

Guidance Notes

Covering EC Regulations under the Ecodesign for Energy using
Products Framework Directive 2005/32/EC on:

Stand-by and off mode power 1275/2008;

External Power Supply Units 278/2009;

Simple Set Top Boxes 107/2009;

Tertiary Lighting 245/2009;

and General Lighting 244/2009;

Government Guidance Notes

This guidance is intended to assist those placing energy using equipment on the UK market to understand the application of EU Regulations establishing implementing measures made under the Eco-design for Energy Using Products Framework Directive (EuP).

It aims to explain the EU Regulations, although interpretation of the law is for the courts. Although reference is made to existing legislation, following this guidance is not in itself obligatory. However, if you do follow it you will normally be doing enough to help your organisation meet its legal obligations in respect of the legislation covered in this guidance.

The EU Regulations themselves should always be read and understood, as they constitute the law. This guidance is informative and has no legal authority. However, in considering any breach of legislation that is the subject of this guidance, this guidance and any other guidance that might in future be issued by the European Commission, could be a relevant consideration for a court, depending on the circumstances of the particular case.

You should refer to the EU Regulations themselves for a full statement of the legal requirements and in the case of any doubt take independent advice, including your own legal advice.

EU Regulations may be revised from time to time, so users should take care to keep themselves informed.

The European Commission is also considering producing guidance for some of the implementing measures made under the EuP. We will review this guidance in light of any such additional guidance.

Contents

Cross Cutting Guidance

1. The Law in Brief
2. Background
3. Content of Implementing Measures
4. Assessing Products to see if they are covered by the Implementing Measures
5. Definitions
6. Content of the Annexes to the Implementing Measure
7. Frequently asked questions
8. Further Information
9. Legal References
10. Contacts

The Draft Guidance Documents

Annex 1

Commission Regulation (EC) No 1275/2008 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment.

Appendix A - list of energy-using products of Annex I of the Regulation

Annex 2

Commission Regulation (EC) No 107/2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for simple set-top boxes

Annex 3

Commission Regulation (EC) No 278/2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for External Power Supply Units - 6 April 2009

Annex 4

Commission Regulation (EC) No 244/2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for non-directional household lamps

Annex 5

Commission Regulation (EC) No 245/2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for fluorescent lamps without integrated ballast, high intensity discharge lamps, and for ballasts and luminaires able to operate lamps, and repealing Directive 2000/55/EC.

Cross Cutting Guidance

1. The Law in Brief

The Eco-design of Energy Using Products Directive (2005/32/EC) is a framework that sets requirements for energy-using products. It aims to improve the environmental performance of products throughout their life-cycle by integrating environmental aspects at a very early stage in the product design. The Directive was transposed by Statutory Instrument (SI 2007 No:2037) which came into force on 11 August 2007.

Under this Directive, the European Commission, assisted by a committee of Member States, adopt implementing measures relating to individual product types. To date these have been adopted by Member States in the form of EU Regulations and as such are directly applicable in the UK and all other Member States. Implementing Measures are the specific product related pieces of legislation (e.g. regulations) that set out the legislative requirements legislative requirements that products sold in the EU will be required to meet from a specific date.

The implementing measures set out eco-design requirements for those products within their scope. They may address issues such as environmental impacts of product manufacture (processes and materials used), usage of energy or water consumption and emissions) and disposal. The ecodesign requirements for each product group are set out in the relevant Annex to this guidance.

2. Background

The UK Government is committed to seeking cost-effective ways to achieve targets set to reduce carbon emissions as part of its policy on Climate Change. It has already supported and implemented a range of EU policies aimed at improving energy efficiency standards for traded goods. The UK supported the adoption of regulations consistent with its approach including the Eco-design of Energy Using Products Directive.

Defra is committed to Sustainable Consumption and Production (SCP). SCP is about reducing our environmental impacts, while maintaining or improving economic outputs and standards of living. Business and consumers can also save money by doing more with less, and using resources such as water, energy and raw materials more efficiently.

The Eco-design Framework Directive helps achieve SCP objectives by ensuring products are as energy efficient as possible and therefore have less environmental impact.

The European Commission can bring forward proposals for new measures for products at any time under this framework. A Working Plan has been established which explains the products the Commission will be looking at. Product groups are subject to Preparatory Studies which look in detail at the lifecycle impacts of the Products in order to identify possible improvements. Implementing Measures will then be being developed following consultation between the Commission, stakeholders and Member States.

This guidance currently covers measures agreed to date that apply to:

- Stand-by and off mode power
- External Power Supply Units
- Simple Set Top Boxes
- Tertiary Lighting

Detailed information on all these measures is given in the Annexes attached to this document. Additional guidance will be provided on further product measures as they are agreed.

3. Content of Implementing Measures

Each implementing measure includes the following information.

Subject Matter and Scope

Describes the products to which each measure applies and also sets out exemptions for example custom made appliances or those that can only be battery operated. More detailed information about specific exemptions and detailed coverage may also be found in the Annexes to the individual implementing measures.

Definitions

Defines various key words or phrases that are contained in the implementing measure such as product definitions or features.

Ecodesign Requirements

Sets out the relevant ecodesign requirements (e.g. minimum efficiency standards, requirement to provide information to consumers on packaging or website, etc) and the timing for the various requirements.

Conformity Assessment

Describes how the manufacturer should assess whether the products he makes are in compliance with the ecodesign requirements of the implementing measure.

Verification for market surveillance purposes

Indicates how market surveillance authorities should assess whether a product meets the ecodesign standards required by this measure.

Benchmarks

Indicates best available technology (as regards the eco-design requirements set) on the market for products covered by this measure at the time of adoption.

Repeals

States whether any existing legislation has been repealed as a result of this measure.

Revision

Gives the date by which the Commission should have reviewed the implementing measure and presented the results to Member States.

Entry into force

Gives the date on which the implementing measure enters into force or the way in which this is determined. If no date is included the measure normally enters into force 20 days after publication in the Official Journal of the European Union.

4. Assessing products to see if they are included in the scope of Implementing Measures

The decision whether many products are included within the scope of the regulations should be reasonably straightforward. However there are some products where there may be areas of doubt and uncertainty. As the scope is applicable at a European level, no one Member State can provide definitive interpretation or advice on specific borderline cases. In these cases it may be necessary to seek independent advice to come to a final decision.

5. Definitions

The definition of “energy using product” and “manufacturer” can be found within Directive 2005/32/EC of 6 July 2005 establishing a framework for setting ecodesign requirements for energy using products. See further sources of information below.

Additional specific definitions relating to individual regulations are contained within those regulations.

6. Content of the Annexes to the Implementing Measure

These set out in detail additional information on the implementing measure. To date these have included information clarifying the scope of the measure, additional definitions, ecodesign requirements, verification procedure for market surveillance purposes, benchmarks and energy efficiency calculations.

7. Frequently Asked Questions

Q. What does ‘placing on the market’ mean?

A. This term means the initial action of making a product available for the first time on the Community market, with a view to distribution or use in the European Community. Making available can be either for payment or free of charge.

Further guidance is contained in section 2.3 of the “*Guide to the implementation of directives based on the New Approach and the Global Approach*” published by the European Commission in 2000. For ease of reference, the relevant paragraphs and footnotes are reproduced below:-

“A product is placed on the Community market when it is made available for the first time. This is considered to take place when a product is transferred from the stage of manufacture with the intention of distribution or use on the Community market. Moreover, the concept of placing on the market refers to each individual product, not to a type of product, and whether it was manufactured as an individual unit or in series.

“The transfer of the product takes place either from the manufacturer, or the manufacturer’s authorised representative in the Community, to the importer established in the Community or to the person responsible for distributing the product on the Community market. The transfer may also take place directly from the manufacturer, or authorised representative in the Community, to the final consumer or user.

“The product is considered to be transferred either when the physical hand-over or the transfer of ownership has taken place. This transfer can be for payment or free of charge, and it can be based on any type of legal instrument. Thus, a transfer of a product is considered to have taken place, for instance, in the circumstances of sale, loan, hire, leasing and gift.

“Placing on the market is considered not to take place where a product is:

- transferred from the manufacturer in a third country to an authorised representative in the Community whom the manufacturer has engaged to ensure that the product complies with the directive;
- transferred to a manufacturer for further measures (for example assembling, packaging, processing or labelling);
- not (yet) granted release for free circulation by customs, or has been placed under another customs procedure (for example transit, warehousing or temporary importation), or is in a free zone;
- manufactured in a Member State with a view to exporting it to a third country;
- displayed at trade fairs, exhibitions or demonstrations; or
- in the stocks of the manufacturer, or the authorised representative established in the Community, where the product is not yet made available, unless otherwise provided for in the applicable directives.

“A product offered in a catalogue or by means of electronic commerce is deemed not to have been placed on the Community market until it is actually made available for the first time. In order to respect the rules and principles aiming to prohibit misleading advertising, a non compliance of a product intended for the Community market should be clearly indicated.”

Q. How do I indicate that my product is in compliance with the Ecodesign requirements?

A. By placing the European Conformance Mark (CE Mark) on your products you are indicating that you believe your product is in compliance with the relevant legislation. Products marked in this way will be deemed to be in compliance with the relevant requirements of legislation unless evidence is available to the contrary. Member States will carry out market surveillance activities to ensure the proper functioning of the market in this respect.

8. Further information

Business Link (<http://www.businesslink.gov.uk>)

UK businesses can contact their nearest Business Link for free advice. Overview information on EuP can also be found on the national website.

Envirowise (<http://www.envirowise.gov.uk/>)

The Government's Envirowise service provides a comprehensive information and signposting service for firms seeking advice on a wide range of environmental legislation that may affect their business.

Wrap (www.wrap.org.uk) WRAP helps individuals, businesses and local authorities to reduce waste and recycle more, making better use of resources and helping to tackle climate change.

Market Transformation Programme (www.mtprog.com) The Market Transformation Programme (MTP) develops evidence for Government and business on energy using products.

Carbon Trust (www.carbontrust.co.uk) was set up by Government in 2001 as an independent company, to accelerate the move to a low carbon economy.

9. Legal references

Directive 2005/32/EC establishing a framework for setting eco-design requirements for energy-using products

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:191:0029:0058:EN:PDF>

Amending Directive 2008/28/EC of 11 March 2008

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:081:0048:0050:EN:PDF>

Links for the Regulations under the framework Directive are given in the Annexes covering the specific measure.

10. Contacts

Sustainable Energy Using Products Team
Sustainable Consumption and Production Programme
Defra
Ergon House
c/o 17 Smith Square
London
Tel: 08459 33 55 77

Annex 1

Commission Regulation (EC) No 1275/2008 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment.

Scope

Electrical and electronic household and office equipment as listed in Appendix A below.

'Electrical and electronic household and office equipment' means any energy using product which:

- (a) is made commercially available as a single functional unit and is intended for the end-user;
- (b) falls under the list of energy-using products of Annex I of the Regulation (reproduced in Appendix A of this guidance for ease);
- (c) is dependent on energy input from the mains power source in order to work as intended; and
- (d) is designed for use with a nominal voltage rating of 250 V or below, also when marketed for non-household or non-office use;

It is not intended to cover specialised professional equipment or network stand-by functions

Exemptions

Electrical and electronic household and office equipment placed on the market with a low voltage external power supply. A low voltage external power supply is 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.

Ecodesign requirements

For the purpose of this Regulation off mode is defined as a condition in which the equipment is connected to the mains power source and is not providing any function. Standby mode means a condition where the equipment is connected to the mains power source, depends on energy input from the mains power source to work as intended and provides reactivation function and/or information or status display, which may persist for an indefinite time. Examples and further details on the definitions can be found in the measure.

From January 2010

- Equipment in off mode shall not consume more than 1.00 watt.
- Equipment in stand-by mode shall not consume more than 1.00 watt where it is providing only a reactivation function, or providing only a reactivation function and a mere indication of enabled reactivation function.

- Equipment in stand-by mode shall not consume more than 2.00 watts where it is providing only information or status display, or providing only a combination of reactivation function and information or status display.
- Equipment shall, except where this is inappropriate for the intended use, provide off mode and/or stand-by mode, and/or another condition which does not exceed the applicable power consumption requirements for off mode and/or stand-by mode when the equipment is connected to the mains power source.

From January 2013

- Equipment in off mode shall not consume more than 0.50 watt.
- Equipment in stand-by mode shall not consume more than 0.50 watt where it is providing only a reactivation function, or providing only a reactivation function and a mere indication of enabled reactivation function.
- Equipment in stand-by mode shall not consume more than 1.00 watt where it is providing only information or status display, or providing only a combination of reactivation function and information or status display.
- When equipment is not providing the main function, or when other energy-using product(s) are not dependent on its functions, equipment shall, unless inappropriate for the intended use, offer a power management function, or a similar function, that switches equipment after the shortest possible period of time appropriate for the intended use of the equipment, automatically into: stand-by mode, or off mode, or another condition which does not exceed the applicable power consumption requirements for off mode and/or stand-by mode when the equipment is connected to the mains power source. The power management function shall be activated before delivery.

Measurements

The power consumption shall be established by a reliable, accurate and reproducible measurement procedure, which takes into account the generally recognised state of the art.

Measurements of power of 0.50 W or greater shall be made with an uncertainty of less than or equal to 2 % at the 95 % confidence level.

Measurements of power of less than 0.50 W shall be made with an uncertainty of less than or equal to 0.01 W at the 95% confidence level.

Information to be provided by Manufacturers

For the purposes of conformity assessment technical documentation must be available for enforcement authorities and shall contain the following elements

- (a) for each stand-by and/or off mode:
 — the power consumption data in Watts rounded to the second decimal place,

- the measurement method used,
- description of how the appliance mode was selected or programmed,
- sequence of events to reach the mode where the equipment automatically changes modes,
- any notes regarding the operation of the equipment;

(b) test parameters for measurements:

- ambient temperature,
- test voltage in V and frequency in Hz,
- total harmonic distortion of the electricity supply system,
- information and documentation on the instrumentation, set-up and circuits used for electrical testing;

(c) the characteristics of equipment relevant for assessing conformity with the requirements set out in point 1(c) of the Regulation, or the requirements set out in points 2(c) and/or 2(d), of the Regulation as applicable, including the time taken to automatically reach stand-by, or off mode, or another condition which does not exceed the applicable power consumption requirements for off mode and/or stand-by mode.

In particular, if applicable, the technical justification shall be provided that the requirements set out in point 1(c), or the requirements set out in points 2(c) and/or 2(d), are inappropriate for the intended use of equipment.

Verification procedure

When performing market surveillance Member States authorities shall apply the following verification procedure

For power consumption requirements larger than 1.00 W, Member State authorities shall test one single unit. The model shall be considered to comply with the relevant requirements if the results for off-mode and stand-by mode conditions, as applicable, do not exceed the limit values by more than 10 %.

Otherwise, three more units shall be tested. The model shall be considered to comply with the relevant requirements if the average of the results of the latter three tests for off-mode and/or stand-by mode conditions, as applicable, does not exceed the limit values by more than 10%.

For power consumption requirements smaller than, or equal to, 1.00 W, Member State authorities shall test one single unit.

The model shall be considered to comply with the relevant requirements if the results for off-mode and/or stand-by mode conditions, as applicable, do not exceed the limit values by more than 0.10 W.

Otherwise, three more units shall be tested. The model shall be considered to comply with the relevant requirements if the average of the results of the latter three tests for off-mode and/or stand-by mode conditions, as applicable, does not exceed the limit values by more than 0.10 W.

Otherwise, the model shall be considered not to comply.

Legal text

The full text of the Regulation can be downloaded from the Official Journal:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2008:339:0045:0052:EN:PDF>

Appendix A

1. Household appliances

Washing machines

Clothes dryers

Dish washing machines

Cooking:

Electric ovens

Electric hot plates

Microwave ovens

Toasters

Fryers

Grinders, coffee machines and equipment for opening or sealing containers or packages

Electric knives

Other appliances for cooking and other processing of food, cleaning, and maintenance of clothes

Appliances for hair cutting, hair drying, tooth brushing, shaving, massage and other body care appliances

Scales

2. Information technology equipment intended primarily for use in the domestic environment

3. Consumer equipment

Radio sets

Television sets

Videocameras

Video recorders

Hi-fi recorders

Audio amplifiers

Home theatre systems

Musical instruments

And other equipment for the purpose of recording or reproducing sound or images, including signals or other technologies for the distribution of sound and image other than by telecommunications

4. Toys, leisure and sports equipment

Electric trains or car racing sets

Hand-held video game consoles

Sports equipment with electric or electronic components

Other toys, leisure and sport equipment

Annex 2

Commission Regulation (EC) No 107/2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for simple set-top boxes

Scope

This regulation applies to Simple set-top boxes (SSTB). A SSTB is a stand-alone device which, irrespectively of the interfaces used,

(a) has the primary function of converting standard-definition (SD) or high-definition (HD), free-to-air digital broadcast signals to analogue broadcast signals suitable for analogue television or radio;

(b) has no 'conditional access' (CA) function

(c) offers no recording function based on removable media in a standard library format.

A SSTB can be equipped with the following additional functions and/or components which do not constitute a minimum specification of an SSTB:

- (a) time-shift and recording functions using an integrated hard disk;
- (b) conversion of HD broadcast signal reception to HD or SD video output;
- (c) second tuner.

Ecodesign requirements

SSTBs placed on the market on or after the dates set out below shall not exceed the power consumption levels indicated.

Ecodesign Requirement	<i>From 24 February 2010</i>	<i>From 24 February 2012</i>
Stand-by mode	1.00 watt	0.50 watt
Stand-by mode with a display function	2.00 watt	1.00 watt
Stand-by mode if Hard Disk present	n/a	0.50 watt
Stand-by mode if second tuner present	n/a	0.50 watt
Active mode	5.00 watt	5.00 watt
Active mode if decoding High Definition signals	8.00 watt	6.00 watt
Active mode if Hard Disk present	n/a	11.00 Watt
Active mode if second tuner present	n/a	6.00 watt

In addition from 24 February 2010 all SSTB must possess a stand-by mode and be equipped with an 'automatic power down' or similar function.

The automatic power down function should be set as default and automatically switch the SSTB from active mode into stand-by after less than three hours in active mode following the last user interaction and/or a channel change with an alert message two minutes before going into stand-by mode:

From 24 February 2010 manufacturers must also ensure that consumers of SSTBs are provided with the power consumption in Watts rounded to the first decimal place of stand-by and active modes of the SSTB

Relationship with the horizontal measure on “stand-by” and “off mode” (Regulation (EC) No 1275/2008)

The requirements laid down in this Regulation shall prevail over the requirements laid down in Regulation (EC) No 1275/2008.

Measurements

The power consumption referred to above must be established by a reliable, accurate and reproducible measurement procedure, which takes into account the generally recognised state of the art. Measurements of power of 0,50 W or greater shall be made with an uncertainty of less than or equal to 2% at the 95% confidence level. Measurements of power of less than 0,50 W shall be made with an uncertainty of less than or equal to 0.01 W at the 95% confidence level.

Information to be provided by the manufacturers for the purposes of conformity assessment

For the purposes of conformity assessment, technical documentation must be available for enforcement authorities and shall contain the following elements:

(a) *For stand-by and active modes*

The power consumption data in Watts rounded to the second decimal place including consumption data for the different additional functions and/or components

- The measurement method used
- Period of measurement
- Description of how the appliance mode was selected or programmed
- Sequence of events to reach the mode where the equipment automatically changes modes
- Any notes regarding the operation of the equipment

(b) *Test parameters for measurements*

- Ambient temperature
- Test voltage in V and frequency in Hz
- Total harmonic distortion of the electricity supply system
- The fluctuation of the power supply voltage during the tests
- Information and documentation on the instrumentation, set-up and circuits used for electrical testing
- Input signals in RF (for digital terrestrial broadcasts) or IF (for satellite broadcasts)
- Audio/video test signals as described in the MPEG-2 transport stream

- Adjustment of controls

The power requirements of peripheral devices powered by the STB for broadcast reception, such as active terrestrial antenna, satellite LNB or any cable or telecom modem are not required to be included in the technical documentation.

Verification procedure

When performing the market surveillance checks Member State authorities shall apply the following verification procedure:

For power consumption larger than 1,00 W:

Member State authorities shall test one single unit. The model shall be considered to comply with the relevant provisions of this regulation if the results for active and stand-by mode conditions, as applicable, do not exceed the limit values by more than 10%.

Otherwise, three more units shall be tested. The model shall be considered to comply with this Regulation if the average of the results of the latter three tests for active and stand-by mode conditions, as applicable, does not exceed the limit values by more than 10 %.

For power consumption smaller than, or equal to, 1,00 W

Member State authorities shall test one single unit. The model shall be considered to comply with the relevant provisions of this Regulation if the results for active and/or stand-by mode conditions, as applicable, do not exceed the limit values by more than 0,10 W.

Otherwise, three more units shall be tested. The model shall be considered to comply with this Regulation if the average of the results of the latter three tests for active and/or stand-by conditions, as applicable, does not exceed the limit values by more than 0.10 W.

Otherwise, the model shall be considered not to comply.

Legal text

The full text of the Regulation can be downloaded from the Official Journal:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:036:0008:0014:EN:PDF>

Annex 3

Commission Regulation (EC) No 278/2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for External Power Supply Units - 6 April 2009

Scope

No-load condition and average active efficiency of External Power Supply Units (EPSU).

An "external power supply" is a device which meets all of the following criteria:

- (a) it is designed to convert alternating current (AC) power input from the mains power source input into lower voltage direct current (DC) or AC output;
- (b) it is able to convert to only one DC or AC output voltage at a time;
- (c) it is intended to be used with a separate device that constitutes the primary load;
- (d) it is contained in a physical enclosure separate from the device that constitutes the primary load;
- (e) it is connected to the device that constitutes the primary load via a removable or hard-wired male/female electrical connection, cable, cord or other wiring;
- (f) it has nameplate output power not exceeding 250 Watts,
- (g) it is intended for use with electrical and electronic household and office equipment as referred to in Article 2 (1) of Regulation (EC) No 1275/2008

The regulation does not apply to:

- (a) voltage convertors,
- (b) un-interruptible power supplies,
- (c) battery chargers,
- (d) halogen lighting convertors,
- (e) external power supplies for medical devices,
- (f) external power supplies placed on the market no later than 30 June 2015 as a service part or spare part for an identical external power supply which was placed on the market not later than one year after this Regulation has come into force [27 April 2010], under the condition that the service part or spare part, or its packaging, clearly indicates the primary load product(s) for which the spare part or service part is intended to be used with.

Ecodesign requirements

For EPSU placed on the market on or after 27 April 2010:

The no-load condition power consumption shall not exceed 0.50 Watt.

The average active efficiency shall be not less than:
 $0.500 \times PO$ (nameplate output power of the EPSU) - for EPSU with nameplate output power of less than 1.0 Watt;

$0.090 \times \ln(PO) + 0.500$ - for EPSU with nameplate output power between 1.0 Watt and 51.0 Watts;

0.850 - for EPSU with nameplate output power of more than 51.0 Watts

For EPSU placed on the market on or after 27 April 2011:

The no-load condition power consumption shall not exceed the following limits:

	AC-AC external power supplies, except low voltage external power supplies	AC-DC external power supplies except low voltage external power supplies	Low voltage external power supplies
$PO \leq 51.0$ Watts	0.50 Watt	0.30 Watt	0.30 Watt
$PO > 51.0$ Watts	0.50 Watt	0.50 Watt	n/a

The average active efficiency shall be not less than the following limits:

	AC-AC and AC-DC external power supplies, except low voltage external power supplies	Low voltage external power Supplies
$PO \leq 1.0$ Watt	$0.480 \cdot PO + 0.140$	$0.497 \cdot PO + 0.067$
$1.0 \text{ Watt} < PO \leq 51.0$ Watts	$0.063 \cdot \ln(PO) + 0.622$	$0.075 \cdot \ln(PO) + 0.561$
$PO > 51.0$ Watts	0.870	0.860

Measurements

No-load power consumption and the average active efficiency shall be established by a reliable, accurate and reproducible measurement procedure, which takes into account the generally recognised state of the art.

Measurements of power of 0.50 Watt or greater shall be made with an uncertainty of less than or equal to 2% at the 95% confidence level. Measurements of power of less than 0.50 Watt shall be made with an uncertainty of less than or equal to 0.01 Watt at the 95% confidence level.

Information to be provided by manufacturers

For the purposes of conformity assessment technical documentation must be available for enforcement authorities and shall contain the following elements:

Reported Quantity	Description
Root mean square (Rms) Output	

Current (mA) Rms Output Voltage (V) Active Output Power (W)	Measured at Load Conditions 1 – 4
Rms Input Voltage (V) Rms Input Power (W) Total Harmonic Distortion (THD) True Power Factor	Measured at Load Conditions 1 – 5
Power Consumed (W)	Calculated at Load Condition 1 – 4, Measured at Load Condition 5
Efficiency	Calculated at Load Conditions 1 – 4
Average Efficiency	Arithmetic Average of Efficiency at Load Conditions 1 – 4

The relevant load conditions are as follows:

Percentage of Nameplate Output Current	
Load Condition 1	100 % ± 2%
Load Condition 2	75% ± 2%
Load Condition 3	50% ± 2%
Load Condition 4	25% ± 2%
Load Condition 5	0% (no-load condition)

Verification procedure

When performing market surveillance checks Member State authorities shall apply the following verification procedure:

Member State authorities shall test one single unit. The model shall be considered to comply with the relevant provisions of this regulation if :

- (a) the result for no-load condition does not exceed the applicable limit value by more than 0.10 Watt, and
- (b) the arithmetic average of efficiency at load conditions 1-4 does not fall below the applicable limit value for average active efficiency by more than 5%.

If the results referred to above are not achieved, three additional units of the same model shall be tested. After these tests the model shall be considered to comply with the requirements if:

- (a) the average of the results for no-load condition does not exceed the applicable limit value by more than 0.10 Watt, and
- (b) the average of the arithmetic averages of efficiency at load conditions 1-4 does not fall below the applicable limit value for average active efficiency by more than 5%.

If the results referred to above are not achieved, the model shall be considered not to comply with the requirements.

Legal text

The full text of the Regulation can be downloaded from the Official Journal:

[http://eur-](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:093:0003:0010:EN:PDF)

[lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:093:0003:0010:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:093:0003:0010:EN:PDF)

Annex 4

Commission Regulation (EC) No 244/2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for non-directional household lamps

Readers may wish to note the informal guidance on the Implementing Measure contained in [Commission Memorandum](#) 09/113 (18/03/2009).

Scope

This regulation applies to all non-directional lamps sold for household use. It does not apply to directional lamps (as defined Article 2) or lamps excluded from the scope in Article 1.

Lamps that are not intended for household room illumination and which are sold as 'special purpose' are also excluded, so long as the product information makes this clear by 1 September 2009 or if the lamp is special purpose due to its technical parameters. This is interpreted by the Government and the Commission as allowing replacement lamps for domestic appliances (etc.) to remain on the market but not for these lamps to be marketed as lamps for general lighting.

Ecodesign requirements

The requirements are broken into three distinct categories:

1. Minimum efficacy standards for lamps placed on the market
2. Functionality requirements
3. Product information requirements

Taken together with the stages outlined in Article 3 of the Regulation, Tables 1 and 2 set out the timetable for which the minimum efficacy standards will apply. The efficacies (expressed as the maximum rated power P_{max} for a given rated luminous flux Φ) are similar to the classes set out under the existing EU Energy Label for lamps as set out in 98/11/EC (under the Energy Labelling Framework Directive 92/75/EC). This means that, as a general guide, the eco-design requirements can be put as:

Stage	Date	Main result
Stage 1	1 September 2009	Clear lamps equivalent to 100W incandescent lamps, or above, must be minimum C class. Non-clear (frosted/pearl) lamps must be minimum A-class.

		Introduction of functionality requirements on lamps.
Stage 2	1 September 2010	Phase-out of 75 W clear incandescent lamps. Introduction of information requirements.
Stage 3	1 September 2011	Phase-out of 60 W clear incandescent lamps.
Stage 4	1 September 2012	Phase out of all remaining clear incandescent lamps (i.e. 40W and 25W).
Stage 5	1 September 2013	Enhanced functionality requirements.
Stage 6	1 September 2016	Raising the minimum level to B class for clear retrofit lamps (i.e. phasing out C-class retrofit halogen lamps).

The minimum standard for lamps of type R7 and G9 cap will remain at 'C'-class after Stage 6 (1 September 2016).

Table 3 outlines 'correction factors' for the listed lamp types, which allows them to claim adjusted efficacies in order to meet the minimum standards.

Functionality requirements

Functionality requirements on CFLs are set out in table 4 of the regulations (Annex IV). These cover aspects such as lamp lifetime, start-time, warm-up time, UV radiation, power factor, colour rendering, lamp survival factor and lumen maintenance. Table 5 (Annex IV) sets requirements on all lamp types other than CFLs or LED lamps¹, which as defined in Article 2, includes lamps containing one or more LEDs with integrated power supply, or other components that cannot be removed. Functionality requirements come into force in Stage 1, 1 September 2011, and further requirements supersede these from Stage 5, 1st September 2013.

These requirements should be tested in line with the test standards outlined in Annex III, except for those relating to 'switching cycles before failure' where a different test is prescribed, though under the same conditions as the appropriate test standard. For the purposes of testing lamp lifetime, lamp survival factor, lumen maintenance and premature failure, the standard switching cycle according to Annex III shall be used.

Product information requirements

¹ NB the European Commission has recently proposed an amending Regulation to modify Table 5 to remove the UV emissions limits from 244/2009 and leaving these requirements to the Low Voltage Directive and the General Product Safety Directive. This is currently (summer 2009) under the scrutiny of the European Parliament and Council and is expected to come into force in autumn 2009.

This requirement relates to i) information that must be 'visibly displayed prior to purchase to end users on the packaging' and ii) on free-access websites. Note that lamps that would not meet the efficacy requirements after Stage 4 are not required to conform to this requirement at any stage, since after Stage 4 (1 September 2012) these lamps will not be allowed to be placed on the market.

The product information requirements are carefully non-prescriptive and allows for manufacturers to develop the means to communicate this information, noting that lamps are often produced for more than one market. Information is required to be provided on lamps as of Stage 2, i.e. 1 September 2010.

Manufacturers must ensure that a free-access website is available to consumers without charge. This information is set out in Section 3.2 of Annex IV and includes for example the rated Wattage, rated luminous flux, power factor and colour rendering. Furthermore, for lamps containing mercury, information must be given on disposal and instructions on how to deal with broken lamps.

Manufacturers placing products below A-class (after any correction factors are applied) will not be able to label or market these products as 'energy saving lamp' or similar.

Measurement

The eco-design standards outlined in Annex 2 shall be established by a reliable, accurate and reproducible measurement procedure, which takes into account the generally recognised state of the art.

Information to be provided by manufacturers

For the purposes of conformity assessment technical documentation must be available for enforcement authorities and should contain the elements that are required to be made available to consumers, as outlined in Annex II, part 3 of the measure.

Verification procedure

When performing market surveillance checks Member State authorities shall apply the following verification procedure:

Member State authorities shall test a sample batch of minimum 20 lamps of the same model from the same manufacturer randomly selected.

The batch shall be considered to comply with the provisions as set out in Annex II applicable of the Regulation if the average results of the test batch do not vary from the limit, threshold or declared values by more than 10%. Otherwise the model will be considered not to comply.

Member States' authorities shall use accurate and reliable state-of-the-art measurement methods which deliver reproducible results, including, where available harmonised standards the reference numbers of which have been published for that purpose in the Official Journal of the European Union; or, otherwise, the standards which are listed in Annex III of the measure.

Legal text

The full text of the Regulation can be downloaded from the Official Journal:

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:076:0003:0016:EN:PDF>

Annex 5

Commission Regulation (EC) No 245/2009 implementing Directive 2005/32/EC of the European Parliament and of the Council with regard to ecodesign requirements for fluorescent lamps without integrated ballast, high intensity discharge lamps, and for ballasts and luminaires able to operate lamps, and repealing Directive 2000/55/EC.

Scope

This regulation applies to fluorescent lamps without integrated ballast, high-intensity discharge lamps (HIDs) and to ballasts and luminaires able to operate such lamps, even if integrated into other energy-using products. Definitions for these terms are provided in Article 3.

The Regulation does not apply to non-white light sources (excepting high-pressure Sodium lamps, which are included within the scope), directional lamps, and a number of lamps produced for generally-accepted specialist applications, the technical parameters for which are defined in Annex I of the measure. This is interpreted by the Government and the Commission as allowing replacement products for specialist purposes (e.g. medical purposes) to remain on the market but not for these lamps to be marketed as lamps for non-specialist purposes.

It must be noted that the requirements are subject to products placed on the market, irrespective of their use and application.

Note that this regulation repeals the requirements set out in Directive 2000/55/EC.

Ecodesign requirements

The requirements are set out in Annex III and are broken into three parts:

- Part 1 – lamps – fluorescent lamps without integrated ballast and for high-intensity discharge lamps (efficacy requirements, performance (functionality) requirements, and product information).
- Part 2 – ballasts for fluorescent lamps without integrated ballast and ballasts for high-intensity discharge lamps
- Part 3 – requirements for luminaires for fluorescent lamps without integrated ballast and for luminaires for high intensity discharge lamps

Part 1 – lamps

Efficacy requirements:

From April 2010:

- The rated minimum efficacy standards apply to double-capped T8 and T5 lamps, dependent on the nominal wattage of the lamp, as listed in Table 1.

- The rated minimum efficiency standards apply to single-capped fluorescent lamps (non-integrated CFLs, depending on the nominal wattage of the lamp and on the lamp type, as listed in Tables 2-5

For both double- and single-capped lamps:

- i. The rated minimum efficacies shall be measured at 25°C, even if the lamp is not designed to operate at optimum output at 25°C.
- ii. When the nominal wattage of the lamp are different to those listed in the tables 1-5 as appropriate, the lamp must reach the efficacy of the nearest equivalent wattage. This also applies to the shape of the lamp if there is a variation from those depicted
- iii. Corrections factors are given for both double and single capped lamps for those products that meet the technical parameters given in Table 6.

From April 2012:

- Double-capped fluorescent lamps of all types will be subject to the same requirements applied to T8 lamps in April 2010, i.e. those lamps not T8 lamps must meet the requirements for T8 lamps listed in Table 1 (column A). Again, if the nominal wattage of the lamp is different to those listed in Table 1 (column A) then the lamp must conform to the minimum rated efficacy of the nearest equivalent wattage. The correction factors applied in table 6 continue to apply, as appropriate.
- High Pressure Sodium lamps of $R_a \leq 60$ shall have at least the rated efficacies outlined in Table 7. However where these lamps are designed to operate on control gear for High Pressure Mercury lamps, this requirement does not apply until April 2015. Where these lamps are of $T \geq 5,000K$ or equipped with a second lamp envelope, lamps shall achieve 90% of the efficacy requirements in Tables 7, 8 and 9.
- Metal Halide Lamps will $R_a \leq 80$ and High Pressure Sodium lamps with $R_a > 60$ shall have at least the rated efficacies outlined in Table 8. Where these lamps are of $T \geq 5,000K$ or equipped with a second lamp envelope, lamps shall achieve 90% of the efficacy requirements in Tables 7, 8 and 9.

From April 2015:

- High Intensity Discharge Lamps other than High Pressure Sodium lamps and Metal Halide Lamps shall have at least the efficacies listed in Table 9. Where

these lamps are of $T \geq 5,000\text{K}$ or equipped with a second lamp envelope, lamps shall achieve 90% of the efficacy requirements in Tables 7, 8 and 9.

- High Pressure Sodium lamps of $R_a \leq 60$ shall have at least the rated efficacies outlined in Table 7. Where these lamps are of $T \geq 5,000\text{K}$ or equipped with a second lamp envelope, lamps shall achieve 90% of the efficacy requirements in Tables 7, 8 and 9.

From April 2017:

- Fluorescent lamps without integrated ballast shall be designed to operate with ballasts of energy efficiency class A2 (as outlined in the ballast requirements below).
- Metal Halide Lamps shall have at least the rated efficacies of that listed in Table 10. Where these lamps are of $T \geq 5,000\text{K}$ or equipped with a second lamp envelope, lamps shall achieve 90% of the efficacy requirements in Tables 7, 8 and 9.

Performance requirements

From April 2010:

- T8 fluorescent lamps without integrated ballast shall have a colour rendering index $R_a \geq 80$.

From April 2012:

- All fluorescent lamps without integrated ballast shall have a colour rendering index $R_a \geq 80$.
- All fluorescent lamps without integrated ballast shall have a lamp lumen maintenance factor of at least those given in Table 11 as appropriate for the different lamp types listed.
- All fluorescent lamps without integrated ballast shall have a lamp survival factor of at least those given in Table 12 as appropriate for the different lamp types listed.
- High Pressure Sodium lamps shall have at least the lamp survival factors and lamp lumen maintenance factors listed Table 13.

From April 2017:

- Metal halide Lamps shall have at least the lamp survival factors and lamp lumen maintenance factors listed Table 14.

Product information requirements

From April 2010:

- Manufacturers must make available the information listed in para 1.3 (a-j) of Annex III on free access websites for each fluorescent lamp without integrated ballast or High Intensity Discharge lamp placed on the market. This information must also be made available in the technical documentation file (see conformity assessment, below).

Part 2 - ballasts

Performance requirements

From April 2010:

- Non-dimmable ballasts for fluorescent lamps shall meet at least the standards as defined in Tables 17 or 18 of Annex III, depending on the ballast type.
- Dimmable ballasts for fluorescent lamps shall meet at least the efficacy requirements set out in Table 19 of Annex III. At the dimming position corresponding to 25% of the lumen output of the operated lamp, the input power (P_{in}) of the lamp-ballast circuit shall not exceed

$$P_{in} < 50\% * (P_{Lrated} + \eta_{ballast})$$

Where P_{Lrated} is the rated lamp power and $\eta_{ballast}$ is the minimum energy efficiency limit of the respective EEI class.

- The power consumption of fluorescent lamp ballasts shall not exceed 1.0 W when operated lamps do not emit any light in normal operating conditions and when other possible connected components (network connections, sensors etc.) are disconnected. If they cannot be disconnected, their power shall be measured and deducted from the result.

From April 2012:

- Dimmable ballasts for High Intensity Discharge lamps shall meet the efficacy requirements set out in Table 15 of Annex III.

- The power consumption of ballasts used with fluorescent lamps without integrated ballast shall not exceed 0,5 W when operated lamps do not emit any light in normal operating conditions. This requirement shall apply to ballasts when other possible connected components (network connections, sensors etc.) are disconnected. If they cannot be disconnected, their power shall be measured and deducted from the result.

From April 2017:

- Ballasts for fluorescent lamps without integrated ballast shall have the efficiency:

$$\eta_{\text{ballast}} \geq \text{EBbFL}$$

where EBbFL is defined in Annex II.3.g

- Ballasts for high intensity discharge lamps shall have the efficiency described in Table 16 of Annex III.

Product information requirements

From April 2010:

Manufacturers of ballasts shall provide at least the following information on free-access websites and in other forms they deem appropriate for each of their ballast models. That information shall also be affixed in a distinct and durable form to the ballast. It shall also be contained in the technical documentation file drawn up for the purposes of conformity assessment pursuant to Article 8 of Directive 2005/32/EC:

- For ballasts for fluorescent lamps, an energy efficiency index (EEI) class shall be provided, as defined in the measure and as referred to in Table 17.
- For non-dimmable ballasts not included in table 17 an EEI shall be assigned as depending on their efficiency as described in Table 18:
- Dimmable fluorescent lamp ballasts receive EEI classes according to the class into which the ballast would fall when it is operated at the 100% lumen output, as described in Table 19.
- Multi-wattage ballasts shall either be classified according to their efficiency under the lowest (worst) efficiency, or a relevant class shall be indicated for each operated lamp.

From April 2012:

- Ballasts for high intensity discharge lamps, the efficiency of the ballast as defined in Annex II.1.d shall be indicated.

Part 3 – luminaires

Performance requirements

From April 2010:

- The power consumption of luminaires for fluorescent lamps without integrated ballast shall not exceed the sum of the power consumption of the incorporated ballasts when the lamps they are normally operating do not emit any light when other possible connected components (network connections, sensors etc.) are disconnected. If they cannot be disconnected, their power shall be measured and deducted from the result.

From April 2012:

- Luminaires for fluorescent lamps without integrated ballast and for high intensity discharge lamps shall be compatible with ballasts complying with the third stage requirements, except luminaires with ingress protection grade at least IP4X.
- The power consumption of luminaires for high intensity discharge lamps shall not exceed the sum of the power consumption of the incorporated ballasts when the lamps they are normally operating do not emit any light when other possible connected components (network connections, sensors etc.) are disconnected. If they cannot be disconnected, their power shall be measured and deducted from the result.

From April 2017:

- All luminaires for fluorescent lamps without integrated ballast and for High Intensity Discharge Lamps shall be compatible with ballasts complying with the third stage requirements.

Product information requirements

From October 2010

- Manufacturers of luminaires for fluorescent lamps without integrated ballast with total lamp lumen above 2, 000 lumen shall provide at least the following information on free-access websites and in other forms they deem appropriate for each of their luminaire models. That information shall also be contained in the technical documentation file drawn up for the purposes of conformity assessment pursuant to Article 8 of Directive 2005/32/EC:
 - (a) if the luminaire is placed on the market together with the ballast, information on the efficiency of the ballast according to Annex III.2.2, in accordance with the ballast manufacturer's data;

(b) if the luminaire is placed on the market together with the lamp, lamp efficacy (lm/W) of the lamp, in accordance with the lamp manufacturer's data;

(c) if the ballast or the lamp are not placed on the market together with the luminaire, references used in manufacturers' catalogues must be provided on the types of lamps or ballasts compatible with the luminaire (e.g. ILCOS code for the lamps);

(d) maintenance instructions to ensure that the luminaire maintains, as far as possible, its original quality throughout its lifetime;

(e) disassembly instructions.

From April 2012

- The information provision requirements of the first stage (i.e. from October 2010) shall also apply to luminaires for high intensity discharge lamps with total lamp lumen above 2,000 lumen.
- All luminaires for high intensity discharge lamps shall indicate that they are designed for either clear and/or coated lamps within the meaning of Annex II.

Measurement

The eco-design standards outlined in Annex III shall be established by a reliable, accurate and reproducible measurement procedure, which takes into account the generally recognised as state-of-the-art.

Information to be provided by manufacturers

For the purposes of conformity assessment technical documentation must be available for enforcement authorities and should contain the elements that are required to be made available to consumers, as outlined in Annex III parts 1.3, 2.2 and 3.2 of the measure.

Verification procedure

When performing market surveillance checks for lamps Member State authorities shall apply the following verification procedure:

Member State authorities shall test a sample batch of minimum 20 lamps of the same model from the same manufacturer, randomly selected.

The batch shall be considered to comply with the provisions as set out in Annex III, part 1 as applicable of the Regulation if the average results of the test batch do not vary from the limit, threshold or declared values by more than 10%. Otherwise the model will be considered not to comply.

When performing market surveillance checks for ballasts Member State authorities shall test one single unit. The model shall be considered to comply with the

provisions as set out in Annex III parts 2 and 3 as applicable if they do not exceed the limit values. Otherwise three more units shall be tested. The model shall be considered to comply with this Regulation if the average results of the latter three tests does not exceed the limit values.

Legal text

The full text of the Regulation can be downloaded from the Official Journal:

[http://eur-](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:076:0017:0044:EN:PDF)

[lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:076:0017:0044:EN:PDF](http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:076:0017:0044:EN:PDF)