



NRDC Comments on ENERGY STAR Draft 1 Version 5.0 Specification for Set Top Boxes

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On behalf of the Natural Resource Defense Council (NRDC), we respectfully submit comments on ENERGY STAR's Draft 1 Version 5.0 specification for set top boxes (STBs). Even though the ENERGY STAR program has played a key role in helping driving down STB energy use over the past few years, today's STBs continue to draw between \$1 to \$2 billion dollars worth of energy use when they are NOT being used to watch or record TV programming. While NRDC is generally supportive of the levels and approach taken by EPA in its draft specification, we feel much more can and should be done to help accelerate the shift to lower levels of standby power consumption by STBs, in particular the thin clients that are connected to the second and third TV in the home.

- 1. EPA should adjust its TEC levels for thin clients to reflect standby power levels of approximately 1 Watt. In addition, the test method and specification should be simplified and include a single sleep state for thin clients and over the top devices.*

To their credit the pay TV industry has transitioned in large part to an architecture which has a "main box" connected to the main TV in the home and much lower power consuming "thin clients" connected to the second and third TVs in the home. The thin clients access live or recorded shows from the main box, which is often a whole home DVR.

As the thin clients are NOT directly connected to the service provider's network, the various rebooting and connection issues do not exist. As such these devices should be able to have very low power levels when not being used, while still being able to restart very quickly when the user returns. The thin clients in the EPA data base consumed 3.5 to 8.5 Watts in standby. Given the technology that has been deployed by internet connected devices such as [Apple TV which](#)

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[use <1 W](#) in sleep mode and have very fast start times, there does not appear to be any reason why thin clients should not be able to attain these levels as well. In addition, Apple TV and other streaming devices deliver content that needs to be kept secure, just like thin clients provided by the service providers do.

NRDC therefore recommends:

- a) EPA reduce the TEC levels for thin clients and OTT boxes to reflect standby power levels of approximately 1W.
- b) EPA should have a single sleep state for thin clients and OTT boxes and remove the deep sleep state for these devices. For thin clients and OTT, there only needs to be two power states, on and sleep. Sleep is the state the device goes into after the user hits the power button or the device automatically powers down to after extended user inactivity. When in sleep, the device is able to wake up quickly when requested.

There does not seem to be any need for user programmable “deep sleep” state as the user achieves all the functionality they want from a simple sleep state. The user experience is not compromised in any way as the thin client restarts quickly after the user turns their thin client back on. The current scheme of having a deep sleep that relies on a user schedule and can be easily overridden by the user or the service provider during service calls will not deliver reliable savings and should be eliminated for this category of STBs.

2. *STBs testing and qualification should be tied to a specific service provider as a STB's power use is dependent upon the network it is connected to. In addition, EPA and DOE should work together to develop language that addresses potential future firmware updates that could negatively impact a STB's energy use.*

The STB Voluntary Agreement requires testing to be done by each service provider. This is critically important as one service provider's network may support a power saving feature whereas another might not. As such the power use of the same STB model may vary significantly when deployed on Comcast's network vs Charter or Time Warner.

We recommend ENERGY STAR adopt the same approach that is used in the VA and that it should adjust its testing, certification and qualified product list to reflect this change. This will also provide harmonization with the test method used by the VA.

As many new STBs are able to receive software updates and hardware and software changes may occur at the service provider's headend, the energy use of an installed STB may change significantly in the future. In some cases, the update results in lower power levels as witnessed by the cable industry's introduction of a software update for auto power down (APD), while in other cases they might turn on a new feature or worse yet automatically disable or encourage a user to opt out of the power saving feature in the future.

To address this increasingly likely situation, we believe the test method and specification should have specific language on this point. For example, ENERGY STAR could require

manufacturers to re-test and report the power use of their STBs after updates are made that would cause STB energy use to increase by more than x % compared to the previously reported value. In addition, boxes that no longer meet the ENERGY STAR TEC levels should be removed from the Qualified Product List.

3. *ENERGY STAR should host a call with interested stakeholders to better understand the likely configuration of new architectures, including boxes referred to as headed and headless gateways, and the test method and specification should be adjusted accordingly.*

The architectures being deployed by service providers is changing rapidly and we believe the definitions and subsequent specifications should be updated. Care is needed to make sure the family of devices generically referred to as gateways are included in the STB specification if they are used to provide TV service. Some of the devices on the market may provide triple or quadruple play services including video, internet, telephony and in some cases routing too. The definition of STB in the ENERGY STAR specification is currently limited to devices that are “for the primary purpose” of receiving television ... and providing video output. For boxes that provide triple play like functionality, one could argue those devices that video is simply one of the purposes of the device and not its “primary purpose”. We believe this is not EPA’s intent and that further clarifying language is needed to make sure the video functionality is covered by the ENERGY STAR specification, regardless of the flavor of box it is a part of.

