to the nearest integer;
- (g) point VII: the sum of the gross volumes of all compartments with chilled operating temperatures, expressed in litres (L) and rounded to the nearest integer;
- (h) point VIII: the highest average compartment temperature of all compartments with chilled operating temperatures, in degrees Celsius (°C) and rounded to the nearest integer, as set out in Table 8 in Schedule 4;
- (i) point IX: the warmest ambient temperature, in degrees Celsius (°C) and rounded to the nearest integer, as set out in Table 9 in Schedule 4;
- (j) point X: the S.I. number of these Regulations.

Label contents for ice-cream freezers

5. The content of the label for ice-cream freezers is as follows.

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6. The following information must be included in the label at the points specified in the diagram above —

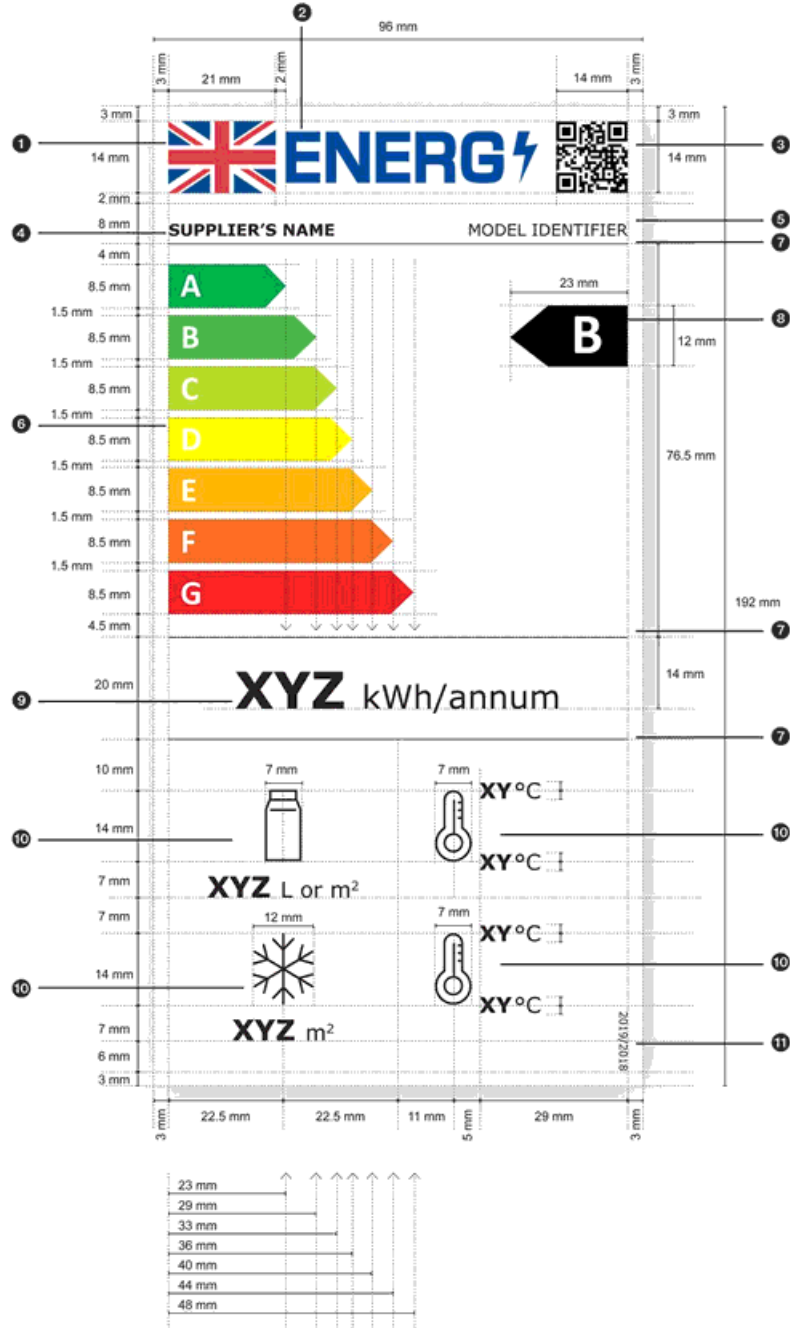
- point I: the QR-code;
- point II: the supplier's name or trade mark;
- point III: the supplier's model identifier;
- point IV: the scale of energy efficiency classes from A to G;
- point V: the energy efficiency class determined in accordance with Schedule 4;
- point VI: AE in kWh per year and rounded to the nearest integer;
- point VII: the sum of the net volumes of all compartments with frozen operating temperatures, expressed in litres (L) and rounded to the nearest integer;
- point VIII: the highest average compartment temperature of all compartments with frozen operating temperatures, in degrees Celsius (°C) and rounded to the nearest integer, as set out in Table 10 in Schedule 4;
- point IX: the maximum ambient temperature, in degrees Celsius (°C) and rounded to the nearest integer, as set out in Table 11 in Schedule 4;
- point X: the S.I. number of these Regulations.

Label designs

7. The label designs for refrigerating appliances with a direct sales function are as follows—

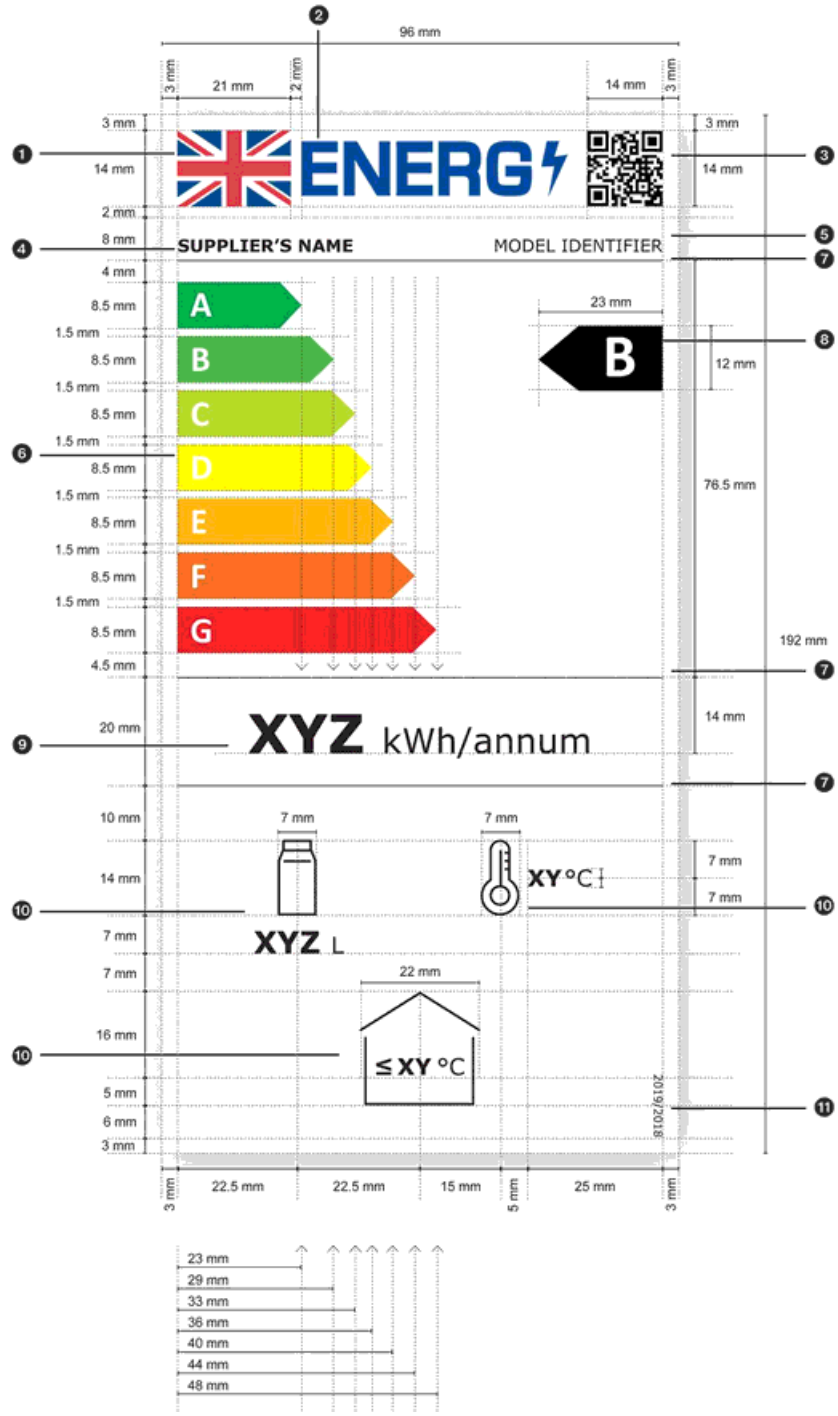
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(a) appliances other than beverage coolers and ice-cream freezers—



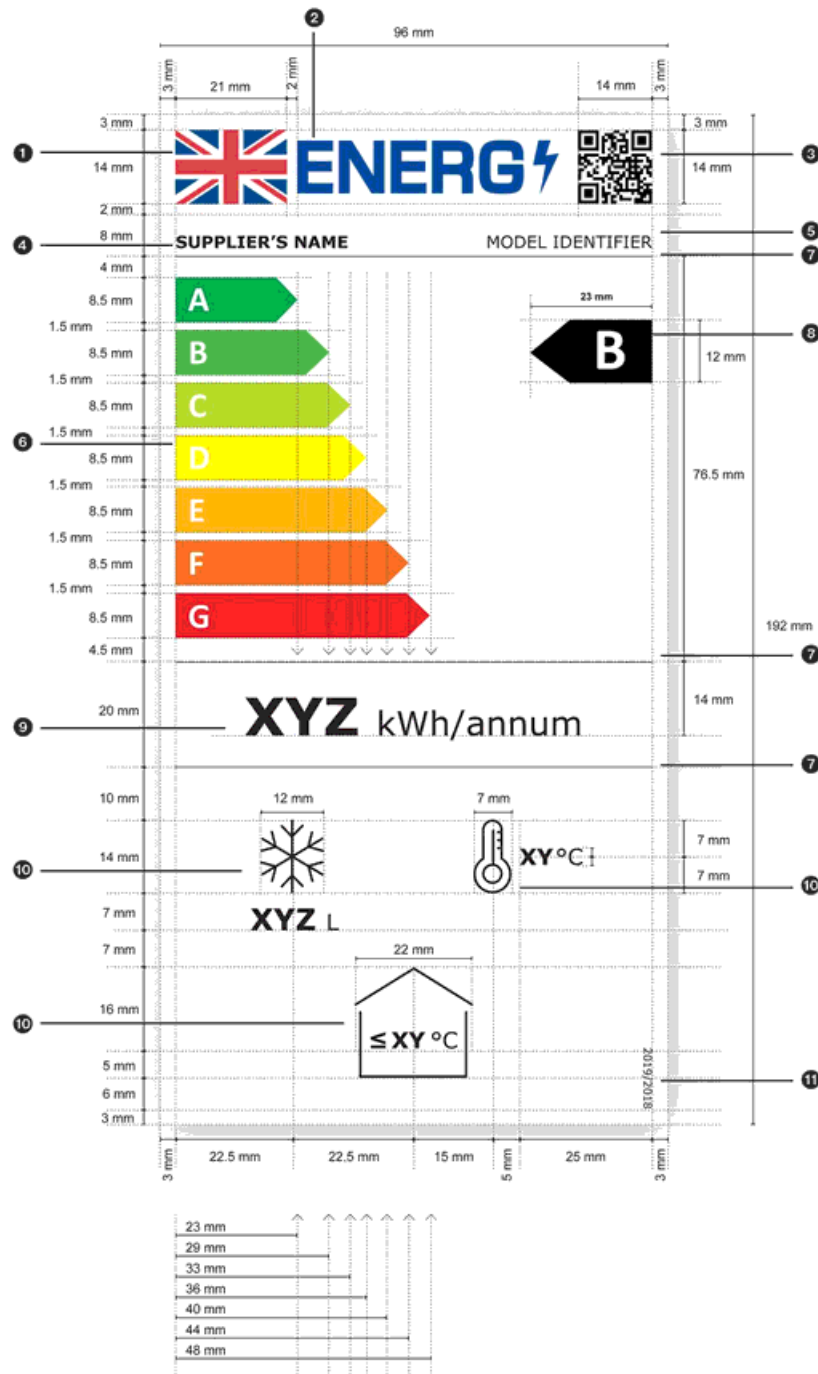
(b) beverage coolers—

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(c) ice-cream freezers—

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- 8.—(1) The labels must meet the following requirements.
- (2) A label must be a minimum size of 96mm wide and 192mm high.
 - (3) Where the label is printed in a size larger than the minimum, its content must remain proportionate to the specifications in this paragraph.
 - (4) The background of the label must be 100 per cent white.
 - (5) The typefaces must be Verdana and Calibri.

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(6) The dimensions and specifications of the elements constituting the label must be as indicated in the label designs in paragraph 7.

(7) Colours used must be cyan, magenta, yellow and black (CMYB) in the proportions specified below.

(8) For the purposes of this paragraph, colour proportions are expressed in CMYB percentages, for example—

0,70,100,0 = 0 per cent cyan, 70 per cent magenta, 100 per cent yellow, 0 per cent black.

(9) The labels must fulfil all the following requirements in relation to the areas marked by numbers in the figures above—

(a) area 1: the colours of the UK flag must be as follows—

(i) the blue background: 100,72,00,18.5;

(ii) the red crosses: 00,100,81,4;

(iii) the remaining part: 100 per cent white;

(b) area 2: the colour of the energy logo must be 100,80,0,0;

(c) area 3: the QR code must be 100 per cent black;

(d) area 4: the supplier's name must be 100 per cent black and in Verdana Bold, 9 points (pt);

(e) area 5: the model identifier must be 100 per cent black and in Verdana Regular 9 pt;

(f) area 6: the A to G scale must be as follows—

(i) the letters of the energy efficiency scale must be 100 per cent white and in Calibri Bold 19 pt, and must be centred on an axis at 4.5 mm from the left side of the arrows;

(ii) the colours of the A to G scale arrows must be as follows—

A-class: 100,0,100,0;

B-class: 70,0,100,0;

C-class: 30,0,100,0;

D-class: 0,0,100,0;

E-class: 0,30,100,0;

F-class: 0,70,100,0;

G-class: 0,100,100,0;

(g) area 7: the internal dividers must have a weight of 0.5 pt and the colour must be 100 per cent black;

(h) area 8—

(i) the letter of the energy efficiency class must be 100 per cent white and in Calibri Bold 33 pt;

(ii) the energy efficiency class arrow and the corresponding arrow in the A to G scale must be positioned in such a way that their tips are aligned;

(iii) the letter in the energy efficiency class arrow must be positioned in the centre of the rectangular part of the arrow, which must be 100 per cent black;

(i) area 9: the annual energy consumption value must be in Verdana Bold 28 pt, 'kWh/annum' must be in Verdana Regular 18 pt, and both must be centred and 100 per cent black;

(j) area 10: the pictograms must be as shown as in the label designs and as follows—

(i) the pictograms' lines must have a weight of 1.2 pt and they and the texts (numbers and units) must be 100 per cent black;

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- (ii) the numbers under the pictograms must be in Verdana Bold 16 pt with the units in Verdana Regular 12 pt and they must be centred under the pictograms;
- (iii) the temperature values must be in Verdana Bold 12 pt with the ‘°C’ in Verdana Regular 12 pt, and must be placed either on the right side of the thermometer pictogram or inside the pictogram representing the ambient temperature;
- (iv) for refrigerating appliances with a direct sales function, except beverage coolers and ice-cream freezers, where the appliance contains only frozen compartment(s) or only unfrozen compartment(s)—
 - (aa) only the relevant pictograms, required by paragraph 2(g) to (j) must be shown; and
 - (bb) those pictograms must be centred between the internal divider below the annual energy consumption and the bottom of the energy label;
- (k) area 11: the S.I. number of the Regulations must be 100 per cent black and in Verdana Regular 6 pt.

SCHEDULE 24

Regulation 46

Product information sheet

1. In accordance with regulation 46(1)(b), the supplier must enter the information set out in Table 35 on a publicly accessible website. The information must be available free of charge and on a page of the website that does not contain any other information.

Table 35

Content of the product information sheet

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Supplier's name or trademark:				
Supplier's address:				
Model identifier:				
Use:		Display and sale		
Type of refrigerating appliance with a direct sales function: [Beverage coolers/Ice-cream freezers/Gelato-scooping cabinet/supermarket cabinet/refrigerated vending machines]				
Cabinet family code		For example: [HC1/.../HC8], [VC1/.../VC4]		
Product specific parameters: (Where an appliance contains compartments working at different temperatures, or a compartment that can be set to different temperatures, the sections below must be completed for each compartment or temperature setting):				
1. Beverage coolers:				
Gross volume (dm³ or L)		Ambient conditions for which the appliance is suitable (in accordance with Table 9 in Schedule 4)		
		Warmest temperature (°C)	Relative humidity (per cent)	
x		x	x	
2. Ice-cream freezers with [transparent/non-transparent lid]:				
Net volume (dm³ or L)		Ambient conditions for which the appliance is suitable (in accordance with Table 11 in Schedule 4)		
		Temperature range (°C)		Relative humidity range (per cent)
		Minimum	Maximum	Minimum
x		x	x	x
3. Gelato-scooping cabinet				
Total display area (m²)		Temperature class (in accordance with Table 7 in Schedule 4)		
x.xx		[G1/G2/G3/L1/L2/L3/S]		
4. [Integral/Remote] [horizontal/vertical (other than semi-vertical)/semi-vertical/combined] supermarket cabinet, roll-in: [yes/no]:				
Total display area (m²)		Temperature class (in accordance with Table 7 in Schedule 4)		
x.xx		[refrigerator: [M2/H1/H2/M1]/freezer: [L1/L2/L3]]		
5. Refrigerated vending machines (delete as applicable)— - refrigerated closed fronted for cans and bottles where the products are held in stacks; - refrigerated glass fronted for cans and bottles, confectionery & snacks; - refrigerated glass fronted entirely for perishable foodstuffs; - multi-temperature for [fill in the type of foodstuffs for which it is intended to be used]; - combination machines consisting of different categories of machine in the same housing and powered by one chiller for [fill in the type of foodstuffs for which it is intended to be used]:				
Volume (dm³ or L)		Temperature class (in accordance with Table 7 in Schedule 4)		
x		category [1/2/3/4/6]		
General product parameters:				
Annual energy consumption (kWh/a) (subject to paragraph 2).	x.xx	Recommended temperature(s) for optimised food storage (°C) (These settings must be in accordance with the temperature conditions set out in Schedule 4, Tables 7, 8, or 9, as applicable)		x
EEI	x.x	Energy efficiency class		[A/B/C/D/E/F/G]
Light source parameters				
Type of light source		[Lighting technology]		
Energy efficiency class		[A/B/C/D/E/F/G]		
Minimum duration of the guarantee offered by the supplier				
Additional information The weblink to the supplier's website, where the information specified in paragraph 4 of Schedule 3 (information requirements) is found:				

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2. Where the refrigerating appliance has different compartments working at different temperatures, the annual energy consumption of the integrated unit must be provided. If separate refrigeration systems provide cooling for separate compartments of the same unit, the energy consumption associated with each sub-system must also be provided where possible.

3. The following items in Table 35 are not relevant for the purposes of determining whether a model is an equivalent model under Article 2(6) of the Framework Regulation—

- (a) supplier's name or trade mark;
- (b) supplier's address;
- (c) model identifier;
- (d) minimum duration of the guarantee given by the supplier.

SCHEDULE 25

Regulation 46

Technical documentation

1. The technical documentation referred to in regulation 46(1)(d) must include the following—
 - (a) a general description of the model allowing it to be unequivocally and easily identified;
 - (b) references to the measurement standards used;
 - (c) specific precautions to be taken when the model is assembled, installed, maintained or tested;
 - (d) the values for the technical parameters set out in Table 36; these values will be the declared values for the purposes of the verification procedure in Schedule 28;
 - (e) the details and the results of calculations performed in accordance with Schedule 4;
 - (f) testing conditions if not described fully in sub-paragraph (b);
 - (g) equivalent models, if any, including model identifiers.

Table 36

Technical parameters of the model and their declared values for refrigerating appliances with a direct sales function

Status: This is the original version (as it was originally made). This item of legislation is currently only available in its original format.

A general description of the refrigerating appliance with a direct sales function model, sufficient for it to be unequivocally and easily identified:			
Product specifications:			
General product specifications:			
<i>Parameter</i>	<i>Value</i>	<i>Parameter</i>	<i>Value</i>
Annual energy consumption (kWh/a)	x.xx	Standard annual energy consumption (kWh/a)	x.xx
Daily energy consumption (kWh/24h)	x.xxx	Ambient conditions	[Set 1/Set 2]
M	x.x	N	x.xxx
Temperature coefficient (C)	x.xx	Y	x.xx
P	x.xx	Target temperature (Tc) (°C)	x.x
Climate class factor (CC)	x.xx		
Additional information:			
The references of the designated standards or other reliable accurate and reproducible methods applied:			
Where appropriate, identification and signature of the person empowered to bind the supplier:			
A list of equivalent models, including model identifiers:			
Additional product specifications for beverage coolers:			
Parameter		Value	
Gross volume (dm ³ or L)		x	
Ambient conditions for which the appliance is suitable (in accordance with Table 9 in Schedule 4)	Warmest temperature (°C)		x
	Relative humidity (per cent)		x
Additional product specifications for ice-cream freezers with [transparent lid/non-transparent lid]:			
Parameter		Value	
Net volume (dm ³ or L)		x	
Ambient conditions for which the appliance is suitable (in accordance with Table 11 in Schedule 4)	Temperature range (°C)	Minimum	x
		Maximum	x
	Relative humidity range (per cent)	Minimum	x
		Maximum	x
Additional product specifications for gelato-scooping cabinet			
Parameter		Value	
Total display area (m ²)		x.xx	
Temperature class		XY	
Additional product specifications for supermarket cabinet			
Parameter		Value	
Total display area (m ²)		x.xx	
Temperature class		XY	
Additional product specifications for refrigerated vending machines:			
Parameter		Value	
Temperature class		XY	
Volume (dm ³ or L)		x	

2. Where the information in the technical documentation for a particular model has been obtained—

- (a) from a model that has the same technical characteristics relevant for the technical information to be provided but is produced by a different manufacturer;
- (b) by calculation on the basis of design or extrapolation from another model of the same or a different manufacturer; or
- (c) by both paragraphs (a) and (b);

the technical documentation must include the details of any such calculation and 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.

SCHEDULE 26

Regulation 46

Information to be provided in visual advertisements, technical or other promotional material, and in distance selling except distance selling on the internet

1.—(1) In—

- (a) visual advertisements for refrigerating appliances with a direct sales function, for the purposes of the requirements of regulation 46(1)(e) and 47(c); and
- (b) technical promotional material or other promotional material for refrigerating appliances with a direct sales function, for the purposes of the requirements of regulation 46(1)(f) and 47(d);

the energy efficiency class and the range of energy efficiency classes available on the label must be shown as set out in paragraph 2.

(2) Any paper-based distance selling of refrigerating appliances with a direct sales function must show the energy efficiency class and the range of energy efficiency classes available on the label as set out paragraph 2.

2.—(1) The energy efficiency class and the range of energy efficiency classes must be shown, as indicated in Figure 1, with—

- (a) an arrow containing the letter of the energy efficiency class, in white, Calibri Bold and in—
 - (i) if the price is shown, a font size at least equivalent to that of the price; and
 - (ii) in all other cases, a font size that is clearly visible and legible;
- (b) subject to sub-paragraph (2), the colour of the arrow matching the colour of the energy efficiency class as specified in Schedule 22;
- (c) the range of available energy efficiency classes shown in 100 per cent black;
- (d) the size such that the arrow is clearly visible and legible; and
- (e) the letter in the energy efficiency class arrow positioned in the centre of the rectangular part of the arrow, with a border of 0.5 pt in black around the arrow and the letter of the energy efficiency class.

(2) If the visual advertisement, technical promotional material or other promotional material or paper-based distance selling is printed in monochrome, the arrow may be in monochrome.

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Figure 1

Coloured/monochrome left/right arrow, with range of energy efficiency classes indicated



3. Where a product is sold through telemarketing based distance selling, the manufacturer, importer or authorised representative must ensure that the customer is specifically informed of the energy efficiency class of the product and of the range of energy efficiency classes available on the label, and that the customer can access the full label and the product information sheet by requesting a printed copy or accessing a website that is available free of charge.

4. For all the situations referred to in paragraphs 1 and 3, it must be possible for the customer to obtain a printed copy of the label and the product information sheet on request.

SCHEDULE 27

Regulation 46

Information to be provided in the case of distance selling through the internet

1. The following requirements apply to distance selling through the internet.
- 2.—(1) The appropriate label made available by suppliers in accordance with regulation 46(1)(g) must be shown on the display mechanism—
 - (a) if the price is shown, in proximity to the price of the product; and
 - (b) in all other cases in proximity to the product.

(2) The size of the label must be such that the label is clearly visible and legible, and must be proportionate to the size specified in paragraph 8 of Schedule 23.

(3) If the label is displayed using a nested display, the image used for accessing the label must comply with the specifications set out in paragraph 3.
- 3.—(1) If nested display is used, the label must appear on the first mouse click, mouse roll-over or tactile screen expansion on the image.
- (2) The image used for accessing the label in the case of a nested display, as indicated in Figure 2, must—
 - (a) be an arrow in the colour corresponding to the energy efficiency class of the product on the label;
 - (b) indicate the energy efficiency class of the product on the arrow in white, Calibri Bold and in—
 - (i) if the price is shown, a font size equivalent to that of the price; or
 - (ii) in all other cases, a font size that is clearly visible and legible;
 - (c) have the range of available energy efficiency classes in 100 per cent black;
 - (d) be of such a size that the arrow is clearly visible and legible, and in one of the following two formats shown in Figure 2; and
 - (e) position the letter in the energy efficiency class arrow in the centre of the rectangular part of the arrow, with a visible border in 100 per cent black placed around the arrow and the letter of the energy efficiency class.

Figure 2

Coloured left/right arrow example, with range of energy classes indicated



4. In the case of a nested display, the sequence of display of the label must be as follows—
 - (a) the image referred to paragraph 2 must be shown on the display mechanism—
 - (i) if the price is shown, in proximity to the price of the product;
 - (ii) in all other cases, in proximity to the product;
 - (b) the image must link to the label set out in Schedule 23;
 - (c) the label must be displayed after a mouse click, mouse roll-over or tactile screen expansion on the image;
 - (d) the label must be displayed by pop-up, new tab, new page or inset screen display;
 - (e) for magnification of the label on tactile screens, the device conventions for tactile magnification must apply;
 - (f) the label must cease to be displayed by means of a close option or other standard closing mechanism;
 - (g) the alternative text for the graphic, to be displayed on failure to display the label, must be the energy efficiency class of the product in—
 - (i) if the price is shown, a font size equivalent to that of the price; and
 - (ii) in all other cases, a font size that is clearly visible and legible.

5.—(1) The electronic product information sheet made available by suppliers in accordance with regulation 46(1)(h) must be shown on the display mechanism—

- (i) if the price is known, in proximity to the price of the product; and
 - (ii) in all other cases, in proximity to the product.
- (2) The size of the information sheet must be such that the sheet is clearly visible and legible.
- (3) If the product information sheet is displayed using a nested display or by referring to a publicly accessible website, the link used for accessing the product information sheet must clearly and legibly indicate “Product information sheet”.
- (4) If a nested display is used, the product information sheet must appear on the first mouse click, mouse roll-over or tactile screen expansion on the link.

Interpretation

1. In this Schedule “determined values” means the values of the relevant parameters as measured by the market surveillance authority in testing and the values calculated from these measurements.

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Verification procedure

2.—(1) The market surveillance authority must apply the procedure set out in the following paragraphs when verifying the compliance of a product with these Regulations, using the measurement and calculation methods provided for in Schedule 4.

(2) The market surveillance authority must initially test one single unit of the model of the product to be verified.

(3) Subject to paragraph 3, the model conforms to these Regulations if all the following conditions are satisfied in respect of the tested unit—

- (a) the declared values and, where applicable, the values used to calculate the declared values, are not more favourable for the supplier than the corresponding measurements carried out pursuant to paragraph 1(2)(b)(vii) or 5(2)(d) of Schedule 1A to the 2010 Regulations;
- (b) the values published on the label and in the product information sheet are not more favourable for the supplier than the declared values;
- (c) the energy efficiency class indicated on the label is not more favourable for the supplier than the class determined by the declared values; and
- (d) the determined values meet the verification tolerances set out in Table 37.

3.—(1) If a unit complies with all the conditions of paragraph 2 except sub-paragraph (3)(d), the market surveillance authority must test three additional units of the model to be verified, or three units of equivalent models.

(2) A model subject to additional testing under this paragraph is deemed to comply with paragraph 2(3)(d) if the arithmetical mean of the determined values for the three additional units meets the verification tolerances set out in Table 37.

(3) If a model fails to meet the test set out in sub-paragraph (2), the model and all equivalent models do not conform to these Regulations.

4. Where a model has been designed to be able to detect it is being tested (for example by recognising test conditions or test cycles), and to react specifically by automatically altering its performance during the test with the objective of reaching a more favourable level for any of the parameters specified in these Regulations or included in the technical documentation or included in any of the documentation provided, the model and all equivalent models do not conform to these Regulations.

Verification tolerances

5.—(1) The verification tolerances set out in Table 37 must be used only by the market surveillance authority and only for the purposes of this Schedule.

(2) The supplier of a product must not use the verification tolerances—

- (a) as allowed tolerances to establish the declared values;
- (b) in order to interpret the declared values with a view to achieving compliance; or
- (c) to communicate better performance.

Table 37

Verification tolerances for measured parameters

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<i>Parameters</i>	<i>Verification tolerances</i>
Net volume, and net compartment volume where applicable	The determined value must not be more than 3 per cent or 1L lower (whichever is the greater value) than the declared value.
Gross volume, and gross compartment volume where applicable	The determined value must not be more than 3 per cent or 1L lower (whichever is the greater value) than the declared value.
TDA, and compartment TDA where applicable	The determined value must not be more than 3 per cent lower than the declared value.
E_{daily}	The determined value must not be more than 10 per cent higher than the declared value.
AE	The determined value must not be more than 10 per cent higher than the declared value.

SCHEDULE 29

Regulation 56

Revocations

1. [Commission Regulation \(EC\) No 640/2009](#) of 22 July 2009 implementing [Directive 2005/32/EC](#) of the European Parliament and of the Council with regard to ecodesign requirements for electric motors.
2. [Commission Regulation \(EC\) No 642/2009](#) of 22 July 2009 implementing [Directive 2005/32/EC](#) of the European Parliament and of the Council with regard to ecodesign requirements for televisions.
3. [Commission Regulation \(EC\) No 643/2009](#) of 22 July 2009 implementing [Directive 2005/32/EC](#) of the European Parliament and of the Council with regard to ecodesign requirements for household refrigerating appliances.
4. [Commission Regulation \(EC\) No 1015/2010](#) of 10 November 2010 implementing [Directive 2009/125/EC](#) of the European Parliament and of the Council with regard to ecodesign requirements for household washing machines;
5. [Commission Regulation \(EC\) No 1016/2010](#) of 10 November 2010 implementing [Directive 2009/125/EC](#) of the European Parliament and of the Council with regard to ecodesign requirements for household dishwashers.
6. Commission Regulation (EU) 2019/1781 of 1 October 2019⁽¹²⁾ laying down ecodesign requirements for electric motors and variable speed drives pursuant to [Directive 2009/125/EC](#) of the European Parliament and of the Council, amending Regulation (EC) No 641/2009 with regard to ecodesign requirements for glandless standalone circulators and glandless circulators integrated in products and repealing [Commission Regulation \(EC\) No 640/2009](#).
7. Commission Regulation (EU) 2019/2019 of 1 October 2019⁽¹³⁾ laying down ecodesign requirements for refrigerating appliances pursuant to [Directive 2009/125/EC](#) of the European Parliament and of the Council and repealing [Commission Regulation \(EC\) No 643/2009](#).

(12) EUR 2019/1781; relevant amending instrument is [S.I. 2020/1528](#).

(13) EUR 2019/2019; relevant amending instrument is [S.I. 2020/1528](#).

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8. Commission Regulation (EU) 2019/2021 of 1 October 2019(**14**) laying down ecodesign requirements for electronic displays 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 \(EC\) No 642/2009](#);

9. Commission Regulation (EU) 2019/2022 of 1 October 2019(**15**) 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](#).

10. Commission Regulation (EU) 2019/2023 of 1 October 2019(**16**) laying down ecodesign requirements for household washing machines and household washer-dryers 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 1015/2010](#).

(14) EUR 2019/2021; relevant amending instrument is [S.I. 2020/1528](#).

(15) EUR 2019/2022; relevant amending instrument is [S.I. 2020/1528](#).

(16) EUR 2019/2023; relevant amending instrument is [S.I. 2020/1528](#).