



ENERGY STAR® Large Network Equipment

Fiber Optic Ports + Test Method Working Session

April 3, 2015

Agenda



- Specification Discussion
 - Potential Fiber Optic Port Scope Inclusion
- Test Method Discussion
 - Snaked Traffic Topology
 - Ambient Temperature Requirement

Fiber Optic Ports



- Current definition:
 - Physical Network Port: An integrated physical connection point primarily intended to accept IP or similar traffic via a cable. Fiber-optic connections are **not** considered Physical Network Ports for the purposes of this specification.
- EPA is open to revising the definition above to include fiber as an allowable port type to cover products with higher throughput options.

Fiber Question



- If products that make extensive use of fiber ports are added to scope, are there any necessary clarifications that need to be made to set an upper bound on scope?
 - Example: Are there significant functional differences between core routers found in generic data center environments vs. those used in the telecom/ISP industry? If so, what are they and do they need to be addressed with regard to scope?

Test Method Discussions



1. Snaked Traffic Topology
2. Ambient Temperature Requirement

Snaked Traffic Topology



- Full-mesh testing is expensive for products with many data ports.
- Snaked traffic configuration reduces the cost of testing.
 - Power measurements representative of full-mesh.
 - Throughput measurements not representative of full-mesh.
- DOE is considering allowing snaked traffic to be used for products with many data ports, in order to reduce test burden.

Snaked Traffic Topology



DOE proposes the following requirements regarding snaked traffic:

- Snaked traffic can only be used if the UUT has **more than 200 data ports, each of which has a line rate of at least 10Gbps.**
- Manufacturers must report the **estimated maximum non-drop rate throughput for the UUT**, if it were tested in a full-mesh configuration.

Ambient Temperature Requirement



- Ambient temperature can affect a product's power usage, due to cooling fans with variable speeds.
- A wide allowable temperature range impedes repeatability.
- A very narrow temperature requirement may be difficult to maintain for the duration of testing.

Ambient Temperature Requirement



ATIS-0600015.2013

- Ambient temperature shall be $25^{\circ}\text{C} \pm 3^{\circ}\text{C}$
- Fan power must be representative of 27°C at sea level using one of the following options:
 1. Test in a thermally controlled environment $>27^{\circ}\text{C}$
 2. If fans are configurable, configure a fixed fan speed representative of operating at 27°C
 3. If fans are not configurable, apply a power adjustment due to fan speed change

Ambient Temperature Requirement



Issues with the 2nd Option:

- It may be difficult to verify that the fixed fan speed chosen is truly representative of UUT operation at 27°C

Issues with the 3rd Option:

- It may be difficult to verify that the applied power offset provides an overall power measurement indicative of UUT operation at 27°C

Ambient Temperature Requirement



- The 1st option in ATIS requires an effective range of 27°C to 28°C.
- DOE proposes using this approach, with a slightly wider allowable temperature range:

Ambient temperature shall be
between 27°C and 30°C

Upcoming Schedule and Timeline



- Date/Time: May 4, 1-3 PM Eastern (**note no longer May 1**)
 - Focus Areas:
 - Discuss any proposal outcomes from April call
 - Discuss expected feedback from industry on scope and product family
 - Cover any other lingering specification or test method issues
- EPA is aiming to release a Draft 2 specification and supporting materials in the late May/early June timeframe.

Contact Information



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Thank you for participating!