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1	The immediate effective date cannot be implemented in EU. The EU will require some months, to allow for the appropriate administrative processes before the specification can come into effect.	EPA will work with the EU to incorporate small network equipment into the current agreement as necessary. EPA believes it acceptable for the EU effective date to follow the effective date in the US.
2	A normal design cycle would require a minimum of 1 year to make product available, the Effective date needs to be more than a year out plus a reasonable transition period to have product meeting the requirements. 18 to 24 months is appropriate for the market.	The specification is intended to identify efficient products that are currently in the market. There are products on the market that can meet the levels set forth in the specification. When other models that meet the requirements become available they can be certified as ENERGY STAR as well.
3	The exclusion for products with SFP sockets will encompass a broad range of products. There needs to be a manner for such products to be included as part of a program. There are two possible solutions: Products with fewer than 12 ports including SFP sockets would have to be explicitly included in the LNE program. This may be problematic, given different approaches in that program. Products with SFP uplinks could be included, but the SFP port will be disabled during testing and will not be counted in any power allocation equations.	EPA requests specific examples of products using SFP sockets to determine whether these products should be covered in Version 1.0, or the upcoming LNE specification.
4	The exclusion specifies SFP sockets, but does not mention other pluggable module types. Proposed solution: Add “or other pluggable interfaces.”	EPA requests input on specific examples of "other pluggable interfaces" that would be considered under this approach.
5	[Our organization] believes that, notwithstanding the increased use of Integrated Access Devices, standalone Cable and DSL modems will remain a large part of the small network equipment marketplace. Recently published CEA data shows an installed base of over 46 million standalone broadband modems. For many of these consumers, standalone broadband modems acquired at retail or leased through their broadband Internet service provider will continue to be the solution that best meets their needs.	EPA appreciates feedback on this market.
6	Enterprise networking equipment is designed to operate in much larger networks with significant security and robustness requirements. As a result, such devices must support larger numbers of addresses, strong security features and traffic that uses these features with sustained high-throughput data. All of these features require hardware that necessarily draws more power and makes it problematic for such devices to meet the same energy requirements as consumer equipment. Implementing the program without distinction between the two types of equipment will cause problems for many organizations that could be barred from using networking equipment that is appropriate to their needs.	Data on specific devices and suggestions on how to improve the distinction between SNE and LNE is welcomed.

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7	1.F.5 – please add “electrical wires” since for example, HomePlug is a LAN technology using electrical wires	HPA interfaces are no longer engaged during the testing described in the Test Method. Accordingly, no change will be made to the referenced language.
9	Definition of SNE in 1.A.2. with “a) integral wireless capability” and “Product Types” will inadvertently draw in many STBs, televisions and any device that supports, for example IEEE 1905, as those devices may contain multiple interfaces, one of which may be wireless. The multiple interfaces may be used for redundancy and aggregation of data traffic and thus may bridge or switch data traffic. “Products Types” does not have a specific list, in for example, 2.1.1 but it seems to be listed in Table 1. On line 232, recommend changing first sentence of 2.1.1 to “Products that meet one of the following Small Network Equipment Product Type definitions…” Also, the definition of 1. F.1 End Point Device tries to exclude set-top boxes and IP televisions but has a caveat that the devices are a “originator or destination for network traffic”. Recommend changing to “A device that functions as either an originator, mesh point or destination for network traffic.”	The primary function of a Set-top Box is sufficiently different from the definitions included for network equipment that scope conflicts are not anticipated.
10	Definition in 1.B.2.a - the use of the word "primary" may be a big loop hole	EPA believes that the Access Point Definition, in conjunction with the other product type definitions, is sufficiently effective in separating product classifications.
11	1.F.3 Link Rate - what is meaning of raw? Layer 1 or Layer 2 or ?. It seems to imply Layer 1 or Phy rate. Recommend changing “raw” to “Layer 1 or PHY”	EPA thanks the stakeholder for this input and has replaced "raw" with "PHY" in the Link Rate definition.
12	1.F.5.b Coaxial cable - does that include cable modems? Do it mean mean MoCA and Ethernet over coax? Perhaps it should be explicitly stated that DOCSIS interfaces are excluded.	EPA's intention is that the language refers to physical ports, not usage. As such, the recommended modification will not be made.
14	Recommend adding Voice Telephone Port as these parts are available today in products. Additional power is required to support this feature	For VoIP technology embedded in Network Equipment, EPA welcomes power consumption data. Such data will be required to address the comment further. Of note, EPA has launched an effort to cover VoIP Telephones in the Telephony specification.
15	[Our organization] believes that, given rapid changes in wireless technologies, the definition of "Access Point" needs to be expanded to include more than just 802.11 (Wi-Fi) connectivity. In particular, [Our organization] proposes that "Access Point" be defined to mean: device that provides, as its primary function, connectivity to multiple clients via IEEE 802.11 (Wi-Fi) or any other wireless interface, including, but not limited to, Bluetooth, Z-Wave, Zigbee, and GSM."	EPA plans to keep the scope of Version 1.0 limited to the products where data is sufficiently-available to support development of appropriate requirements and criteria. At this time, data is not available in the dataset to support review of the other technologies noted in the comment.

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16	The term “wired” is used throughout the document. “Wired” sometimes seems to be a euphemism for Ethernet since the term “ports” often occurs in the same sentence. In other cases, the term “wired” seems to refer to the general case of technologies connected via cabling. Other wired LAN technologies such as HomePlugAV, MoCA , etc have a single cabled port but can connect to several devices. In cases where “wired” actually means “Ethernet”, replace with “Ethernet.”	The existing language seems to be sufficiently clear for products in scope.
17	It should be made clear whether varying numbers of ports or different speeds of port would be considered acceptable variations between members of a family.	While such approaches do not appear appropriate based on the Adder structure in Draft 1, EPA is open to feedback on how worst-case testing procedures might be implemented.
18	For this initial version exclude Network Equipment that contain hardware circuits that support Internet or Ethernet security or data security functions. Internet/Etherent Security Functions • Firewall • Virtual Private Network (VPN) • Secure Socket Layer(SSL) • IPsecPacket inspection (different levels) • Encryption/Decryption • Email filtering • And etc…	EPA is aware of small network equipment (SNE) products that contain at least a subset of these features and requests data that shows that these features should not be included in the scope of Version 1.0. EPA believes the non-rack mounted requirement in the SNE definition provides sufficient separation between SNE and large network equipment.
19	The purpose of ENERGY STAR program is to provide quantifiable efficiency results to consumers. These consumers do not necessarily go deeper to understand what is and what is not applicable or in scope. When this was first announced a couple years ago, requests for ENERGY STAR status were received by Sonicwall sales and customer service departments. It is not possible to determine what the affect on sales was, but the fact that there are calls indicates interest and desire to make purchasing judgments. For every call received there will be many more potential customers looking at whatever documentation they can find and then making purchasing judgments. All Sonicwall products except for the very low end AP have dedicated security hardware circuits and should be measured over limits specified by Draft 1, version 1.0 from EPA. The way Draft 1 Version 1.0 ENERGY STAR Small Network Equipment (SNE) specification is written it is a Non-Security standard. From the Webinar it is clear that criteria are going to be developed and added at some point. But it is not there now so it must be clearly stated as not applicable products with security functions.	EPA welcomes examples of the products in question to allow for evaluation on fit within the stated program scope, and data to provide information on the additional power consumption of these security features.

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20	DOCSIS Cable Modems vary in the channel density (number of downstream and upstream channels supported), and thus consume vastly different amounts of power. DOCSIS 2.0 cable modems which are currently deployed in the field support a 1 x 1 channel configuration (1 downstream channel and 1 upstream channel). The DOCSIS 3.0 specification (standardized in ANSI/SCTE 135 and ITU J.222) requires cable modems to support channel bonding, with a minimum of 4x4 channels. Deployed DOCSIS 3.0 cable modems support an 8x4 channel configuration, but products are being developed with channel densities of up to 24x8 channels. As the channel density increases, so does the power consumed by the DOCSIS cable modem. The EU Code of Conduct on Energy Consumption of Broadband Equipment reflects the variations in power consumption for different channel densities by providing an extra power allowance for each group of 4 downstream channels supported by the cable modem. (The Broadband Code of Conduct, version 4 from 10 February 2011, adds 2.8 watts per four downstream channels for Tier 1 and 2.5 watts per for downstream channels for Tier 2.) In tier one, a DOCSIS 2.0 cable modem allowance is 4.6 watts while a DOCSIS 3.0 modem supporting an 8x4 channel configuration allowance is 9.9 watts. There is currently a cable industry initiative to define low-power modes of operation for DOCSIS cable modems. Broadcom and many other vendors are actively participating in this effort. Broadcom believes that once the cable industry initiative updates the specifications with low-power operational modes, vendors will be able to provide accurate power data to Energy Star in order to populate the Base Power Allowance for the Broadband Modem – Cable.	EPA's approaches in Draft 1 do not provide power allowances for ports/interfaces not actively engaged by the test method.
21	If non-Ethernet wired technologies are not addressed in this version and they could get an allowance, should they be listed in section 7?	EPA welcomes data to support setting suggested allowances.
22	We suggest the following: - A wider data set is gathered from industry and other parties to ensure maximum product coverage - An analysis is undertaken to compare ambition with the EU Code of Conduct and consider an alternative approach reworking the adders in order to reduce base allowances.	EPA welcomes additional data from industry to address base power allowances. EPA set adder levels based on data received by stakeholders during data collection efforts and specification development.
23	We suggest some changes based on measurements on our most recent product development released to the market in the past few months: Base power requirements for Cable DOCSIS modems should take into consideration the DOCSIS service types (DOCSIS 2.0 and 3.0). The DOCSIS 3.0 provides multiple downstream and upstream channels for user services as compared to single Channel service for DOCSIS 2.0. DOCSIS 3.0 requires more power than DOCSIS 2.0 for the increased number of channels. There are many combinations of downstream and upstream channel offering with more power required as the number increases. Based on our measurements, the follow base numbers would appear appropriate: DOCSIS 2.0 Cable Modem – 4.0W DOCSIS 3.0 up to 8 x 4 mode Cable Modem – 5.0W	EPA thanks the stakeholder for this input. Draft 2 proposes base allowances for standalone modems that are based on stakeholder submitted data.

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24	DSL Base Allowance Table 1 does not define allowances for DSL modems. This is likely because most devices on the market now integrate the DSL modem along with other networking functionality and fall under the IAD category. [We] recommend removing the allowance specific to DSL modems. Cable Modem Base Allowance [We] recommend that ENERGY STAR maintain a TBD value for the Table 1, Base Power Allowance, for the Broadband Modem - Cable. We feel that it is premature to provide a recommended value for the base power allowance for the Broadband Modem - Cable.	To support coverage of the product and allow for a more rigorous assessment in future versions of the program, Draft 2 proposes base allowances for standalone modems that are based on stakeholder subtmitted data.
25	If the current approach to adders is to be retained, based upon a detailed analysis of the data, [our organization] would suggest the following revised levels: [Proposal provided - levels established for non-ONT modems and Aps (no present EPA levels), and minor reductions in power for IAD (0.5W) and Switches (1W).] Whilst the data set is limited for Non-ONT broadband modems and Access Points, it was still possible to suggest an approximate power limit to provide a basis for discussion and encourage further data submission from industry.	EPA has incorporated additional product data received from stakeholders with the dataset from Draft 1, and has developed new and revised base power allowances accordingly.
26	The use of one traffic test for each type, with 1kbps traffic is appropriate for typical consumer networking equipment usage and is the most effective way to judge such equipment and to encourage practical energy savings. However, such a methodology is inappropriate to enterprise networking equipment that should be graded according to maximum useful throughput (e.g. ATIS TEER).	EPA intends to cover devices best graded by maximum throughput as part of a separate Large Network Equipment program.
27	Table 1: The base allowances for devices take no account of the performance expectations of the device. It does not seem reasonable that (e.g.) a router that is capable of supporting multiple Gb/s of VPN traffic would be implemented in a manner that uses the same power as a router that can only support sustained rates of a few Mb/s. This is especially problematic for products that are intended for enterprise use, where performance is critical to business function. Overall, the energy targets expressed in this section seem anomalous when compared to other recognized energy efficiency guidelines such as the European Code of Conduct for Broadband Equipment.	The data we have does not show that perforamnce is a significant factor in energy use. EPA welcomes additional data to improve the analysis of the base allowance and adder levels. The performance tests included at the end of previous drafts of the Test Method will now be included as optional Partner reporting requirements to support review of performance considerations in future Versions of the program.
28	We suggests that EPA expand the list of functional adders to account for the fact that many modem devices contain a variety of capabilities that are not accounted for by either the base definition of integrated access device ("IAD") or any of the EPA's proposed functional adders. For example, neither the IAD definition nor the functional adders appears to contemplate a device that incorporates voice-over-Internet-protocol ("VOIP") capabilities or even "Plain Old Telephone Service" ("POTS") capabilities, both of which are regularly incorporated into IADs along with battery back-up capabilities to ensure that consumers can make emergency calls even in the event of a power outage.	To create the recommended adders, the program requires power data on such products. Battery backup capabilities are addressed with a provision from the test method.

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29	IADs incorporate technologies like USB and USB hubs, MoCA, and HPNA. It is unclear from the proposed definition of IAD that the EPA contemplated the incorporation ofthese technologies into IADs. The added complexity of the device resulting from the incorporation ofthese technologies would generally preclude compliance with the base power levels plus any of the proposed adders.	The test method is written to allow for devices having WAN options in addition to those specified for testing. Such interfaces are not connected during the test, allowing for the opportunity to reduce the power consumed in the devices. Because only limited data is available to the program at this time to identify the power required for the individual technologies referenced in the comment, the approach above will be taken in Version 1, with further investigation as part of future program development efforts.
30	[Our organization] recommends that EPA consider investigating and adding these types of functionalities to the functional adder table. Excluding these additional allowances may discourage manufacturers of products with these functionalities from participating in the program if these products cannot meet the proposed power requirements.	See Page 6 Index 29.
31	Table 2: The breakdown between base power and additional power does not match the reality of the hardware needed to implement these systems. From surveying the implementers of physical layer interface devices (PHYs), the current state of the art for devices implemented in the latest technology, suggests that the power requirements for compliant Ethernet interfaces using 100BASE-TX and 1000BASE-T would be higher than the adders described in Table 2. This power requirement includes only the components necessary for the Ethernet interface and does not include any internal interfaces, common circuitry, power conversion or sundries (such as LEDs). It should also be expected that devices using such state-of-the-art technology would not become available for sale for 2 or more years. Therefore the power given for the adders represents an impossible goal and it must be concluded that an error has been made in driving the BASE + ADDER equation or else some errors have been made in collecting the test data.	The base + adder structure is based on analysis of whole products in the dataset rather than one based on measuring individual components and their power draw. Wired network values additonally account for the fact that the test method involves only half of the WAN ports active. Additional data to improve the analysis of adder values is welcomed.
32	Table 2 makes no consideration for multiple technologies such as MoCA, HomePlugAV, FXS/VOIP, DECT, etc. Products integrating these technologies inevitably consume more power and will be at high risk of failing to meet the Energy Star specification. The table must be extended to account for power consumed by these technologies even though they will be unconnected while testing. Note that several technologies such as MoCA and HomePlug will be active although unconnected as they will be searching for other network nodes. A fairly complete list of such technologies with associated power allowances when inactive can be found in the European Code of Conduct.	EPA is aware of products that contain the referenced interfaces and have some data on products that meet the Draft 1 requirements while supporting these interfaces. To further investigate the need to generate accomodations for technologies not in the current adder list, data from stakeholders is welcomed to refine the approach taken. The limitations of the current dataset do not allow EPA to draw any further conclusions at this time.
33	Many products support more than one Wi-Fi interface, to allow transporting Data on one frequency, and Video on the other. The allowance for Wi-Fi must be multiplied by the number of supported concurrent Wi-Fi interfaces.	EPA welcomes data to support this comment. Although plausible, the limitations of the dataset did not initially allow EPA to draw this conclusion.

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34	The ENERGY STAR specification requires three measurements, one of which is with the Wi-Fi interface active (1 STA client associated with some traffic). The allowance for the Wi-Fi interface in Table 2 is only sufficient for an inactive, short reach, Wi-Fi interface. The value must be adjusted to account for longer reach, wider channel width, multiple radio chains, active Wi-Fi interfaces and be adjusted to 1.2 Watt instead of 0.7 Watt.	EPA welcomes data to support this comment as well as specific characteristics that could be used to identify instances where the higher power allowance would be justified. Although plausible, the limitations of the dataset did not initially allow EPA to draw this conclusion.
35	Table 2 should be updated to include the recent 802.11ac. Of particular relevance to 802.11ac is that it adds additional channel widths. While the original 802.11 channel width was 20MHz, 802.11n introduced 40 MHz, and 802.11ac introduces 80 and 160 MHz channel widths. The allowance in Table 2 must also include the effects of wider channel width in addition to multiple radio chains.	EPA currently has no data on draft 802.11ac devices. The technology could be added to the selection table, but an adder will not be possible without a diverse data set. For Version 1, EPA has added 802.11ac to the list of allowed network types in the Test Method. A customized adder for the technology will not be created until a broader array of products are available for review (the standard Wi-Fi adder will apply).
36	Unused ports should not have an adder. It is stated that the allowances are applied “once per port present in the UUT” and “once for the UUT for availability of Wi-Fi connectivity”. We suggest that these statements are modified so that they are only applied when such ports are active under test. For example: “Allowance applied once per port present in the UUT when active under test”.	The adders reflected the half-port scenario tested by the test method. As such, values averaged the connected and unconnected power anticipated for the interface.
37	On the recent teleconference on the SNE specification, manufacturers raised the potential need for an MoCA adder. If such an adder is to be included in the ENERGY STAR specification, it is suggested that this level should be at most 2.0W – as this is the 2011/2012 tier adder level within the EU Code of Conduct on Broad-band Equipment. However, any industry requests for adders should be supported by data.	EPA does not intend to cover products having only a MoCA connection with no alternative network technology already supported by the test method (e.g., WAN side MoCA without Ethernet also on the WAN side). For supplemental MoCA interfaces, EPA's proposal is to test the UUT without the MoCA connection connected. Such an approach supports reduction of the power consumed by the MoCA port(s) during ENERGY STAR evaluation.
38	If further functional adders are requested, we recommend considering this carefully. Functional adders should be limited in number, else we risk to increase substantially the qualification power level. Products with many functions and low consumption exist on the market. One example is the IAD FRITZ!Box 7390, which e.g. have VDSL/ADSL2+ modem, WLAN N, router, switch (4 gigabit Ethernet), DECT base station, integrated NAS, con-nections for analogue and ISDN telephones and USB 2.0 port. Average consumption is 6–8 watts.	This comment aligns with EPA's intended approach.
39	The Ethernet power requirements are dependent on the IC technology and architecture dependent. We use several manufacturers’ IC for our designs and observe a large variation in power requirements. Single port Gigabit Ethernet Phy ICs in current new products consume more power than the quad Gigabit System on Chip designs. Both the Fast Ethernet and the Gigabit Ethernet Power adders in the specification are far short of the actual product requirements. Data is provided in the following table. The information is for a single Ethernet or Gigabit Ethernet connection power requirement.	Adders are based on analysis of data received from stakeholders rather than analysis of a hardware power budget.
40	The adders for Fast Ethernet and Gigabit Ethernet are allowed per port. A quad port design will get 4x of the adders as compared with a single port. The requirements document uses the data involving a single port and half the number of ports connected during tests but never all of the ports. This favors the larger multi port designs which are not applicable all products.	See Page 7 Index 39.

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41	The 0.7W allocation for the Wi-Fi is far less than our most recent designs using current Wi-Fi modules. Just powering up the module without any client connected requires 2.7W; the low rate data adds another 0.5W of power. We are able to power down the Wi-Fi on some models to measure the delta power for the Wi-Fi modules.	See Page 7 Index 39.
42	The Wi-Fi allocation is only once per UUT. This excludes Dual Band Concurrent designs where 2 Wi-Fi modules are used. This should be expanded to allow multiple Wi-Fi modules when operating both modules. The test procedure recognizes the existence of dual band operation in Table 5 of the Test Methods but there are no additional allowances.	See Page 4 Index 20.
43	We seek clarification with respect to a potential discrepancy between the efficiency criteria outlined in Section 3.3 (particularly the Average Power Consumption equation set forth in 3.3.1), and the Power Measurement Guidelines set forth in Section 7.1 of the Test Method. Specifically, the EPA's proposed Average Power Consumption equation assumes a throughput of 1 kb/s on the WAN, LAN, and Wireless LAN ports. This approach is consistent with the EPAs proposal to "base the evaluation on measurements at low traffic rates rather than requiring testing at multiple traffic rates.,,2 However, the Test Method still calls fortesting to be undertaken at both 1 kb/s and at the highest rate supported by the link (Test Method, line 307-308). We suggest that the EPA conform the Test Method to the conclusions regarding the eligibility criteria and only test using the 1 kb/s throughput.	The specification intentionally relies on a subset of tested data from the test method. This allows for additional information collection at the time of ENERGY STAR testing which could be of use in future revisions to the program criteria.
44	The data collected illustrates two significant points: Firstly that there is a significant and noticeable divide between consumer networking devices and their enterprise equivalents; and secondly that the total energy footprint of consumer networking devices is relatively small and it is questionable whether the costs of implementing a new program for these devices will be justified by the potential energy savings.	EPA welcomes a clear and appropriate method to differentiate between "enterprise" and "consumer" equipment in a way that is measurable in the lab. Such a goal was raised in the past but has to date not yielded an effective solution. Should one be developed, EPA can then consider appropriate requirements for these discrete product types. SNE consumes roughtly 9TWh annually in the US, and the data suggest that we can save 20% of this with full market penetration. That comes out to $200M in annual savings.
45	It is clear that Ethernet Power Sourcing Equipment (PSE) is required to disable the power sourcing function. However, this is largely redundant as the specification for PoE is that the PSE does not enable power unless it detects a valid Powered Device that is connected. Therefore manually disabling the PSE has no practical effect (except to save on the detection function). This also disagrees with the “test in the configuration as shipped” requirement in the test specification.	EPA thanks the stakeholder for this input and has removed this requirement from Draft 2 as a result. EPA welcomes stakeholder feedback on this revision.

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46	In order to supply power to connected devices, PSE systems must include power supplies that are much larger than non-PSE systems. For example, an 8 port gigabit switch could easily function with a 15W power supply, but an 8 port PSE may be required to over 100W to 802.3af clients, or more than 200W to 802.3at clients. This means that the PSE system power supply will be operating at a load of less than 10% of its maximum rating when the PoE function is disabled. Therefore the losses in the power supply will naturally be much higher than a non-PoE system. Proposed solution: Include an adder (or multiplier) for PoE to account for the increased losses encountered due to the test methodology. Alternatively, introduce a different class for PoE devices that has separate limits defined.	EPA welcomes data to support the creation of an adder/multiplier to support the creation of separate PoE device limits.
47	For systems that are shipped without an integrated or external power supply and which, therefore rely on PoE or USB power, it is proposed to use a commercially available power injector/hub. The power reading is then taken at the input to this test device. Clearly this means that the efficiency of this power injection equipment will have a large bearing on the system measurement. As a general point, in most scenarios the power source will be part of a large, complex system (whether USB or PoE power) that can amortize the losses in the power conversion over many more functions. Therefore the effective power conversion efficiency in real situations will be much better than could be expected using a simple power injector. Additionally, a power injector device will often be less efficient than a simple external power supply, meaning that LVDC systems will appear less efficient than their AC powered equivalents. Proposed solution: Following the principle that devices should be tested in the “as shipped” configuration: - If an external power supply or any form of LVDC injector device is shipped with the product then it should be used as described in the current test method. - If a device is shipped without a power supply, but is intended to be powered by PoE, USB or another LVDC source that is routinely available as an auxiliary power output from a separate device then the product should be tested using an external injector device and the power measured at the output of the injector (i.e. the input to the product). This may give a small advantage to such devices, although this may be compensated by setting separate targets for LVDC powered devices.	EPA does not intend to encourage products sold without a power supply, which could result in the use of less efficient after market power supplies. Due to time constraints, development of a test method for dc products in Small Network Equipment is not feasible for Version 1.0, but will be considered in Version 2.0.
48	[We] would like to affirm that Energy Efficient Ethernet (EEE - IEEE Std 802.3az-2010) integrated circuits (ICs) - silicon chipsets - are commercially available to enable EEE based systems. For this specification, we encourage the EPA to retain the references to EEE and allow EEE to be enabled and used on tests that are done on EEE-enabled Ethernet interfaces to encourage further adoption of EEE and benefit from its savings.	EPA's understanding is the same and the intent is to require testing using Energy Efficient Ethernet-compliant hardware on both sides of the network link, resulting in energy savings to be realized in the ENERGY STAR evaluation.

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49	Amongst the consumer networking systems, most devices tested could be expected consume less than 100kWhr/yr and, given the typical household usage of these devices (maximum of either one IAD, or one modem + one access point per house), the total energy footprint is barely at the threshold of testing. Furthermore, the newer devices amongst those tested were below the median energy usage as the cost to build these devices is closely related to the energy usage. Therefore it can be expected that the energy usage will reduce naturally with the technology over time.	EPA views improving the efficiency of Small Network Equipment (SNE) as an important opportunity for reducing national household energy use as the market for SNE products appears to be growing. EPA believes that there are opportunities for efficiency in today's devices.
50	Several power management techniques exist; we however do not know the market penetration of the techniques. Examples are: - Powering down at low traffic volume - Scheduling WLAN on and off periods - Switch off unused interfaces We recommend asking for further manufacturer input.	EPA thanks the stakeholder for this input and welcomes other stakeholders to provide additional information on the market penetration of the examples listed.
51	Other ENERGY STAR Requirements such as the Set-top Box specifications require a single unit test to have no less than a 5% margin against the requirements, otherwise 2 additional units are required for testing. There needs to be consistency in the requirements from ENERGY STAR.	The ENERGY STAR program looks for, and will continue to look for, opportunities for increased consistency across specifications. With regards to additional unit testing, the provisions originated largely in office electronics programs but have been determined unique to each program. It is believed that the third party verification procedures now in place provide sufficient assurance of qualified products meeting efficiency criteria required by the ENERGY STAR program without the need for the added complexity of additonal unit testing.
52	Add max data rate of any Physical Network Port to be 1000 mega bits per second in SNE definitions. Or exclude Network Equipment with a physical network port data rate greater than 1000 mega bits per second.	The stakeholder is encouraged to provide product information illustrating the need to make the proposed scope modification.
53	What is a “secondary device”?	For clarity, this section will be renamed to "Peripheral Devices". Examples are provided in the test method. The intent of the secondary device provision is to require testing as shipped.
54	Even if the “alternative” LAN ports may not be connected, they will still be on and drawing power	Data are welcomed supporting this topic and the specific passive power demands of interfaces not exercised by the ENERGY STAR test method.
55	Table 4 and [line 167] Table 5: Change references to “bonded channels” to “40 MHz”. Add a row for 802.11ac and 5GHz (160 MHz).	EPA thanks the stakeholder for this input and has made revisions to both Table 4 and Table 5 in the test method to clarify channel bandwidths and include 802.11ac where appropriate.
56	Delete requirement 7) as it only applies to Ethernet and not the other wired technologies.	The provision will be clarified to refer to adherence to a published or draft network standard. The intent of the reqirement was to speak to an industry concern regarding testing variable introduced by techniquest not in compliance with established standards.
57	Add 802.11ac	See Page 10 Index 55.
59	The specification requires measuring Pavg through 3 tests (WAN test, LAN test and Wireless test) with a throughput of 1 kbps each time, while the test procedures define tests at various data rates. The test procedure should be streamlined to better align with the specification.	See Page 8 Index 43.

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61	Battery Operated Products. Intelligent battery chargers will requires configuration of the charger to avoid test/discharge and recharge of the battery during the testing. Additional wording needs to be added to allow for this configuration. "Manufacturers are allowed to configure the battery charger to prevent routine maintenance activities which may result in discharging and/or charging the battery during the test unless the device always charges the battery."	The program seeks further information about the role of battery maintenance over time in products with integrated batteries: both how often such features engage over time and the difference in power consumed in the steady state with a fully -charged battery and during a maintenance event. The test method will be clarified to clearly communicate options to ensure a fully-charged battery.
62	Should the measured level actually be Channel Power for 20MHz BW as opposed to signal strength at an undefined Resolution BW? If the tester or client is a PC as opposed to a dedicated Wi-Fi tester, there is no ability to control the transmit level to get -50dBm at the AP. The manufacturer may have the ability to control their product Wi-Fi (AP or UUT) to set the unit to a continuous transmit mode for measuring the attenuated receive signal at the input of the Tester (PC). The continuous transmit facilitates the setup and measurements of the receive signal level. The nomenclature of "test client" on line 241, is not shown in the supporting Figure 4, leading to confusion. Either conducted or radiated configuration can be configured and measured for this test. We have provided data using the radiated configuration.	Received signal strength shall be measured as power within the bandwidth of interest and measured at the Access Point. Related clarifications will be included in the test method.
63	We do not have the equipment to generate mixed packet length (IMIX) traffic or even control the data rate for Wireless testing. We are using a PC for connections to the wireless and NetPerf for data traffic generation. When using UDP with Netperf, the CMTS system becomes overload affecting other system users. We had to use TCP for this testing and allowed the data to flow at the very maximum rate limited by the system. This may have increased the maximum power levels over a fixed rate as defined in Table 8.	The test method will continue to require use of an IMIX traffic pattern. EPA will work with stakeholders and testing bodies to clarify related testing conisiderations.
64	Max number of Wireless Clients – this will required a large number of wireless devices to determine the maximum number of wireless clients. Since this is not a required parameter, remove this test from the requirements.	The performance tests are not required by the specification requirements, but are included for informational purposes. As such, the information required by the tests, already optional, will be moved from the Test Method to an optional reporting requirement in the ENERGY STAR Specification that may be met by either self-reporting by the manufacturer based on their own documentation or by manufacturer-requested testing along with other required testing elements for Small Network Equipment.
65	Max number of NAT Clients – this will required a large number of devices to determine the maximum number of NAT clients. Since this is not a required parameter, remove this test from the requirements.	See Page 11 Index 64.
66	Add HPA: HomePlug Powerline Alliance. Add "HomePlug". If not added, devices with HomePlug should be given an allowance.	Based on data available for review as part of the Version 1 specification development process, the scope of the test method and program will be limited only to devices with DSL, PON, or DOCSIS interfaces. The Test method will be clarified on this point. For supplemental non-Ethernet interfaces on either the LAN or WAN side, the program proposes to test the UUT with the supplemental interfaces unconnected.

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67	Two stakeholders were against inclusion of materials or substance requirements with efficiency requirements. Concerns were raised over implementation timeline and harmonization. One stakeholder recommended moving the section from Energy Star program requirements to the ENERGY STAR Partner Commitments, there referencing external standards.	While energy efficiency remains the basis upon which top performers are selected, EPA addresses attributes related to other aspects of product performance in ENERGY STAR specifications as applicable to ensure that overall product performance is maintained relative to a non-qualifying product. By including additional attributes, the ENERGY STAR program seeks to avoid associating the label with models of poor quality or models with features that are not compatible with broadly held consumer or societal interests, thereby preserving the influence of the label in the market. In response to stakeholder concern that placement of toxicity requirements in the product eligibility criteria could hinder international harmonization, EPA is proposing that these criteria reside instead in the ENERGY STAR Partner Commitments document, which is unique to the US market. As such, EPA has removed the Toxicity requirements from the eligibility criteria. Further, in response to feedback, EPA notes in the Partner Commitment document that it is the Agency's intention to harmonize with EU RoHS and that the toxicity requirements are not subject to third-party certification.
68	We urge EPA to adopt an "adder" for MoCA in Table 2, as follows: MoCA (1.0/1.1/2.0) 5W Allowance Added once per port present in the UUT We believe that a 5 watt "adder" is appropriate, as current state-of-the-art MoCA transceivers consume approximately 5 watts. Furthermore, the MoCA "bridge" products (see above) consist of required MoCA components plus one Ethernet port; therefore, we suggest that ENERGY STAR may validate our power level assertion by measuring the actual power consumed by such a device. For example, the ActionTec ECB2200 is a 2-port switch, one 100Mbit Ethernet port and one MoCA 1.1 coax port (with passthrough), which ActionTec claims consumes "<5 Watts."	See Page 7 Index 37.
70	sugguest test power:230Vac,50Hz for Europe,Australia.New Zealand. Other market115Vac,60Hz,and there is not define the DC power input.	The test method in all cases involves AC testing (low-voltage dc products are tested using shipped AC power adapters or POE Injectors). The test method will be reviewed for consistency with this approach. The AC voltage conditions present in the test method are consistent across ENERGY STAR Office and Consumer Electronics programs and will be maintained.
71	How to define PoE injector?why not place the AC power meter between the UUT and POE Injector?	See Page 12 Index 70.
72	it is not easy to get Shielded enclosure,whether change a method to test the power of AP? Suggest reference to Code of Conduct on Energy Consumption of Broadband Equipment	It is believed that the shielding requirement, critical to the repeatability of wireless testing, is reasonable as written.
73	"1. One module which have USB port and can provide 3G function , may be shipped with the UUT. Is this module meet the definition of alternative LAN Technologies? 2. If yes, because ""A secondary device and cable"" may cause more power consumption than no secondary device and cable for the product, suggest increase the additional functional adders appropriately and add the test state for the secondary device and cable which are shipped with the UUT in the test method	If the USB device and cable are shipped with the UUT, then they should be connected during testing. All SNE products shall be tested in their as-shipped configuration.
75	If product simultaneously with DSL/ONT and router function is included in this scope of ENERGY STAR SNE Specification?	A product as described is covered under the definition for Integrated Access Device (IAD) and in scope.

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76	So it is suggested to consider ""idle state"" in average power consumption of equation 1, for example of modem, the average power is calculated by the power consumption in idle state and power consumption in wired network_WAN. It is because SNE have much time in idle state and there exists energy saving chance for manufacturer and customers, thus, it can encourage manufacture to design more energy efficiency product, and encourage customers to use more energy efficiency product. And from our estimation, SNE will not work about 60% time in a day and night of 24 hours.	As noted during the Stakeholder Webinar, the goal of the 1 kbps traffic is that a small amount of persistent data flows over most small networking products in situ most of the time. Testing as such reflects this real-world usage.
77	Maybe switch base or adder limit is unreasonable and should be analysed again, FE port adder should be bigger. From the attached datasheet of ""29 Switch analysis"", it is known that for switch with FE or FE&GE, only 14.29% switch has passed, and 85.71% switch has failed, but for switch with only GE port, 66.67% switch has passed, while 33.33% switch failed, it means that switch with FE port is not easily to pass while the switch with GE port is easily to pass, it is a little not balanceable for switch with different type ports.	After additional analysis of switches in the dataset that are within scope of Version 1.0, FE-only capable switches have a pass rate of 50% with the current functional adder allowances. EPA welcomes additional feedback from stakeholders that provides explanation for low pass rates observed for products in the dataset that have both FE and GE ports. EPA is proposing to retain current functional adder levels.
78	It is suggested to consider adder of interfaces such as POTS, CATV, HPNA, POF, MoCA, wifi with dual band, wifi with dual antennae, USB, femto cell, 3G etc. . For SNE adder, other interface should consider their adder because they can not be shut down even though these interface are not connected in testing. These interfaces include FXS, G.HN, RF, HPNA, POF, MoCA, wifi with dual band, wifi with different band(2.4G or 5G), wifi with dual antennae, USB, femto cell, 3G etc.	See Page 6 Index 29.
79	**Is** EEE(802.3az) is mandatory in Energy Star SNE specification?	EEE is not mandatory in Version 1.0. EPA is proposing an incentive to encourage EEE adoption in SNE products in Version 1.0.
80	From the Table 1, for switch/router equipment, 7.2 A) and 7.2C) need to be tested, but in Chapter of 6.5 UUT PREPARATION section ii) Switch/Router: See Figure 3: Switch or router test setup. It means 7.2B) wired network_WAN also need to test, it is a little conflicted, so my question is which is right?	Table 1 will be modified for clarity.
81	Line 127 has a picture showing the measurement method for low-voltage DC power supplies. When POE is used the length of the cable may dramatically influence the overall power consumption, especially in full power. For example: if a WLAN AP, when operating in full power, consumes 25.5W, and the cable between the injector and the WLAN AP is a CAT5e AWG24 100m long cable, and the injector output voltage is 50V, the power losses on the cable will be 4.5W. If on the other hand the cable is only 50m long, power losses will be 2.25W. I recommend to specify the cable length to be 100m, since typically the PoE injector is not collocated with the WLAN AP (that's the precise reason why people use PoE to being with. Specifying the cable to be AWG24 is important, since it is the worst case (and most commonly found) wire gauge allow for CAT5, CAT5e, CAT6, CAT6A and CAT7 cables.	EPA has revised the cable length requirement to 1-2 meters. It is believed that, for the reasons stated in the comment, that losses in longer cabling lengths promote testing near to the minimum specified in the test method.

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82	There are many networking devices currently available which implement MoCA and Ethernet and are properly characterized as either a switch or router. For example, the Actiontec MI-424WR1 is a gigabit Ethernet, 802.11N and MoCA router, and the ChannelMaster CM-60042 is a switch with a 4 Ethernet ports and a MoCA port. There are a large number of “MoCA bridges” which fit in the scope and definitions of ENERGY STAR Program Requirements for Small Network Equipment Draft 1 Version 1.0. These devices are small network equipment designed for stationary operation with less than 11 wired physical network ports, primarily designed for nonrack-mounted operation that fit the definition of a Local Network Equipment Switch: they filter and forward frames at the data link layer based on the devices that are known to exist on the MoCA network segment. In short, we believe that MoCA yields a net decrease in power consumption in a consumer’s home. However, MoCA technology does require a slight increase in power consumption in hubs, switches and similar small networking devices. For other technologies, ENERGY STAR has proposed a Power Allowance (PADD) “adder” in Table 2 (at line 325 in Draft 1).	See Page 6 Index 29.
83	Clause 3.2.1 includes single and multi-voltage EPS evaluation but the Test Method (Aug11 , 2004) is a method only for single voltage EPS. Is it intended to use this test method for simultaneous multi-voltage output EPS? If yes perhaps some clarification is required as to the intended loading for testing.	At this time, it is assumed that all products in the scope of Version 1.0 of the SNE program will utilize single voltage EPS. Stakeholder feedback on the likelihood of multi-voltage EPS is welcomed.
84	Include adder for included onboard storage	No product data to support an adder to integrated storage capability was provided in the dataset supporting Draft 1. Such data will be required to produce revised requirements.
85	Include adders for WiFi when there are multiple radios (e.g. one for the 2.4GHz band and another for the 5GHz band).	See Page 6 Index 33.