



December 6, 2004

To: David Schiller, EPA/Energy Star
Paul Vrabel, ICF, Consulting for Energy Star

Re: NEMA Comments on Second Draft of Proposed Changes to Energy Star RLF
Specification

From: NEMA Ballast, Lamp and Luminaire Sections

Thank you for the opportunity to comment on the second draft (dated November 8, 2004) of proposed changes to the technical specification and program criteria for Energy Star qualified Residential Light Fixtures. We appreciate the consideration Energy Star has given to our comments on the first draft and look forward to continued consultation and cooperation with you. In short, there are a number of areas we believe must be improved before a third and final draft is issued to Energy Star stakeholders. We address these areas below; in the order they are raised in Draft 2 the proposed version 4.0, NOT in order of importance.

Section 1: Definitions

FF. Standardized Color Ellipse (p. 3)

To make the definition consistent with the draft text under Correlated Color Temperature, the “six steps” should be changed to “seven steps”.

Section 2: Qualifying Products

Temporary Allowance for Decorative LEDs (p.4)

NEMA recommends omitting the temporary allowance for decorative LEDs from the final specification based on genuine concerns with thermal and reliability issues. Although only decorative, LEDs and the associated power supply contribute to the thermal profile of a fixture. As evidenced in other areas of the draft specification, Energy Star places emphasis on thermal factors and their effect on overall fixture reliability. In addition, there was no discussion of LEDs at the recent San Francisco workshop on thermal issues with fixtures. We believe LEDs should not be exempted at this time. Residential light fixtures containing LEDs, either as decorative elements or the primary light source, should not be eligible for Energy Star qualification until such time as test procedures are defined to address these and other performance characteristics of LEDs.

Section 3: Energy-Efficiency Specifications for Qualifying Products

Table 1 – Indoor Fixtures

Fluorescent Lamp Requirements

Lumen Maintenance (p.5)

To reiterate, we understand that inclusion of a lamp lumen maintenance requirement is not a response to any evidence or data from the RLF program indicating that lamp lumen maintenance is currently an issue. Since that is the case, and since light depreciation over time from a residential fixture can also be the result of factors not limited to the lamp (such as dirt depreciation and changing lens characteristics), we believe that a lamp lumen maintenance requirement should not add undue burden, especially since there is no Energy Star Lamp program except for the screw-based Compact Fluorescent Lamp Energy Star program.

To be clear, a minimum requirement of 80% is acceptable for straight shaped linear fluorescent lamps and compact fluorescent lamps. However, for circline fluorescent lamps the minimum lamp lumen maintenance requirement needs to be amended to 70% since the bending process for such lamps results in changes to the lamp phosphor coating that reduce the lumen maintenance for such configurations. Since circline fluorescent systems are still very efficient compared to incandescent lamps, and since 70% maintenance has proven historically acceptable over decades of use, primarily in residential applications, such a requirement is justified.

Although as stated in the explanation box, there are circline lamps available that can meet the 80% value, some very acceptable products do not, and there is no compelling reason that such lamps should be disallowed. This factor has not been shown to be a differentiator in consumer satisfaction and does not impact the practical energy consumption for residential circline fixtures. NEMA would be open to a further discussion of this subject for the next revision, but wishes to maintain the option to continue to allow currently acceptable circline lamps to remain an acceptable alternative.

The new lumen maintenance requirement should be addressed through adding a lumen maintenance column to the NEMA-ALA Lamp Matrix, with the stipulation that the lumen maintenance for a listed lamp be displayed in that column and calculated from the quotient of mean rated lumens (at 40% rated lamp life) divided by initial rated lumens for each listed lamp model. All listed lamps would need to meet the 80% requirement with the exception of circline models, which would need to meet 70%.

We note that the lumen maintenance requirement for Energy Star Self Ballasted CFLs (which is 80% at 40% rated life) is contained in ANSI C78.5 and that there is currently no ANSI standard which establishes a minimum lumen maintenance requirement for linear fluorescent lamps.

Color Rendering Index (p.5)

The symbols should be changed back from “greater than” to “greater than or equal to”. “Greater than or equal to” is used in the current Version 3.2 – and is very important – so as to allow CFLs with exactly 80 CRI or linear fluorescents with exactly 75 CRI to qualify. This proposed change from Version 3.2 appears to be merely a clerical error, since no explanation has been made in either Draft 1 or Draft 2 of Version 4.0.

Correlated Color Temperature (p.6)

We support the Draft 2 proposal as a vast improvement over Draft 1 and a good starting point. Moreover, we are interested in working with EPA on ways to expand the palette of color temperatures available to the consumer through acceptance of other color points while at the same time expanding the tracking of consumer reports – through energy efficiency consortia and/or retailers – of color preference and/or color complaints.

Lamp Labeling Requirement (p.7)

NEMA opposes the text of the requirement as contained in Draft 2 as confusing, excessive and redundant and strongly suggests replacing it with the following:

“For lamps shipped with fixtures, the lamp manufacturer’s model number must be labeled on the lamp. Manufacturers are also encouraged to include the ANSI generic lamp designation, including a color designation, (e.g. 830), or the wattage and the correlated color temperature.”

Linear fluorescent lamps are not labeled on the lamp base.

As discussed with Energy Star, the industry is currently in the process of initiating consumer focus groups and a symposium on color metrics and color communication. The industry expects the results of this activity to generate a new consumer color communication approach that can be used for energy efficient lamps. Additional color labeling requirements are not appropriate at this time.

A minimum color rendering index is already required in the Energy Star Specification, there is no need to encourage manufacturers to place this information on a lamp. This additional information is likely to be confusing to most consumers.

Electronic Ballast Requirements

Noise (p.8)

As noted in our earlier comments, the text of a noise requirement needs to be revised – for accuracy as well as precision – to read “Class A sound rating for the fixture. Not to exceed a measured level of 24 db, measured at a distance of 12 inches from the fixture.” Since what EPA is trying to achieve is a low noise fixture for the consumer, not a low noise ballast, perhaps this requirement should be moved out of the “Electronic Ballast Requirements” section.

Maximum Ballast Case Temperature (p.8)

NEMA applauds the elimination of the 75C limit proposed in Draft 1.

End-of-Life Protection (pp.8, 27)

NEMA strongly disagrees with the proposed requirement that “ballasts operating multiple lamps and requiring an end of life protection circuit must only shut down the lamp that has reached end of life”. This is not feasible for ballast designs most commonly used in the field. Ballasts that perform in such a fashion do not exist. This requirement would force luminaire manufacturers to employ multiple single-lamp ballasts, which would significantly increase end product cost to the consumer without providing any additional value. Moreover, the thermal effects of multiple ballasts can reduce the reliability of the luminaire.

Fixture Requirements

Lamp Shipment Requirement (p.9)

NEMA agrees with EPA’s position that recessed downlight fixtures and recessed downlight retrofit kits should be exempted from this requirement.

Replaceable Ballast (p.8, 9, 25)

NEMA strongly recommends that the text be revised to reflect reality in the field. Specifically, the text should be revised to read as follows:

“Ballasts in all fixtures (excluding portables) must be accessible and removable by an electrician without damage to the fixture housing, trim, decorative elements or the carpentry (e.g. ceiling drywall).”

Replacement of ballasts in portable fixtures raises significant safety and liability issues. Portable luminaires are specifically designed to be disposable and are not generally serviced by electricians. The inclusion of ballast durability requirements in the form of ballast “hot spot” thermal testing in the luminaire should be adequate to assure the desired longevity of portable luminaire products. The proposed requirement that no wires be cut disregards instances when wire connectors or wire nuts are not used, and could actually encourage the replacement of a ballast by an unqualified person such as the end customer. We recognize Energy Star’s desire to move toward modular, plug-in ballasts. However, at present these products do not exist and there are no standards for them. In addition, ballast replacement can result in the voiding of a fixture’s UL listing and void the manufacturer’s warranty on the fixture. We stand ready to discuss what additional steps would be required to move in this direction for the future but note that such a requirement is not currently feasible for the current revision.

Recessed Downlight Fixtures, AT-Rated (p. 9-10)

Thank you for adding the reference to a “certified/listed accessory” acceptable for sealing AT-rated downlights.

However, throughout the specification, Energy Star must consistently adopt the formulation used in point 2 regarding references to airtight “or similar designation”. Not all manufacturers use airtight or AT as the designation for fixtures that restrict air movement to the degree specified. Similarly, for accuracy, if a manufacturer does not use “AT “ or “airtight”, AT or airtight should not be used as the designation on the Energy Star product list – the specific similar designation should be used instead.

In addition, under point 3, unless Energy Star specifically intended for line drawings to be included, we suggest the text be changed to read: “Installation instructions must be included listing all components of the assembly that will be necessary to ensure an airtight installation...”

Product Packaging for Consumer Awareness (p. 10)

For fixtures not shipped with lamps, we welcome and support EPA’s elimination of the proposed requirement that specific lamp manufacturer and model numbers be listed on the product packaging. The proposal to include a listing of lamp types on the package is acceptable.

NEMA agrees that the packaging for fixtures shipped with lamps should state the nominal color designation (2700K, 3000K, 3500K, 4100K, 5000K, 6500K) of the lamps supplied with the fixture. This will ensure that consumers can achieve an adequate color match for installed fixtures, especially if they are installing more than one fixture in the same space. NEMA notes that no further color packaging requirements should be enacted until such time that the industry/EPA activity to develop a comprehensive color communication and designation scheme, which is currently underway, is completed.

We reiterate that Energy Star should use the existing NEMA-ALA Lamp-Ballast Matrix to work more closely with retailers to direct consumers to lamps that allow the fixture to meet the Energy Star requirements. This approach is even more appropriate for building contractors, who can be directed to the Matrix website and who work with distributors who can match lamp to fixture.

NEMA agrees that a simplified designation system needs to be developed to make it easier for consumers to find the right replacement lamps for Energy Star Residential fixtures. NEMA has begun internal consultations on the possibility of developing a paper or electronic cross-reference catalog for consumers in the retail environment and will propose such a system at a future point in time.

NEMA welcomes that IC and AT ratings will be noted in the Energy Star qualified product listing.

Table 2A – Outdoor Fixtures: Compliance Through Efficient Light Source

System Efficacy (12-13)

As noted in our earlier comments, 60 LPW for lamps over 30 W listed is too high for lower wattage metal halide PAR lamps coming on the market. For example, a 39 W PAR 20 produces 51 LPW (not including ballast losses). Is it Energy Star's intent to exclude low wattage HID PAR lamps from this specification? We see no justification for excluding these products, which can replace less efficient light sources and save energy.

Lamp Life (p.13)

As above, we are concerned that the proposal excludes some low wattage metal halide lamps (coming on the market as replacements for halogen PAR 38s) that do not meet 10,000 hrs (but reach 9,000). Is it Energy Star's intent to exclude these emerging technologies?

End of Life Protection (p.13)

As above for indoor fixtures, NEMA strongly disagrees with the proposed requirement that "ballasts operating multiple lamps and requiring an end of life protection circuit must only shut down the lamp that has reached end of life". This is not in agreement with the ballast designs used in the field; ballasts that perform in that fashion do not exist. This requirement would force luminaire manufacturers to employ multiple single-lamp ballasts, which would increase end product cost to the consumer without providing any additional value. Moreover, the thermal effects of multiple ballasts can reduce the reliability of the luminaire.

Maximum Input Power (p.13)

With this requirement, is it Energy Star's intent to eliminate 150 W HID lamps from the program? As written, the text would eliminate a useful option; NEMA recommends this option continue to be available. NEMA strongly suggests that this requirement be redesignated "Maximum Lamp Power" to limit lamp wattage rather than the total input power to the fixture.

Table 2B – Outdoor Fixtures: Compliance Through Reduced Operating Time

Fixture Requirements

Maximum Input Power (p. 15)

As above under Table 2A, we strongly recommend redesignation of this requirement as Maximum Lamp Power, unless it is Energy Star's intent to eliminate 250 W HID lamps from the program.

Section 4: Qualification Process, Testing Facilities, Standards & Documentation

Qualification Process, Acceptable Testing Facilities, Testing Standards & Required Documentation

NEMA welcomes EPA's restoration of NVLAP MRA signatory partners. Accordingly, required laboratory data for lumen output, CRI, CCT and lamp life must be also allowed to come from NVLAP MRA partners. Moreover, the acceptance of NVLAP MRA signatory partners should be reflected throughout the sections on required documentation on pages 20-22.

Table 3 – Reference Standards and Required Documentation

Lamp Start Time (p.19)

Option 4 should also be allowed: a test report from a laboratory that has a contractual relationship with an OSHA NRTL. It is possible for an OSHA NRTL to accept client data from a manufacturer's laboratory as part of the safety certification process. Where such a relationship exists, the laboratory is clearly competent to measure Lamp Start Time.

Lamp Life (p.20)

The term 'reference ballast' should not be used, since a reference ballast is a very special ballast used only for photometric measurements and is not practical for use when life testing lamps. The requirement should be restated as: "Laboratory test results must be produced using the specific lamp that will operate in the fixture and a suitable commercial ballast."

NEMA strongly agrees with EPA's decision to allow both NVLAP and ISO9000 registered facilities to perform life testing for the reasons stated in Draft 2.

Lumen Maintenance (p.21)

Lamps already listed on the NEMA-ALA Lamp-Ballast Matrix website should not have to be retested strictly for this requirement.

Correlated Color Temperature (p.22)

As above, NEMA agrees with these requirements since such requirements will begin to ensure a rigorous attention to color control by lamp manufacturers. NEMA also strongly supports the 'single ellipse' approach contained in Draft 2 since it will yield better color control and is much more practical to implement than the 'two ellipse' method. NEMA urges EPA to undertake a systematic effort designed to capture the specific details associated with color complaints that occur under RLF4.0 in order to assess the effectiveness of these new requirements after a 12-18 month implementation period.

Noise (p.23)

As above, the text should be changed to read “Class A sound rating for the fixture. Not to exceed a measured level of 24 db, measured at a distance of 12 inches from the fixture.”

As discussed at the September meeting with the EPA, the laboratory report referred to in this section is a report of a luminaire test, not a ballast test.

Replaceable Ballast (p. 25)

As above, NEMA welcomes the removal of the Draft 1 proposal and its replacement with a requirement a qualified electrician perform ballast replacement. Wiring, listing and warranty issues must be taken into account.

End of Life Protection (p.26)

As above, NEMA does not agree with the new requirement that “ballasts operating multiple lamps and requiring an end of life protection circuit must only shut down the lamp that has reached end of life”. This is not in agreement with the ballast designs used in the field and would add significant cost without providing additional value to the consumer.

Section 5: Additional Quality Assurance Requirements

Quality Assurance Testing (p. 29)

NEMA welcomes the removal of the 3-year requalification requirement proposal of Draft 1. NEMA does not oppose the intent of a quality assurance program. However, in Draft 2 Energy Star provides no specifics or indications of how it proposes to actually implement such a program. Before this can proceed, Energy Star must provide more specific detail about the selection and volume of products to be tested, the testing of components versus the testing of the end-use system and the cost structure associated with such a program. Because of the issues outlined above, NEMA CANNOT SUPPORT SUCH A PROGRAM AS CURRENTLY DRAFTED.

Challenge Testing (p.30)

Energy Star must justify why all NVLAP-accredited testing facilities would not be eligible to conduct the testing. NVLAP accreditation should be sufficient to assure Energy Star that the testing will be performed accurately and without bias.

Section 6: Effective Date

Elimination of Automatic Grandfathering (p.30)

Lamps and ballasts already on the NEMA-ALA Lamp-Ballast Matrix should not have to be retested.

Section 7: Future Specification Revisions

Expiration of Energy Star Qualification (p. 30)

NEMA manufacturers **STRONGLY** suggest that manufacturers whose product has not been changed and whose Energy Star status has not been changed should be able to submit data that is older than six months.

QPI Forms and Response to Submittals

To streamline qualifications, NEMA **STRONGLY** suggests Energy Star finalize and issue any new QPI form for Version 4.0 as soon as possible but not less than six months before the new specification is scheduled to take effect.

In addition, Energy Star should set a firm deadline for responses to complete product qualification submittals. The current guideline is two weeks. However, we understand some partners have been forced to wait as long as four months. NEMA proposes that if Energy Star is unable to respond within two weeks, then the product in question would be automatically listed on the Energy Star product list.

Thank you for your consideration and integration of these comments into the next draft. We look forward to continuing to work with you on improving the program criteria.