Topic	Subtopic	Comment	Response
General Support		Several stakeholders supported broadening the scope of the specification to include connected, color tunable lamps, and induction based technology.  One efficiency organization was supportive of the primary goals in the specification cover letter.  A few stakeholders supported removing the rapid cycle stress test for LED products.  One partner supported EPA's efforts to make the specification technology neutral.	EPA appreciates the support for the initiatives.
Audible noise		A laboratory suggested that the ENERGY STAR Lamps V1.0 Test Method for Noise includes references to a document that only allows fully anechoic chambers, and that additional guidance would be beneficial.	It is not EPA's intent that the noise test take place in fully anechoic chambers. The ISO and ANSI documents referenced in the recommended practice were intended as a helpful references, not requirements. A modified version of the recommended practice will be published with the next draft of the specification, clarifying the testing.
ССТ	2200K and 2500K	Several stakeholders agreed with the addition of 2200K and 2500K CCTs. However, one suggested that incandescent lamps operating at these CCTs be considered when defining the minimum lumen and efficacy requirements, and another would not support the new CCTs if the color tunable testing requirement is intended to require compliance at the lowest-efficacy white condition <i>including</i> these new CCTs. Another only wanted the new CCTs to apply to decorative products.  One stakeholder requested EPA wait until CCTs are finalized by ANSI. A stakeholder shared that demand for these CCTs is currently in the commercial sector, in hospitality and restaurants, but that EPA should consider including modified spectrum 2700K and 3000K new ANSI color bins for the residential sector.  An industry group pointed out that the low CCTs look like dimmed incandescent lamps, so including them in the ENERGY STAR specification would allow utilities to incentivize more efficient bulbs that mimic dimmed incandescent light.	Due to the unknown timeline of the publication by ANSI, EPA has included 2200 and 2500k along with modified spectrum 2700K and 3000K lamps in the list of considerations for future revisions and requests that industry propose specific nomenclature for these new color temperatures so marketing of these off color temperatures is consistent for consumers understanding. EPA also notes that these colors are outside of the FTC labeling regulation and outside the range for LED Lighting Facts label so labeling requirements would need to be specified for these lamps if they are to be included in a future ENERGY STAR specification.
Color Maintenance		A few stakeholders requested clarification in the ENERGY STAR requirements language to ensure consistent interpretation and testing.	The measurement points at which color maintenance should be checked against the requirement includes any measurement point taken and supplied for certification, be that in LM-80 data or Lamp level photometric color testing, at 3,000, 6,000, 7,500 etc. This has been further clarified in the color maintenance section.
Color Tunable Lamps		the types of lamps that are considered color tunable, referring specifically to tunable white light lamps	EPA has clarified the test points for color tunable lamps in draft 2, and has specified what data is to be collected at each setting. If power and luminious intensity are the same at each of the defined settings only one setting needs to be used testing.  No additional allowances for energy use are granted for tuning white light, however if the color tunable lamp is also a connected lamp it may use up to .5 watts in standby mode.  EPA will leave communicating the features of color tunable lamps to customers up to the partners, and will allow for them to identify features on the ENERGY STAR certified products list and product finder. EPA requests suggestions for identifying these features in consumer friendly terms e.g. white light tunable, multi-color tunable etc.

Topic	Subtopic	Comment	Response
Connected Lamps		Some stakeholders were very encouraged by EPA's interest in developing connected product criteria. An efficiency organization stakeholder was interested in the potential opportunities connected products represented for utility direct load and behavioral change programs. Other stakeholders thought that it was too soon for EPA to be working in this space since industry standards do not exist for testing these functionalities and had concerns about the cost of developing third-party connectivity. One partner commented that connected lamps should be held to the same photometric, electrical and mechanical (ANSI shape) requirements as non-connected lamps.	EPA's proposal remains consistent to hold products with connected capabilities to the same requirements as lighting products without these features, but to address additional features such as standby power and connected functionality consistent with EPA's approach to other ENERGY STAR products while considering the aspects of lighting products that set them apart from larger appliances. EPA will be closely monitoring the connected lamp market and assess requirements for ENERGY STAR certified connected lighting as the market matures. Looking for opportunities to reduce power and maximize consumer benefits.
Connected Lamps	Stand-by power	A number of stakeholders expressed concerns about the growth of stand-by power on the overall load. A few efficiency organization stakeholders suggested lowering the stand-by power requirement to 0.25W. One partner commented that the proposed requirement of 0.5W was fine, while another partner recommended increasing the requirement to 1W. It was noted that the DOE test procedure cited is for LED products, and a test procedure may need to be designated for connected CFL products.	EPA is confident that 0.5 W for lamp standby is appropriate for early adoption of connected lamps to allow for flexibility and market development. The agency will montior the progress of connected lamps as it relates to features, standby power and market adoption, with the expectation that the standby power limit can be reduced in the future.
Connected Lamps	Energy Consumption Reporting	One partner suggested removing this section, citing the limited value it would provide for residential lighting and that energy consumption reporting of this magnitude should be reserved for products with larger loads. Another partner expressed concern that the lack of an industry standard would make it difficult to ensure all connected lamps work with all energy management systems and recommended that EPA adopt requirements in the future as technology and standards are developed. Another stakeholder suggested adding language to include provisions for reporting power in watts or having manufacturer-provided method for estimating power consumption in watts.	EPA believes that energy consumption reporting is important to the consumer. EPA will continue to monitor the market and standards development process for connected lighting and assess whether changes may be appriopriate down the road.
Connected Lamps	Operational Status Reporting	One efficiency organization stakeholder requested that luminous intensity and the corresponding actual energy consumption be reported to better understand power consumption when a product is dimmed. Another stakeholder suggested simplifying the proposed language so that the lamp, at minimum, allows the user to be informed of its status (on/off, light output, etc.). One partner noted that the operational status reporting section gives flexibility to the manufacturer and that information a lamp could report may be identical in Sections 12.9 (Energy Consumption Reporting) and 12.10 (Operational Status Reporting). Another partner suggested removing "energy management system" and simply requiring that the lamp reports information to the consumer.	EPA has carefully considerd the feedback received from stakholders on reporting features, at this time, EPA has adjusted the requirement for operational status reporting to be limited the minimum reporting to the most essential piece of information, on/off while partners may provdie addditional features like color and luminous intensity, it is not essential to be reported for successful consumer adoption.
Connected Lamps	Open-standards and open-access	A few stakeholders supported the concept of open standards and open access. One efficiency organization stakeholder recommended that having open and non-proprietary means for achieving two-way connectedness should be considered the minimum criteria for a "connected" product. This stakeholder also recommended that connected products be equipped to communicate via all major communication pathways so that consumers have the ability to participate in utility programs even if the lack broadband or wireless access, but also urged EPA to carefully consider its requirements to safeguard customer data. A partner suggested that if no suitable open standardized method existed, then partners be required to use an open and documented communication method that is published with the lamp.	management and home automation products, which will have great advantages for
Connected Lamps	Remote Management	One partner recommended removing this section, citing the limited value for residential lighting. This partner also suggested that it could hinder adoption of efficient lighting because ensuring these capabilities would add time and cost. Another partner suggested adding language which clarifies how the lamp may both receive and respond to commands.	Remote management simply enables a product to be controlled by a remote control or device outside of the product. This is important to enable the connected functionality of the lamp.

Topic	Subtopic	Comment	Response
Connected Lamps		One stakeholder asked if test laboratories or certification bodies will have to test for these features or if manufacturers will be required to provide documentation stating that they meet the criteria?	Compliance with connected criteria will be confirmed through examination of product and or product documentation.
	Testing	One efficiency stakeholder recommended that EPA and DOE work together to develop a test procedure that can evaluate a connected load's ability to respond to price signals since some utilities are moving towards offering time-based pricing in the residential market. It was noted that the current DOE draft test procedure for demand response functionality only addresses reliability-based signals.	
CRI		One stakeholder recommended EPA consider 90 CRI, at least for LED lamps, to align with the CEC specification. One stakeholder requested that allowable product variations include CRI in the future.	EPA still believes the CRI minimum level set in ENERGY STAR lamps for CFLs and LED lamps from the beginning is appropriate for the market for ENERGY STAR lamps and delivers an appropriate minimum level of performance while balancing cost and efficiency.
CRI	R9	An efficiency organization supported of R9 minimums if the omnidirectional efficacy was lowered to 69 lm/W.  Several partners and an industry group requested removal of the R9 requirement for CFLs because it will make it more difficult to achieve high efficacies. One recommended R9 > -10.	In consideration of stakeholder comments regarding the challenge of R9 and compact fluorescent lamps, EPA has removed the R9 rendering requirement for CFLs, but will require these values to be reported.
		A partner and an industry group mentioned possible confusion between the definitions for Connected and Dimmable lamps since nearly all connected lamps will be dimmable. These stakeholders also requested clarification about whether or not it is EPA's intention that connected lamps work with phase-cut control.	EPA believes the current definitions for dimmable lamp is clear that it does not require a phase cut control and refers parterns to the dimming section that already provides a testing pathway for non-phase cut dimmable lamps. EPA has made updates to definitions as appropriate in draft 2.
Definitions		One partner requested altering the definition for connected lamps by removing references to third-party remote management.  Another partner requested "self-ballasted" be removed from the definition of induction lamps.	

Topic	Subtopic	Comment	Response
Efficacy		A number of stakeholders argued against one or more of the proposed efficacy requirements because of the number of CFLs that would no longer meet the specification. These skakeholders also expressed concern about the impact of the proposed efficacy levels given the California Energy Commission CRI requirements of Ra>90 and R9>50.  A few partners suggested splitting the efficacy requirements within the decorative category based on wattage. A few efficiency organizations supported the proposed efficacy levels for decorative and directional products, but recommended lowering the omnidirectional efficacy level to allow more CFLs to meet the specification. A few partners supported the directional efficacy levels, while other partners proposed lowering the levels and one partner suggested splitting the levels based on product wattage.	During the last specification revision, EPA took great care to maintain requirements at levels to allow manufacturers to focus on reducing product costs. EPA has set levels that current cost effective products can meet today and expects that even more products by the time the specification goes into effect. However, EPA has adjusted the efficacy levels for omnidirectional lamps in draft 2 to allow for an even broader selection of low cost ENERGY STAR lamps.  EPA has proposed in this draft to split the decorative category at 7W and have a lower efficacy level for decorative products 7 watts or less due to the input received on the challenge for low wattage decorative LED lamps currently in development to reach the proposed 65 lumen per watt requirement due to design challenges.  EPA has also clarified how covered A type CFLs should be certified in draft 2 as it was clear this was a common misunderstanding.
Elevated Temperature Light Output Ratio		Two stakeholders suggested the exemption language for lamps labeled "not for use in enclosed or recessed fixtures" be consistent with the terminology used in the lumen maintenance and labeling and packaging requirements section.  One laboratory requested clarification on the temperature measurement point if LM-82 is used as the test method. In LM-82, the thermocouples are attached to the device under test, while in the ENERGY STAR Elevated Temperature Light Output Ratio Test the temperature is monitored in the air above the base of the lamp.	EPA clarified that restricted language applies to lamps labeled "not for use in totally enclosed" and/or "not for use in recessed fixtures" or equivalent, which has been the intent all along but may have been confusing as worded previously.  EPA clarified that to utilize LM-82-12, the partner must designate a temperature measurement point (Tb) for attaching the thermocouple.
Federal Regulations		finalized.	EPA has removed language reminding partners that DOE regulatory metrics must be conducted at a NVLAP laboratory based on stakeholder feedback that DOE may change this rule in the future.  In an effort to provide partners with continuity and honor the Agency's intention to harmonize with applicable DOE Test Procedures, this Draft proposes to allow for the use the final test procedure for LED Lamps, where applicable. The only test method EPA is suggesting to use from DOE proposal would be the one for standby power. EPA has made this clear in draft 2 that the test method DOE proposed for standby power may be used until DOE releases a final test method. Otherwise all existing ENERGY STAR test methods are to be used until DOE finalizes a new test method. EPA has made some adjustments throughout the specification in anticipation of the
Flicker		One utility group requested EPA update the testing guidance and reporting requirements for flicker to align with Title 24's Joint Appendix 10 (JA10).	EPA will examin the recommended practice to see if additional updates would be helpful based on the supplimental testing guidance introduced in draft 1. EPA has aligned data collection for flicker and frequency with the elements of Title 24 as deemed appropraite at this time.

Topic	Subtopic	Comment	Response
Lamp Labeling		A partner requested the application exception language, "not for use in enclosed or recessed fixtures," be made consistent throughout the specification in the elevated temperature light output ratio, lumen maintenance, and lamp labeling and packaging sections. Another partner requested the lamp labeling requirement for application exception language be revised to mention safety certifiers- "lamps leveraging application exemption for elevated temperature testing as required by UL or ETL."  One efficiency organization suggested a "connected," or similarly clear label be required on connected lamps.	EPA has made lamp restricted use langaueg consistent throughout the specification in draft 2.  EPA is not inclined to mandate labeling requirements related to "connected" at this time.
Lamp Packaging	CCT Nomenclature	A few stakeholders expressed concern that the proposed CCT nomenclature was inconsistent with traditional industry terminology, would cause further confusion in the market, and would require major redesigns of packaging. These stakeholders requested that the proposed requirement be removed.  Several stakeholders commented they are supportive of consistent terminology, but would suggest clear and descriptive recommended language rather than a requirement. One of these stakeholders offered a recommendation for the 6500K CCT as "Blue White."  One stakeholder group commented that labeling of color on packaging is outside of EPA's scope and is under the authority of the FTC, which has elected to not pursue greater detail in terminology. This group commented that color descriptions allow manufacturers to communicate with their customers, and often have their own terminology, and the proposed terminology would cause further confusion in the market.  One stakeholder suggested two alternatives to the proposed terminology as color terms are subjective, and CCT options are much more varied then when only incandescent and fluorescent were available. The first alternative is to break the CCT spectrum into sub-sections, and then identify specific CCT under the sub-section, possibly with another descriptor or in terms of wavelength (i.e. (Cool Warm (3000K)", or "Short Neutral (4100K)). The second alternative is to provide the Kelvin temperature only, as manufacturers are communicating color in more precise terms.	
Lamp Packaging		A few efficiency organizations expressed concern regarding consumer dissatisfaction with premature failure of lamps improperly installed in enclosed fixtures due to insufficient visibility of warnings regarding use in enclosed fixtures. These stakeholders suggested requirements for packaging language regarding use in enclosed fixtures such as font size or being located on front/main panel of packaging.  One efficiency organization suggested the light output labeling requirements for 3-way lamps include all three light output settings, not just the brightest setting, citing confusing labeling found in the market.	EPA is looking to stakeholders for input on how best to address this concern. Often this language is buried on the back of product packaging and consumers may not notice that the lamp they are purchasing cannot be used in all locations and applications. Making this language more prominent and including an additional reminder on the front of product packaging has the potential to reduce the number of lamps failing from improper installation and the potential to increase customer satisfaction with efficient lighting technology. Stakeholder discussion on this topic has been helpful and should continue as it is in all stakeholders' best interest for consumers to have a positive experience with ENERGY STAR certified bulbs.

Topic	Subtopic	Comment	Response
Light Output		One stakeholder requested clarification about light output requirements for the different types of decorative lamps.  A few stakeholders suggested reinstating the Version 4.3 CFL criteria for specific light output ranges for equivalency claims for 3-way lamps.	Lamp performance reporting is covered by DOE and FTC and therfore EPA is working to align the ENERGY STAR specification with the reporting requirements set forth by the other governement agencies covering lamps. While not all lamps covered by ENERGY STAR are governed by federal regulation, EPA believes consistent testing and reporting for all lamps will be beneficial to the market.
		One industry group was concerned about removing the 3% light output tolerance, sought clarification on why light output reporting alignment for MR lamps is proposed, and encouraged EPA to allow decorative A-lamp CFLs to be classified as omnidirectional or decorative.	
Lumen		Several partners and an industry group requested that EPA keep the 3% tolerance for lumen maintenance removed in this draft and one requested an allowance for one lamp to fail lifetime testing.	EPA will maintain a 3% tolerance on lumen maintenance for LED lamps but notes that DOE's final test method for LED lamp life ratingsmay not include any tolerances for lumen maintenace.
Maintenance		One stakeholder and one utility group supported the increased temperature testing for lifetime because it will increase the quality and value to the consumer.	
Lumen Maintenance	Color Tunable Lamps	An industry organization suggested that early certification for SSL lamps only require LM-80 testing on the LED that provides the greatest amount of light when a lamp is at full output at the default CCT, since color tunable lamps may contain LEDs without LM-80 testing and so they will not be able to provide TM-21 projections for all LED colors used.	EPA recognizes the challenge in determining lumen maintenance for SSL products utilizing multiple colors of LED for early certification. While the suggestion to only evaluate the LED that provides the largest lumen contribution would address a large portion of the lumen maintenance, if the secondary color LEDs depreciate at a significantly higher rate this will impact both the lumen maintenance and the color appearance of the product. EPA seeks comment on the applicability of LM-80 data for differing direct colors e.g. the applicability of blue lumen maintenance to green or red lumen maintenance.
Lumen Maintenance	Supplemental Testing Guidance	One partner and an industry group requested the reference to omnidirectional lamps <10W be reinstated to make the testing required clearer. These stakeholders also requested clarification regarding CFLs testing guidance to make it clear that the five units tested will only be operated in the vertical-base up position unless the manufacturer restricts the lamp's position.  A laboratory partner suggested altering the language that specifies that directional lamps that must be tested in accordance with thte ENERGY STAR Ambient Temperature Life Test. The laboratory suggested removing "enclosed fixtures" since most directional lamps are labeled "not for use in enclosed fixtures" because of their design and distribution pattern.  A partner and an industry group requested clarification regarding the timeline of testing due dates, including recording the actual dates samples are placed on life test, and accounting for downtime due to laboratory or site maintenance, or system failure.	EPA has added a table in the lumen maintenance section for CFLs and LED lamps to be clearer as to what test method, test temperature and conditions apply to each lamp type. Lamps are tested 5 base up and 5 base down unless manufacturer restricts position. This has always been the case. EPA has included an allowance in draft 2 for partners electing to use elevated testing option A of recessed cans, to test all 10 units in base up position regardless of manufacturer position restricted use for ease of testing and due to the worst case environment created with testing lamps base up in recessed cans.  EPA has clarified the restricted use language that ambient temperature testing applies to either statement "not for use in totally enclosed" or "not for use in recessed fixtures".  Test due dates are worked out between the partner, certification body and lab.
Power Factor		One utility group recommended EPA adopt a minimum power factor requirement of 0.9 to improve cost-effectiveness and greehouse gas benefits for consumers.	EPA believes that the power factor requirement is appropriate as is, and that raising it will add unecessary cost at little benefit. EPA also notes that many manufacturers have .9 power factor lamps certified and displays this information so that utilities who are looking for .9 power factor lamps can identify these products.

Topic	Subtopic	Comment	Response
Product Variations		1	ANSI base adapter refers to the base of the lamp that allows for the electrical connection to the socket. EPA only allows for select base types standardized by the American National Standards Instiute (ANSI) for eligbility.  EPA has made clarifications to the allowable variations section based on stakeholder feedback.
Rated Life		requirement rather than requiring that all tested units remain operational in order to keep costs down	EPA removed the allowance for a failed model to align with proposals from DOE, and belives it is in the best interest for market adoption if all lamps are designed to be operational at key measurement points. Additionally DOE's final test method will determine acceptible passing rates.
Run-up Time		Several stakeholders and an industry group opposed EPA's proposal to decrease the run-up time requirement to ≤60 seconds. The industry group suggested a requirement of ≤120 seconds for covered and reflector CFLs.  An efficiency organization recommended EPA further reduce run-up time to ≤30 or ≤45 seconds because	EPA reexained run up time based on stakeholder feedback and revised efficacy levels. Draft 2 proposes a 45 second run-up time and reflects 88 percent of products meeting the efficacy levels can meet this requirement.
Standards Referenced		it is one of the most significant consumer complaints.  One stakeholder suggested that references to LM-65-11 and LM-66-10 should be replaced with revisions that will be published soon. One stakeholder suggested clarifying that IES LM-65 and IES LM-66 are applicable to induction lamps as well.	test criteria was updated to relfect that these standards also apply to induction lamps.
Start Time		An efficiency organization, a utility group, and a stakeholder supported the proposed start time requirement of 500 milliseconds.  Several stakeholders and an industry group opposed the proposed start time requirement of 500 milliseconds.	EPA has carefully considered the comments received for start time and has made adjustments to the requirements in darft 2 based on stakeholder feedback and other considerations.
Timeline		timeline of the DOE LED test procedure will affect the specification timeline.  Several stakeholders and an industry group wrote that the new specification is coming too soon and will inconvenience manufacturers unnecessarily. One stakeholder requested a later effective date of 1/1/2017, and an industry group requested a minimum of 12 months phase-in period. One stakeholder suggested that utilities push for tighter specifications, but that utilities had problems transitioning to Version 1.1. This stakeholder requested that EPA work with utilities to provide additional guidance on the transition process.	EPA intends to move forward with version 2.0 and will make adjustments, if necessary after DOE finalizes the test procedure for LED lamps. EPA has taken efforts to align reporting requirements with DOE proposals to limit the possibilities that products would no longer meet ENERGY STAR V.20 requirements after being retested to a final DOE test procedure.  EPA will allow for a 12 month transition period for lamps in case partners decide they want to redesign products to maintain certification, however EPA trid to structure this revision so that retesting would not be necessary apart from a new DOE test method.  EPA provides a breadth of transition time and communciations to partners to assist with specification transitions. EPA also provided archived lists for products certified to the old specifications. Utility programs make their own decisions on what products to rebate.