Analysis of the Televisions Implementing Measure
Eco-Design Directive for Energy-related Products (ErP)
formerly known as Energy-using Products (EuP)
## Contents

- Introduction .................................................................................................................. 2
- 1. The ErP Directive in a brief ..................................................................................... 2  
  - ErP Scope: Product, Market, Process ....................................................................... 3  
  - ErP Adoption ............................................................................................................. 4  
- 2. Regulation EC 642/2009 for Televisions ............................................................... 6  
  - Definition of Television Set ...................................................................................... 6  
  - Definition of Television Monitor ............................................................................... 6  
  - Additional Considerations ....................................................................................... 6  
- 3. Important Dates ......................................................................................................... 7  
- 4. Verification Procedure for Market Surveillance Purposes .................................. 8  
- 5. Intertek’s ErP Services ............................................................................................ 9  
  - Intertek’s ErP solution for Television is: ................................................................. 9  
  - Intertek’s other ErP solutions are: ........................................................................... 9
Eco Design Directive 2009/125/EC
European Commission Regulation no 642/2009

- Television

Introduction

The Eco-design Directive for Energy-related Products (ErP) 2009/125/EC – formerly known as Energy-using Products (EuP) -- requires manufacturers and importers to demonstrate compliance with the Directive’s product category-specific requirements outlined in the Implementing Measures (IMs). The ErP Directive is CE Marking legislation, but differs from other EU legislation as it’s intended to encompass the entire life cycle of energy related products.

The Directive’s Implementing Measures provide the specific compliance requirements, segmented by approximately 30 product categories with more product categories to be identified in the future.

The Implementing Measures for Televisions (642/2009) entered into force on August 11th 2009 and specifies minimum requirements in four increasingly ambitious stages, starting in January 2010 and the last finishing in April 2012. The Implementing Measures initially require all TVs to have a standby and/or an off-mode and sets maximum power consumption levels for TVs in standby-mode and off-mode. The second stage introduces maximum power consumption levels for TVs in on-mode. At the third stage, in August 2011, even lower power consumption levels in standby-mode and off-mode are required. Televisions are required to automatically switch from on-mode to a low power mode after a period of non-use. The inclusion of an “off” switch is encouraged by an extra allowance for off mode consumption for televisions having one that is easily visible. The final stage sets even lower maximum on-mode power consumption requirements.

1. The ErP Directive in brief

As of November 20, 2009 the European Commission repealed the Eco-Design Directive for Energy-using Products (EuP) 2005/32/EC, and replaced it with the more comprehensive Energy-related Products (ErP) Directive 2009/125/EC. According to the European Commission energy-related products are; “any
goods having an impact on energy consumption during use." Energy-related products include all energy-using products (televisions, microwaves, refrigerators), plus energy-conserving products (windows, insulation materials and water using products, like shower heads).

The new ErP Directive encompasses both the products covered under the former EuP Directive – those that use, generate, transfer or measure energy – and those that can contribute significant energy savings during use. The ErP Directive must be implemented in each member state’s national law by November 20, 2010.


The EU Directive on Eco-design entered into force in August 2007 (then known as the EuP Directive) and applies throughout the EU. The Eco-Design Directive aims to reduce the energy use and other negative environmental impacts throughout the life cycle of products powered by electricity, fossil or renewable fuels as well as energy-related products.

According to the EU’s Official Journal, energy-related products account for a large proportion of the consumption of natural resources and energy in the community. Furthermore, many energy-related products have a significant potential for being improved in order to reduce environmental impacts and to achieve energy savings through better design which also leads to economic savings for business and end-users.

The Directive means that manufacturers must take into account energy use and other environmental factors in the product design. Both producers and importers will be affected by the Directive. In order to CE mark products, and thus sell the products on the European market, the Directive requires adaptation of your products to meet the "Implementing Measures” that are currently being developed for different products. The first phase of the ErP Directive involves around 30 product categories and more are likely to be affected in the future.
ErP Scope: Product, Market, Process

The Directive applies to all products and/or product groups that require energy in order to function as intended (excluding vehicles that transport humans or goods - cars, trains, ships, and airplanes) as well as energy-related products such as windows, insulation materials and water using products, like shower heads. The products should fulfill the following criteria in order to be included in an action or to be self-regulating:

1. The product should represent a significant volume of sales and trade within the EU, namely, exceeding 200,000 market units across all manufacturers (this applies to the entire product group rather than individual products or models, or market volume of an individual manufacturer).

2. The product should, in view of the quantities put on the market and/or used, have a substantial environmental impact within the EU.

3. There should be significant opportunities for improving the product's environmental impact without incurring unreasonable costs, in view of the fact that:
   a. There is no other relevant common legislation for dealing with the problem in a suitable manner and it cannot be solved by market forces.
   b. There is a large difference in the environmental performance of different Energy using Products on the market with equivalent functions.
   c. A special method is used to assess whether and to what extent different Energy-related Products fulfill these criteria and to outline which eco-design requirements can be established for each specific product.

The basic elements of the Eco-design requirement are compiled by a number of groups of experts engaged by the EU Commission, which then put forward proposals for product requirements. The Commission reviews these on a product-by-product basis and sends its proposals for product requirements in a custom document to all EU Member States. The Implementing Measures will be introduced for each product group either through national law or through a daughter directive under the Eco-design Directive for Energy-related Products (ErP).
ErP Adoption

The first Implementing Measures to be adopted were as follows, standby/off mode, simple set top boxes\(^1\), street and office lighting, non-directional household lamps and external power supplies.

On July 22nd, 2009 the European Commission adopted four new eco-design regulations to improve the energy efficiency of 1) industrial motors, 2) circulators, 3) televisions, 4) refrigerators and freezers. According to the European Commission’s website the four new energy efficiency requirements will save about 190 TWh per year by 2020, which is comparable to the combined annual electricity consumption of Sweden and Austria. In total nine eco-design Implementing Measures have been adopted.

\(^1\) A simple set top box is a stand-alone device which has the primary function of converting standard or high definition, free-to-air digital broadcast signals to analogue broadcast signals suitable for analogue television or radio without conditional access and may or may not have recording functions based on non-removable media storage.
Eco-Design Directive (ErP): Analysis of the Television Implementing Measure

Timeline: Eco design directive (ErP)

2008

- Stand-by and off-mode losses
- Simple set top boxes
- Street and office lighting
- Electric motors

2009

- Water heaters
- External power supplies
- Domestic lighting
- Refrigerators and freezers for household use
- Dishwashers and washing machines for household use
- Electric circulators
- TV

Product Categories with Implementing Measures in Development:
- Dishwashers, toasters, coffee machines, network stand-by, UPS (uninterruptible power supply), boilers (gas, oil, electricity), personal computers and monitors, imaging equipment (copiers, fax machines, printers, scanners), air conditioning, electric pumps, electric ventilation fans, refrigerators, and freezers for commercial use, tools for solid fuels, tumble dryers, vacuum cleaners, complex set top boxes, motors and fans, heaters, top burners for non-heating use, hot-air ovens for household and commercial use, cooking ranges and grills for household and commercial use, dishwashers, washing machines, and tumble dryers for commercial use.

www.intertek.com/ErP
2. Regulation 642/2009 for the Eco-design Requirements for Televisions

Annual consumption related to televisions was estimated to be 60TWh (one Terra Watt hour is a billion kilo Watt hours) in 2007 in the Community. This has been predicted that consumption will rise to 132TWh by 2020 if no specific measures are in place to limit this consumption. The preparatory study showed that the in-use phase electricity consumption can be significantly reduced by applying existing non-proprietary cost-effective technologies.

The EU regulation 642/2009, which was published in the Official Journal of The European Union on 22 July 2009, will impose eco-design requirements on all televisions placed on the EU market from 7th January 2010. Television means a ‘television set’ or a ‘television monitor’.

**Definition of Television Set**
A television set is a product designed primarily for the display and reception of audio visual signals, placed on the market under one model or system designation and consists of a display, plus one or more tuners/receivers. It may have functions for data storage and/or display of, for example, DVD, HDD (Hard Disk Drive) or VCR either in a single unit or in one or more separate units.

**Definition of Television Monitor**
A television monitor is a product designed to display on an integrated screen a video signal from a variety of sources, including television broadcast signals, which optionally controls and reproduces audio signals from an external source device, which is linked through standardized video signal paths including cinch, SCART, HDMI and future wireless standards (excludes non-standardized video signal paths like DVI and SDI), but cannot receive and process broadcast signals.

**Additional Considerations**
The Implementing Measures state the on-mode measurements must be carried out in the “as delivered” mode and also specify that televisions placed on the market after August 2010 must be delivered in a mode which is at least 65% of
the peak luminance of the brightest on-mode condition\(^2\) provided by the TV. This is to avoid meeting the requirements purely by supplying TVs in a default mode which is undesirably dark.

TVs with a forced menu on installation must have a “Home-mode”\(^3\) as the default choice. If another mode is chosen, a second process shall be prompted to confirm this choice.

The ambient light level of the testing environment must be considered when measuring the power consumption of a television with an automatic brightness control that cannot be disabled.

There is also a requirement after 20 August 2011, for an automatic switch from on-mode to a low power mode after a specified period of non-use and an allowance for a slightly higher standby-mode if the TV includes a hard-off switch.

### 3. Important Dates

The regulation was adopted by the commission and published on 22\(^{nd}\) July, 2009 and came into force on 11 August 2009.

In order to satisfy the ErP minimum requirements for this product group:

**From 7 Jan 2010**
- All TVs must satisfy the off-mode criteria of \(\leq 1.00\)W
- All TVs must satisfy the standby-mode criteria of \(\leq 1.00\)W or \(\leq 2.00\)W if they have an information or status display
- All TVs must have a standby-mode and/or an off-mode and/or another mode not exceeding the applicable requirements of standby/off-mode.

**From 20 August 2010**
- All TVs must satisfy the on-mode criteria of:
  - Full HD TVs \(\leq 20\) (15 for TV monitors) + \(A^4 \times (1.12 \times 4.3224)\)W/dm\(^2\)
  - Other resolution TVs \(\leq 20\) (15 for TV monitors) + \(A \times (4.3224)\)W/dm\(^2\)
- If TVs have a forced menu, they must have a “Home Mode” as the default. If another mode is selected, there must be another selection process to confirm this choice

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\(^2\)The precise meaning of this is under review.

\(^3\)A mode recommended by the manufacturer for home use.

\(^4\)Where \(A\) = the screen area expressed in dm\(^2\).
• All TVs must be delivered in a mode which is at least 65% of the peak luminance of the brightest on-mode condition\(^2\) provided by the TV.

From 20 August 2011

• All TVs must satisfy the off-mode criteria of \(\leq 0.3\text{W}\) or \(\leq 0.50\text{W}\) if there is an easily visible hard-off switch achieving \(\leq 0.01\text{W}\)
• All TVs must satisfy the standby-mode criteria of \(\leq 0.50\text{W}\) or \(\leq 1.00\text{W}\) if they have an information or status display
• All TVs must have a standby-mode and/or an off-mode and/or another mode not exceeding the applicable requirements of standby/off-mode.
• All TVs must have an automatic switch from "on-mode" to "standby-mode" or "Off-mode" after a maximum of four hours following the last user interaction, with a warning prior to switching and this must be enabled by default.

From 1 April 2012

• All TVs must satisfy the on-mode criteria of:
• All TVs (all resolutions) \(\leq 16\ (12\text{ for TV monitors}) + A * (3.4579)\text{W/dm}\(^2\)

4. Verification Procedure for Market Surveillance Purposes

The Regulations provide that the relevant authorities in Member States will be required to test randomly selected samples. The following procedures are applicable to regulation 642/2009:

One single television unit shall be tested. The model shall be considered to comply if the following three conditions are satisfied:

• The result for the on-mode power consumption does not exceed the applicable limit by more than 7%
• The result for off-mode/standby conditions does not exceed the applicable limits by more than 0.10W
• The result for the peak luminance ratio test does not fall below 60%

Otherwise, three additional units of the same model shall be tested and the model shall be considered to comply with this Regulation if the following three conditions are satisfied:

• The average of the results of the latter three units for on-mode power does not exceed the applicable limit by 7%
- The average of the results of the latter three units for off-mode/standby conditions does not exceed the applicable limit by 0.10W
- The average of the results of the latter three units for the peak luminance ratio test does not fall below 60%

Otherwise, the model shall be considered not to comply.

5. Intertek’s ErP Services
The ErP Directive is an expansive environmental legislation. Intertek’s experts in environmental legislation and product compliance have untangled the ErP Directive for you.

We can assist you throughout the entire ErP compliance application process – including independent testing, environmental management systems support and other requirements for specific products – helping you to reach European markets smoothly.

Intertek’s ErP solutions for Televisions are:

**ErP Compliance Verification:** Receive full verification of the Television Implementing Measure and we will deliver a test report for your product’s technical file and Statement of Compliance for legal CE Marking.

Intertek’s other ErP solutions are:

**ErP Training & Consulting:** Learn WHAT your quickest and most cost-efficient compliance options are. We’ll tell you IF, WHEN, and HOW ErP will affect your product.

**ErP Software Analysis:** Let Intertek perform an analysis of your product’s Ecological profile according to the ErP directive specifications.

**ErP Pre-Compliance Verification:** Learn how your product measures up against proposed and future ErP regulations for R&D purposes, compliance planning and to determine market readiness.

*Intertek services also cover other TV related products.*
For More Information

If you have any questions or would like to start a new project, please visit www.intertek.com/ErP or call one of our ErP Testing Centers:

**Americas**
+1 800 967 5352
icenter@intertek.com

**Germany**
+49 711 27311 0
info.etls-germany@intertek.com

**Sweden**
+46 8 750 00 00
info-sweden@intertek.com

**Asia Pacific**
+86 21 6127 8200
ce.asiapacific@intertek.com

**Italy**
+39 432 653 411
info.ets-italy@intertek.com

**UK**
+44 1372 370900
electrical-uk@intertek.com

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