

Standby and off-mode: Recommendations for policy design

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Background

The two horizontal ecodesign regulations on standby (1275/2008) and networked standby (801/2013) have succeeded in limiting the energy consumption of products when they are not in use. The review process of the regulations has started in autumn 2015. Data from best available technology products on topten.eu show that future, more ambitious requirements are possible to secure more energy savings.

Key policy recommendations

- **The max. power level for passive standby / off mode can be lowered to 0.2W:** BAT values from Topten (see below) show that this is feasible, the saving potential is estimated to be around 7 TWh/year¹ – the residential electricity consumption of Ireland.
- **0.2 Watt for all types of standby modes:** it should be made sure that the max. power level for passive standby also applies to modes such as delayed-start, fast start, and left-on etc. The studies on washing machines and dishwashers claim that delayed-start and left-on modes of these products are not covered by the standby regulation, but are suggesting a horizontal coverage rather than vertical. Hence, the max. power level for passive standby mode should explicitly apply to these modes. According to Stiftung Warentest, many TVs have a fast start option with a power of around 20W (Test, November 2015). The power allowance for status display in standby mode should be discarded.
- **Cover commercial and professional products:** all products, including commercial and professional products, should be covered by the regulation. Even if they have higher performance when in use, professional products can have equally low power when not in use as domestic products. The saving potential is yet untackled and large. Also the standby of luminaires should be covered here instead of in the vertical regulation that is being revised at the moment.
- **1W for non HiNA products from 2019:** The max. power level for non HiNA products in tier 3 should be lowered to 1W. BAT data shows that this level can be achieved today, and this networked standby mode will become widely applied and more important in the future. It is key to limit the power in order to avoid high additional energy consumption. Accordingly, also for HiNA products a next, more ambitious power level should be defined. Additionally all networked products should be required to switch to normal standby when the network availability is not needed.
- **Low power level should be guaranteed:** the power management function that switches products into standby or off mode after some time of inactivity must always be functioning. It should not be possible to deactivate it, neither by the user nor by software protocols in networked products. Evidence from own tests has shown that e.g. printers can be prevented from ever going into standby mode by software protocols, and remain at 80W all the time.

Best available technology: Standby power values from Topten.eu

Table 1: BAT standby and off mode power levels (source: www.topten.eu)

Off mode	0.0 W
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¹ Based on the assumptions of the impact assessment study for regulation 1275/2008

Standby mode	0.0 W
Networked Standby mode	0.6 W

Data from Topten.eu in tables 1 and 2 show that best products can reach very low standby and off mode power levels:

- **0.0-Watt in off mode** without hard-off switch is possible (monitors, washing machines). **Networked products** can also use as little as 0.5W or even **0.1W in off mode** (laser printers and multifunctional devices).
- Also in **standby mode** products can reach a power level of **0 Watt** (coffee machines, and washing machines in left-on mode), best electronic products use 0.1W (monitors) or 0.2W (TVs, DVD / Blue ray players) in standby mode. Best **networked standby power** levels on Topten are as low as 1.4W (laser printers), 0.8W (laser MFDs) or **0.6W** (inkjet printers and MFDs). Differences in networked products however are huge, even on Topten: average laser MFDs on Topten.eu use more than 60W in standby mode.

Table 2: overview on standby and off mode power levels on www.topten.eu

Product group	TVs	Monitors	DVD / Blue Ray players*	Washing machines	Automatic coffee machines	Capsule coffee machines	Inkjet printers / MFD	Laser printers	Laser MFD
Number of products in Topten sample	66	52	6	35	5	19	33	41	65
Average off-mode power (W)		0.15		0.18				3.1	1.16
Best performer off-mode (W)		0.0		0.0				0.5	0.1
Average standby (washing machines: left-on) (W)	0.33	0.28	0.22	1.3	0.22	0.22	1.1	39.7	62
Best performer standby (washing machines: left-on) (W)	0.2	0.1	0.2	0.0	0.0	0.0	0.6	1.4	0.8
Switch to Standby after how many minutes? - Average					20 min	3.3 min			
Switch to Standby after how many minutes? – Best performer					9 min	0 min			

Comments

* DVD/Blue ray values from Topten.ch instead of Topten.eu.

- Printers and multifunctional devices (MFD) are tested according to the Energy Star test method (which is based on IEC 62301 Standby Power Test Method), in a network with a

PC. So, these are *networked* Standby modes. In Energy Star vocabulary, Off mode is called 'Sleep'.

- 'Standby' for washing machines refers to the left-on mode (after completing a wash cycle).
- Short delay times to Standby / Off mode are important: for coffee machines these have been regulated in the amendment for networked standby.

Conclusions

Topten data shows that it is technically possible to avoid power draw when products are in off and standby modes. Lowering today's power levels of 1W / 0.5W for standby and off modes is possible and can lead to savings of around 7 TWh per year.

Topten data shows that also networked products can have low power in standby (BAT: 0.6W) and off mode (0.1W). Especially for the standby mode differences – and hence the saving potentials – are huge. With more and more products becoming 'networked', it is key to prevent an increase in energy consumption with ambitious power limits. Consequently, the current power caps for networked products should be lowered to more ambitious levels – to 1W or better to the level for 'normal' standby mode of 0.5W.

References

Standby review study: <http://www.ecostandbyreview.eu/>

European Commission: Regulation No 1275/2008 with regard to ecodesign requirements for standby and off mode electric power consumption of electrical and electronic household and office equipment

http://www.topten.eu/uploads/File/Ecodesign%20Regulation_Standby_1208.pdf

European Commission: Regulation No 801/2013 on networked standby and ecodesign requirements for televisions

http://www.topten.eu/uploads/File/Networked-Standby_Ecodesign-regu_801-2013.pdf

European Commission: Impact assessment study for the standby regulation 1275/2008, 2008.

https://ec.europa.eu/energy/sites/ener/files/documents/sec_2008_3071_impact_assesment_en.pdf

Stiftung Warentest: Test 11/2015, page 11. November 2015.