

Stakeholder Comments in Response to the Draft 3 Version 6.0 ENERGY STAR® Displays Test Method (Distributed February 10, 2012)

Comment No.	Document	Topic	Comment	ENERGY STAR Response
1	Test Method – Draft 3	ABC	We are understanding of the complication of measuring the ABC sensor illuminance in a way that correlates well between the test and the users ambient environment. In our laboratory, we would dim an incandescent room light to the prescribed illuminance levels for test purposes. One potential solution to the directionality of the ambient light would be to use a calibrated integrating sphere light source with a known exit port illuminance. This port could be placed as near to the ABC sensor as physically possible for the testing. This might address concerns about the directionality of the light source.	DOE and EPA believe that specifying variables for the approach recommended by the stakeholder will add complexity to the test method. In the proposed Draft Test Method, DOE and EPA have specified testing displays with a 980 lumen halogen flood reflector lamp with no obstructions between the lamp and the display's light sensor. DOE and EPA also specify the distance, horizontal and vertical angle of the light source with respect to the display's light sensor. During testing, DOE observed that the lamp emits light which is directional in nature.
2	Test Method – Draft 3	ABC	Is it EPA's intention in the next version of the ENERGY STAR Displays spec to define what a dark room is intended to be? I believe it should be defined so that the rooms being used for testing are appropriate as far as not reflecting light from any light sources into the light measuring devices. I think the dark room should be painted flat black and not have any reflective surfaces within it.	In the Draft 3 Test Method, DOE and EPA specified dark room conditions for testing displays in Section 6.2 B) 1) as the room illuminance measured at the Display screen with the UUT in the Off Mode shall be less than or equal to 1.0 lux. In the proposed Draft Test Method, DOE and EPA have clarified that there shall be no reflective surfaces present in the dark room.
3	Test Method – Draft 3	ABC	I also think there should be a method described as to how to achieve required ambient light levels at the UUT ABC sensor. For instance through a tube of a certain diameter with a dimmable 100W bulb at the other end.	In the proposed Draft Test Method, DOE and EPA specify that ambient light levels shall be set at the UUT's ABC sensor by varying the voltage to the light source. No tube or obstruction shall be used between the light source and the UUT's ABC sensor.
4	Test Method – Draft 3	ABC	We would like to request that ON Mode testing for a product with ABC enabled by default should be tested with ABC Enabled only. In other words, we would like to request you to delete 7.4 E. This concept is very simple and the same as Energy Star version 5.1.	For qualification purposes, the Draft 3 Test Method required that all ABC enabled products be tested twice. Once with ABC enabled and at ambient lighting levels of 10, 100, 300 and 500 lux and the second time with ABC disabled. If the ABC cannot be disabled, then the UUT shall be tested with light greater than 500 lux directly entering the sensor. DOE and EPA have maintained this recommendation in the proposed Draft Test Method.
5	Test Method – Draft 3	ABC	We recommend the Test Method Section 5.1.3 be modified to require a black screen to be displayed while the ambient light is measured at the location of the ABC ambient light sensor. The IEC 62087 main menu screen, which is currently proposed to be displayed, may affect the repeatability of the ABC sensor illuminance measurement since this menu screen light may reflect more or less depending on the color and proximity of the test room walls.	During testing, DOE observed negligible interference by the light emitted from the screen, even at low ambient light levels of 10 lux. DOE believes that displaying the IEC 62087 main menu as a background will not affect the light measurement at the sensors. Measuring room illuminance values with the IEC 62087 test signal main menu is less burdensome than measuring room illuminance values with the black screen, as the tester will not have to switch between two different input signals during testing.

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6	Test Method – Draft 3	ABC	We further recommend that the power measurements at 100 and 500 lux be removed from the test procedure. These measurements are not required for product qualification, but do represent an additional test burden.	The illuminance values at 100 and 500 lux were incorporated in the Draft 3 Test Method and specification to enable DOE and EPA to better understand Display behavior at these values. Requirements to measure and report power consumption at these illuminance values have been retained in the proposed Draft Test Method.
7	Test Method – Draft 3	ABC	Again, we are concerned about the accuracy and repeatability of this testing. The most important issue regarding Automatic Brightness Control (ABC) is the selection and weighting of the various ambient illumination levels required during the power measurements. The IEC 62087 committee chose 0 lux and 300 lux (or greater) as extreme values, which would be easy to supply to the ABC ambient light sensor while ensuring the display provided in a repeatable manner the minimum and maximum display brightness respectively.	As proposed in the Draft 3 specification, products will qualify based on power consumption with ABC enabled at 10 lux and 300 lux and with ABC disabled. The values at 100 and 500 lux are for reporting only. In addition, DOE testing has found that testing is repeatable at all lux values, with the test setup specified in the proposed Draft Test Method.
8	Test Method – Draft 3	ABC	Different third party laboratories must be able to supply the identical ambient illumination to the ABC sensor such that the measured power is reproducible. This is a major reason why the IEC 62087 committee chose the 0 lux and 300 lux (or greater) values. Intricate setup and measurement procedures are not needed with the IEC values since it easy to achieve 0 lux by covering the ABC sensor, and 300 lux (or greater) can be achieved by increasing the illumination source until the ABC sensor becomes saturated thus providing the maximum brightness.	<p>In the proposed Draft Test Method, DOE and EPA have recommended testing ABC enabled displays at room illuminance levels of 10, 100, 300 and 500 lux. In addition, to improve the repeatability of the test method within and between labs, DOE and EPA have specified additional variables such as the light source (980 lumens halogen flood reflector lamp), UUT alignment (aligned with vertical and horizontal reference plane), light source alignment (0° vertical and horizontal angle with respect to the UUT's sensor) and distance of the light source (5 feet) from UUT's light sensor. DOE and EPA have also specified that the ambient lighting levels shall be set by varying the voltage to the lamp.</p> <p>During testing DOE observed that the intermediate lux values specified are achievable with the variables as specified in the proposed Draft Test Method.</p>
9	Test Method – Draft 3	ABC	If ENERGY STAR Displays Version 6.0 specifies absolute illuminance values for testing ABC, it will also be necessary to provide a detailed measurement procedure. This procedure should take into account at minimum the following items: 1) The illumination source collimation and direction 2) The illumination source frequency spectrum 3) The illumination source stability over time 4) The meter used to measure the illumination source 5) The ABC sensor location 6) The ABC sensor collection angle 7) The test room wall reflectivity	<p>DOE and EPA agree that the Draft 3 Test Method did not provide sufficient clarification for testing ABC products. The following attributes have been specified by DOE and EPA in the proposed Draft Test Method:</p> <ul style="list-style-type: none">1) Lamp: 980 +/- 5% lumen halogen flood reflector lamp2) Attributes and tolerance levels for light measuring devices3) UUT and light source alignment4) Dark room conditions <p>These clarifications address the concerns of the stakeholder.</p>

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10	Test Method – Draft 3	ABC	Given the complexity, time required, and associated accumulative error of making measurements at multiple absolute illumination values, we recommend the measurements be taken at 0 lux and 300 lux. As noted above, the 0 and 300 lux values were selected for ease and repeatability of the measurement.	See response to comment 8.
11	Test Method – Draft 3	ABC	It is critical that the ABC test method employ an ambient lighting technique that is representative of typical overhead office lighting with light colored walls. Testing ABC with a directed light source on the displays light sensor does not represent real world use, which involves overhead lighting being reflected from office walls.	DOE and EPA understand that light directly shined into a display's light sensor is not representative of the real world scenario. However, with displays being used in a variety of lighting conditions, replicating such scenarios for testing increases testing complexity. As such, the proposed Draft Test Method retains the direct light test setup and approach proposed in the Draft 3 Test Method. However, DOE and EPA have specified additional variables in section 5 of the proposed Draft Test Method to improve testing repeatability.
12	Test Method – Draft 3	Data / Network Connections	The Test Method Section 6.2.C.1.c states that the UUT shall maintain a live connection to the network for the duration of testing, disregarding any brief lapses. Does this imply that this connection is maintained during both On Mode and Sleep Mode power measurements? If so, we recommend that the Maximum On Mode Power Requirement be increased by the same power allowances for data or network capabilities which are added to the Maximum Sleep Mode Power Requirement.	The proposed Draft Test Method clarifies that a live network connection be maintained during On Mode and Sleep Mode power measurements. As mentioned in the Draft 2 specification, given the relatively large power consumption of the principal features compared to the relatively small power consumption of data/networking capabilities in On Mode for products with such capabilities, EPA does not propose any adders to compensate for the additional power consumption in On Mode.
13	Test Method – Draft 3	Data / Network Connections	If the UUT has network capabilities, the capabilities shall be activated and the UUT shall be connected to a live physical (Some engineers may think of “physical” as “wired”) network, including wireless Radio Frequency (RF), which supports the highest and lowest data speeds (Is there a reason for “lowest data speeds”?) of the UUT's network function.	DOE and EPA have clarified the language in the proposed Draft Test Method to better define a physical network connection.
14	Test Method – Draft 3	Data / Network Connections	External peripheral devices shall not be connected to USB ports or other data ports on the UUT: How to define the external peripheral devices? I list some devices, for example usb printer, usb cooler fan, usb CDROM and usb flash drive. Are they correct? They shall not be connected to USB ports or other data ports on the UUT, shall they? What kind of peripheral devices could be connected to USB ports or other data ports on the UUT? Would you please help take some examples?	DOE and EPA have clarified the language for bridge connectivity in the proposed Draft Test Method. The product shall be connected in a bridge configuration only if it supports bridging. In the bridge configuration, the product shall be connected to the host system (PC) during testing. The host machine and the UUT shall act as bridged controllers. No peripheral devices such as USB mouse, CD-ROM, Flash drive, printer etc. shall be connected to the UUT. In addition, EPA will include a definition for a “Bridge Connection” in the Final Draft specification.

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15	Test Method – Draft 3	Data / Network Connections	If the UUT has data connection capability (e.g., USB, Firewire), another device shall be capable of bridging the data connection, while active and powered with a live bridge i.e., the two devices shall act as bridged USB hub controllers: What is "another device"? How to bridge UUT and the USB device? "the two devices shall act as bridged USB hub controllers"...what does it mean? Would you please help explain that in detail?	See response to comment 14.
16	Test Method – Draft 3	Data / Network Connections	A bridge connection shall be made between the UUT and the host machine. Q: Is the bridge connection for network and data connection or only for data connection? It means that the device cannot connect to the host machine (ex: PC) directly. It shall be connected to the host machine through the data port of UUT,shan't it?	The bridge connection is only for data connectivity and not network connectivity. For products which have bridging capability that support video data streaming (to display the IEC 62087 Broadcast Content) no other connection is required. DOE and EPA have clarified this in the proposed Draft Test Method.
17	Test Method – Draft 3	Data / Network Connections	What kind of peripheral devices are integral to the product functioning? Would you please help take some examples?	See response to comment 14.
18	Test Method – Draft 3	Data / Network Connections	Regarding the answer 2), if USB or Firewire can be used as a bridge, then the host PC can control the UUT via this bridge. And this is the main functionality of the bridge, isn't it?	DOE and EPA agree that the main functionality of the bridge is for the host system to control the UUT. See response to comment 14.
19	Test Method – Draft 3	Data / Network Connections	If UUT can only be powered by USB connected to the PC, then the PC can be regarded as "a low-voltage DC power source"? Can the on mode power be calculated per equation 4?	In such cases, a PC can be regarded as a low-voltage DC power source. P_L in equation 4 would be the On mode power of the whole system (display + PC) and P_S would be the On Mode power of the PC without the display attached.

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20	Test Method – Draft 3	Data / Network Connections	3.4.3 It should be made clear in the text that displays that support bridge networks with the host do not enter a true sleep mode unless the computer itself enters sleep mode. Simply setting the display to sleep and setting the computer to not sleep does not allow these types of network connected displays to fully power down to a true sleep mode. Since these displays are acting as an extension of the computer with respect to keeping data buses active for Ethernet, Firewire, and USB.	DOE and EPA have added language in the proposed Draft Test Method specifying that the host machine to which the product is bridged shall also be in the sleep state while testing sleep mode power consumption of the display.
21	Test Method – Draft 3	Data / Network Connections	3.4.2 It is not clear from the specification that the networking features requiring additional power are for the bridge network between the display and the host computer (e.g. USB, Thunderbolt) or between the display and an external network (e.g. Ethernet, WiFi). The spec and the test method should be very clear in which network is being tested and which network features receive the address.	In the proposed Draft Test Method, DOE and EPA have specified that if the UUT has both data and network capabilities (e.g., USB, , Thunderbolt, Wi-Fi, Ethernet), the UUT shall be configured and connected to a single active data source (e.g., bridge connection between the host and display) or a single network source (e.g., Ethernet connection to a router), while maintaining a video signal connection. In addition, EPA will further clarify Table 3 in section 3.4.2 of the Final Draft specification.
22	Test Method – Draft 3	IEC 62087	The IEC62087 test pattern is more stringent than the test in the current Ver. 5.1 spec. (More black level will consume more power and the range is around 1~2w), so this has a significant impact on the limits you set as well. The IEC should measure ~1 to 2W higher than VESA FPDM2. The “on” power limits are a major concern.	During development of the Draft 2 specification, EPA analyzed the On Mode power consumption of displays tested with the IEC 62087 test pattern and with the VESA FPDM2 test pattern. With the exception of one data point, the majority of displays reported a power difference of less than 1 watt when tested with the two patterns, with the VESA pattern yielding higher power consumption in many cases. This information was presented and discussed at the Draft 2 Version 6.0 ENERGY STAR Displays Specification Stakeholder Meeting held on September 27, 2011. DOE and EPA propose to keep the IEC 62087 Dynamic Broadcast loop test pattern.
23	Test Method – Draft 3	IEC 62087	We believe that it is not possible to check the power consumption at each resolution. Recommend that the requirement simply indicate testing with the VESA Flat Panel Display Measurements (FPDM) Standard version 2.0 test patterns.	In the proposed Draft Test Method, DOE and EPA recommended testing with the IEC 62087 test signal by setting the resolution of the product to the as-shipped condition. Products that are not compatible with the IEC test signal format shall be tested with the VESA FPDM2 test signal format at the highest supported resolution. DOE and EPA do not require testing power at each resolution. This is identical to the language in the Draft 3 Test Method.

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24	Test Method – Draft 3	IEC 62087	We noticed that the test method will require use of the IEC62087 test pattern that is more stringent than the test in the current Ver. 5.1 spec. Use of the new test pattern (that involves more black level being displayed), will result in higher power consumption of the Display - in the range of 1.0 to 2.0 Watts. Has EPA factored this increase resulting from the change in test method, into the data analysis / and spec. limits being proposed for the ver. 6.0 limits?	See response to comment 22.
25	Test Method – Draft 3	IEC 62087	Subsection (3) specifies that light values (measured lux) must be tested “with light entering directly into the sensor and with IEC 62087 Ed. 3.0 test signal main menu displayed on the product.” As industry indicated during the recent EPA-hosted webinar, this is not representative of real world lighting conditions. It is highly unlikely that a user would have a light source directed at their computer display. Accordingly, we submit that it would not be an appropriate method for evaluating ENERGY STAR compliance. We understand that EPA may be investigating alternative methods of creating ambient lighting considerations. We support such an initiative, and would welcome the opportunity to host or participate in a conference call to discuss this further.	See response to comment 11.
26	Test Method – Draft 3	IEC 62087	Subsection (1) specifies IEC 62087-2011, Dynamic Broadcast-Content Signal, for conducting displays power measurements. While this may be appropriate for ENERGY STAR-qualified televisions, it is not appropriate for computer displays. The test pattern referenced in this standard is more stringent than the test currently required under the Displays 5.1 specification, requiring the use of more “black level” in the test. This will result in the consumption of between 1-2 additional Watts during the test, and may have a significant, detrimental impact on a manufacturer’s ability to qualify otherwise eligible products under Version 6.0 of the Display specification.	See response to comment 22.
27	Test Method – Draft 3	IEC 62087	We recommend that EPA remove the reference to IEC 62087-2011 and instead solely require use of the test patterns contained in the Video Electronics Standard Association’s Flat Panel Display Measurements Standard, version 2.0.	See response to comment 22.

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28	Test Method – Draft 3	IEC 62087	What is exact definition of “products that cannot be tested using the dynamic broadcast-content video signal. “the dynamic broadcast-content video signal. “is impossible to check the power consumption of each resolution. The test pattern of (Flat Panel Display Measurements (FPDM) Standard version 2.0 test patterns)”is possible to check every resolution of displays and this is more effective than the dynamic broadcast-content video signal. “. So we would better to test with VESA Flat Panel Display Measurements (FPDM) Standard version 2.0 test patterns)” and we have to stand VESA Flat Panel Display Measurements (FPDM) Standard version 2.0 test patterns) as a test pattern.	By "products that cannot be tested using dynamic broadcast-content video signal" DOE and EPA are referring to those products that are not compatible with the IEC 62087 test signal format (DVD, Blu-ray). Such products shall be tested with the VESA FPDM2 test signal for the maximum resolution supported by the product.
29	Test Method – Draft 3	Low-Voltage Dc-Powered Products	The testing method for low voltage DC powered displays is easy to implement and can expand to USB 3.0 connected displays as those become available. We are supportive of the current method.	DOE and EPA appreciate this feedback.

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30	Test Method – Draft 3	Low-Voltage Dc-Powered Products	<p>Line 55: USB is mentioned as a DC power source. USB , as it is noted in the document itself in line 57, cannot supply more than 15W. The document should include a section on Power over Ethernet and Power over HDBaseT, stating. Proposal for Section 5 c): C) Low-voltage Dc Input Power: 1) Products may be powered with a low-voltage dc source (e.g., via network or data connection) only if the dc source is the only available source of power for the product (i.e., no ac plug or External Power Supply (EPS) is available). 2) Products powered by low-voltage dc shall be configured with an ac source of the dc power for testing (e.g., an ac-powered Universal Serial Bus (USB) hub, a Power over Ethernet (PoE) Midspan Injector or a Power over HDBaseT (PoH) Midspan Injector). 3) In case a USB hub power adapter is used it must have the following attributes: a) Voltage Rating: 5 V b) Current Range: 2 A to 3 A 4) In case a PoE Midspan injector is used it must be compliant with IEEE802.3at, with the following attributes: a) Voltage Range: 44V to 57V for Type 1 PoE Midspans; 50V to 57V for Type 2 PoE Midspans b) Current Range: Up to 350mA for Type 1 PoE Midspans; up to 600mA for Type 2 PoE Midspans c) Type 2 PoE Midspans supporting collocation of PoE interfaces shall support up to 600mA current on each interface 5) In case a PoH Midspan injector is used it must be compliant with HDBaseT version 1.75 or later, with the following attributes: a) Voltage Range: 44V to 57V for Type 1 PoH Midspans; 50V to 57V for Type 2 or Type 3 PoH idspans b) Current Range: Up to 350mA for Type 1 PoH Midspans; up to 600mA for Type 2 PoH Midspans; up to 950mA for Type 3 PoH Midspans c) Type 2 Twin Midspans shall support up to 600mA current on each PSE interface d) Type 3 Twin Midspans shall support up to 950mA current on each PSE interface 6) Power for the unit under test (UUT) shall include the following, as measured per Section 6.3 of this method: a) Ac power consumption of the low-voltage dc source with the UUT as the load (PL). b) Ac power consumption of the low-voltage dc source with no load (PS).</p>	<p>DOE and EPA are not aware of any displays that are Powered over Ethernet (PoE) or Powered over HDBaseT. DOE and EPA would like to conduct more research on PoE displays before specifying attributes to test such products. DOE and EPA welcome comments on the attributes/specification of PoE and additional testing data on PoE powered displays.</p>

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31	Test Method – Draft 3	Luminance	We commend the EPA’s decision to maintain power testing at a fixed luminance for displays less than 30”. By conducting power certification at a fixed luminance for products of a given class, the ENERGY STAR program is recognizing the most efficient (power at a specific performance) displays. This is important, because the highest efficiency displays will consume the least amount of power at whatever brightness is required by end-user. Since no one can predict the ultimate needs of the end-user, rewarding efficient displays is the best way for the EPA to ensure its ENERGY STAR program is achieving real savings in the field.	DOE and EPA appreciate this feedback.
32	Test Method – Draft 3	Luminance	Our primary recommendation is for the EPA to extend its focus on efficiency to all classes of displays. In the current draft, the power requirements for ENERGY STAR qualified Signage (between 30” and 61”) are based on the performance of the display in its “as-shipped” or default condition. There is little to no data regarding the end-use requirements of Signage, but anecdotal evidence indicates that there is a wide range of lighting conditions associated with these types of displays (bright airports, dark indoor shopping centers, etc.). Compared to computer monitors, the installation of Signage is more likely to be conducted by a professional who has the know-how to adjust the display settings to provide an optimal picture in a specific ambient lighting condition. Because of the uncertainty of how the final digital sign will be used, we recommend the EPA base its power requirements for Signage on fixed luminance. By rewarding high efficiency, the EPA can be certain that ENERGY STAR certified Signage is consuming the least amount of power possible for the given application requirements. In the spirit of harmonizing with the other displays, and considering the likely capabilities of all Signage, we recommend that testing and qualification for Signage be conducted at a luminance level of 200 cd/m2. However, a higher fixed luminance would also be acceptable.	DOE and EPA appreciate the feedback. DOE and EPA have maintained this language in the proposed Draft Test Method.
33	Test Method – Draft 3	Luminance	We also support ENERGY STAR’s decision to test the On Mode of signage displays with diagonals of 30-inches or more at a luminance greater than or equal to 65% of the maximum luminance. This will best approximate the actual power experienced by the end users and will harmonize with the Television specification.	See response to comment 32.

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34	Test Method – Draft 3	Luminance	We recommend that the Test Method Section 7.3.A.8 (should be 7.3.A.2) specify that the luminance value L _{On} shall be measured using the procedure in Section 7.2 Luminance Testing.	DOE and EPA agree with the comment and have modified Section 7.3 A) 2) of the proposed Draft Test Method to say “Luminance values shall be measured as per section 7.2 Luminance Testing”.
35	Test Method – Draft 3	Luminance	The Test Method Section 7.3.A.1 specifies that products less than 30 inches and any computer monitor 30 inches or more should be adjusted to achieve a luminance of 200 cd/m ² . This should reference the procedure detailed in Section 7.3.C for luminance adjustment.	See response to comment 34.
36	Test Method – Draft 3	Luminance	It should also be noted that Sections 7.3.A.1 and 7.3.C.7 state that the “brightness control” should be adjusted to achieve 200 cd/m ² . In order to allow for products of various technologies using alternate names for picture adjustment controls, perhaps the noted sections should simply replace “brightness control” with “appropriate controls”.	DOE and EPA agree with the comment and have modified Section 7.3 A) 1) and 7.3 C) 7) of the proposed Draft Test Method to say “adjust appropriate controls until the luminance of the screen is 200 candelas per square meter”.
37	Test Method – Draft 3	Power Management	“The default delay time, after which the product transitions from On Mode to Sleep Mode or Off Mode, shall be reported” However according to the factory, the template form provided does not indicate how it is reported.	DOE has included a field for the default delay time in the reporting template.
38	Test Method – Draft 3	Power Measurement	The Test Method Section 6.2.A.3 states that power measurements shall be recorded after “voltage measurements” are stable to within 1%. We believe that “voltage measurements” should be changed to “power measurements”.	DOE and EPA specify to begin power measurements only after the voltage measurements are stable within 1% of the specified value.
39	Test Method – Draft 3	Power Measurement	We also recommend that this power stability requirement should be changed to 2% instead of 1%. This would be consistent with the DOE TVs NOPR (FR January 19, 2012) Section 5.2 which requires a 2% power stability after warm-up.	A voltage tolerance of 1% is consistently required throughout all ENERGY STAR test methods. As such, DOE and EPA have maintained a voltage tolerance of 1% in the proposed Draft Test Method. The resolutions for power meters are specified in the proposed Draft Test Method in section 5G)3).

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40	Test Method – Draft 3	Power Measurement	The Test Method Section 7.4.C requires the average volts, amps, and watt-hours to be recorded during the power measurement. Not all power meters display the average volts and amps. We recommend removing this recording requirement.	DOE and EPA agree with this comment and have modified the proposed Draft Test Method to specify that power values be measured and reported, and that set source voltage and frequency be reported only.
41	Test Method – Draft 3	Power Measurement	The voltage tolerance is already required to be within 1% according to the Test Method Section 5.B Table 1 so there is no reason to record the average voltage. It should be noted that in order to comply with this tight 1% voltage tolerance, most test facilities will employ an AC power stabilizer.	See response to comment 40.
42	Test Method – Draft 3	Power Measurement	The amperage is not relevant provided that the power meter crest factor requirement in the Test Method Section 5.G.1 is satisfied. In the case of products powered by a low-voltage DC input, the current must satisfy the USB hub specifications in the Test Method Section 5.C.3.b. Also, if the power meter provides a Power Factor measurement reading directly, then the current should not be necessary to record.	See response to comment 40.
43	Test Method – Draft 3	Power Measurement	Similarly, it is not necessary to record the watt-hours. Only the power measurement is of relevance and must be recorded. It should be noted that the watt-hours is implied by the power measurement since the time of the test is 10 minutes.	See response to comment 40.
44	Test Method – Draft 3	Test Setup	For Japan, specify input power frequency as 50Hz or 60Hz. Or include a footnote to the table that states testing at either frequency is adequate. CBs will require testing at both 50 and 60 Hz if not clearly specified in the spec.	DOE and EPA agree with the comment and have modified Table 1 in the proposed Draft Test Method to read 50 Hz or 60 Hz for Japan's voltage requirements.

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45	Test Method – Draft 3	Test Setup	As mentioned in previous comments, the test method for automatic brightness control is not currently representative of real world office or residential ambient lighting conditions. Using a single 100W halogen incandescent bulb directed on the ambient light sensor of the display will not result in realistic display luminance performance in the field and will not accurately result in any estimated energy savings since the user will most likely be required to manually adjust the luminance of the display to a higher luminance setting.	See response to comment 11.
46	Test Method – Draft 3	Test Setup	For item 1) Crest Factor, add text indicating that the crest factor measurement is not required for every measured value. CBs are interpreting the equipment requirements to mean that these values are to be recorded for every power measurement.	The proposed Draft Test Method does not require measurement of the crest factor. This is consistent with other Energy Star Test Methods.
47	Test Method – Draft 3	Test Setup	For item 3) Ambient light values, it does not simulate real world lighting conditions by positioning the light sensor in the same location of the light sensor on the display. Instead, a standard ambient light room condition should be created so that every product tested is receiving a standard overhead lighting condition that is the set lux level as measured from the top of the work surface where the display is tested (i.e. set the test room ambient light, not the display sensor on the product). Use the OSHA guidance for lighting conditions for workstations as a guide. http://www.osha.gov/SLTC/etools/computerworkstations/wkstation_enviro.html#lighting	See responses to comments 9 and 11.

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48	Test Method – Draft 3	Test Setup	For item 4) Ambient light values. The original intent of the 0 lux and 300 lux lighting conditions was to produce conditions at the TV/displays ambient light sensor of totally unsaturated (0 lux) and totally saturated (300 lux). The attempt to fine tune the behavior of the display's automatic brightness control circuitry for multiple intermediate conditions in a non-real world test condition is excessive and will not produce equivalent behavior when the displays are installed in real world lighting conditions. Before going to the effort of adding multiple test points under 10, 100, 300, and 500 lux lighting conditions, EPA and DOE should first determine if displays calibrated to meet this new test condition actually perform as expected in real world lighting conditions. All of this detail and effort is wasted if artificial test conditions encourage manufacturers to adjust their display ABC settings in a way that does not function correctly in the real world and promotes the unintended consequences of the user immediately overriding the preset ABC settings due to a very dim display luminance. In addition, setting the display luminance in a way that requires a 300 lux direct light source will result in a significant number of customer calls concerning dim displays and in general a poor “out of box” experience for the customer.	See response to comment 7.
49	Test Method – Draft 3	Data/Network Connections	Based on conversations with EPA, the intent is to test a data enabled display with only a single network connection. Since there is very little point in testing a display connected to an external network unless there is a bridge connection between the display and the host computer, my assumption is that the bridge network will be the only network connected in the vast majority of displays. This distinction needs to be made very clear in the test method.	See response to comment 14.
50	Test Method – Draft 3	Power Measurement	Since power measurements are be integrated over the 10 minute period that the dynamic broadcast content signal is running, recording a true power factor value is problematic. At what point running the dynamic content is this value recorded. It may be better to take this measurement at the same time the luminance values for the display are being measured.	During testing, DOE was able to record power factor values at the same frequency as the power measurements over the 10 minute test period. As such, DOE and EPA recommend that the power factor value reported be an average over the 10 minute period and have clarified in the proposed Draft Test Method.
51	Test Method – Draft 3	Test Setup	In what state is the display when warming up for 20 minutes (e.g. as shipped, full luminance, if ABC enabled as shipped, which lighting condition. What content is on the screen, etc.	In the Draft 3 Test Method, DOE and EPA specified that the UUT shall be in the as-shipped condition. DOE and EPA have added language in the proposed Draft Test Method clarifying that, depending on the compatibility of the UUT, either the IEC 62087 test signal (6.2 H 1)) or the VESA FPDm2 L80 (6.2 H 2)) test signal shall be displayed during the entire warm-up period.

Stakeholder Comments in Response to the Draft 3 Version 6.0 ENERGY STAR® Displays Test Method (Distributed February 10, 2012)

Comment No.	Document	Topic	Comment	ENERGY STAR Response
52	Test Method – Draft 3	Test Method	7.2 D) Again, a direct 500 lux light source on the display ambient light sensor is not representative of a 500 lux ambient lighting conditions in the real world.	See response to comment 6.
53	Test Method – Draft 3	Test Method	7.2 E) For displays with ABC enabled, once ABC has been disabled, what is the default as-shipped luminance setting?	In the proposed Draft Test Method, DOE and EPA specify that for products in which ABC cannot be disabled, the luminance value shall be measured with the product in home mode or as-shipped configuration and with ambient light greater than 500 lux entering the sensor.
54	Test Method – Draft 3	Test Method	Many power meters do not have the ability to measure average amps and volts. Typically the equivalent average power is determined by measuring Watthours over the 10 minute period and then determining average power. Propose that reference to average volts and current be removed.	See response to comment 40.
55	Test Method – Draft 3	Test Method	Indicate that sleep mode tests are performed with a host computer and that the “computer sleep” power state should be used if possible.	DOE and EPA have added language to the proposed Draft Test Method to clarify sleep mode power testing. DOE and EPA require that the sleep mode power be recorded with the UUT connected to a host system. Sleep mode shall be initiated in the host machine as well.
56	Test Method – Draft 3	Test Method	Add a note that for computers without a physical power switch that off mode tests are performed with a host computer and that the “computer off” power state should be used.	DOE and EPA have added language to the proposed Draft Test Method to clarify off mode power testing. DOE and EPA require that the off mode power be recorded with the UUT connected to host system which is also in the off state.