

July 30, 2010

Ms. Katharine Kaplan  
ENERGY STAR Set-Top Box Program  
U.S. Environmental Protection Agency  
1310 L Street, NW  
Washington, DC

Subject: DIRECTV Comments on ENERGY STAR® Set-top Box Service Provider Proposal

Dear Katharine:

DIRECTV appreciated the opportunity to participate in the July 7, 2010 stakeholder conference call discussing proposed revisions to the ENERGY STAR Program Requirements for STB manufacturers and service providers. These written comments include more detailed feedback on the “Discussion Guide for Proposed Edits to Versions 3.0 and 4.0 ENERGY STAR® Program Requirements for Cable, Satellite, and Telecom Service Providers” document released July 6.

Two EPA goals that emerge from a review of the Discussion Guide are 1) to encourage multi-room architectures, and 2) “to encourage more Service Providers to partner with ENERGY STAR”. As a current ENERGY STAR Service Provider Partner, and as an industry leader in promoting the adoption of multi-room architectures, DIRECTV agrees that these are both important goals. However, the proposed edits in the Discussion Guide do not do enough to promote these goals, and in many ways impede them.

## **ENCOURAGING MULTI-ROOM ARCHITECTURES**

**Base Allowance.** A welcome change to the previous draft Version 3.0 and Version 4.0 energy efficiency criteria was the return to having the “Advanced Video Processing” and “Home Network Interface” allowances separate from the base type allowances, and allowing “Home Network Interface” made available for use with the Thin Client base type. These changes will give manufacturers and service providers the opportunity to create thin client / remote STBs that can in fact meet ENERGY STAR. As described in DIRECTV’s March 23 comments, the DIRECTV C30 thin client STB (with HD, MPEG4 and MoCA) prototype has been measured as follows:

$$P_{tv}(W) = 10.20$$

$$P_{sleep}(W) = 7.25$$

$$TEC (kWh/yr) = 78.58$$

This measured TEC value was 67% higher than the Draft 1 Version 3.0 target of 47 kWh/yr, a value that was simply impossible to reach. With a revised target of 69 kWh/year, however, this measured TEC is 14% higher.

**Multi-room Allowance.** Another welcome change is the proposal to increase the “Multi-room” allowance to 40 kWh/year, a 15 kWh/year increase over the Draft 1 proposal of 25 kWh/year. DIRECTV agrees that by increasing this allowance, the EPA is encouraging the deployment of multi-room architectures, which save energy when compared to having separate DVRs connected to multiple TVs in the home. This increase has been offset, however, by the return to having the “Home Network Interface” allowance separate from the base type allowance and the rule that the “Home Network Interface” allowance can be applied only to devices that are NOT Multi-room. This results in the elimination of this 10 kWh/yr allowance and gives STB manufacturers only a 5 kWh/year increase instead of a 15 kWh/year increase!

Again referring to DIRECTV’s March 23 comments, preliminary measurements on a production prototype of its upcoming DIRECTV HMC30 multi-room STB (with HD, MPEG4 and MoCA) gave the result:

$$P_{tv}(W) = 26.34$$

$$P_{sleep}(W) = 25.31$$

$$TEC (kWh/yr) = 226.98$$

This prototype DIRECTV HMC30 had not been compliant with Draft 1 Version 3.0, having a measured TEC value 24% higher than the target of 183 kWh/yr (= base of 72 kWh/year plus 25 for HD, 16 for Additional Tuner, 45 for DVR and 25 for Multi-room). With the change proposed in the Discussion Guide, the HMC30 measured TEC value is now 21% higher than the new target of 188 kWh/yr (= base of 50 kWh/year plus 12 for Advanced Video Processing, 25 for HD, 16 for Multi-stream, 45 for DVR and 40 for Multi-room).

DIRECTV believes that the EPA intended a 15 kWh/year increase with the proposed change, which would instead make the DIRECTV HMC30 target 198 kWh/yr (a full 15% lower than the measured TEC value). The EPA can achieve this by deleting the rule that the “Home Network Interface” allowance can be applied only to devices that are NOT Multi-room. As the EPA has already proposed deleting this rule for the case of thin client devices, this can be achieved by simply deleting that sentence in the “Advanced Home Network Interface” definition.

**Reporting of Multi-room Configurations.** The Discussion Guide proposes that the STB qualified product list (QPL) will list “multi-room configurations” instead of simply listing qualified multi-room STBs and qualified remote STBs. By doing this, EPA not only discourages the development and deployment of multi-room architectures but discourages Service Provider participation in the ENERGY STAR program.

Consider the case of a Service Provider having 3 multi-room STB models and 3 remote STB models (this will be typical for DIRECTV). If any of the 3 remote STB models does not meet ENERGY STAR, then the Service Provider would not be able to put the ENERGY STAR label on any multi-room STB models, as each has the potential of being deployed with a non-compliant remote STB and then be part of a multi-room configuration that isn’t qualified. With the multi-room STBs unable to be labeled now,

the other remote STBs (the ones that did meet ENERGY STAR) wouldn't receive the ENERGY STAR label either!

This creates an "all or nothing" decision for a service provider. If it can't be absolutely sure that every one of the multi-room STB models and every one of the remote STB models it purchases will be ENERGY STAR, then it can't label any of them and will not be able to count any towards annual fleet purchase requirements. DIRECTV recommends that the STB qualified product list (QPL) not be changed to list qualifying multi-room configurations, but instead continue to list all qualified products independently.

## **ENCOURAGING SERVICE PROVIDER PARTICIPATION**

The EPA will best encourage service provider participation by maintaining STB requirements that are impartial (i.e. don't favor a particular technology) and certain (i.e. not subject to change on short notice). The EPA furthermore should work to remove, and certainly not create, barriers to service provider participation such as unnecessarily complex and expensive testing regimes or overly burdensome reporting requirements.

**Replaceable CA and CableCARD.** DIRECTV's comments of March 23 expressed concern with the EPA's decision to align the base allowance for Satellite STBs with the base allowance for Cable STBs, as it effectively eliminated the allowance for the smart card based conditional access used in every Satellite STB. At the May 13 stakeholders call, DIRECTV presented this issue. In response to a question from the EPA, stakeholders explained that a smart card & reader impacted a STB to the tune of 0.5W-1W, while a CableCARD had an impact of 1W-1.5W due to the additional DFAST scrambling. For the requirements to remain impartial between satellite and cable, as was the EPA's intention, the base allowance for Satellite STBs should be increased. Alternatively, the additional functionality currently called "CableCard" should be renamed "Replaceable Conditional Access" with values that can be applied for both Cable STBs and Satellite STBs.

**Home Network Interface and DOCSIS.** The functionality of DOCSIS and that of a home networking technology such as MoCA are similar: both enable 2-way data signaling in coax networks originally installed to deliver analog television. However, the allowance for DOCSIS (20 kWh/yr) is twice that of MoCA (only 10 kWh/yr) in Version 3 when there is no technical basis for this difference. For these requirements to be applied impartially, these values should be harmonized.

**Version 3.0 and Version 4.0 Effective Dates.** Service provider participation is encouraged through having requirements that are certain. With proper lead time and confidence that the requirements won't change, service providers can implement internal purchasing programs and furthermore work with utilities to develop programs that accelerate the deployment of energy efficient products. The draft effective date for Version 3.0 is already only 10 months away, and there are many issues that have yet to be discussed, let alone resolved, as the STB requirements are finalized and the Enhanced

Testing program is made operational. DIRECTV recommends that the effective date for Version 3.0 should occur in 2012, with the effective date for Version 4.0 two years later. This certainty will allow service providers to join ENERGY STAR today, with the expectation that in 2012 they'll not only have plans in place that will allow them to stay in the program as Version 3.0 becomes effective, but will be prepared to launch utility sponsored programs as well.

**“Outliers” To Be Addressed Through Product Specifications.** On June 3, DIRECTV sent the EPA an email that is reproduced in the following paragraphs:

*In the Enhanced Testing & Verification proceeding, DIRECTV sent in comments expressing its concern that a single outlier found during verification testing, even if it were one in a hundred or a thousand, could start a process rolling that would result in delisting a product and possibly leaving a service provider unable to meet its partner obligations. DIRECTV suggested that verification testing allow either 1) an average measurement to be used for pass/fail or 2) an ability to exclude a small % of units in the event a unit doesn't pass.*

*EPA responded, stating “EPA is planning to have one process for dispute resolution across all product categories. The issue of ‘outlier’ products should be addressed through the product specifications rather than through the dispute resolution process.” The EPA’s feedback couldn’t be clearer: make sure guideline revisions have provisions built in to account for outliers.*

*DIRECTV has reviewed available DIRECTV lab data to gain some sense of the variability that is observed when multiple units of a STB model are tested. Due to the qualification test procedure requiring at least 3 units be tested, DIRECTV had 27 sets of three measurements available spanning 20 different STB models, and in each case the measurements were done on the same lab equipment and in the same time frame. For these DIRECTV found the following:*

- On average, there is a 2.5% variation between the highest and lowest measured TEC in a set.*
- 11 measurements had a variation <2%, 10 had a variation between 2% and 4%, and 6 had a variation >4% with the highest being 5.1%.*

*This data shows that the variation in energy usage between DIRECTV STBs is not insignificant, and that the additional energy consumed by “outliers” can exceed 5%. DIRECTV requests that the next STB product guideline draft addresses this issue, for example through increasing the product qualification limits by at least 5% or, for example, by establishing separate product verification limits that are at least 5% higher.*

**Enhanced Testing and Verification.** This year, an entirely new infrastructure is being added due to the ENERGY STAR program-wide “Enhanced Testing and Verification” initiative. 3<sup>rd</sup> party testing labs, Accreditation Body organizations, and Certification Body organizations will be inserted between ENERGY STAR Partners and the EPA staff (and contractors, such as ICF) that currently administer the ENERGY STAR program.

The costs of supporting this new infrastructure of businesses will be borne by program partners, even as they receive no benefits as a result. In addition to the cost impact, this new regime will introduce schedule impacts as well. For example:

- How much will a 3<sup>rd</sup> party lab test cost, given the high cost to that lab of building out a properly simulated DIRECTV's satellite signal distribution network and the relatively few tests that will be requested each year?
- Could a "witness test", for which no rules or procedures have yet been established, take months to schedule?
- How will the EPA protect partners from Certification Bodies maximizing profits, e.g. by performing Verification tests on 100% of previously certified products every year?

Uncertain cost and schedule impacts will deter service provider participation in ENERGY STAR, and the EPA should look carefully to mitigate these wherever possible.

**Additional Reporting.** In the Discussion Guide, the EPA describes a need for more detailed data collection, including "additional sales data about deployments and installation/usage of various home-networking protocols". In the current Version 2.0 program, a service provider is required to provide EPA each year with data about total numbers of ENERGY STAR and other set-top boxes purchased across a number of categories including "HD", "DVR" and "Multi-Room". For any service provider, this data is extremely sensitive and is provided to EPA at risk of being exposed to competitors. Reporting requirements that force a service provider to expose in even more detail its operations and deployments represent an increased deterrent to program participation. Furthermore, a service provider will likely incur additional costs to gather the additional internal data and creating reports that align with the specific information requested.

DIRECTV encourages the EPA to consider alternative methods for obtaining the information requested. For example, studies can be commissioned that can be targeted to answer specific questions that the EPA may have in the future. More importantly, these studies extend beyond the community of ENERGY STAR partners and gather information across the entire market: after all, information collected from partners may have little value if the equivalent metrics from non partners isn't also collected.

## CONCLUSION

In summary, the Draft 2 Set-Top Box Program Requirements need to:

- Allow both thin client STBs and multi-room STBs to use the "Home Network Interface" allowance
- List thin client and multi-room STBs separately on the QPL, not as "qualifying multi-room configurations"
- Address the lack of an Satellite STB allowance for "Replaceable Conditional Access"
- Harmonize the allowances for DOCSIS and Home Network Interface
- Have an effective date for Version 3.0 in 2012
- Refrain from imposing new annual reporting requirements

I look forward to continued discussions with the EPA.

Sincerely,

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Director, Engineering

Cc:  
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