

Summary and Response to Stakeholder Comments from the
ENERGY STAR Program ENERGY STAR Test Method for Computers Draft 2 Version 6.0

I. TEST SETUP

Comment #	Topic	Comment	Response
1	Dark Room Conditions	The Dark Room conditions defined in the Test Setup is not a part of the Test Conduct. The recommendation is to remove this wording from the Computer Version 6.0 specification since it is not used during the test procedure.	<p>The dark room condition defined in the Draft 2 Test Method (Rev. Feb-2012) was taken from the ENERGY STAR Test Method for Displays Version 6.0 Draft 3, where a dark room is required to set display screen luminance and measure power consumption values of Automatic Brightness Control (ABC) enabled products.</p> <p><i>However, integrated desktops and notebooks are tested with ABC disabled. Additionally, the required acceptance angle specified for the luminance meter is 3 degrees or less. The acceptance angle is the maximum angle of the cone through which light needs to enter the meter to be captured and measured. Ambient lighting will minimally affect the values measured by any luminance meter that meets the acceptance angle requirements. Thus, a dark room to measure and set screen luminance values is not required for computers.</i></p> <p>As such, DOE has removed the “Dark Room Conditions” from section 5 “Test Setup” of the Draft 3 Test Method (Rev. Nov-2012).</p>
2	Units for luminance measurement	There should be mention in the Version 6.0 Specification that NITS is equivalent to “cd/m ² ” because meters that measure display brightness reference cd/m ² , not NITS. The recommendation is that the ENERGY STAR test method state that the two are equivalent just to be clear.	DOE agrees with this comment. To avoid confusion among testers and certification bodies, DOE has modified section 4 of the Draft 3 Test Method (Rev. Nov-2012) to state that “NITS” are equivalent to cd/m ² . All units throughout the document have also been converted from nits to cd/m ² .

Summary and Response to Stakeholder Comments from the ENERGY STAR Program ENERGY STAR Test Method for Computers Draft 2 Version 6.0

Comment #	Topic	Comment	Response
3	Display Brightness Setup	<p>One stakeholder questioned if the computer's default brightness settings needed to be set to 90/150 nits as defined in the test method. Additionally, there were concerns that the Draft 2 Test Method allowed for test of the display at any brightness that is "at least 90 nits for notebooks and 150 nits for integrated displays". The main concern would be that third party labs or verification testing may test at the shipped settings which may be much higher than 90/150 nits and could impact qualification.</p>	<p>The Draft 2 Test Method does not require the manufacturer to ship their product with a default brightness of 90/150 cd/m². However, the display brightness needs to be changed to at least 90 nits for notebooks and 150 nits for integrated displays in the test setup, prior to performing the power measurement tests. DOE has added language in section 5.2 E) of the Draft 3 ENERGY STAR Test Method Version 6.0 (Rev. Nov-2012) to clarify that notebooks shall be set up and tested with a screen brightness as close as possible to and at least 90 cd/m². Integrated displays shall be set up and tested with screen brightness as close as possible to and at least 150 cd/m².</p>
4	Display Brightness Setup	<p>A stakeholder asked if there will be any changes in the Draft 3/Final Test Method to the specified brightness levels of 90/150 nits for testing notebooks and integrated displays.</p>	<p>The final brightness levels required in the test method are based on DOE testing and comments from stakeholders. Aside from the clarification question summarized in comment #3, DOE has received no comments on the proposed brightness levels of 90/150 cd/m². Therefore, the Draft 3 Test Method continues to propose 90 cd/m² for notebooks and 150 cd/m² for integrated desktop computers.</p>

Summary and Response to Stakeholder Comments from the
ENERGY STAR Program ENERGY STAR Test Method for Computers Draft 2 Version 6.0

II. TEST CONDUCT

Comment #	Topic	Comment	Response
5	Display warm up time	<p>Section 6.2 C) currently allows 30 minutes for Display warm-up; this causes a problem with the test procedure for Computers. This looks to be an exact copy from the Display Specification and has good reason to be in that specification, but there is less of a need for this in the Computer Specification.- Set Display brightness @ 30 minutes</p> <p>- Short Idle measurement is taken from 5-10 minutes after system is turned on. If the display brightness is set during warm up period and then the system needs to be rebooted to start test time, then display brightness will need to be set again.</p>	<p>In the Draft 2 Test Method (Rev. Feb-2012), DOE specified that power measurements for short idle mode shall begin no later than five (5) minutes from the point of ceased user input, which may not be 5-10 minutes after the system is turned on. This is consistent with ECMA 383 Ed. 3: <i>Measuring the Energy Consumption of Personal Computing Products</i>. DOE has added language to section 6.2 of the Draft 3 Test Method (Rev. Nov-2012) clarifying that the system shall not be rebooted or restarted until after the power measurement is taken.</p>
6	Screen Brightness setting	<p>One stakeholder recommended that the UUT should also be tested with power management settings as shipped. This includes another test with the screen dimming setting and other power management settings set to as shipped.</p>	<p>DOE believes that adding another test for computers with the screen dimming functionality set as default during the short or long idle tests would increase testing burden. It is also unknown how relevant such a measurement would be as DOE does not have enough information regarding the amount of time a system would spend with the screen dimmed and not shut off. As such, DOE has made no changes to the Draft 3 Test Method (Rev. Nov-2012), which requires that the screen dimming be disabled prior to testing the UUT.</p>

**Summary and Response to Stakeholder Comments from the
ENERGY STAR Program ENERGY STAR Test Method for Computers Draft 2 Version 6.0**

7	Graphics Processing Unit	A stakeholder recommended that the test method be updated in order to ensure that GPU allowances are only claimed when GPU energy has been taken into account in the product testing. As such, the stakeholder recommends the following clarification be added to section 5.1 of test method: “H) Where discrete GPUs are included in the computer, they will be tested with the GPU both enabled and disabled and both values reported.”	DOE believes that testing UUTs with the GPU configuration in the as-shipped condition is consistent with ECMA 383 Ed. 3: <i>Measuring the Energy Consumption of Personal Computing Products</i> and is representative of real world conditions. As such, DOE has made no changes to the Draft 3 Test Method (Rev. Nov-2012).
---	--------------------------	--	--