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Eco-design Directive (2005/32/EC)

Working document on possible ecodesign requirements for simple set top boxes

Introduction

BAM and UBA welcome the Working document on possible ecodesign requirements for simple set top boxes (following Working document).

The inclusion of a 'Dynamic Mechanism'. i.e. requirements for one year and three years after this implementing measure has come into force, in line with the Top Runner approach, is considered as a good step forward with respect to the EU Council Decision in June, 2007.

Definition

The market offers devices which receive and convert digital tv and radio signals. From our point of view it is necessary to make clear in the definition that such devices are still considered to be simple set top boxes.

Power consumption

The suggested power consumption limits reflect in general the best available technique. Therefore we support the suggested values for On-mode and Standby-mode/Off-mode with the exception, that point 3 of Annex 1 allows the same values for Standard Definition (SD) and High Definition (HD), which is not in line with the proposal of the preparatory study. According to the suggested scheme of the preparatory study (page 112)[1] the power consumption of a simple set top box (SD) with integrated hard disc providing time shift and recording functions would be limited to 12 Watt instead of 14 Watt given in point 3a) Annex I of the Working Document. The power consumption limit of a simple set top box (SD) with a second tuner would be 6 Watt instead of 8 Watt given in point 3b) Annex I of the Working Document.

The separation of requirements for HD in point 2) Annex 1 of the Working Document from allowances for additional function in point 3) could lead to a misunderstanding, that set top boxes with additional functions need not to fulfil the requirements for standby and off-mode of point 2. Our proposal for the formulation of point 2, given in the Annex would avoid misinterpretations.

[1] European Commission DG TREN: Preparatory studies for Eco-design Requirements of EuPs – Simple Digital TV Converters (Simple Set Top Boxes), prepared by ecostb and mvv consulting, Final Report, 17th December 2007.

In general, we recommend defining power consumption limits in clear dependence from the service provided by the product. This means to establish systems composed of

a) a basic power consumption limit, depending on the basic function provided by the product group (in case of simple set top boxes = simple set top box (standard definition) and

b) supplements (i.e. extra allowances) depending on additional services of the products (in case of simple set top boxes = supplements for high definition, hard disk or second tuner).

Such a scheme provides clarity, how power consumption limits are composed and a necessary basis for consistency with related implementing measures like complex set top boxes (Lot 18). Although this perception is the basis for the power consumption limits given by the Working document, the manner how the limits are formulated makes it not very clear. Furthermore it should be envisaged by the commission later on to merge the implementing measure for simple Set top boxes with the implementing measure for complex set top boxes to guarantee consistency.

NEW Requirements:

Installation of a 0 Watt mode

Although the setting of a power consumption limit of 0.5 Watt for standby reduces the wastage of power considerably we would like to stress that it need to be envisaged by product development in a mid-range perspective to reach the situation “no function – no power” by intelligent electronic solutions. While on the one hand a considerable part of consumers do not use the hard-off switch[2] more and more consumers are getting aware of power losses and wish to separate their devices from the main or to have a 0-Watt-mode [3]. Meanwhile technology offers a variety of intelligent electronic solutions for a 0-Watt-shut-down. Set top boxes which are energised by an external power supply need to send a signal to the external power supply for power down.

The Implementing Measure should require that devices must provide the user with a facility to switch to 0 watt, e.g. by use of a hard-off switch or any other appropriate technical solution to reach the 0 Watt-mode, unless it is not technically possible or it does not appear appropriate or would endanger the user or the product.

The reasons for such an exception shall be clearly proved and stated by the manufacturer and be subject to acceptance by the competent authorities. The facility needs to be clearly visible, easily and conveniently accessible. In case of necessity due to a technology or safety requirement, the transition to 0 Watt-mode may be de-

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2 See task 3 of the preparatory study.

3 For the time being only a part of the devices on the market offer consumers the possibility to separate them completely from the mains by a hard-off-switch. The analysis of a database for the German market showed that 18 percent of DVB-C-Receivers (sample 11 devices), 40 percent of DVB-T-Receivers (sample 75 devices) and 16 percent of DVB-S-Receivers (sample 116 devices) have a hard mains switch.

layed. In any case power consumption has to be 0 Watts at least after 5 minutes, unless the manufacturer proves that a longer delay is necessary.

Requirement for power management

For an effective power management it needs to be required that the device switches at least to a state with reduced power consumption. One example is the DiSEqC-Standard which includes commands for power-down and power-up of external components in satellite receiver systems.[4]

Review

The development of simple set top boxes is a dynamic one; therefore we recommend reviewing the implementing measure already after 3 years. As the product group is not as complex as others the effort to do so should be manageable within the working programme of the Ecodesign directive.

Working document

Therefore, we propose the changes amended in the enclosed “Working document on possible ecodesign requirements for simple set top boxes” before adopting the IM by the Commission.

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[4] see www.eutelsat.org/satellites/pdf/Diseqc/Reference%20docs/bus_spec.pdf

Annex

Changes proposed by BAM and UBA to the

Working document on possible ecodesign requirements for simple set top boxes

Subject matter

This implementing measure pursuant to Directive 2005/32/EC establishes eco-design requirements related to simple set top boxes. It is to be updated in light of new best performing products and technologies in line with the Top Runner principle regularly, at least every five years or in case of notable technological progress on request by member states or the European Commission.

Definitions

For the purposes of this implementing measure the following definitions shall apply:

1. Simple Set Top Box (simple STB) means a device which
   - 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 TVs. If an additional radio receiver function is included, TV signal conversion is still considered to be the primary function of the device.
   - has no Conditional Access (CA) function
   - offers no recording function based on removable media in a standard library format

   The following additional functions/components are included in the power consumption limits set under this implementing measure, but do not constitute a minimum specification of a simple STB:
   - time shift and recording functions based on integrated hard disc
   - HD broadcast signal reception converted to HD or SD video output
   - second tuner

2. "Automatic power down" means a function which switches the on mode as defined below of a simple STB into standby after a period in the on mode following the last user interaction and/or a programme change.

3. "Second tuner" means a part of the simple STB needed for independent recording while watching a different programme.

4. "Conditional Access" (CA) means a provider-controlled broadcasting service requiring a market subscription television service.

5. “On mode” means a condition in which a simple STB performs its primary function.

6. "Standby" and "off mode" shall have the same meaning as in the implementing measure for standby and off-mode electric power consumption of electrical and electronic household and office equipment under directive 2005/32/EC. Other expressions used in this implementing measure shall have the same meaning as in Directive 2005/32/EC.

Eco-design requirements

Equipment falling under the definitions of paragraph "Definitions", first subparagraph, shall meet the ecodesign requirements set out in Annex I.

Conformity Assessment

A conformity assessment shall be carried out according to Article 8(2), and Annex IV (Internal design control) or Annex V (Management system for assessing conformity) of Directive 2005/32/EC.

Market surveillance

When performing the market surveillance checks referred to in Directive 2005/32/EC, Article 3 (2), Member State authorities shall apply the verification procedure set out in Annex II of this implementing measure.

Annex I: Ecodesign requirements

1. Simple STB with SD; requirements for "on mode" and "standby/off mode"

~~a)~~ One year after this implementing measure has come into force:

On mode:
Power consumption of simple STB in on mode shall not exceed 5.0 Watt.

Standby and off mode:
Power consumption of simple STB in off mode or any condition providing only a reactivation function, or a reactivation function and a mere indication of enabled reactivation function shall not exceed 1.0 Watt.

~~b) Three years after this implementing measure has come into force:~~

~~On mode:~~
~~Power consumption of simple STB in on mode shall not exceed 5.0 Watt.~~

~~Standby and off mode:~~
~~Power consumption of simple STB in off mode or any condition providing only a reactivation function, or a reactivation function and a mere indication of enabled reactivation function shall not exceed 0.5 Watt.~~

2. Simple STB (~~with~~SD or HD); requirements for "on mode" and "standby/off mode" and with additional functions

~~a)~~ Three years after this implementing measure has come into force power consumption of simple STB shall not exceed the limit values given in the following table:

~~On mode:~~
~~Power consumption of simple STB in on mode shall not exceed 7.0 Watt.~~

~~Standby and off mode:~~
~~Power consumption of simple STB in off mode or any condition providing only a reactivation function, or a reactivation function and a mere indication of enabled reactivation function shall not exceed 0.5 Watt.~~

~~3. Simple STB (SD and HD) with additional functions; allowances in "on mode"~~

~~a) Three years after this implementing measure has come into force the power consumption of a simple STB with integrated hard disc providing time shift and recording functions shall not exceed 14 Watt.~~

~~b) Three years after this implementing measure has come into force the power consumption of a simple STB with a second tuner shall not exceed 8 Watt.~~

~~c) Three years after this implementing measure has come into force the power consumption of a simple STB with a second tuner as well as integrated hard disc providing time shift and recording functions shall not exceed 15 Watt.~~

Efficiency standard as limit value for power consumption in watts		
	on mode	off mode and standby*
1) basic value for all devices	5.0	0.5
Supplements		
2) HD (instead of SD)	+ 2.0	–
3) Additional function(s) (HD or SD)		
3a) additional for integrated hard disc providing time shift and recording functions	+ 7.0	–
3b) additional for second tuner	+ 1.0	–

* The power consumption of simple STB in off mode or any condition providing only a reactivation function and a mere indication of enabled reactivation shall in any case not exceed 0.5 Watt.

Explanation: The power consumption limits are composed of basic value (1) and extra allowances (supplements). This means in case of standard definition (SD) 5 Watt plus supplement 3a and/or 3b if the STB provides the additional functions and in case of high definition (HD) 7 Watt (5 W plus 2 W) plus supplement 3a and/or 3b if the STB provides the additional functions.

3. Measurement

For all power consumption limits set in Annex I, point 1, 2, and 3, of this implementing measure the measurement procedure laid down in Annex II of this implementing measure should apply.

4. 0 watt mode:

From January 1st 2012:
Devices must provide the user with a facility to switch to 0 watt, e.g. by use of a hard off switch. The facility needs to be clearly visible, easily and conveniently accessible. In case of necessity due to technology or safety requirement, power consumption may be reduced delayed. In any case power consumption has to be 0 watts at least after 5 minutes.
Devices which are energised by an external power supply need to send a signal to the external power supply for power down.
If a 0 watt mode generally or within 5 minutes is technically not possible or if it is not appropriate or it is a threat for the user's or product's safety, the reasons shall be clearly proved and stated by the manufacturer and be subject to acceptance by the competent authority.

5. Automatic power down

One year after this implementing measure has come into force all simple STB shall by equipped with an "Automatic power down" or similar function having the following characteristics: the simple STB should be automatically switched from on mode into standby after less than 4 hours in the on mode following the last user interaction and/or a programme change. This power management has to be activated by the producer in the delivery status.

6. Review

A review of this IM shall be presented to the Consultation Forum depending on technological progress and market trends, and not later than ~~5~~3 years after its entry into force.

Annex II: Verification procedure for market surveillance purposes

When proceeding to a verification of conformity for market surveillance purposes, Member State authorities shall test one single unit.

For all products falling within the definition set out in this implementing measure the following test methodology shall be applied.

The methodology for metering should follow guidance given by IEC 62301.

The simple STB should be set up according to the indications of IEC 62087. The model shall be considered to comply with the provisions set out in Annex I of this implementing measure if neither of the results for the standby/off mode and on mode is exceeding the limit values set out in Annex I by more than 10 %.

Otherwise, three more units shall be tested. The model shall be considered to comply with this implementing measure if neither of the average of the results of the latter three tests for standby/off mode and on mode, is exceeding the limit values set out in Annex I by more than 10 %.

Otherwise, the model shall be considered not to comply.

Explanatory Notes

Scope

The purpose of the implementing measure ("IM") is to set ecodesign requirements for simple set top boxes (Simple STB). The simple STB targeted by this IM is an intermediate technology with 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 TVs.

The time shift and recording functions (also called Personal Video Recording) based on integrated hard disc; HD broadcast signal reception converted to HD or SD video output, and second tuner are all considered as additional functions/components of simple STB, and therefore additional power consumption allowances are established in what regards these functions/components. They do not constitute a minimum specification of a simple STB, i.e. they may not be present in the device. The decision to include them is based on the results of the preparatory study, which have indicated that as of 2012 such functions will be massively integrated into simple STB due to falling prices of hard disks suitable for consumer electronic products.

Beyond the analogue switch-off the set top box will still exist as a product genre to provide high functionality to basic television equipment as new broadcasting and home networking technologies emerge. These set top boxes, qualified as Complex STB and differentiated from simple STB by the conditional access (CA) function, will be tackled under a separate IM under Directive 2005/32/EC.

Energy efficiency levels and their timing

The power consumption limits are differentiated on the basis of service type, i.e. the energy needed to decode HD and SD signals.

The timing of ecodesign requirement set under this IM are adapted to the market forecast for simple STB, according to which sales and stock will peak around 2015.

The first deadline for an on-mode and standby power limit is in line with the next step of expected higher integration of the STB electronics, which will allow lower power consumption.

The timing for power consumption limits for integrated hard disk has been based on Least Life Cycle Cost considerations.

The limits for standby and their timing is in line with the horizontal measure for standby and off-mode electric power consumption of electrical and electronic household and office equipment under directive 2005/32/EC

Automatic power down

Taking into consideration studies which have shown that consumers have the tendency to leave simple STB permanently in the on-mode, the automatic power down function is an essential element of this IM.

Measurement methods

Both standards, IEC 62087 and IEC 62301 are under review. The latter will be formally published as an updated standard in 2008. IEC 62087 will be reviewed for simple STB testing from 2008. The existing standard should be used in the meantime.