Index #	Topic	Subtopic	Stakeholder Comment	EPA Response
1	Definitions		A stakeholder supported EPA efforts to refine the definitions to ensure that consumer products are not included. They also support the expanded definition of product family for modular products.	EPA thanks the stakeholder for this comment.
2	Definitions	Large Network Equipment (LNE)	Several stakeholders agreed with the proposed LNE definition to differentiate from Small Network Equipment (SNE). They recommended that EPA revise the SNE specification to align the definitions. A stakeholder suggested to limit SNE to products with a maximum of 11 physical network ports or total port throughput of less than 12 Gb/s. They also noted that the LNE definition should support network management protocols.	EPA thanks stakeholders for this comment and has plans to begin a SNE V2.0 revision later this year, in which any necessary tweaks will be made to the SNE definition to fully harmonize with the definition for LNE.
3	Definitions	Modular	A stakeholder supported the modular definition revision.	EPA thanks stakeholders for this comment.
4	Definitions	Product Characteristics	A stakeholder noted that the location of a product in a network defines test conditions and rate of traffic used to measure power, and those products at the edge of a network have low utilization.	EPA has clarified in Section 6.1.1 that manufacturers may select which configuration to test an LNE product (half-port vs. full-port configuration) based on which configuration the product is best optimized for.
5	Definitions	Multi-output Power Supply Unit (PSU)	A stakeholder requested clarification on this statement: "…the total rated power output from any additional PSU outputs that are not primary and standby outputs is greater than or equal to 20 watts." This commenter noted that as understood, this would prevent a single output PSU from being considered in a multi-output supply.	The wording of this section is harmonized to language used in other ENERGY STAR IT product specifications (including computer servers and data center storage) and is intended to clarify that typical low power standby power rails are not to be considered when determining whether a product is single output or multi-output for the purposes of power supply requirements in this specification.
6	Definitions	SNE	A stakeholder noted that the definition of SNE differs from the definition in the SNE specification by not including "d) Meets the definition of one or more of the Product Types defined below." This commenter recommended identical definitions by including this requirement with a reference to the SNE specification.	EPA feels that the individual product type definitions within the larger SNE definition context are not needed to distinguish what a SNE product is for the purposes of exclusion from scope in LNE. The larger list in the SNE specification may be referred to by partners, labs, and certification bodies in case of ambiguity.
7	Definitions	Storage Product	A stakeholder recommended that the storage product definition align with the definition in the storage specification.	EPA has revised the last sentence of the Storage Product definition to fully harmonize with the most recent version of the V1.0 ENERGY STAR Data Center Storage Program Requirements.
8	Definitions	Idle State	A stakeholder noted that the idle state definition was problematic and is not used in the specification or test procedure. They noted their concern with a definition and intent for idle state and recommend that it is removed since the time period in idle state (as defined) could be in the nanosecond range, which would not yield power levels significantly different than the very low utilization rate test.	EPA will continue to define applicable active and idle power states in Version 1.0 as is done in other ENERGY STAR CE/IT product specifications. Stakeholders are correct that it is not referenced in the current specification, but the intention in future revisions is to distinguish between idle and active states. The utility (or lack thereof) for doing so will be easier to understand during a future revision intent on setting levels with a robust data set to support it. The division between idle and active states will be assessed at that time, along with any alternative proposals for characterizing LNE product behavior.

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9	Definitions	Product Family	A stakeholder noted that modular products are not purchased in standard configurations and thus the current definition does not reflect current customer purchasing practices and will add testing burden. This commenter recommended that EPA use a modular approach with the energy use of each module tested. This information can then be made available to allow a purchaser to add up the overall energy use of a configuration. In response to the request for feedback on common attributes of fixed product families, a stakeholder noted that the list of attributes provided is a good start but they cannot provide more detailed information until the family definition has been finalized. This stakeholder also noted support for the family definitions to reduce test burden. Another commenter requested clarification on why power is being used as a criteria for tested configurations.	EPA did not receive any additional data to support altering the proposed approach to modular products and therefore is maintaining the approach laid out in Draft 2 for modular product families and testing. While EPA understands stakeholder concerns, it is difficult to justify such a change in the absence of illustrative data. EPA also did not receive enough data or feedback to inform the development of a product family structure for fixed products in Version 1.0. As a result, each configuration of a fixed product that is intended to be ENERGY STAR certified must be tested and certified separately. EPA will revisit the creation of a product family structure for fixed products in Version 2.0, when the greater availability of product performance and power data will allow EPA to better identify product attributes that are appropriate for consolidation into a product family structure. Finally, power is being used as the criteria to separate modular product family configurations as the measurement is accurate and measureable even in snaked topologies of large modular products where true performance numbers can be harder to determine. Additionally, ENERGY STAR CE/IT product specifications traditionally measure the worst energy consuming model within a product family, which this approach covers.
10	Scope	40G and Higher Speed Ports Excluded	Several stakeholders expressed concern with the exclusion of products that contain high speed network points. While these currently represent a small component of LNE, several stakeholders noted that there may be long term impact on the viability of the specification if they are excluded due to the growing use of products having greater than 40 GB/s link ratings. Another stakeholder noted that while testing is more expensive, they do not see any reason for excluding these products.	In consideration of this new market information, EPA has removed the fiber optic port speed exclusion introduced in Draft 2.
11	Efficiency Criteria	Power Factor	A stakeholder strongly recommended including requirements on power factor (retaining stringency and loading points as seen in Draft 1) for both modular and fixed products.	EPA thanks the stakeholder for this comment and has maintained power factor requirements in the Final Draft which were introduced in Draft 1.
12	Efficiency Criteria	Power Supply	A stakeholder strongly supported including requirements on power supply efficiency as seen in Draft 1 for both modular and fixed products.	EPA thanks the stakeholder for this comment and has maintained power supply efficiency requirements in the Final Draft which were introduced in Draft 1.
13	Efficiency Criteria	General	A stakeholder supported including requirements on energy efficiency features including remote port administration, adaptive active cooling, and energy efficient Ethernet for both modular and fixed products.	EPA thanks the stakeholder for this comment and has maintained the energy efficiency feature requirement list that was revised slightly in Draft 2.
14	Efficiency Criteria	Power Supply	Two stakeholders recommended separate efficiency requirements for power supplies with different rated power since, as stated, they believe current requirements are too broad to appropriately cover all power supplies. They noted that 10% is not a typically-utilized load level for power supplies since they are usually a part of non-redundant power systems in devices with partial modularity.	EPA received feedback that the proposed power supply requirements are too restrictive for lower capacity non-redundant power supplies, and that the 10% load requirement is not appropriate as this load level is not a typically used. EPA has observed power supplies of various loads in other ENERGY STAR IT product categories that can meet the levels required in Table 2, and has not received any data to support that power supplies in LNE products (particularly those that support PoE loads) do not operate at low loading conditions. As such, EPA remains committed to recognizing power supply efficiency at all load levels as proposed in the Draft 2 specification.
15	Efficiency Criteria	Adaptive Cooling	A stakeholder noted that primary components of LNE must utilize adaptive cooling technologies that reduce the energy consumed by the cooling technology in proportion to the current cooling needs of the product.	EPA agrees with the stakeholder comment and has made a minor revision to the language of this requirement, replacing "to the LNE product" with "of the LNE product".

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16	Efficiency Criteria	Energy Efficient Ethernet (EEE)	A stakeholder requested that there be a limit to 1GE on access switching products since 100BaseT products will have minimal savings and will be excluded from ENERGY STAR which would result in customers buying more expensive and higher energy consuming products. Another stakeholder suggested clarifying whether managing Power over Ethernet via remote port administration e.g. by scheduling the on and off periods of PoE for the individual ports securing energy savings for PoE connected devices.	While EPA understands that the energy savings per port is much lower for a 100Mb/s port than a 1Gb/s or faster port on an individual basis, the resulting savings do add up when looking at the system level savings of an LNE product providing connectivity to many EEE capable edge products (e.g., VOIP phones). With the intention of capturing these system level savings, EPA has maintained the EEE requirement for all copper based physical network ports in Version 1.0. EPA has not received data to support explicitly requiring management of Power over Ethernet through remote port administration, but welcomes additional information to revisit this topic as appropriate in Version 2.0. EPA also encourages manufacturers to include any functionality through remote port administration that aids end-users in implementing a more energy efficient network without negatively impacting functionality of the product.
17	Efficiency Criteria	Active State	A stakeholder noted that a shift to a test and report approach is against the ENERGY STAR principle of identifying the best performing 25% of the market and may fail to recognize market leaders in energy efficiency. As a result, they believed it was important to justify the effectiveness of a test and report approach.	EPA thanks the stakeholder for this comment and agrees that it is unfortunate that product energy data to support level setting was not attainable for Version 1.0 development, but believes that this version will drive efficiency now and generate data that will support setting active levels in Version 2.0 of this specification. EPA also believes there is a good deal of utility for end users in reporting the energy performance of LNE products, as it is currently difficult to compare products on this attribute.
18	Reporting Requirements		Stakeholders had the following questions and comments in regards to reporting requirements: • Is it left to the discretion of the vendor to declare intended use of the product since there is no description of core? • For available and enabled power saving features, a stakeholder recommended changing the language to: "Available and enabled user configurable power management features of the system." They noted that this would establish clarity as to the level of detail required for power management features since systems may contain thousands.	Please see Index #4 above regarding identification of intended use of product. EPA has revised the language accordingly to focus the description of power management features to those relevant to end-users at a product level, as opposed to deeper improvements at the component level.
19	Standard Performance Data Measurement and Output Requirements		A stakeholder expressed concern regarding the output requirements outlined in Section 5 of the specification and how the information will be used and what will be presented to users. This commenter questioned the usefulness of performance data and output requirements because of the configurability of products. They specifically requested clarification on why inlet air temperature would be collected. This stakeholder noted that real-time power and temperature data without the ability to correlate with traffic or other key performance indicators is not useful and may present major security concerns. Another stakeholder recommended that EPA provide a definition for core products. They also suggested the following language for timestamping: "Systems that implement time stamping of environmental data shall sample data internally to the LNE product at a rate of greater than or equal to 1 measurement every 30 seconds."	Power and air inlet temperature data are being collected at the product level to help enable data center operators to better track the operating conditions within their data center at a more granular level, allowing the potential for system level adjustments to save energy. EPA has not received any data or supporting evidence that identifies security issues in providing power and air inlet temperature data to management software. This requirement is also applied to ENERGY STAR computer servers and data center storage products and these concerns were not raised there though they also often handle sensitive data. As “Core” products are no longer defined in the Version 1.0 specification, EPA has included nameplate power as a differentiator to separate out low end products that may be unduly burdened by the Section 5 requirements. This general approach was suggested by stakeholders. EPA developed the more than 250 watt limit for applicability of 5.1.1 based on review of the current product offerings from the ten largest manufacturers of LNE products in the U.S.
20	Testing		A stakeholder noted that including two test methods may lead to confusion in regards to either being applicable for testing. They suggest referencing only the ENERGY STAR test method and referencing ATIS in the test method. This stakeholder supported DOE in aiming to harmonize with ATIS where possible but departing where necessary to ensure clarity, reduce test burden, and encourage repeatability.	EPA has removed the listing of the ATIS test procedure in the specification to remove any confusion.

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21	Considerations for Future Revisions		A stakeholder believed it was possible to develop active requirements if product types were sufficiently segmented and recommended that EPA include the following language in the Considerations for Future Revisions: "EPA expects to work with stakeholders to set active efficiency levels for LNE in Version 2.0."	EPA thanks the stakeholder for this comment and has included this topic in Section 8 of the specification.