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Vice President, Government Relations

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VIA EMAIL TO: lamps@energystar.gov

Ms. Taylor Jantz-Sell
Environmental Protection Agency
ENERGY STAR Lighting Program Manager
1200 Penn. Ave NW 6202J
Washington, DC 20460

NEMA Comments on Draft ENERGY STAR® Program Lamp Specification v1.0 Final Draft

Dear Ms. Jantz-Sell,

The National Electrical Manufacturers Association (NEMA) appreciates the opportunity to provide the attached comments on the subject proposal. These comments are submitted on behalf of NEMA Lamp and Solid State Lighting Section companies.

As you may know, NEMA is the trade association of choice for the electrical manufacturing industry. Founded in 1926 and headquartered near Washington, D.C., its approximately 450 member companies manufacture products used in the generation, transmission and distribution, control and end-use of electricity.

Thank you for your consideration of these comments. We look forward to working with you further on this important project. If you have any questions on these comments, please contact Alex Boesenberg of NEMA at 703-841-3268 or alex.boesenberg@nema.org.

Sincerely,

A handwritten signature in black ink that reads 'Kyle Pitsor'. The signature is written in a cursive, flowing style.

Kyle Pitsor
Vice President, Government Relations

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NEMA Comments to ENERGY STAR Specification for Lamps Version 1.0 Final Draft

NEMA thanks the EPA for its careful consideration of our numerous comments to version 1 draft 4 of this specification.

Our specific comments to the Version 1 Final Draft follow:

Comments to the Specification:

1. Section 2.0 Effective Date

A 12 month transition period is not adequate for product re-design and re-testing. For CFLs, a 40% life test data is required for initial qualification. A 10K hour product will need over 7 months (4,000 hours) for testing against the new specification. If we add the design and approbation time (UL, FCC, CSA approbations), it becomes clear that one year is not enough time. Proposal: Allow 18 months transition and set the effective date to March 1, 2015.

2. Section 6

NEMA remains concerned that EPA and DOE reporting requirements and sample sizes are not aligned, as DOE is now requiring reporting of ENERGY STAR test results using a different test procedure than the test procedure adopted by DOE in 2006. The DOE test procedures for medium base compact fluorescent lamps, "Test Procedures for Certain Consumer Products and Certain Commercial and Industrial Equipment; Technical Amendment," 71 Fed.Reg. at 71347 (2006), the DOE reviewed whether its test procedure should follow the Federal CFL sampling plan from the referenced ENERGY STAR CFLs specification version 2 method (5 lamps base up) or the ENERGY STAR CFLs specification version 3 method (5 lamps base up/5lamps base down) and DOE adopted the former. The Secretary stated:

The test method itself is different (e.g., version 2.0 tests five lamps base-up while version 3.0 tests ten lamps, five base-up and five base-down), *and would therefore yield different lumen per watt and lamp maintenance results.* (NEMA, No. 9 at pp. 2-3) NEMA also commented that EPACT 2005 incorporated the August 9, 2001, ENERGY STAR program requirements (version 2.0) to provide a minimum floor for CFLs in the general lighting market, and intentionally adopted the different requirements in version 3.0 for CFLs shipped with ceiling fan light kits. (NEMA No. 9, at pp. 4-5) ALA commented that it agrees with NEMA that the appropriate test procedure for medium base CFLs is version 2.0. (ALA, No. 97 at p. 3) ACEEE disagreed with the viewpoint of NEMA and ALA, commenting that the ENERGY STAR version 3.0 test is more accurate since it includes both base-up and base-down testing. (ACEEE No. 59 at p. 3)

Upon consideration of these comments, DOE agrees that the test method in version 3.0 could result in a different measure of energy efficiency than the method in version 2.0, and DOE recognizes that the standards set by EPACT 2005 for CFLs are based on the August 9, 2001, version of the ENERGY STAR program requirements for CFLs (version 2.0). Therefore, DOE is adopting version 2.0 (August 9, 2001) of the ENERGY STAR program requirements as the test method for CFLs generally. DOE believes this test procedure provides the testing setup and methods for determining compliance with the

standards in section 325(cc) of EPCA, as amended ([42 U.S.C. 6295\(cc\)](#)), and it satisfies the requirements of section 323(b)(3) of EPCA. ([42 U.S.C. 6293\(b\)\(3\)](#))

The result is that DOE now allows reporting under either test procedure (depending upon whether a given CFL is in the ENERGY STAR program or not), which results in medium screw base lamps with non-comparable data in the DOE database. Whether this concern is more appropriately directed to the Secretary of Energy or not, NEMA feels compelled to express its concern here in the interest of facilitating better coordination between agencies.

Historically, the EPA's position relative to the Energy Star 3.0 test procedure was that some CFL designs fail in the base down position more often than base up, and that was the justification behind the 5 and 5 requirement. NEMA believes it is time for this position to be reevaluated. NEMA requests the data supporting this position be made available for review, with due concern given to making the listings anonymous, but care given to assuring that full testing reports be available so that it may be examined if lamps that failed base down also failed base up or for other reasons, i.e. they were poor products anyway, and whether the base-down test is arguably redundant since those lamps might fail some other parameter anyway. This data release will be an excellent first step into recent EPA-NEMA discussions agreeing to examine which of the dozens of requirements in the Lamps Specification are the most critical and might serve as indicators of overall performance and satisfaction.

3. Section 7, table 2
Under CCT Variations, in the column titled "Additional Test Data Required For Each Variant" there is a requirement to submit data for "Color Maintenance (SSL only)". This testing requires the full 6,000 hours, which negates the advantage of reduced time to market, one of the main goals of allowing product variations. Proposal: remove this requirement.
4. Section 9
9.2 – Light Output: The supplemental testing guidance for CFLs should be the same as for item 9.1
5. Section 10
10.1 EPA gray box note: The thermal testing temperature range has been changed to 25°C +/- 10°C. This is a large change from +/-5°C and the reasons cited do not make sense. Currently NVLAP certification requires +/-5°C already, and a gap of 10°C could cause a loophole. Additionally, IES LM-65 does not specify +/- 5°C so the EPA's claim of alignment with this standard is confusing. Proposal: Restore the +/-5°C requirement of the previous draft.

10.1 EPA gray box note:

"In response to stakeholders' request to extend the 3% tolerance allowed in the efficacy and light output requirements, and acknowledging the potential for measurement error in long-term testing, EPA updated the supplemental testing guidance allowing a 3% measurement tolerance that is applicable to the measured luminous flux values and may be applied only if the calculated lumen maintenance value fails to meet the requirement without the tolerance."

We request the EPA verify that the tolerance is for both CFL and LED. The way it is shown it seems like it is only for LED. Proposal: correct this oversight by adding a 3% tolerance to the CFL supplemental guidance column.

10.1 Directional versus Omnidirectional lamp requirements: It is not clear why Directional Lamps have a different requirement than Omni-directional. Consumers, not EPA make the distinction between the Omni-directional and Directional products when looking to replace in a residential downlight fixture. As long as the manufacturer is not restricting the use of the lamp in a particular application, there should be little difference between these product types. These low wattage products (5W to 9W) produce very little heat and so the elevated temperature testing is only adding cost to these products without adding value. Aligning these requirements should also slightly reduce testing burden, by making the tests more similar for same-wattage products.

Proposal: Update the Lamps v1.0 to allow Directional Lamps the same cut off point (<10 watts) for low wattage products as Omni-directional to eliminate the need for testing at the elevated temperatures for lifetime. This would be in line with the Integrated LED Lamps v1.4 (LED lamp power <10W must operate at 25°C between measurements) and be consistent with the products that have been fielded in enclosed fixtures that would seem to be a concern.

6. Section 10.3

10.3 Rapid Cycle Stress Test

This issue remains problematic as some models barely exceed the 100 msec time that the EPA prescribes for “instant” start lamps. The difference in starting time between 100 msec and 300 msec cannot be detected without instruments. The EPA is imposing a requirement that people will not really appreciate, but will make the lamps more expensive.

As mentioned before, the European 244/2009 directive has adopted 300 msec for the differentiation point between instant start and pre-heat lamps. Proposal: Allow the lamps to survive one cycling per every two hours of rated life for lamps with a starting time \leq 300 msec instead of \leq 100 sec. The adoption of the same standard as Europe (300 msec) will allow manufacturers to standardize their designs and keep a lower cost for the products.

7. Section 11

11.5 Run-up Time

NEMA rejects the EPA’s insistence that this parameter is critical to consumer satisfaction. This requirement will unjustifiably eliminate many very efficient amalgam lamps from qualification in the program. Furthermore, while some products on the QPL might meet this requirement today, it must be remembered that this due to overdesign to assure passing the current 180sec requirements. Due to the realities of statistical variation and manufacturing variation, it will be necessary to attempt to redesign existing sub 120sec lamps to meet a 1/3 reduced requirement in qualification and verification testing, which is already pushing the limits of amalgam technology. There is not adequate justification to tighten this requirement and reduce consumer choice by eliminating many popular amalgam lamps.

8. Section 12

12.2 Proposal: Calibration of dimmer for minimum light output level. “If the dimmer setting is repeatable, i.e. can be fixed, this setting may be used for testing for clause 12.3 and 12.4”. This will reduce testing time and cost. This change should also be reflected in the test method guidance.

12.3 Flicker: The language in the requirements is confusing “...when evaluated at dimmer’s maximum setting and dimmed conditions shall be reported.” Does EPA mean “minimum

dimmed conditions”? This should be worded more clearly with consideration given to align the clarification with the test procedure guidance.

- Also see our comment to item 12.2 regarding dimmer settings and calibration.

12.4 Audible Noise

- See below in test methods; the change to “1 meter *or less*” in spec needs to be reflected in test method.

- Use of photo detector in noise testing: NEMA requests EPA clarify the testing guidance to not require a photo detector in the noise testing room, if the dimmer setting is repeatable in the noise test chamber without it, i.e. by locking the dimmer setting from the minimum light level test. (See our comment to item 12.2). This change should also be reflected in the test method guidance.

9. Section 13: Per our comment to draft 4, we maintain the position that toxics should not be part of the ENERGY STAR Lamps specification.

13.1 – Lamp toxics reduction

- Mercury: We are still concerned that EPA is developing its own spec that is not referencing an existing standard or law. NEMA again stresses that there are existing regulations already and EPA should reference the existing practices, the most relevant of which is the very popular and successful NEMA Voluntary Mercury Commitment.

- Toxics: As we have previously noted, there are already existing State level regulations, such as CA AB1109 which references RoHS (and is also adopted by Vermont). There is no reason for EPA to duplicate these efforts and add to the confusion and complexity of this topic. NEMA is concerned that there is no evidence that EPA’s Pollution Prevention and Toxics Office was consulted about the content of Section 13 of the Lamps Specification, and their position on the establishment of toxics requirements by the ENERGY STAR program office is not known.

Comments to the Test Methods

1. Elevated Temperature Life Testing

9.2 – Operating Cycle – why is the purge required here? It is not clear why a purge is required to restore the lamps to ambient conditions. EPA is requested to clarify this requirement.

2. Elevated Temperature Light Output Ratio Test

Regarding the guidance “5.2 Measurement in a Thermal Chamber A) for the thermal chamber, utilize the Elevated Temperature Housing and Support found in the ENERGY STAR Program Requirements Product Specification for Lamps: Elevated Temperature Life Testing, Option A or Option B. Refer to sections 8 and 9 of the Elevated Temperature Life Test for specific details.”

This guidance represents two approaches to the thermal chamber for determination of the Elevated Temperature Light Output Ratio. These should not be considered the only acceptable approaches.

The procedure used by ANM NA’s labs is to place the DUT in a light tight enclosure inside a commercial environmental temperature chamber and control the ambient of the environmental chamber so as to reach the 25 °C and required elevated temperature (same

as for lumen maintenance) inside the light tight enclosure with the operating DUT. This method has been found to be reproducible, easily automated and does not depend on the use of equipment required for other test protocols for the Energy Star qualification therefore increasing throughput and efficiency of the laboratory.

While the thermal chamber guidance provided is not written as a requirement, we propose that EPA make clear that this is guidance and not a requirement and that alternative approaches are acceptable as long as the specified test conditions are met.

3. Start Time Testing

- Section 5 Test Setup 5.1D: EPA is requested to clarify item 5.1 with respect to whether the off time requirement is for CFL only, LED only, or both. It would appear that this requirement is intended to only apply to CFLs.
- Section 7 Test Procedure 7.1B: The EPA is requested to revise this language to reflect that an integrating sphere is now allowed to be used for this measurement per item 6.1A1.

4. Run Up Time Test

Item E): the specification now states t80% only. Proposal: Eliminate t90% since it is confusing and t80% has been fixed in the specification.

6.1 – Guidance for Noise Test Procedure

- B(3) Measurement Equipment: this should reflect what's in the spec and state "The microphone(s) shall be placed at a distance of one (1) meter *or less...*"
- 7.2J: The EPA needs to clarify that for the 4 lamp circuit noise test 3 out of 4 lamps are outside the chamber, thus the measurement is being made on a single lamp.