



# CONSUMER RELEVANT ECO-DESIGN REQUIREMENTS FOR TELEVISIONS

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## Summary

In the context of the implementation of the Eco-design of Energy-using Products (EuP) Directive, the European Commission is proposing eco-design requirements for televisions (TVs). Mandatory requirements for TVs are in the interest of most consumers. The preparatory study found that 31 million TVs have been sold in the EU in the year 2005.

This paper outlines the main consumer relevant issues related to the possible ecodesign requirements for televisions and recommends improvement options.

We address the need for more consistency between different EU instruments such as eco-design requirements, the Energy Label and the Eco-label, in particular in the case of televisions. We also give detailed recommendations on the layout of the A-G label for televisions.

In terms of eco-design requirements, we call on the Commission to make the provision of a hard-off switch mandatory for TVs and stress the need to address other environmentally relevant aspects such as resource efficiency, hazardous substances, waste disposal and life-time extension of products.

## Introduction

Today most consumers own one or several televisions (TVs) at home. TVs is one of the most significant product categories within the eco-design consumer project as 31 million TVs have been sold in the EU in the year 2005 corresponding to a monetary value of more than 18 billion euro<sup>1</sup>.

Consumers usually buy new TVs according to brand names, innovative features, picture quality and resolution. The trend is going towards larger and larger appliances with higher energy consumption. New broadcasting methods such as digital TVs as well as new product features such as recording functions have lead to a fast uptake of new TVs in the market.

The environmental impacts of TVs are determined by the product design (material content, technology and manufacturing process), the product performance characteristics (power consumption in various modes), and consumer choice as well as consumer behaviour in the use phase<sup>2</sup>.

Different from other home appliances such as washing machines and refrigerators, consumers usually are not aware of how much energy their TVs consume. In addition consumers are not aware of how they can make a good choice – combining good technical properties with energy efficiency.

A combination of ambitious minimum energy efficiency requirements for televisions as well as their inclusion into the A-G energy labelling scheme seem therefore to be the most promising approach to phase out the least efficient appliances from the market and to increase the overall energy efficiency of TVs.

In this paper, based on the Commission working document on implementing measures for ecodesign requirements for televisions<sup>3</sup>, we make recommendations on the consumer needs which should be taken into account when deciding on the final Implementing Measure. Our proposal addresses the consistency between different instruments such as eco-design, EU Energy Labelling and the Eco-label. Moreover, we discuss definitions, requirements for consumer information, the scope of eco-design requirements, the energy efficiency ranking as well as the verification procedure for market surveillance.

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<sup>1</sup> Fraunhofer IZM: EuP Preparatory Studies “Televisions” (Lot 5), Final Report on Task 1 “Definition”, p. 14, 2 August 2007. Stiftung Warentest indicates that in the year 2007 approximately 4.4 million flat screens with an average purchase price of 100 € have been sold to consumers in Germany, test 5/2008, pp. 44-55.

<sup>2</sup> Deutsche Umwelthilfe and Fraunhofer IZM: Final Report on Task 3, “Consumer Behaviour and Local Infrastructure”, Berlin, 2 August 2007, p. 4.

<sup>3</sup> DG TREN: Annex II Working document on implementing measures for ecodesign requirements for televisions, provided on 18 September 2008.

## 1. More consistency between different instruments

We see a need for more consistency between the different instruments which address the energy efficiency and sustainability of TVs. The eco-design requirements, the provisions for the EU Energy Label and the criteria for the Eco-label have to be co-ordinated to address the rising energy consumption of TVs successfully. However, this does not seem to be the case in the current working document.

Consumer NGOs have already expressed some concern that the improvement options for eco-design of TVs as outlined in the preparatory study have not been taken fully into account when drafting criteria for the Eco-label<sup>4</sup>.

In addition, it is unclear how the ambition level for future Eco-label criteria will relate to the future EU Energy Label for televisions. As the Eco-label will also lead to an assumption of conformity with Eco-design requirements, it has to be ensured that both processes are closely co-operated.

We therefore emphasise the need for building strong synergies and consistency between these instruments.

## 2. Definitions

### Definition for Televisions

The definitions of the working document are not in line with the definitions which were used in the preparatory study. The working document defines TVs as either television sets or television monitors, whereas the preparatory study had recommended using the following three categories:

- TV-set (receiver, monitor and speaker)
- TV combination unit (single housing of TV-set, video recording, storage and replay)
- TV component unit (system which is sold as TV with additional separate units).

The definition of TVs in the working document is problematic as it includes the three types in one definition and does not clarify that all three types need to be measured separately in order to obtain reliable data for on-mode power measurement.

We therefore suggest modifying the definition for TVs in accordance with the preparatory study as follows:

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<sup>4</sup> Preliminary comments on the draft Commission Decision of Ecolabel for Televisions (C (2002)1142), prepared by Hans Jager and Blanca Morales on behalf of EEB and BEUC, BEUC X/056/2008, 19 September 2008.

- Television (TV-Set): A commercially available product that is specifically designed to receive and decode a television transmission (broadcast from cable, terrestrial or satellite), whether analogue or digital (integrated tuner), and displays the resulting image on an integrated screen while reproducing the accompanying sound (main function). The tuner/receiver and monitor are encased in a single housing. The product should be mains powered.
- TV/Video Combination Unit: A commercially available product in which the TV and a Video Recording/Storage/Replay System (e.g. videocassette, standard or high definition DVD, hard disk drive, memory chips, or combinations of them) are combined into a single housing. The product should be mains powered.
- TV Component Unit: A commercially available system, which is marketed and sold as a TV, consisting of a receiver and monitor in separate casing. Video is a further optional unit or could be integrated in one of the other units. The system should be mains powered and may have more than one power cord<sup>5</sup>.

#### Definition for TV monitor

The additional definition for “TV monitor” which was not part of the preparatory study seems not to be useful as a monitor is a component of a TV which cannot operate on its own as a TV. The on-mode power consumption of a monitor has to therefore be measured not separately but only when combined in a system. Minimum requirements should therefore apply to the category “TV Component Unit” as defined above.

#### Consistency of definitions with IEC 62087

We call for the definition for on-mode to be made consistent with the upcoming standard IEC 62087: 2008.

#### Definition for “forced menu”

The term “forced menu” is a new term which is not yet referred to in existing technical standards related to TVs. Some manufacturers equip TVs with a predefined menu which consumers have to go through upon initial start. Users have to select the best settings, e.g. contrast or brightness, with regard to the surroundings in which the TV is placed at home.

However, we ask to specify in the definition for the term “forced menu” that this step will allow consumers to select the best settings with regard to the least energy consumption possible in an assumed standard home environment.

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<sup>5</sup> Fraunhofer IZM: EuP Preparatory Studies “Televisions” (Lot 5), Final Report on Task 1 “Definition”, page 14, Berlin, 2 August 2007.

### Definition for “Home mode”

The working document specifies “home mode” as a television setting which is recommended by the manufacturer for normal home use.

However, we ask to clarify that the “home mode” refers to a predefined setting by manufacturers with the least energy consumption possible for an assumed “standard home environment”.

### Measurement for “Home mode”

The Commission working document foresees to test energy efficiency of a TV in the standard or “home mode”. This is feasible as it encourages manufacturers to design this pre-set mode energy efficiently. However, the Commission Working document does not make a proposal for the conditions of a standard “home environment” to be used as a basis for the measurement.

It has to be avoided that manufacturers develop “home modes” in which the energy consumption is decreased at the expense of the picture quality. Such practice would allow manufacturers to receive a better labelling class but would fall short of consumer expectations on the picture quality. As a consequence consumers could be dissatisfied with the picture quality and change the settings to the brighter but more energy consuming shop mode. This effect would largely undermine the impact of the Eco-design measure. It should therefore be discussed if a minimum luminance requirement for testing should be defined so that manufacturers cannot go below this required level for a good picture quality.

## **3. Technical documentation**

The working document requires manufacturers to give information on the measurement tests for on-mode power consumption in the technical documentation. We recommend to include a cross-reference to the horizontal measure on standby and off-mode losses and to clarify that the technical documentation must also contain information on measurement tests for standby.

## **4. Labelling scheme must meet consumer needs**

The Commission proposes to extend the EU Energy Label to all televisions independently from their technology (LCD, plasma, SD and HD<sup>6</sup>). In this context, we welcome that consumers will be provided with more information about the energy consumption of televisions. Currently consumers receive

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<sup>6</sup> LDC (Liquid Crystal Display), SD (Standard Definition), HD (High Definition)

no information on the power consumption of TVs and other energy-related issues.

In particular, we strongly support tightening the Energy Label classes in four successive stages until the year 2017, as this will ensure a continued incentive for manufacturers to provide more energy efficient televisions to consumers.

#### Empirical research shows consumer support for A-G label

The findings of our recent market research investigating consumers' perceptions of the A-G label strongly recommend keeping the layout of the label in the same A-G format as for other appliances (e.g. fridges, freezers, washing machines, and dishwashers)<sup>7</sup>. The existing layout of the label is very well known by consumers. Most importantly, the A-G label has proven to be successful in steering the market towards more energy efficient appliances. We therefore emphasise that the system behind the Energy Label should be changed, not the layout.

We must therefore express our concern at the Commission proposal for a double scale with numbers and letters, which will simply be confusing for consumers.

#### Energy efficiency index should be based on A-G

The purpose of an energy efficiency ranking is first and foremost to inform consumers about differences in the energy efficiency of appliances. We therefore welcome the introduction of an energy efficiency ranking for televisions. However, the ranking, based on an Energy Efficiency Index (EEI), should correspond to the A-G scale and not to numbers from 1-10.

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<sup>7</sup> ANEC, BEUC, the UK National Consumer Council, the UK Energy Saving Trust and the UK Government's Department for Environment, Food and Rural Affairs (DEFRA), asked Ipsos MORI to carry out empirical research concerning the consumers' perception of the A-G Energy Label. Altogether seven thousand answers were received from consumers from seven different EU Member States (UK, NL, PL, I, F, D, DK). The main conclusion of this research is that the A-G label is not only very well known by consumers but is also used as practical decision guidance. The market research has illustrated that the level of awareness of the A-G label is strong in all markets. The level of awareness was highest in Denmark, Netherlands and France where 95% of consumers answered they had seen the A-G label before. When respondents were asked to identify the letter signifying the most energy efficient product the overwhelming majority of respondents in all countries correctly identified the letter "A" as the best (between 97% and 99%). This shows clear evidence that consumers fully understand how the scale works and which products they should choose if they want to opt for energy efficient appliances. When the A-G and the 7-1 label were shown to consumers, the great majority found the A-G easier to understand than the numerical scale.



Moreover, the EEI has not been part of the preparatory study. We therefore would like to ask the Commission to clarify on which grounds and data the index and the efficiency ranking has been incorporated. Likewise it remains unclear from the working document if the proposed highest efficiency ranking ( $EEI < 0,26$  corresponding to an energy efficiency ranking of 10) is the technological maximum efficiency of a TV or if an adaptation of the ranking will be required in the future. We ask the Commission for clarifications on this point.

#### Indication of annual on-mode energy consumption and stand-by on the label

In the light of differing consumer behaviour it seems difficult to accurately indicate the annual on-mode energy consumption on the label. While some consumers might use their TV once a week, others use it several hours per day. It therefore must be made clear that the calculation is based on 4h TV consumption per day.

#### Printing and size of the label

When making the final decision on the size and colour of the label, it has to be ensured that the label is easily accessible and legible for all consumers. Especially the size of the font should be chosen in a way that also visually impaired persons can easily read the information.

#### Timing of updating Energy label

The working document foresees an updating of the Energy Label classes always for 1 January of certain years. However, as many consumers buy new TVs before Christmas, we would have to have new labels available in the month of September. This would provide consumers with the latest information at a time of the year where a peak demand for TVs is likely.

#### Maximum power consumption for each labelling class

We are concerned that even very large screens, which have very high overall energy consumption could be labelled as "A" class in the future. This would be misleading for consumers as they expect "A" class products to be "energy savers" but in fact the total electricity consumption would be high. Therefore we propose that in addition to the energy efficiency index an absolute power consumption level per class should be introduced. This would ensure that very large screens could not be labelled in the best class.



## 5. Improving consumer information

In addition to the labelling scheme, we see room for improving consumer information on the energy consumption of TVs.

First, consumers are not aware that individual power consumption depends on the TV settings, use patterns and viewing habits. For example consumers are not aware that higher brightness and contrast lead to higher energy consumption. We therefore ask to include information on the settings and how the energy consumption can be reduced in the product manual delivered with the TV. Information about energy consumption in the different modes should be given to consumers according to IEC 62087: 2008 and not only for on-mode settings pre-defined by the manufacturer.

Second, consumers do not receive any information on environmentally relevant issues such as recyclability, hazardous substances or possibilities to repair televisions. Although information requirements should not substitute the need to set mandatory legal minimum requirements, information provision on these aspects should be improved. It is important that consumers have access to this information before they make a purchase decision and so it would not be sufficient to include such information in the technical fiche only.

Finally, there is no obligation to inform consumers about technical features such as analogue/digital signals, resolution and connection hubs for external devices. As this information can have a significant impact on the purchase decision, we ask to include these aspects in the information requirements for manufacturers.

## 6. Eco-design requirements

We are disappointed that the eco-design requirements focus only on energy efficiency in the on-mode and largely ignore the full improvement potential which has been shown in the preparatory study. Other environmentally relevant aspects such as resource efficiency, hazardous chemical substances, waste disposal and repair should also be addressed in the working document.

### Eco-design requirements for on-mode power consumption

The working document contains a two tier approach for minimum requirements for on-mode power consumption:

- for televisions which will be put on the market before 31 December 2012 different requirements for full HD and other TVs are foreseen.
- for televisions which will be put on the market from 1 January 2014, the same requirements are foreseen for all TVs.

In our view, considering that they use particularly large amounts of energy, HD televisions should be set the same requirements as all other TVs already from the beginning.

#### Basic power consumption is set too low

The preparatory study has recommended a basic power consumption of 40W compared to 20W in the working draft. This is considered too low since it makes it more difficult for smaller TVs to meet the minimum requirements and to reach an A label classification<sup>8</sup>. As smaller TVs use less energy in overall terms they should not be negatively affected by the Implementing Measure. It should be ensured that consumers have a good choice of small size class “A” TVs. We therefore ask to set the basic power consumption at 40W.

#### Mandatory hard-off switch needed

We ask to include a requirement for a mandatory hard-off switch in the eco-design requirements. The switch should be clearly visible and easily accessible, and must allow consumers to turn the energy consumption to zero.

As outlined in the preparatory study for TVs, consumers expect their TV to have a hard-off switch. Not only does data from international research illustrate that consumers are making extensive use of off-switches when provided<sup>9</sup>, consumer testing regularly criticises products which do not provide for a hard-off switch<sup>10</sup>.

#### Eco-design requirements for repair

So far, repair rates have been very low for LCD and plasma sets<sup>11</sup>. If we want to achieve more sustainability, we also need to extend the lifetime of products. The Eco-label addresses this issue, e.g. by setting requirements on the availability of spare parts for a certain time. Consumer organisations are therefore disappointed that this issue has not been addressed in more detail in the preparatory study. Minimum requirements for life-time extension should be part of eco-design measures for TVs.

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<sup>8</sup> This is due to the fact that the energy consumption of the display is less relevant for the total energy consumption of small TVs.

<sup>9</sup> Fraunhofer Institute for Reliability and Microintegration (IZM): EuP Preparatory Study Lot 5, Final Report Task 3 on consumer behaviour and local infrastructure, page 12.

<sup>10</sup> See for example Stiftung Warentest

<sup>11</sup> U.S. Consumer Union: “What if your TV breaks? More than 93,000 TV owners tell you what to expect”, Consumer Reports, March 2008, p. 31.

### Requirements on heavy metals and flame retardants

We consider a reference to the RoHS Directive (2002/95/EC) as insufficient to protect consumers from hazardous chemicals in televisions. First, not all substances are addressed in the RoHS Directive. Second, as the Directive will be revised its scope is still to be decided upon – a reference to the current Directive will thus be redundant.

The EuP preparatory study describes that there is already a trend in using chlorine and bromine-free flame retardants<sup>12</sup>. As there are less toxic alternatives available, we ask to introduce mandatory minimum eco-design requirements which will address the use of brominated and chlorinated flame retardants in televisions.

Moreover, the Eco-design requirements should contain threshold values for heavy metals such as mercury and lead.

### **7. Need for regular benchmarking**

Benchmarks should be updated at the same time as updating minimum requirements as this will ensure that the latest technical solutions are always shown as reference point. Benchmarks should not only address energy efficiency but also other aspects. In particular it should address heavy metals such as mercury and lead. Moreover benchmarks should address repair and recycling as well as the use of hazardous substances such as chlorine.

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

The verification procedure for market surveillance allows for systematically exceeding the threshold by 10% for on-mode power consumption as well as for the labelling thresholds. This is an unacceptable approach. We reiterate our comments on previous product groups that the verification procedure for market surveillance must be set so that thresholds are met.

The 10% deviation is especially critical with regard to labelling as experience with the current A-G labelling scheme has already unacceptably high tolerances in the measurement standards. This had led to market distortions in the best class and misinformation of consumers about the real energy performance. We do not see a deviation of 10% justified on technical grounds. As consumers should not be misled about the energy performance and the labelling class of televisions, we ask to set the deviation at 0%.

End.

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<sup>12</sup> Fraunhofer Institute for Reliability and Microintegration (IZM): EuP Preparatory Study Lot 5, Final Report Task 6 technical analysis BAT, page 32.