

## Product Sheet, GEEA Criteria 2007

### Set Top Boxes, Digital to Analogue Converters



### Scope

Mains operated equipment for the reception, decoding, recording and interactive processing of digital broadcasting and related services, including stand-alone set top boxes, simple digital TV converters and simple digital TV converters for High Definition TV services. The simple digital TV converter is a stand alone device, using an integral or dedicated external power supply, for the reception of (free) digital broadcasting services and their conversion to analogue RF and / or line signals which has the following components/features:

- No CA (Conditional Access) support
- Tuner/demodulator:
  - Cable version: Single cable tuner/demodulator
  - Terrestrial version: single RF tuner /demodulator, active antenna powering
  - Satellite version: single satellite tuner / demodulator, single LNB feed.
- Single MPEG2 Decoder
- Support for Off-air Software Upgrade

### Criteria

Set top boxes and digital to analogue converters complies with GEEA criteria if the following criteria are met:

Category	Criteria	Basis for criteria
Set top boxes (IRD), including equipment with recording function (PVRs)	If the equipment has a standby passive mode (mode is optional), the power consumption in standby passive mode is <b>1 W</b> or less.	EU CoC with exception
	The equipment has a standby active/low mode and the power consumption in the standby active/low mode is:	
IRD Terrestrial	<b>6 (+ max 9* or 14**) W</b> or less.	EU CoC
IRD Cable	<b>7 (+ max 8* or 13**) W</b> or less.	EU CoC
IRD Satellite	<b>8 (+ max 7* or 12**) W</b> or less.	EU CoC
IRD-IP (DSL)	<b>6 (+ max 9* or 14**) W</b> or less.	EU CoC
Digital to analogue converters (simple converter boxes)	The power consumption in standby passive mode is <b>2 W<sup>#</sup></b> or less.	EU CoC
	The power consumption in the on mode is:	
Terrestrial	<b>7 (+ 4<sup>##</sup>) W</b> or less	EU CoC with exception
Cable	<b>7 (+ 4<sup>##</sup>) W</b> or less	EU CoC with exception
Satellite	<b>10 (+ 4<sup>##</sup>) W</b> or less	EU CoC with exception
IP (DSL)	<b>7 (+ 4<sup>##</sup>) (+ 2<sup>###</sup>) W</b> or less	EU CoC with exception

\* See Table I for additional allowances. 6, 7, 8 or 6 W refers to the basic configuration. Maximum power consumption in standby active/low mode should not exceed 15 W.

\*\* See Table II for additional allowances for High Definition (both for MPEG2 and MPEG4), MPEG4 and multi-decode platforms. 6, 7, 8 or 6 W refers to the basic configuration. Maximum power consumption in standby active/low mode should not exceed 20 W.

<sup>#</sup> Manufacturer guarantees that the box switches to standby-passive after a manufacturer factory set default time without any user activity (unless overwritten by the user).

<sup>##</sup> The allowance of 4 W is for simple converters for High Definition TV services (both Standard Definition and High Definition output).

<sup>###</sup> If the DSL box includes the ADSL modem then there is an additional 2 W allowance in on mode (this allowance is valid only for DSL boxes).

### Definitions and Test Method

The power consumption shall be measured and declared according to IEC 62087 (first edition; 2003-03) 'Methods of measurement for the power consumption of audio, video and related equipment'. However, the LNB current (for single LNB) should be set at 80 mA during the test.

See: Annex B of the Code of Conduct for Digital TV Service Systems

**Basis for criteria**

EU CoC: Code of Conduct on Energy Efficiency of Digital TV Service Systems – Version 4, 5 October 2006.

**Exceptions**

Criteria	Code of Conduct	GEEA
Set top boxes incl. PVR standby passive-mode power consumption	3 W	1 W
Additional allowance for digital to analogue converters (simple converter boxes) with double RF tuner. On mode power consumption.	Yes	No
Additional allowance for digital to analogue converters (simple converters for High Definition TV services) in High Definition output. On mode power consumption.	Yes	No

**Definition of the basic configuration of set top boxes and digital to analogue converters**

The calculation of the standby power consumption referred is based on a basic configuration with the following components/features:

Set top boxes and digital to analogue converters with IRD				Analogue PVR (no CA support)
CABLE	TERRESTRIAL	SATELLITE	DSL	
Single cable tuner /demodulator	Single UHF tuner /demodulator	Single satellite tuner /demodulator Single LNB feed	No tuner /demodulator	Single RF tuner /demodulator
<b>+</b>				
Single MPEG Decoder				n/a
RF Modulator / Loop-through				
IR Remote Control				
Support for Off-air Software Upgrade				n/a
Smart Card Interface				n/a
Common Interface / Data port				n/a
RS232 Serial Port				n/a
Support for remote IR Receiver / IR Blaster				n/a
n/a	n/a	PSTN Modem	PSTN Modem	n/a

Reference: CE03-2007

**Table I. Additional allowances on standby active mode targets for components added to the basic configuration**

For additional components that may be added on to the equipment in the basic configuration the following additional power allowance can be added to the maximum standby active power consumption targets above.

In any case the total **maximum** power consumption targets in **standby active mode** should not exceed:

- **15 W** for the stand-alone STB (except for high definition: both with MPEG2 and MPEG4, MPEG4 and multi-decode platforms) and analogue PVRs.

Feature	Indicative additional maximum power consumption (at the AC mains) for additional features
Internal hard disk drive	2.2 W
IEEE1394 interface	0.8 W
Ethernet interface 100Mbit	0.4 W
Each home network interface	2.5 W
Each serial USB interface	0.3 W
Home automation interface	0.4 W
ADSL modem	2 W
Docsis modem	4.5 W
Additional LNB feed	1.3 W (with an additional 80 mA for the LNB current)
Additional tuner/demodulator	2 W
Powered remote IR receiver (loaded at 15mA)	0.25 W

**Table II: Additional allowances for standby active mode targets for High Definition (both for MPEG2 and MPEG4), MPEG4 and multi-decode platforms**

For High Definition (both for MPEG2 and MPEG4), MPEG4 and multi-decode platforms, i.e. products being capable of decoding high definition signals or decoding more than one signal stream, the following additional power allowance can be added to the allowances resulting from the foregoing table and the maximum standby active power consumption targets above.

In any case the total **maximum** power consumption target in **standby active mode** should not exceed:

- **20 W** for High Definition (both for MPEG2 and MPEG4), MPEG4 and multi-decode platforms.

Feature	Indicative additional maximum power consumption (at the AC mains) for additional high definition features
MPEG4 standard or high definition decoder	2.5 W
Each additional decoder	1.5 W
Each DVBS2 front end (or demodulator)	2 W

