Draft 1 Versions 4.0 and 5.0 ENERGY STAR® TV Products Specification Comment Summary
June 5, 2009

This document is intended to summarize comments submitted by stakeholders in response to the Draft 1 Versions 4.0 and 5.0 (formerly called Version 3.1 Tiers 2 and 3) ENERGY STAR TV specification and includes an EPA response to each comment. Please note: this summary includes only those comments that EPA received permission to make public.

Topic	Comment	EPA Response
ON Mode	Several stakeholders noted that models which meet the Tier 2 ON Mode requirement are less profitable, smaller screen size models or the lower performing, larger screen size models. Stakeholders commented on the small number of mid-sized models that would meet the Tier 2 proposal. They further noted that the Draft 1 proposal is biased against larger screen sizes, better performing products, and favors certain display technologies. One commenter noted that the Tier 2 proposal as applied to 55" and larger screen sizes places the logo predominately on Digital Light Processing (DLP) technology which is currently supported by only one manufacturer.	Based on EPA's current dataset, there are feature-rich, mid- and large-screen models available today that are able to meet the proposed ON Mode requirements in a variety of price points and sizes, utilizing both conventional backlight technology and emerging backlight technologies. Based on input directly from several TV manufacturers, manufacturers' Web sites, and roadmaps for top panel manufacturers and top tier TV manufacturers, EPA expects many more mid- and large-sized energy efficient models, utilizing different backlight technologies, will be available by May 2010 and into May 2012, the proposed Version 5.0 effective date. Roadmaps for the top four panel makers show LED backlight TVs in all 32-inch and larger series going forward. Major manufacturers have targeted 40 - 100% LED backlight TVs in 2010.
	One stakeholder presented a different ON Mode requirement which is more balanced across all size categories while still representing 25% of models available. Several stakeholders supported this proposal.	EPA has not adopted this proposal because a range of currently available products meet EPA's proposed requirements, and the proposal would result in loss of savings associated with larger screen sizes and reduced relevance for the ENERGY STAR TV program.
	One stakeholder did not agree with the counter-proposal and the less stringent requirements for TVs with larger screen sizes on face value. The stakeholder noted that there is no evidence to support the contention that manufacturers can not readily produce larger TVs that meet the proposed levels.	No response required.
	Several stakeholders noted that substantial efficiency improvements can not be made on TVs in the coming years.	Based on input directly from several TV manufacturers, manufacturer Web sites, and roadmaps for top panel manufacturers and top tier TV manufacturers, EPA expects many more mid- and large-sized efficient models will be available by May 2010 and into May 2012, the proposed Version 5.0 effective date. Roadmaps for the top four panel makers show LED backlight TVs in all 32 inch and above series going forward. Major manufacturers have targeted 40 - 100% LED backlight TVs in 2010.
	One stakeholder noted that the high qualification rate ought to be construed as evidence of the program's success instead of grounds to rapidly ratchet down the specification without convincing evidence that the new levels can be attained within the prescribed short timetables.	No response required.
	Other stakeholders supported the Tier 2 and Tier 3 ON Mode requirements proposed in Draft 1 noting that the proposals create a level playing field for all technologies. The proposed ON Mode requirements allow utilities to provide rebates for models that meet or exceed the proposed levels.	EPA has maintained two tiers, or future sets of requirements, in this Draft 2 specification.

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	One stakeholder noted that to meet the V 3.1 Specifications, the cost of TVs will increase dramatically. This cost will outweigh any savings from lower energy use.	Market reports indicate that the cost gap between more efficient backlight technology (e.g., LED) and CCFL will likely disappear for small screen sizes this year, will be significantly reduced for mid- and large-screen models by the end of this year, and will continue to trend down.
	One stakeholder suggested two possible approaches (1) to adjust the equation by lowering the y-intercept and increasing the slope of the line or (2) to construct an equation that leads to a "lightning bolt" configuration.	Neither approach is reflected in this draft as currently available products in a range of size categories meet the proposed Version 4.0 requirements.
	One stakeholder noted for the proposal ON Mode requirement, televisions with screen sizes of 23 diagonal inches or less qualify at an extremely high rate. The result is that the ENERGY STAR mark would not provide meaningful differentiation for products of these screen sizes.	The proposed Version 4.0 ON Mode requirement represents approximately 25% of the overall dataset, with models across a range of size categories potentially qualifying. Balancing all considerations, EPA sees having generous qualification rate in smaller screen sizes as an acceptable outcome.
	One stakeholder recommended that EPA should properly align the ON Mode power consumption limit with the ENERGY STAR program goals.	EPA's proposal will recognize the top performers on the market in all size categories. Currently available product data indicates qualification in small, medium, and large size categories. Thus the proposal does align with program principles.
	One stakeholder supported the proposal in the Draft 1 specification to remove the additional power allowance granted under Version 3.0 for larger screen televisions (resulting in a straight line specification).	No response required.
Tier 3	Several stakeholders noted it was premature to set an ON Mode limit with an effective date in 2012. They noted that the television market is currently in a very dynamic design cycle, and it is difficult to predict what an appropriate ON Mode limit should be to meet ENERGY STAR program goals in 2012.	EPA based its Version 5.0 (formerly called Tier 3) proposed requirements on the rapid improvements in efficiency realized between Version 3.0 development and the present, expected additional efficiency projected for 2010 models, and trends toward efficiency projected by manufacturers and market research firms to continue into the Version 5.0 timeframe. Supporting such trends is significant consumer interest in energy efficient TVs and their wiliness in many cases to pay more for such products.
	One stakeholder suggested that it would be more appropriate to review the available data at a later date, perhaps 12 months before the proposed effective date, and set a limit at that time.	Market trend data shows all companies projecting out significant increases in shipments of more efficient technologies, supporting the Version 5.0 proposal. EPA will monitor the market closely and adjust the Version 5.0 requirements, as needed, to appropriate requirements.
	One stakeholder commented that future tier levels need to be anticipatory. Therefore, they encourage EPA to establish a review schedule in advance of the effective dates to ensure that the level is appropriate based on market trends. This review process should occur at least annually and if possible more frequent (e.g., every 6 to 9 months).	EPA is committed to reviewing through an open stakeholder process the appropriateness of the Version 5.0 requirements well in advance of that Version's effective date and will make revisions to the requirements as needed.
	Some stakeholder stated that there is significant value in establishing two future tier levels at the same time. They noted that two future levels gives manufacturers an efficiency roadmap to inform their product development process. This multi-tiered approach could then continue on an ongoing basis as a way to protect the ENERGY STAR brand and to accelerate the most efficient products to the market.	EPA has maintained two tiers, or future sets of requirements, in this Draft 2 specification.

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	One stakeholder stated that EPA should develop an alternate Tier 3 specification for stakeholder consideration that would become progressively more stringent for TVs greater than a certain size. Otherwise those consumers who purchase a large new ENERGY STAR TV may achieve little to no energy savings compared to the current TV they are replacing.	The Draft 2 specification incorporates this concept.
DAM	Several stakeholders noted that any requirement for DAM should not be set on specific time and power requirements. They suggested that EPA adopt a DAM model based on total energy consumption while in DAM mode, citing that an equivalent energy budget in watt-hours, rather than limiting DAM time and/or maximum power, will allow TV manufacturers more flexibility for innovation.	The proposed DAM requirement in Draft 2 incorporates this concept.
	One stakeholder proposed that for the consumer market, that total DAM power consumption be limited to 80 Watt-hours in a 24 hour period.	In Draft 2, EPA proposed a DAM requirement for TVs of 0.02 kWh/day. This level was based on an expected power of 5 watts while in DAM for a duration of 4 hours. Manufacturers do not have to meet these power and duration levels, only the overall proposed 0.02 kWh/day requirement. This would give manufacturers a level that EPA understands is technologically feasible, while realizing real energy savings.
	One commenter proposed that EPA should not set a Download AcquisitiON Mode limitation on televisions that are identified as, and only sold to, the hospitality sector.	EPA is seeking a means of clearly differentiating a hospitality TV from a consumer TV (i.e., a set of characteristics that are unique to hospitality TVs). EPA is also seeking data regarding the duty cycle for hospitality TVs and clarification on whether this duty cycles differs for TVs bound for healthcare settings. Finally, if EPA is able to with certainty separate these products from consumer products, the Agency may propose a Typical Electricity Consumption (TEC) approach for hospitality TVs, giving manufacturers greater flexibility in meeting the ENERGY STAR kWh requirements. EPA has employed this approach with other product categories such as imaging equipment, computers, and set-top boxes. To further discussion of approaches for these products, EPA will host a conference call with interested stakeholders.
Luminance	Several stakeholders commented on little evidence demonstrating that (1) manufacturers are setting TVs overly dim in home mode in order to meet ON Mode requirements or (2) consumers are changing factory settings on a TV to a higher brightness level which would cause concern or necessitate luminance requirements.	Even absent such data at this time, concern raised by numerous stakeholders independently, global action on this issue, and the increased risk of dimming as the ENERGY STAR requirements increase in stringency, all call for initial action as proposed in Version 4.0 as well as close attention and possibly study going forward.
	Some stakeholders indicated the initial luminance proposal was too restrictive or too closely coupled home and retail modes and that manufacturers may opt to use the maximum amount of power allowed to qualify for ENERGY STAR in order to achieve the brightest possible pre-set setting at retail. Therefore, substantial energy savings could be lost if manufacturers produce products that just meet the ENERGY STAR level rather than seek to achieve the highest efficiency level possible.	In Draft 2, the proposed approach, that home mode shall not be less than 65% of the luminance of the “retail” mode, gives manufacturers some flexibility when setting luminance specifications for home and retails modes (i.e., does not closely couple the modes).

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	One stakeholder noted that luminance was largely addressed by EPA in Version 3.0, by permitting manufacturers to use a 'forced setup menu' prompt, which strongly encourages consumers to select the less consumptive "Home" or standard brightness mode.	The forced menu remains a good tactic for ensuring consumer sets start off in a home mode. This next proposal is intended to ensure that TVs remain in the mode in which they qualified for ENERGY STAR.
	One stakeholder noted their strong opposition to a luminance requirements based on power. They indicated that different TV technologies have unique characteristics tied to luminance, which should be recognized and considered by the EPA in its effort to be "technology neutral." For example, most plasma TVs automatically reduce their brightness and power as the average picture level (APL) increases beyond a certain threshold.	Based on data on several sets employing different display technologies, EPA agrees that a luminance approach based on power could possibly create an uneven playing field. Therefore, in Draft 2 EPA proposed an approach based on product luminance.
	Some stakeholders urged EPA to harmonize with luminance regulations in European Union and Australian, which establish a minimum luminance ratio between home and retail mode of 65% and 50% respectively.	Draft 2 reflects this recommendation.
	One stakeholder noted that EPA should work with interested stakeholders to develop a consensus test pattern and test method for measuring the luminance of the test pattern at the beginning of the ON Mode test.	Draft 2 reflects this recommendation.
	One stakeholder recommended EPA require manufacturers to report the ON Mode power levels and luminance levels for both retail and home/standard modes and should review the new data in order to modify its approach on settings and brightness prior to the Tier 3 enactment date.	EPA anticipates collecting luminance levels for both retail and home modes for ENERGY STAR qualification. EPA will review this data closely and adjust this approach prior to the effective date for Version 5.0, as needed.
	One stakeholder commented that if a luminance requirement is set, it should be done on the basis of power rather than measured luminance.	Based on data on several sets employing different display technologies, EPA agrees that a luminance approach based on power could possibly create an uneven playing field. Therefore, in Draft 2 EPA proposed an approach based on product luminance.
	One stakeholder noted that if a Home Mode/Retail Mode relationship is required at all, the ratio restricting the relationship between Home Mode power and Retail Mode power should be no higher than 50%.	EPA has proposed an approach that is harmonized with international partners and is supported by data provided by ENERGY STAR international partner countries.
Nomenclature	One stakeholder comments that EPA should consider a simpler nomenclature to identify different specification levels proposed.	To simplify the specification nomenclature for this and future specifications, EPA is proposing to name this specification "Version 4.0" instead of "Version 3.1 Tier 2." All references to Version 3.1 Tier 2 in the previous Draft 1 document have been updated accordingly in this specification. Additionally, references to "Version 3.1 Tier 3" in this specification have been modified to "Version 5.0."
Timeline	Some stakeholders recommended effective dates earlier than those listed in Draft 1 for Version 4 (05/01/10) and Version 5 (05/01/12) or more frequent specification revisions to match industry's product development timeline.	The proposed Version 4.0 effective date of May 1, 2010, would allow industry the typical nine months transition time between when EPA expects to finalize the Version 4.0 specification and when the specification takes effect. Based on the rigor of the proposals, EPA believes that the proposed timing of the two versions is appropriate. However, should the market respond as it did with Version 3.0, EPA will consider an earlier effective date for Versions 4.0 or 5.0, as appropriate.

Topic	Comment	EPA Response
Other	One stakeholder noted that the higher carbon dioxide emissions in production process of RGB LEDs offset any energy savings that LED TVs may provide.	Taking into account the total life cycle costs of different lighting technologies, EPA believes that any increase in CO2 emissions during the production phase of LEDs as compared to CCFLs is more than made up for by the CO2 avoided by energy savings in the use phase of LEDs as compared to CCFLs. Initial life cycle analysis research on solid state lighting done by researchers at the Carnegie Mellon Institute (Matthews HC, Matthews DH, et al) have reflected this. Also, EPA understands that RGB LED lights are used in only a minority of LED-backlit TVs at this time.
	One stakeholder noted LED TVs are the only sets that will meet the V 3.1 spec but LED TVs represent a small part of the TV market and that market penetration of LED TVs will be very slow.	Based on EPA's current dataset, there are feature-rich, mid- and large-screen models available today that are able to meet the proposed ON Mode requirements in a variety of price points and sizes, utilizing both conventional backlight technology and emerging backlight technologies. Roadmaps for the top four panel makers show LED backlight TVs in all 32 inch and above series going forward. Major manufacturers have targeted 40 - 100% LED backlight TVs in 2010.
	One stakeholder commented that EPA shall conduct a study that more specifically assesses the Automatic Brightness Control (ABC) requirements to better determine if the current language should be modified.	Based on stakeholders' input from the April 24 stakeholder meeting, EPA will not be modifying the above calculation for ON Mode power consumption of products with the Automatic Brightness Control (ABC) feature in the Version 4.0 specification. EPA will continue to track the use of this feature in the market, and possibly conduct a study, to assess the appropriateness of this treatment for products available in 2012 when the Version 5.0 requirements will go into effect.