

#	Topic	Stakeholder Comment	DOE Comments
1	PoE Load Testing	<p>A stakeholder commented that although PSU efficiency will be the dominant influence of efficiency for PoE operation in many cases, implementations might exist where this is not true. Examples include designs that have regulation or DC-DC conversion between the main power supply and the PoE circuits for port isolation and/or voltage conversion, designs with high losses in the PoE circuits, and poorly implemented power management that overly stresses or under-utilizes available power; combined effects can dramatically affect efficiency.</p> <p>The stakeholder suggests that some form of PoE load testing be included to verify that PSU efficiency (if otherwise determined) is the dominant source of PoE losses and to ensure that ENERGY STAR certification is not granted to what potentially could be a very inefficient product.</p>	DOE recognizes that numerous factors contribute to a product's PoE delivery efficiency. However, based on stakeholder feedback and internal investigations, DOE believes that most of the power loss occurring in PoE delivery can be attributed to PSU inefficiency. Due to this, and in order to reduce testing burden, the Final Draft Test Method does not include PoE load testing.
2	Ambient Temperature Requirement	A stakeholder comments that the LNE Test Method proposes a new method to address ambient temperature. The ATIS document 06000015.2013 describes how to handle variable speed fans during testing. The assumption that $\pm 1^\circ\text{C}$ requirement will ensure constant fan speed is not based on actual testing experience and will result in inaccurate power numbers for modular products. The stakeholder opines that the ambient temperature requirement should be changed to align with ATIS-0600015.2013, which requires $\pm 3^\circ\text{C}$ ( $77 \pm 5^\circ\text{F}$ ).	Section 5.7 of ATIS 06000015.2013 requires that power usage attributable to the UUT's cooling systems be representative of operation at $27^\circ\text{C}$ , and allows one of three methods to be used. Two of these options are not being considered for inclusion since one requires that the fan speed be fixed, and the other requires that a calculated power offset be applied to the measured power value. DOE is not aware of a verifiable method to determine such a representative fixed fan speed nor power offset to simulate operation at $27^\circ\text{C}$ . One of the allowable methods in Section 5.7 of ATIS 06000015.2013 requires that the UUT be tested at a temperature greater than $27^\circ\text{C}$ . Based on this, Section 4.B) of the Final Draft Test Method requires that the ambient temperature be greater than $27.0^\circ\text{C}$ and less than $30.0^\circ\text{C}$ .
3	Ambient Temperature Requirement	A stakeholder suggests that the EPA consider allowing "simulated $27^\circ\text{C}$ " operation such as is allowed in other standards (like Acoustic) so as to not require a thermal chamber while performing these measurements.	See response to Comment #2.
4	Ambient Temperature Requirements	The Draft 2 Test Method requires an ambient temperature of be $27^\circ\text{C} \pm 1^\circ\text{C}$ . A stakeholder commented that this is the accuracy limit of many environmental chambers and inconsistent with Servers 2.0 ( $25 \pm 5$ ) and Storage 1.0 ( $18 \leq T_a \leq 28$ ). A $\pm 1^\circ\text{C}$ allowable ambient temperature range will likely force testing to occur in environmental chambers. Servers, storage and large networking products are intended for operation in the same end use environment and should be tested under the same ambient temperature requirements. The stakeholder recommends harmonizing with one of the above specifications.	See response to Comment #2.
5	Snaked Traffic (Modular Testing)	<p>Draft 2 Version 1.0 of the LNE Test Method proposes:</p> <p>"For each data port present on the UUT, there shall be at least one corresponding data port on the Test Equipment capable of sending and receiving data to and from the UUT at the highest operable line-rate standard."</p> <p>A stakeholder commented that this proposal would result in requiring full port testing, that full port testing is unnecessary for energy usage reporting purposes, and such testing would significantly increase test complexity and costs. This stakeholder recommends that the LNE Test Method follow the ATIS note in Section 6.3 of ATIS-06000015.03.201 that states, "It is acceptable to use cascaded/snaked traffic between ports on line cards for base chassis power measurements that are not throughput related."</p>	DOE recognizes that there can be a large cost burden associated with testing products with many data ports that have a rated throughput of at least 10Gbps. For this reason, the Final Draft Test Method classifies products with more than 200 data ports that each have a throughput of at least 10Gbps as High Port Count products. Such products are required to perform specialized testing that includes a snaked data traffic configuration in order to reduce test burden.
6	Snaked Traffic (Modular Testing)	A stakeholder suggests that DOE/EPA allow use of snaked traffic for products where the difference between a snaked and a non-snaked configuration would result in $<10\%$ difference in power use. Otherwise, the cost burden associated with testing large LNE products, as required by the Draft 2 Test Method, would likely preclude interest in obtaining an ENERGY STAR certification.	See response to Comment #5
7	Modular Testing	A stakeholder encourages EPA to continue to work toward ways of defining the configuration of modular systems for testing, and to better define how products should be categorised into high and low utilisation categories for testing purposes.	The Final Draft Test Method includes separate tests that represent high- and low-utilization scenarios, found in Section 6.1 and Section 6.2 respectively. The test method does not include requirements regarding which test should be used for a UUT. Such requirements will be included in future publications of the specification. Furthermore, the Final Draft Test Method does not include requirements regarding how a modular product must be configured. This also will be handled in future publications of the specification.
8	Multiple PSUs	A stakeholder suggests that if a manufacturer wants to test through a PDU [for products with multiple PSUs] for ease of test gear requirements and that causes a few watts of power hit but the results still look good, then the manufacturer should be allowed to do so. For LNE drawing many 100's of watts a couple of watts lost in a PDU (if even that) will be "in the noise".	DOE agrees with the comment and the Final Draft Test Method allows any method to be used to aggregate the power used by multiple PSUs, as long as that method does not introduce an error greater than 1% of the total measured power.
9	Multiple PSUs	A stakeholder seeks clarification and the technical justification for the test procedure for UUT with multiple PSUs. Does EPA have an error estimate for this requirement?	See response to Comment #8
10	Multiple PSUs	A stakeholder commented that since variations in PSU configuration can affect product performance and test results, appropriate selection should be addressed in the test method – perhaps initially by at least gathering detailed data. In particular, for UUTs with multiple PSUs, the use profile of the additional PSUs will affect the product performance (e.g. redundant vs additional capacity) – and therefore needs to be logged in some way.	DOE believes that the selection of a UUT's PSU is a product configurability issue that will be addressed by the Specification. For this reason, the Final Draft Test Method does not include guidance or requirements for selecting the PSUs to be used. However, the Final Draft Test Method does require that all UUT information be recorded, as has been required in previous drafts.

11	Multiple PSUs	<p>A stakeholder commented that the data collection section of the Draft 1 Specification allows PDUs to be used, but the Draft 2 Test Method does not.</p> <p>This stakeholder noted that on relatively low power systems with multiple PSU's the PDU power consumption may be significant relative to the total system power and the number of required power meters is not an issue. On larger systems with many power supplies (8 or more) each rated above 1kW, PDU power consumption would not be significant and the number of required power meters would become an issue. The stakeholder opines that the use of a PDU should be optional, instead of requiring or precluding their use.</p>	See response to Comment #8
12	Pluggable Modules	A stakeholder expressed confusion regarding how a data port could be "either pluggable module or non-pluggable interface", since once something is non-pluggable, it is non-pluggable and therefore can't be a pluggable.	This language is included in a section of the Draft 2 Test Method that listed physical interface requirements. This section is not included in the Final Draft Test Method, so the language regarding ports that can be accessed via pluggable modules or non-pluggable interfaces has been removed.
13	Pluggable Modules	<p>In response to a stakeholder comment on the Draft 1 Test Method, DOE provided the following response:</p> <p>"DOE recognizes that the type of pluggable module used during testing affects a product's power consumption and performance...the selection of pluggable modules is considered an issue of product configurability. Therefore, the determination of which pluggable modules are used will be handled by the specification document."</p> <p>A stakeholder commented that the specification document does not currently appear to address this point.</p>	DOE and EPA plan to address this issue in a future draft of the specification.
14	Editorial Error	A stakeholder commented that there is an editorial error on line 366, which includes the text, "Thirty Percent" when it should say "Ten Percent", as consistent with line 365 and the rest of line 366.	DOE has addressed this error in the Final Draft Test Method.
15	Air Flow Management	A stakeholder suggests that the statement, "Any airflow directly surrounding the UUT during testing shall only be generated by fans or cooling devices that are standard components of the UUT" is sufficiently clear and that the further clarification, "The use of external fans or cooling devices in a manner that is inconsistent with normal data center practices is prohibited" be removed to avoid any confusion.	DOE agrees with the comment and the requirement in the Final Draft Test Method no longer includes, "The use of external fans or cooling devices in a manner that is inconsistent with normal data center practices is prohibited".
16	ATIS Test Method	A stakeholder opines that the LNE Draft 2 Test Method proposes departing from the ATIS test method in ways that are not practicable. The ATIS test method was carefully developed over several years to take into consideration real world uses of network equipment. Every departure from the ATIS test method has the potential to increase testing costs and possibly require unnecessary product redesign.	DOE wishes to harmonize with industry standards where possible, and has used ATIS as the foundation for the Energy Star Test Method. However, there are aspects of the method of test and the product configuration that needed clarity to ensure repeatability and representativeness of the test method. DOE has included those additions in this draft and seeks comment from industry parties on those additions.
17	ATIS Load Profiles and Definitions	A stakeholder recommends that the LNE test method use the same load profiles for routers and switches found in Tables 1 and 2 of the ATIS standard for LNE Test Method Sections 6.1 and 6.2, in order to maintain consistency and avoid patchwork definitions.	DOE recognizes that the ATIS standard requires the use of different load profiles depending on the type of product being tested. The Final Draft Test Method does not include definitions or separate requirements for specific types of switches or routers (aside from High Port Count products). However, the test method does include separate tests for high- and low-utilization scenarios, each of which is aligned with the load profiles included in the ATIS standard.
18	DC Voltage Tolerance	The Voltage Tolerance in the LNE Test Method is currently listed at +/- 2.0 V. A stakeholder opines that the voltage tolerance should be aligned with ATIS 0600015.2013, which requires +/-3 V.	Section 5.2.4.1 of ATIS 0600015.2013 requires a DC voltage of -53V +/-2 V, which is aligned with the DC voltage requirement included in Table 3 of the Final Draft Test Method.
19	As-shipped Condition	A stakeholder commented that the as-shipped condition requirement does not make sense for the type of network equipment covered under the LNE specification.	DOE recognizes that some LNE products require initial configuration. For this reason, Section 5.1)a) permits the UUT to be configured according to manufacturer instructions prior to testing if required.