

2020 No. XXX

ENERGY CONSERVATION

The Ecodesign for Energy-Related Products (External Power Supplies) Regulations 2020

<i>Made</i>	- - - -	***
<i>Laid before Parliament</i>		***
<i>Coming into force</i>		<i>1st April 2020</i>

The Secretary of State makes these Regulations in exercise of the powers conferred by regulations 22 and 24(2) of the Ecodesign for Energy-Related Products Regulations 2010(a).

For the purposes of paragraph (1) of regulation 22 of those Regulations, the Secretary of State considers that the matters set out in paragraphs (2) and (6) are satisfied.

The Secretary of State has complied with paragraph (4) of regulation 22 of those Regulations.

Citation and commencement

1.—(1) These Regulations may be cited as the Ecodesign for Energy-Related Products (External Power Supplies) Regulations 2020.

(2) These Regulations come into force on 1st April 2020.

Interpretation

2. (1) In these Regulations—

“2010 Regulations” means the Ecodesign for Energy-Related Products Regulations 2010;

“AC” means alternating current;

“DC” means direct current;

“external power supply” means a product that—

- (a) is designed to convert AC power input from the mains power source input into one or more lower voltage DC or AC outputs;
- (b) is used with one or more separate devices that constitute the primary load;
- (c) is contained in a physical enclosure separate from the device or devices that constitute the primary load;
- (d) is connected to the device or devices that constitute the primary load with removable or hard-wired male/female electrical connections, cables, cords, or other wirings;

(a) S.I. 2010/2617, amended by S.I. 2011/2677, S.I. 2012/3005, S.I. 2013/1232, S.I. 2014/1290, S.I. 2015/469, S.I. 2016/838, S.I. 2017/1143, and S.I. 2019/539.

- (e) has nameplate output power not exceeding 250 watts; and
- (f) is used with a type of electrical and electronic household and office equipment described in the table in Schedule 1;

“nameplate output power” or “P_O” means the maximum output power of the product as stated on the nameplate of the product;

(2) Expressions not defined in paragraph (1) which are used in these Regulations and in the 2010 Regulations have the meaning they bear in the 2010 Regulations.

Application

3.—(1) These Regulations apply to an external power supply that is placed on the market or put into service.

(2) Nothing in these Regulations applies to—

- (a) active power over Ethernet injectors;
- (b) battery chargers without power supply function;
- (c) docking stations for autonomous appliances;
- (d) external power supplies for medical devices;
- (e) lighting converters;
- (f) uninterruptible power supplies; or
- (g) voltage converters.
- (h) external power supplies placed on the market before 1 April 2025 solely as a service part or spare part for replacing an identical external power supply placed on the market before 1 April 2020, under the condition that the service part or spare part, or its packaging, is clearly marked ‘External power supply to be used exclusively as spare part for’ followed by the name of the primary load product with which it is intended to be used.

(3) In this regulation—

“active power over Ethernet injector” means a device that—

- (a) converts the mains power source input to a lower DC voltage output;
- (b) has Ethernet input or Ethernet output ports;
- (c) delivers power to a device connected to an Ethernet output port; and
- (d) provides the rated voltage at the output port only when a compatible device is detected following a standardised process;

“battery charger” means a device that connects directly to a removable battery at its output interface;

“docking station for autonomous appliances” means a device in which a battery-operated appliance that executes tasks requiring the appliance to move without any user intervention is placed for charging, and that can guide the independent movements of the appliance;

“lighting converter” means an external power supply used with extra low voltage light sources;

“uninterruptible power supply” means a device that automatically provides backup power when the electrical power from the mains power source drops to an unacceptable voltage level;

“voltage converter” means a device designed to convert the mains power source input into 110 volts power output with characteristics similar to mains power source input characteristics.

Ecodesign requirements

4. An external power supply that is placed on the market or put into service must conform to the ecodesign requirements set out in Schedule 2.

Conformity assessment

5. For the purposes of the assessment referred to in regulation 4(2)(a) of 2010 Regulations, a manufacturer, importer or authorised representative assessing whether a product conforms with these Regulations must use either—

- (a) the internal design control procedure set out in Part 1 of Schedule 1A to those Regulations; or
- (b) the management system procedure set out in Part 2 of Schedule 1A to those Regulations.

Verification procedure for market surveillance purposes

6. The market surveillance authority must use the verification procedure set out in Schedule 3 when verifying the conformity of a product with the requirements of these Regulations.

Measurements and calculations

7. The measurements and calculations required by these Regulations, or necessary for demonstrating or measuring conformity with these Regulations, must be made in accordance with—

- (a) designated standards; or
- (b) other methods which can be demonstrated to be reliable, accurate, and reproducible by the person deploying them, and which take into account the generally recognised state of the art.

Review

8.—(1) The Secretary of State must before 1st April 2025—

- (a) evaluate these Regulations, taking into account the speed of technological progress; and
- (b) publish a report stating whether or not in their opinion these Regulations should be amended.

(2) If the Secretary of State concludes under paragraph (1) that these Regulations should not be amended, the Secretary of State must review this conclusion from time to time and publish a new report under paragraph (1)(b) at intervals not exceeding 5 years.

Amendment of the Ecodesign for Energy-Related Products Regulations 2010

9.—(1) The table at paragraph 4 of Schedule 1 (declaration of conformity) to the 2010 Regulations is amended as follows.

(2) For the entry relating to an external power supply at item 1, substitute—

“1	An external power supply	The Ecodesign for Energy-Related Products (External Power Supplies) Regulations 2020.”
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Revocation

10. Commission Regulation (EC) No 278/2009 of 6 April 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements

for no-load condition electric power consumption and average active efficiency of external power supplies is revoked.

x [month] [20xx]

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Department for Business, Energy and Industrial Strategy

SCHEDULES

SCHEDULE 1

Regulation 2(1)

Household and office equipment

The types of electrical and electronic household and office equipment for the purposes of the definition of “external power supply” in regulation 2(1) are set out in the Table in this Schedule.

Types of equipment with which external powers supplies are used

<i>Type of equipment</i>	<i>Detail</i>
(i) Household equipment	(a) Appliances for cooking and other processing of food, preparing beverages, opening or sealing containers or packages, cleaning, and maintenance of clothes; (b) Appliances for hair cutting, hair drying, hair treatment, tooth brushing, shaving, massage, and other body care appliances; (c) Electric knives; (d) Scales; (e) Clocks, watches, and equipment for the purposes of measuring, indicating, or registering time.
(ii) Information technology equipment	Equipment (including copying and printing equipment, and set top boxes) which— (a) has a primary function of entry, storage, display, retrieval, transmission, processing, switching, or control, of data or of telecommunication messages or a combination of these functions, and may be equipped with a terminal port typically operated for information transfer; and (b) is primarily intended to be used in a domestic environment (and for the purpose of this provision “domestic environment” means within 10 metres of broadcast radio and television receivers).
(iii) Consumer equipment	(a) Audio amplifiers; (b) Hi-fi recorders; (c) Home theatre systems; (d) Musical instruments; (e) Radio sets; (f) Televisions; (g) Video cameras; (h) Video recorders; (i) Other equipment for the purpose of recording or

(iv) Electrical and electronic toys, leisure, and sports equipment	reproducing sound or images, including signal or other technologies for the distribution of sound and image other than telecommunications.
	(a) Electric trains or car racing sets;
	(b) Games consoles, including hand-held games consoles;
	(c) Sports equipment with electric or electronic components;
	(d) Other toys, leisure, and sports equipment.

SCHEDULE 2

Regulation 4

Ecodesign requirements

Interpretation

1.—(1) In this Schedule—

“active mode” means a condition in which the input of an external power supply is connected to the mains power source and the output is connected to a primary load;

“active mode efficiency” means the ratio of the power produced by an external power supply in active mode to the input power required to produce it;

“average active efficiency” means the average of the active mode efficiencies at 25%, 50%, 75% and 100% of the nameplate output power;

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

“low voltage external power supply” means an external power supply with a nameplate output voltage of less than 6 volts and a nameplate output current greater than or equal to 550 milliamperes;

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

“multiple voltage output external power supply” means an external power supply able to convert AC power input from the mains power source into more than one simultaneous output at lower DC or AC voltage;

“nameplate output current” means the maximum output current of the product as stated on the nameplate of the product;

“nameplate output voltage” means the maximum output voltage of the product as stated on the nameplate of the product;

“no load condition” means the condition in which the input of an external power supply is connected to the mains power source, but the output of the external power supply is not connected to any primary load.

(2) In this Schedule, “load condition” followed by a number from 1 to 6 has the meaning given in Table 1.

Table 1

Load condition definitions

<i>Load condition</i>	<i>Percentage of nameplate output current</i>
Load condition 1	100% ± 2%
Load condition 2	75% ± 2%
Load condition 3	50% ± 2%

Load condition 4	25% ± 2%
Load condition 5	10% ± 1%
Load condition 6	0% (no load condition)

Energy efficiency requirements

2. The no load condition power consumption of the product must not exceed the values set out in Table 2.

Table 2

Maximum values for no load condition power consumption

Type of external power supply	$P_O \leq 49.0 W$	$P_O > 49.0 W$
(i) AC power input to AC output (unless falling within rows (iii) or (iv))	0.21 W	0.21 W
(ii) AC power input to DC output (unless falling within rows (iii) or (iv))	0.10 W	0.21 W
(iii) Low voltage external power supply	0.10 W	0.21 W
(iv) Multiple voltage output external power supply	0.30 W	0.30 W

3. The average active efficiency of the product must not be less than the values set out in Table 3.

Table 3

Minimum values for average active efficiency

Type of external power supply	$P_O \leq 1.0 W$	$1 W < P_O \leq 49.0 W$	$P_O > 49.0 W$
(i) AC power input to AC output (unless falling within rows (iii) or (iv))	$0.5 \cdot P_O/1W + 0.160$	$0.071 \cdot \ln(P_O/1W) - 0.0014 \cdot P_O/1W + 0.67$	0.880
(ii) AC power input to DC output (unless falling within rows (iii) or (iv))	$0.5 \cdot P_O/1W + 0.160$	$0.071 \cdot \ln(P_O/1W) - 0.0014 \cdot P_O/1W + 0.67$	0.880
(iii) Low voltage external power supply	$0.517 \cdot P_O/1W + 0.087$	$0.0834 \cdot \ln(P_O/1W) - 0.0014 \cdot P_O/1W + 0.609$	0.870
(iv) Multiple voltage output external power supply	$0.497 \cdot P_O/1W + 0.067$	$0.075 \cdot \ln(P_O/1W) + 0.561$	0.860

Nameplate information requirements

4.—(1) The nameplate of the product must include the information in Table 4.

(2) In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the nameplate must include the information in Table 4 for each such measured output.

Table 4

Nameplate information

Nameplate information	Value and precision	Unit
Output power	X.X	W

Output voltage	X.X	V
Output current	X.X	A

Instruction manual and website information requirements

5.—(1) The manufacturer, importer, or authorised representative must publish the information set out in Table 5 in respect of the product on a website which is accessible to the public without charge, and, where they exist, in instruction manuals for users of the product.

(2) The information required to be published must appear in the order in which it is set out in Table 5.

Table 5

Instruction manual and website information

<i>Information to be published</i>	<i>Value and precision</i>	<i>Unit</i>	<i>Additional requirements</i>
Manufacturer's name or trade mark, commercial registration number, and address.	-	-	-
Model identifier	-	-	-
Input voltage	X	V	Specified by manufacturer. Must be a value or range.
Input AC frequency	X	Hz	Specified by manufacturer. Must be a value or range.
Output voltage	X.X	V	Nameplate output voltage. Must indicate whether AC or DC.
Output current	X.X	A	Nameplate output current.
Output power	X.X	W	Nameplate output power.
Average active efficiency	X.X	%	Declared by the manufacturer based on the value calculated as the arithmetical mean of efficiency at load conditions 1 to 4. Where multiple average active efficiencies are declared for multiple output voltages available at load condition 1, the value declared for the lowest output voltage must be published.
Efficiency at low load (10%)	X.X	%	Declared by manufacturer based on the value calculated at load condition 5. External power supplies with nameplate output power of 10W or less are exempt from this requirement. Where multiple efficiencies at low load are declared for multiple output voltages available at load condition 1, the value declared for the lowest output voltage must be published.
No load condition power consumption	X.XX	W	Declared by manufacturer based on the value measured for load condition 6.

Technical documentation requirements

6.—(1) In the technical documentation required for the conformity assessment of the product referred to in regulation 5, the manufacturer, importer, or authorised representative must declare the values measured for each reported quantity set out in Table 6.

(2) In cases where more than one physical output or more than one output voltage at load condition 1 are measured, the relevant reported quantities must be specified for each measurement.

(3) As an alternative to obtaining values for each reported quantity in Table 6 by measurement of the model in question (“model A”), values for the reported quantities in Table 6 may be obtained—

- (a) from a different model produced by a different manufacturer (“model B”); or
- (b) by calculation on the basis of design or extrapolation from a different model produced by the same manufacturer or produced by a different manufacturer.

(4) If the approach in sub-paragraph (3)(a) is taken, the manufacturer of model B must make a declaration that model A is identical to model B, and that declaration must be contained in the technical documentation.

(5) For the purposes of sub-paragraph (4), model A is identical to model B if model A has the same technical characteristics as model B relevant to the reported quantities to be given under sub-paragraph (1).

(6) If the approach in sub-paragraph (3)(b) is taken, the technical documentation must contain the details and the results of any calculations upon which the value for the reported quantity is based, and details of any assessment undertaken to verify the accuracy of the calculations.

7. The technical documentation must contain a list of all equivalent models, including the model identifiers of each model.

Table 6

Information required in technical documentation for conformity assessments

<i>Reported quantity</i>	<i>Unit</i>	<i>$P_o > 10 W$</i>	<i>$P_o \leq 10 W$</i>
Root mean square output current	mA	Measured at load conditions 1 to 5.	Measured at load conditions 1 to 4.
Root mean square output voltage	V		
Active mode output power	W		
Root mean square input voltage	V	Measured at load conditions 1 to 6.	Measured at load conditions 1 to 4 and load condition 6.
Root mean square input power	W		
Total harmonic distortion of the input current			
True power factor			
Power consumed	W	Calculated at load conditions 1 to 5, measured at load condition 6.	Calculated at load conditions 1 to 4, measured at load condition 6.
Active mode efficiency	%	Calculated at load conditions 1 to 5.	Calculated at load conditions 1 to 4.
Average active efficiency	%	Arithmetical mean of efficiency at load conditions 1 to 4.	

Verification procedure for market surveillance purposes

Interpretation**1.** In this Schedule—

“average active efficiency” has the meaning given in paragraph 1 of Schedule 2;

“active mode efficiency” has the meaning given in paragraph 1 of Schedule 2;

“declared values” means the values given by a manufacturer, importer or authorised representative in the technical documentation;

“determined values” means the values of the relevant parameters as measured in testing and the values calculated from these measurements;

“load condition” has the meaning given in paragraph 1(2) of Schedule 2;

“no load condition” has the meaning given in paragraph 1 of Schedule 2.

Verification procedure

2. The market surveillance authority must apply the procedure set out in paragraphs 3 to 5 when verifying the conformity 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 determined values;
- (b) the unit complies with the information requirements set out in Schedule 2;
- (c) any product information published by the manufacturer, importer, or authorised representative complies with the requirements of Schedule 2;
- (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 declared values meet the requirements set out in paragraph 6 of Schedule 2; and
- (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 subparagraph (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 subparagraph (2), the model and all equivalent models do not conform to these Regulations.

Verification tolerances

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

(2) The manufacturer, importer, or authorised representative 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.

Verification tolerances

<i>Parameter</i>	<i>Verification tolerance</i>
No load condition	+ 0.01 W of the declared value.
Active mode efficiency at each of the applicable load conditions	0.95 of the declared value.
Average active efficiency	0.95 of the declared value.

EXPLANATORY NOTE

(This note is not part of the Regulations.)

These Regulations set out specific ecodesign requirements for external power supplies. As such they are an implementing measure for the purposes of the Ecodesign for Energy-Related Products Regulations 2010 (as amended).

Regulation 3 sets out the scope of these Regulations in respect to external power supplies.

Regulation 4 prohibits products within the scope of these Regulations from being put on the United Kingdom market or put into service in the United Kingdom unless they meet the ecodesign requirements set out in Schedule 2.

Regulation 5 makes provision about the conformity assessment that must be undertaken in respect of products covered by these Regulations.

Regulation 6 and Schedule 3 make provision about the verification procedure that the market surveillance authority must use to verify whether or not products conform to these Regulations.

Regulation 7 makes provision about how any calculations and measurements made for the purposes of these Regulations must be made.

Regulation 8 requires the Secretary of State periodically to review these Regulations and publish reports explaining whether or not they should be revised in the light of technological progress.

Regulation 9 amends the table in Schedule 1 to the Ecodesign for Energy-Related Products Regulations 2010 to insert a reference to these Regulations as the applicable implementing measure for external power supplies.

Regulation 10 revokes Commission Regulation (EC) No 278/2009 of 6 April 2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for no-load condition electric power consumption and average active efficiency of external power supplies, the provisions of which are replaced by these Regulations.