

Version 2.0 Computer Servers Draft 3 Test Method Comment Responses

Ref. #	Commenter	Topic	Subtopic	Stakeholder Comment	DOE Response
1	Summary	Test Setup	Voltage Specification	DC servers with input voltages in the range of 360 V – 400 V is not uncommon. The stakeholder recommends that this dc voltage level be specific in the test method.	The Final Draft ENERGY STAR Specification does not include dc powered servers in its scope; therefore, DOE has excluded dc powered servers from the Final Draft ENERGY STAR Test Method for Computer Servers (Rev. Dec-2012).
2	Summary	Test Setup	Voltage Specification	The Test Method for Servers should include the option of 208 V three-phase AC power specifications for three-phase powered servers.	Because it is possible that some servers may only be powered by three-phase AC power, DOE has updated Table 1 and Table 2 in section 4.A) of the Final Draft ENERGY STAR Test Method for Computer Servers (Rev. Dec-2012) to include 208 V for three-phase powered servers.
3	Summary	Test Setup	Voltage Specification	Voltage standards of 100 V, 110 V, 200 V, 208 V, 220 V, 230 V, and 400 V ± 5% should be specified in the Test Method to foster international adoption of the test method for servers.	DOE agrees with this comment and has updated Table 1, Table 2 and Table 3 of the Final Draft ENERGY STAR Test Method for Computer Servers (Rev. Dec-2012) to include single phase and 3-phase voltage and frequency requirements for international standards. The values specified are consistent with the Server Efficiency Rating Tool (SERT) Run and Reporting Requirements.
4	Summary	Test Setup	Editorial	There is an inconsistency in the capitalization of the terms ac and dc in the specification, test method and Power and Performance Data sheet. We recommend that “AC” and “DC” be used to represent alternating current and direct current respectively.	The capitalization of the abbreviations for alternating current (ac) and direct current (dc) is now consistent throughout the Final Draft ENERGY STAR Test Method for Computer Servers (Rev. Dec-2012), the Final Draft ENERGY STAR Specification for Computer Servers, and all related documents.
5	Summary	Test Setup		The minimum temperature should be 20 °C in alignment with the SERT requirements. Minimum temperature of 18 °C as specified in the Draft 3 Test Method for Servers could increase hours of chiller operation and increase energy use in air conditioning. In addition, 18 °C is not comfortable for human work conditions.	To be consistent with SERT’s requirements, DOE has modified the lower limit of the ambient temperature requirement to 20 °C. However, DOE believes that setting the ambient temperature upper limit to a manufacturer-documented value may not allow for consistent testing and comparison between different products. As such, DOE has maintained the maximum ambient temperature at 30 °C in section 4 B) of the Final Draft ENERGY STAR Test Method for Computer Servers (Rev. Dec-2012).

Version 2.0 Computer Servers Draft 3 Test Method Comment Responses

6	Summary	Test Setup	Ambient Conditions	Also, the ambient temperature upper limit and the relative humidity should be within the documented operating conditions of the UUT.	DOE also believes that the relative humidity (RH) conditions specified by manufacturers will fall between 15% - 80% RH, as specified in the Draft 3 ENERGY STAR Test Method for Computer Servers (Rev. Aug-2012). As such, DOE has maintained the 15% - 80% RH range in the Final Draft ENERGY STAR Test Method for Computer Servers (Rev. Dec-2012).
7	Summary	Test Setup	Power Analyzer	Section 4.D) of the Draft 3 Test Method should be replaced by section 4.3 of SERT Design Document in order to maintain consistency between these two test methods.	DOE agrees with this comment and section 4.D) of the Final Draft ENERGY STAR Test Method for Computer Servers (Rev. Dec-2012) is consistent with section 4.3 of SERT's Design Document for the release candidate. The update to this section includes: <ul style="list-style-type: none"> <li>· Modifications to the power analyzer accuracy specifications</li> <li>· Configuration information for the SERT controller system</li> <li>· Referencing the SERT Design Document</li> </ul>
8	Summary	Test Setup	Editorial	The language in section 4.D)6) should be updated to "including any external shunts, SHALL MEET THE FOLLOWING CRITERIA" for clarity purposes.	DOE agrees with this comment and section 4.D)6) of the Final Draft Test Method for Computer Servers (Rev. Dec-2012) is now consistent with the stakeholder's recommendation.
9	Summary	Test Conduct	Storage	Reword section 5.1.F) of the Test Method for Servers to reflect the fact that EPA is not allowing qualification of systems with no installed Hard Disk Drive (HDD) or Solid State Drive (SSD)	EPA is not excluding qualification for systems that do not come with installed storage devices. In support of qualifying such systems, Section 5.1.F) of the Draft 3 ENERGY STAR Test Method for Computer Servers (Rev. Aug-2012) provides instructions on how to test computer servers that do not include pre-installed storage devices. The intent of this section is to provide instruction on how to test these products, not explain coverage of products. Thus, DOE has not modified this section of the text in the Final Draft.

Version 2.0 Computer Servers Draft 3 Test Method Comment Responses

10	Summary	Test Conduct	UUT Preparation	<p>In Draft 3 of the test method for servers, DOE states that power supplies and cooling fans used for chassis function and redundancy for populated power domains in a half chassis blade configuration shall not be removed for testing purposes.</p> <p>Update the language in section 5.2.C)3)c)iii) of the Draft 3 Test Method for servers to state that power supplies and cooling fans used for chassis function and redundancy for populated power domains in a half chassis blade configuration shall not be removed where redundant power is a standard offering for the product. There are a few cases when some blade servers may be shipped with a single power supply, even when there are slots for redundant supply.</p>	<p>Redundancy can vary based on a customer's needs, and for some models, there may not be a "standard offering". Additionally, redundant components may be ordered separately for some systems. In light of this, DOE has changed the language regarding redundancy. Section 5.2.C).3).c).iii) of the Final Draft ENERGY STAR Test Method for Computer Servers (Rev. Dec-2012 ) now requires that all blade server redundant power supplies be configured as per manufacturer recommendations.</p>
11	Summary	Test Method	Active State	<p>The manufacturer specific workload should be replaced with SERT. In addition, the ENERGY STAR Test Method for Servers should be made consistent with SERT with references to the SERT Design Document and SERT Run and Reporting tools in the test method.</p>	<p>DOE agrees with this comment. Section 4 of the Final Draft ENERGY STAR Test Method for Computer Servers (Rev. Dec-2012) has been harmonized with sections 4.1, 4.2 and 4.3 of the SERT Design Document Release Candidate 1 (RC1). Note that these documents are for SERT's Release Candidate and they may be modified with the final release of SERT.</p>
12	Summary	Test Method	Idle State	<p>One manufacturer was concerned with the 5 minute idle power measurement. Some of their server offerings perform memory maintenance activities for up to 3 minutes. Depending on where the 5 minute measurement would land, the measured idle power could vary significantly.</p>	<p>Reporting the lowest of the three 5 minute idle measurements will not capture the power consumption of the server during the intermittent maintenance cycles initiated by the server. Thus, the reported values may underrepresent the long run average of this server in the idle state.</p>
13	Summary	Test Method	Idle State	<p>The manufacturer proposes that the idle test should take up to three 5 minute measurements over a 15 minute period, with the lowest of the three measurements reported as the idle power use of the SUT. They believe that this method will enable identification and removal of power impacts on idle mode of operation driven by intermittent maintenance activities such as memory scrubbing and would provide consistency in the measured power values.</p>	<p>DOE's approach includes the effect of the maintenance cycles to provide a representative power measurement. As such, DOE has increased the idle power measurement period from 5 minutes to 30 minutes. A longer idle measurement period will average out the increased power consumption caused by the maintenance cycle.</p>