



NRDC Comments on EPA's Set-Top Box Draft 3 – Version 2.0 Specification

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NRDC respectfully submits the written comments provided below on the January 14, 2008 draft set top box specification issued by the EPA ENERGY STAR program.

Overall Direction and Stringency

NRDC is supportive of the direction EPA has chosen to pursue as it finalizes its set top box specification:

a) Include both the set top box manufacturers and the service providers in the partnership agreements and qualification process.

We agree with EPA that adoption of the energy efficiency levels contained in this specification are dependent upon not only the set top box manufacturers, but also the service providers, who are the overall decision makers and frequently the direct purchasers of these devices. In addition, attainment of some of these goals will require changes not only to the box itself but also potential changes to the service provider's "upstream" hardware and/or software.

b) Establish a relatively modest Tier 1 in the near term and a significantly more stringent Tier 2 spec with a sufficiently long lead time to achieve the necessary changes in the supply chain.

Given the lack of significant energy efficiency improvements seen in current box designs, we think the two step approach laid out by EPA in its latest specification is appropriate. Tier 1 is not particularly aggressive and current boxes already exist on both the cable and satellite side that will meet the specification. We view Tier 1 as an effective means to gain stakeholder participation and cause an increased focus on energy efficiency for this market.

Tier 2 is a stretch goal that will provide more than twice the annual energy savings than Tier 1 for the increasingly popular high end set top boxes that include digital video recorders (DVR), 2 or more tuners, and can display high definition signals. NRDC is very supportive of the proposed Tier 2 levels and urges EPA to maintain these levels in its final specification. Any adjustments to the specification or new power adders prior to finalization should be based on hard data provided by the commenter.

As no Tier 2 complying boxes exist on the market today, achieving these levels will require significant product redesigns. Based on informal conversations we have had with suppliers and set top box makers, we concur that the 3 year time frame proposed by EPA is justified in order for the industry to achieve the changes needed to meet Tier 2. The new boxes will take advantage of the new more efficient components and power saving strategies being developed such as new more efficient silica, the ability to power down tuners that are not in use, improved power supplies, etc.

Establishing a clear and well defined target several years in advance will provide clarity throughout the entire supply chain, as well as the lead time that may be needed. System designers will know what they should be shooting for and create and implement roadmaps to get there. The resultant activities will also help justify investments in more efficient solutions by the component and middleware providers.

Based on the above, we think it would be a big mistake to delay establishing a Tier 2 specification at this time as was requested by a few stakeholders at the February 1 meeting. Such a move would simply create an uncertain policy environment and put on hold much of the design work and investments that are needed. Waiting two years to establish Tier 2 levels simply puts any meaningful progress on hold and essentially delays the effective date of Tier 2 by two more years unnecessarily.

Getting Back to Sleep

A core strategy to reducing the overall energy consumption of set top boxes is to make sure they operate in a low power sleep mode when the user is not watching or recording a show, or when the system is not receiving an update or downloading information from the “head end”. The current specification and related test methods are simply “static” measurements. Per the test methods cited in the draft EPA specification, a one time measurement is made when the box is on and doing its primary function, and a one time sleep mode measurement is made to measure the power use when the box is not doing its main thing or performing a non-routine event (eg. a program guide update, verifying user access, downloading a video, etc.), or after the user hits the power button.

At prior stakeholder meetings, NRDC has expressed its preference for a true duty cycle test procedure that would more accurately reflect actual daily energy use. Under the current testing and certification proposal from EPA, the sleep mode test does not actually verify that the set top box promptly goes back into sleep after an event triggered by the service provider or the user (eg. program download, user verification, video downloads, recording a show, etc.), or that the auto power down feature is performing properly. For example, the spec would not properly account for poor system designs in which the set top box fails to promptly go back to sleep after the set top box records a show for the user.

Shy of creating a true duty cycle, a simple interim fix would be adding the following requirement to the specification:

Set top boxes that are automatically awakened from sleep mode to perform an activity required by the service provider or the user shall return back to its low power sleep mode within one minute of activity completion.

The partner agreements should highlight this requirement and emphasize that any future surveillance testing of qualified models will include verification of this capability.

Ability to Disable Unwanted Speculative Recording or Video Downloading Feature

TiVo branded set top boxes include a feature called speculative recording. This feature builds a history of the user's previously viewed shows and automatically records similar shows that the user might like. This feature may result in a box being in the on mode many more hours a day, drawing roughly 30 W instead of roughly 5W that a Tier 2 box should be using when asleep. We believe a reasonable proposal is to make sure boxes with a speculative recording capability, include an easy to access menu option that allows the user to disable this function if he/she desires.

Similarly, we understand that currently configured satellite systems automatically download movies to their users on a prospective basis, with the hopes that they view the content as a future pay per view selection. While we don't have specific data to back this up, we believe many viewers do not watch pay per view movies and would elect not to receive these downloads which can last a few hours due to one or more of the following: a) extra cost of their electric bill, b) concern about the environment and wanting to limit their personal carbon footprint, or c) added convenience this feature would provide compared to unplugging their device and having to deal with the slow box reboot each day. As such, we recommend EPA to include a requirement for service operators that "push" video content onto their subscribers boxes to have an "opt-out" capability in their boxes that allows users to decide not to receive video downloads until they choose to reset this feature. While it would provide even greater energy savings and environmental benefits, we want to point out that NRDC was careful not to propose a more stringent and restrictive proposal that would have required set top boxes to ship with this feature disabled and require interested parties to "opt-in" to receive video downloads.

Linking Qualification of the Set Top Box and the Service Provider

We encourage ENERGY STAR staff to continue its plans to have the service provider qualify the set top box as being compliant with its system. It is not sufficient for a box maker to qualify its box without tying the qualification to a particular service provider's system. While a set top box maker may make a set top box that is capable of delivering low annual energy use, its performance is directly tied to the service provider's middleware, "head end" equipment, and whether or not the service provider elects to turn off selected energy saving features (eg. auto power down at 1 AM) in the box prior to deployment or via a future system wide software upgrade.

Based on the above, we recommend EPA maintain a qualification tracking system that would link qualification to the box and service provider and utilize a chart similar to the hypothetical one shown below. Key to making this system work is requiring the box to be tested on the service provider's system or via an equivalent simulation. It is not sufficient to simply qualify a set top box for all systems based on a single test done with one service provider.

ENERGY STAR QUALIFIED?			
	Time Warner	Comcast	Cox Communication
Lucky Star – Model 888	N	Y	N
Motorola – Model 123	Y	N	Y
Motorola - Model 125	N	N	Y
Sci Atlanta – Model ABC	Y	N	Y
Pace - Model	Y	Y	N