

## **Annex II**

### **Working document on implementing measures for ecodesign requirements for televisions**

#### **Subject matter and scope**

1. This Directive/Regulation/Decision shall apply to televisions.
2. This Directive/Regulation/Decision shall not apply to computer monitors.

#### **Definitions**

The following definitions shall apply:

1. "television" means a television set or a television monitor.
2. "television set" means a product designed primarily for the display and reception of audiovisual signals consisting of

- a display,
- one or more tuner(s)/receiver(s) either in a single housing together with the display, or in a separate housing,
- possible additional components for data storage and/or display such as DVD or VCR player, or HDD,

marketed and sold under one model or system designation.

3. "television monitor" means a product designed to display a video signal from an external source device which is linked to the product through a standardised signal path, but cannot receive and process broadcast signals;
4. "computer monitor" means a product accepting only a signal from the central processing unit of an automatic data processing machine;
5. "on mode" means the condition where the television is connected to the mains power source and produces sound and picture;
6. "forced menu" means a set of television settings such as contrast or brightness pre-defined by the manufacturer, out of which the user of the television must select a particular setting upon initial start up of the television;
7. "home mode" means the television setting which is recommended by the manufacturer for normal home use;
8. "full HD resolution" means a screen resolution with physical pixel count of at least 1920 x 1080 pixels.

## **The technical documentation**

The technical documentation shall include

- the name and address of the supplier,
- a general description of the television, sufficient for it to be identified,
- information, including drawings as relevant, on the main design features of the model and in particular items which appreciably affect its energy consumption, including the visible screen diagonal and the screen area;
- reports of measurement tests carried out under the applicable standards for relevant on mode settings pre-defined by the manufacturer, in particular the on-mode power consumption of the television as delivered ("out of the box") by the manufacturer, and, if applicable, of further pre-defined settings, as e.g. "shop mode, "home mode/standard mode" etc.
- operating instructions, if any.

## **Labelling scheme**

1. The label referred to in Article 2(1) of Directive 92/75/EEC shall be as specified in Annex XY to this Directive. The label shall be placed on, or attached to, the front part of the television. Nothing else placed on, or attached to, the television shall obscure it or reduce its visibility.

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

3. Where televisions are offered for sale, hire, or hire purchase by way of a printed or written communication or by other means whereby the potential customer cannot be expected to see the television displayed printed or written communication, such as a written offer, a mail order catalogue, advertisements on the internet or other electronic media, that communication shall include the information specified in Annex XY

## **Ecodesign requirements**

On mode power consumption

1. Television placed on the market one year after entry into force of the Regulation/Decision through 31 December 2012

1.1 Televisions with full HD resolution

The on mode power consumption of a television with visible screen area A (expressed in dm<sup>2</sup>) shall not exceed

$$0.8 \cdot (P_{\text{basic}} + A \cdot 1.4 \cdot 4.3224 \text{ W/dm}^2)$$

1.2 Television with all other resolutions

The on mode power consumption of a television with visible screen area A expressed in dm<sup>2</sup> shall not exceed

$$P_{\text{basic}} + A \cdot 4.3224 \text{ W/dm}^2,$$

where

$$P_{\text{basic}} = 20 \text{ W for television sets,}$$
$$P_{\text{basic}} = 5 \text{ W for television monitors.}$$

## 2. Televisions placed on the market from 1 January 2013

The on mode power consumption of a television with visible screen area A (expressed in dm<sup>2</sup>) shall not exceed

$$0.8 \cdot (P_{\text{basic}} + A \cdot 4.3224 \text{ W/dm}^2)$$

where  $P_{\text{basic}}$  has been defined in the previous point.

## 2. Televisions delivered with a forced menu

One year after entry into force of this Regulation/Decision, for televisions delivered with a forced menu the forced menu shall provide "home mode", which shall be the default choice. If the user selects a mode other than "home mode" on initial activation of the television, a second selection process shall be prompted to confirm this choice.

### **Benchmarks**

On mode power consumption

The power consumption of the best performing televisions can be approximated by

$$0.41 \cdot (20 \text{ W} + A [\text{dm}^2] \cdot 4.3224 \text{ W/dm}^2)$$

### **Revision of ecodesign requirements**

No later than 4 years after entry into force the ecodesign requirements shall be reviewed.

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

Surveillance checks shall be carried out in accordance with the verification procedure set out in Annex XY.

## **ANNEX XXX** **Energy efficiency ranking**

The energy efficiency ranking shall be determined in accordance with table 1.

**Table 1**

Energy Efficiency Index EEI	Energy efficiency ranking
EEI < 0.26	10
0.26 • EEI < 0.33	9
0.33 • EEI < 0.41	8
0.41 • EEI < 0.51	7
0.51 • EEI < 0.64	6
0.64 • EEI < 0.80	5
0.80 • EEI < 1.00	4
1.00 • EEI < 1.20	3
1.20 • EEI < 1.44	2
1.44 • EEI	1

The energy efficiency index shall be calculated as specified in Annex XY.

**ANNEX XXX**

**The Label**

**1. Layout and timing**

a) Stage I

Televisions placed on the market through 31 December 2012

The energy efficiency class is determined in accordance with the following table:

Energy efficiency ranking	Energy efficiency class
10	--
9	--
8	--
7	A
6	B
5	C
4	D
3	E
2	F
1	G

The label shall be in accordance with the following illustration

See separate illustration below

Televisions placed on the market after 1 July 2012 may, alternatively, carry a label in accordance with point b).

b) Stage II

Televisions placed on the market from 1 January 2013 through 31 December 2014

The energy efficiency class is determined in accordance with the following table:

<b>Energy efficiency ranking</b>	<b>Energy efficiency class</b>
10	--
9	--
8	A
7	B
6	C
5	D
4	E
3	F
2	G
1	--

The label shall be in accordance with the following illustration:

See separate illustration, A-G scale to be shifted one energy efficiency ranking up

Televisions placed on the market after 1 July 2014 may, alternatively, carry a label in accordance with point c).

c) Stage III

Televisions placed on the market from 1 January 2015 through 31 December 2016

The energy efficiency class is determined in accordance with the following table:

<b>Energy efficiency ranking</b>	<b>Energy efficiency class</b>
10	--
9	A
8	B
7	C
6	D
5	E
4	F
3	G
2	--
1	--

The label shall be in accordance with the following illustration:

See separate illustration, A-G scale to be shifted two energy efficiency rankings up.

Televisions placed on the market after 1 July 2016 may, alternatively, carry a label in accordance with the provisions of point d).

d) Stage IV

Televisions placed on the market from 1 January 2017

The energy efficiency class is determined in accordance with the following table:

<b>Energy efficiency ranking</b>	<b>Energy efficiency class</b>
10	A
9	B
8	C
7	D
6	E
5	F
4	G
3	--
2	--
1	--

The label shall be in accordance with the following illustration:

See separate illustration, A-G scale to be shifted three energy efficiency rankings up

**2. Notes on label**

The information shall be included on the label:

I. Supplier's name or trade mark.

II. Suppliers model identifier.

III. The energy efficiency class of the television. The head of the arrow containing the energy efficiency class shall be placed at the same level as the head of the relevant energy efficiency ranking.

IV. Without prejudice to any requirements under the Community eco-label scheme, where a model has been granted a 'European Union eco-label' under Regulation (EC) No 1980/2000 of the European Parliament and of the Council of 17 July 2000 on a revised Community eco-label award scheme, a copy of the eco-label may be added here.

V. On mode power consumption in Watt, rounded to the first integer.

VI. Annual on mode energy consumption calculated as described in Annex XY, Part 2, in kWh per year, rounded to the first integer.

VII. Visible screen diagonal in inch and in centimetres.

VIII. The number (in Roman) of the applicable stage.

#### **4. Printing**

The following defines certain aspects of the label:

The background colour of the energy efficiency class indicator is black. All text is in black. The background is white.

For all screen sizes the label shall not be smaller than 12 cm (height) x 6 cm (width).

TBD: further specifications of colours, size of arrows ... to be added according to the final layout of the label

### **ANNEX XXX** **The Fiche**

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

1. Supplier's name or trade mark.
2. Supplier's model identifier.
3. The energy efficiency class.
4. Where the information is provided in a table, and where some of the appliances listed in the table have been granted a 'Community Eco-label award' under Regulation (EEC) No 880/92, this information may be included. In this case the row heading shall state 'Community Eco-label award', and the entry shall consist of a copy of the Eco-award mark (the flower). This provision is without prejudice to any requirements under the Community Eco-label award scheme.
5. The visible screen diagonal in cm and in inch.
6. The on mode power consumption measured in accordance with the relevant harmonised standards.
7. Annual Energy Consumption as set out in Annex XY in kWh per year, rounded to the first integer; it shall be described as: 'Energy consumption XYZ kWh per year, based on the power consumption of the television, operating 4 hours per day on 365 days. The actual energy consumption will depend on how the appliance is used and where it is located.'
8. The standby and or off mode power consumption, established pursuant to Regulation ...

The information required also for the label may be provided in the form of a copy of the label, either in colour or in black and white.

**ANNEX XY**  
**Other communications**

Other printed communications shall contain the following information, given in the order specified:

1. The energy efficiency class
2. The on mode power consumption
3. The annual energy consumption
4. The visible screen size

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

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

## **ANNEX XY**

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

When performing the market surveillance checks, the authorities of the Member States shall apply the following verification procedure for the on mode power consumption ecodesign requirements/energy efficiency ranking/class.

1. Authorities of the Member State shall test one single unit.
2. The model shall be considered to comply with the provisions set out in Annex XY if the result for on-mode power consumption does not exceed the applicable provisions by more than 10 %.
3. If the result referred to in point 2 is not achieved, three additional units of the same model shall be tested.
4. After three additional units of the same model have been tested, the model shall be considered to comply with the applicable provisions if the average of the results for on-mode power consumption does not exceed the applicable provisions by more than 10 %.
5. If the result referred to in point 4 is not achieved, the model shall be considered not to comply with the applicable provisions.

## ANNEX XY

### Method for calculating the Energy Efficiency Index of televisions

1. The Energy Efficiency Index is calculated as

$$EEI = P/P_{\text{ref}}(A),$$

Where:

$$P_{\text{ref}}(A) = P_{\text{basic}} + A \cdot 4.3224 \text{ W/dm}^2;$$

$P_{\text{basic}} = 20 \text{ W}$  for television sets;

$P_{\text{basic}} = 5 \text{ W}$  for television monitors;

A is the screen area expressed in  $\text{dm}^2$

P is the measured on mode power consumption of the television in Watt rounded to one decimal place.

2. The annual on mode energy consumption in kWh is calculated as

$$E = 1.46 \cdot P$$

## Notes

The purpose of this working document is to present suggestions for the content of measures for energy labelling (Directive 92/75/EEC) and for ecodesign requirements, (Directive 2005/32/EC) for televisions.

### *Definitions*

The definition includes TV "sets" (display and tuner placed on the market together) and TV monitors (display only), while computer monitors are not included. The definition of computer monitor is based on the "combined nomenclature" (2006/C 332/05, OJ C 332 of 30.12.2006, p. 7).

### *Reference equation for the energy efficiency index*

Ecodesign requirements and energy efficiency ranking are developed on the basis of an energy efficiency index (ratio of measured power consumption and reference power consumption). The reference equation for the index contains a constant contribution (signal processing ...) and a contribution which is proportional to the screen area. The corresponding coefficients, 15 W and 4.3224 W/dm<sup>2</sup> respectively, are determined by a fit to the most recent available data set, which has been provided, as a complement to the preparatory study, by EICTA in the beginning of 2008. The measurements have been carried out using the revised version of the measurement standard IEC 62087.

The value for the constant part has been raised by 5 W compared to the fit in order to take into account components such as HDD or 2<sup>nd</sup> tuner. For television monitors the constant contribution is suggested to be 5 W.

### *Label*

The label is developed on the basis of an energy efficiency ranking which is defined on the basis of the reference equation for the energy efficiency index. The ranking uses a bandwidth of 20% from step to step. For the first stage the reference equation (energy efficiency index equal to one) corresponds to the step from energy efficiency class "E" to energy efficiency class "D".

The ranking/energy efficiency indices are displayed in a separate scatter plot.

The label is suggested to be "language neutral", so that manufacturers may provide the complete label. The size of the label has been chosen such that the label can be affixed to the front of the television without disturbing/annoying the customer.

The label contains the following elements:

- A – G energy efficiency scale
- arrow to indicate energy efficiency scale, including the energy efficiency ranking
- 1 – 10 energy efficiency ranking
- "on mode" power consumption
- annual energy consumption (assumption: 4 hours per day "on" on 365 days per year)

- screen diagonal
- applicable stage
- ecolabel, if applicable

It is suggested to re-scale the A-G energy efficiency classes in steps of 2 years by one class. This approach is setting benchmarks for the approx the next 10 years, aiming at dynamically providing incentives for improving the energy performance.

The details of the label layout/design are not in the scope of this working document. The label design will be made consistent with the outcome of the discussions on the principles for future energy labelling.

### **Ecodesign requirements**

The preparatory study has shown that the energy consumption in the use-phase is the most significant environmental impact, in particular as related to "on mode" power consumption. Therefore ecodesign requirements on the on-mode power consumption are suggested (standby is regulated in the "horizontal" standby regulation). Requirements on hazardous substances (mercury, lead) are regulated in the framework of Directive 2002/95/EC ("RoHS"; revision of exemptions, considering also CCFLs, currently on-going).

#### ***On-mode***

It is suggested to set, in a first stage, separate ecodesign requirements for full HD televisions and televisions with other resolutions, because this approach allows setting requirements which impact the market, while conforming to Article 15 (5a) of Directive 2005/32/EC. The approach to set requirement without a full HD factor would either have little impact on the market (in particular the mass market), or contradict Article 15 (5a), because large screens would be banned from the market (loss of functionality).

For comparison: the minimum requirements suggested by the preparatory study (constant part 40 W, coefficient for screen area  $4.26 \text{ W/dm}^2$ , allowance factor for full HD 1.4) are less demanding, but comparable to the suggestions of this working document.

It is suggested to further decrease, in a second stage, the values for the on mode power consumption by 20% for non-full HD televisions and eliminate the distinction between full HD and non-full HD (reduction by 30% for full HD televisions). No further stages are foreseen. Instead a revision is suggested, because new display technologies (LED backlight for LCD, OLED) are likely to become increasingly important in short/medium term, and the conclusions of the preparatory study should be validated in a revision.

#### ***Home mode***

If the television is delivered with a "forced menu" which prompts the customer to select a certain picture setting (brightness, contrast ...), the default choice should be a setting which is optimised for the home environment, which, in general, consumes

less energy than the settings which are optimised for bright surroundings/shops. Depending on stakeholder input/feasibility a specification of "home mode" can be considered.