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April 13, 2012

Via e-mail: STBs@energystar.gov

Ms. Katharine Kaplan
U.S. Environmental Protection Agency
ENERGY STAR for Set-Top Boxes
1200 Pennsylvania Ave., N.W.
Washington, D.C. 20460

Re: Process for Finalizing Version 4 ENERGY STAR Program Requirements for Cable, Satellite, and Telecom Service Providers

Dear Ms. Kaplan:

AT&T salutes the EPA and ENERGY STAR Program for undertaking a timely assessment of the draft Version 4 target consumption levels for set-top boxes (STBs); the draft is scheduled to be effective July 1, 2013. As a company, AT&T has long been dedicated to driving sustainability and energy efficiency both in our products and in our own operations. AT&T has qualified as an ENERGY STAR Service Provider since that program began. Moreover, since Version 2 went into effect, 100% of the company's boxes have been ENERGY STAR compliant. We are eager to maintain the 100% compliance level going forward, even if the rules technically allow ENERGY STAR Service Providers to distribute a limited numbers of non-compliant devices.

We look forward to collaborating with ENERGY STAR to produce reasonably challenging Version 4 final targets. As ENERGY STAR has already stated:

> One key feature of the ENERGY STAR label is that it delivers energy savings without sacrifice in performance or quality. When quality or performance issues arise, EPA and DOE recognize the importance of addressing them through enhancements to the relevant ENERGY STAR specification so as to avoid undermining the value of the label in the market.[1]

Furthermore, ENERGY STAR recognizes "when ENERGY STAR qualified models represent a high percentage of the market for a given product category, it suggests there may be an opportunity for additional savings and further refinement in the specification."[2] Conversely, if the percentage of products likely to achieve ENERGY STAR targets is too low, then revision of the specification also seems appropriate.[3] Both of these considerations -- the potential for adverse customer experience and the number of products able to qualify with current technology -- are relevant to revisiting and finalizing draft Version 4 targets.

AT&T raises four broad considerations related to Version 4 at this time. First and foremost, AT&T respectfully suggests that the targeted reductions in allowable energy consumption between Versions 3 and 4 are not justified by any new technology in the marketplace and are therefore too aggressive to achieve without significant risks, given the intersection of currently available technology and consumer expectations. The total allowance for IPTV in Version 4 is too low for both DVR and non-DVR units. Few, if any, other market segments where ENERGY STAR programs exist have achieved efficiency gains similar to the STB product category in general and IPTV receivers in particular. In a recent ex parte, NCTA provided data that indicated the energy improvement has averaged from about 5% to just under 8% for cable set top boxes over the last 9 years.[4] This tracks well with the annualized efficiency improvement from Version 2 to Version 3 which was in the range of 7% to 8% for IPTV receivers. However, the proposed Version 4 targets represent an annual rate of improvement (from Version 3) of 20% to 24%. Compared to other technologies, IPTV receivers are being targeted for a 50% improvement in base functionality (Version 3 to Version 4) while other platforms are only targeted for a 25% (cable) to 29% (satellite) improvement, despite the fact

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[1] Strategic Vision and Guiding Principles at 9 (Jan. 2012) (emphasis added) (available at http://www.energystar.gov/ia/partners/prod_development/downloads/guiding_principles_2012.pdf.)

[2] *Id.* at 6.

[3] In fact, Version 1 was suspended from 2005 to the end of 2008, in part because consumption levels across the product category did not differ enough to permit meaningful stratification of the top 25% most efficient performers. Summary of Rationale for Suspension of the ENERGY STAR® Specification for Set-top Boxes Final (EPA, Office of Air and Radiation July 2005) ("Rationale for Suspension of ENERGY STAR STB Specification") (available at http://www.energystar.gov/ia/partners/prod_development/revisions/downloads/settop_boxes/STBs_Decision_Memo_FINAL.pdf).

[4] Average annual energy efficiency improvement calculated from consumption figures in 2011 and 2002 on slide 5 of the presentation titled Energy Efficiency in Cable Set Top Boxes November 29, 2011 included in the 12/5/2011 Ex Parte, Docket No. EERE-2010-BT-DET-0040; RIN Number 1904-AC52

that cable and satellite base allowances start 10 to 20 kWh/yr higher than that for IPTV. AT&T submits that the expected performance improvement is overly demanding when there has been no technological breakthrough in the interim that would allow such a dramatic increase in efficiency. Moderation of the Version 4 targets is essential to sustain a robust program where it is reasonably feasible for various technologies to qualify.

Second, AT&T suggests that the Version 4 targets should reflect a new adder for wireless connectivity for IPTV receivers. Wireless connectivity was not in the market when the Version 3 and the draft Version 4 targets were published. At this point, however, AT&T is deploying boxes that communicate wirelessly within a consumer's home. AT&T's wireless-enabled boxes significantly improve the customer experience, avoiding the need for in-home wiring to the receiver, allowing TVs and STBs to be placed wherever there is an electrical outlet and obviating the need for customers to wait for installation personnel. Given the substantial customer benefits that accompany a wireless interface, AT&T respectfully urges ENERGY STAR to establish an appropriate adder for this capability.

Third, compliance with the draft Version 4 targets apparently assume that service providers will implement some form of a light and/or deep sleep capability. In fact, ENERGY STAR's Version 3 specification indicated the intent to implement a "mandatory deep sleep requirement for qualifying STBs." Version 3 Eligibility Criteria at 10 (Jan. 2012). As AT&T recently argued to the Department of Energy, mandating this feature will: (1) adversely impact functionality, (2) inevitably burden and constrain system architecture, and (3) risk significant negative customer reaction arising from unacceptable wake-up times and problems with scheduled video recording.[5] Because of the current technical impracticality and the high risk of degraded customer experience and service quality, neither light nor deep sleep should be necessary to enable conformance with Version 4 targets.

[5] The EPA has itself noted the significant difficulties associated with implementing a sleep mode in STBs, acknowledging that implementing this capability would "necessitate a redesign of the current service provider networks, since the existing system requires set-top boxes to always be 'on' so they can receive updated channel maps . . . security keys [and electronic program guides]. This redesign would likely be a resource intensive endeavor and require significant support from all set-top box stakeholders, including the [providers]." Rationale for Suspension of ENERGY STAR STB Specification at 4. Similarly, the agency noted that mandating a sleep mode "would adversely affect product performance, as they could miss channel map updates and other data downloads from [providers] and may not be able to respond quickly enough when consumers turn them back on." *Id.* at 5.

Fourth, as AT&T has previously suggested, ENERGY STAR should establish separate product categories for IPTV receivers and Over-the-Top (OTT) devices. AT&T's U-verse STB and OTT devices deliver fundamentally different capabilities and therefore have significantly different levels of energy consumption.

- AT&T's U-verse equipment must be able to connect with the wide range of TV sets, each with its own interface, including composite, component, HDMI, S-video, optical, analog and RF. Each interface needs its own circuitry and control capability, and each consumes power. OTT devices may rely on a single interface and may consequently only work with certain, newer TVs.

- U-verse STBs must also be capable of interfacing with devices (*e.g.*, consoles and gateways) that are part of a consumer's home network but are not necessarily in close physical proximity. This permits sharing of functionality, such as the DVR capability. U-verse equipment uses a carrier-grade wireless signal that is sufficiently robust to ensure reliable networking throughout a consumer's home. To the extent a Wi-Fi link exists in OTT devices, it will typically be a consumer-grade interface, relatively low-power and unsophisticated due to assumed proximity of the communicating devices.

- U-verse STBs are designed to permit users to browse a continuously updated channel guide, deliver fast channel changes, and handle multiple simultaneous video streams. They must also support capabilities such as emergency alert service, closed captioning and other FCC requirements. Such functionality requires (1) more sophisticated "System on a Chip" silicon ("SOCs"), (2) the presence of more software in random access memory, (3) more storage of content in buffers and (4) processors that are more sophisticated and capable of managing more transactions more quickly. In contrast, OTT IP boxes provide a bare bones display adaptation and essentially none of these additional functions. Consequently, they consume dramatically less power.

Finally, AT&T encourages EPA to reconsider the effective date for the Version 4 targets. As currently proposed, Version 4 would become effective within 22 months of Version 3's inception date. This is significantly shorter than the 32 months that Version 2 was in effect before Version 3. A later effective date is more consistent with the equipment development cycle within which AT&T and other providers operate. Once target consumption levels are finalized, it typically takes providers at least 18 months to implement them and ensure that qualifying equipment is available for deployment on the new effective date.

AT&T looks forward to continuing its collaboration with the ENERGY STAR staff with the goal of allowing continued participation in the ENERGY STAR Program. If you would like to contact AT&T about further activities to revisit ENERGY STAR Version 4 targets for the set top box product class, please contact Jeff Dygert at 202-457-3844.

Sincerely,

Keith M. Krom