

June 21, 2010



Alex Baker  
US Environmental Protection Agency  
Ariel Rios Building 6202J  
1200 Pennsylvania Avenue, NW  
Washington, DC 20460

Dear Mr. Baker,

Xicato respectfully submits the following stakeholder comments in response to the ENERGY STAR Program Requirements for Luminaires Eligibility Criteria – Version 1.0, Draft 1 document.

**General Comments:**

Xicato is an LED Module production stakeholder and a steadfast supporter of the ENERGY STAR Program for Luminaires. Xicato and the EPA share a common goal to make the ENERGY STAR Program Requirements differentiate the energy efficient *and* the high quality products for all lighting applications. Xicato is eager to participate in the stakeholder process to develop these specifications to ensure the Eligibility Criteria Version 1.0 requirements are appropriate and delivers consistent quality assurance across the technology neutral approach for the ENERGY STAR fixture and lamp specifications.

**Acceptable Sources of Documentation**

Xicato supports the variety of acceptable sources of documentation referenced for each performance characteristic with one exception within the Required Documentation for lumen maintenance test results.

**Photometric Performance Requirements**

The use of a test report from a laboratory accredited by an accreditation body for the “Photometric Performance Requirements” and “Luminous Efficacy Requirements” under the ENERGY STAR program is acceptable and possible since accredited labs are presently available and performing tests on luminaires.

**Methods of Measurements and/or Reference Standards**

Xicato recognizes and agrees with the IES LM-80-08 “Approved Method: Measuring Lumen Maintenance of LED Light Sources” standard method of measurement for LED packages, LED arrays, or LED modules only. However, the use of a test report from a laboratory accredited by an accreditation body for the “Lumen Maintenance Requirements” with respect to the IES LM-80-08 standard method of measurement is *not* presently available or possible through either accredited labs or a laboratory recognized by EPA to conduct lumen maintenance testing for the ENERGY STAR program.

## Required Documentation

Xicato does recognize the need for lumen maintenance test results of luminaires from an accredited lab for the sake of industry and technology consistency. However, the infrastructure for luminaire lumen maintenance test laboratory accreditation is not presently available. Xicato recommends a grace period for the IES LM-80-08 standard test results be required from *only* accredited labs until either the accredited labs or a laboratory recognized by EPA to conduct IES LM-80-08 standard lumen maintenance testing for the ENERGY STAR program becomes available. During the grace period the LED package, LED array, or LED module manufacturers should provide internal IES LM-80-08 standard lumen maintenance testing of the LED Light Sources with the Photometric Performance Requirements measured and performed in accordance to the LM-79-08 standard and with a NIST standard reference measurements for the LED package, LED array, or LED module.

## Color Maintenance: Solid State Indoor Luminaires Only (Exemption: Outdoor Luminaires)

Xicato would like to recommend different level of color maintenance requirements for SSL indoor *and* outdoor applications.

For example, a change of chromaticity over the rated lumen maintenance life of the luminaire must be within 0.007 on the CIE 1976 ( $u'$ ,  $v'$ ) diagram under the present ENERGY STAR Requirements. This chromaticity change would be reported as a Level 7 chromaticity change. A change of chromaticity over the rated lumen maintenance life of the luminaire must be within the Table 1 below to satisfy the SSL indoor and outdoor applications with high performance chromaticity change requirements. This type of chromaticity change level designation allows for the future proof of the improvements in chromaticity change within SSL products.

Table 1

ENERGY STAR Requirements	Reference Standard	Chromaticity Coordinate $u'$ , $v'$	Chromaticity Maintenance Level
The change of chromaticity over the rated lumen maintenance life of the luminaire must be within	CIE 1976 ( $u'$ , $v'$ ) diagram	0.007	7
		0.004	4
		0.003	3
		0.002	2
		0.001	1

The following chromaticity maintenance levels could then be acceptable for different lighting applications.

Level 7 acceptable for outdoor applications.

Level 4 acceptable for indoor general lighting applications.

Level 2 acceptable for indoor accent lighting applications.

As the chromaticity maintenance levels improve, within the SSL luminaires in the future, the acceptable levels can change for the different applications.

**Correlated Color Temperature (CCT) Requirements: Directional and Non-Directional Indoor Luminaires**

**(Exemption: Outdoor Luminaires)**

Xicato strongly supports the use of technology neutral approach for ENERGY STAR fixture and lamp specifications. In pursuit of technology neutral specifications, Xicato recommends specifying the 4100K CCT for both Fluorescent and Solid State source types. This CCT specification change would better support a technology neutral approach.

**Final Comments:**

Xicato would like to thank the EPA for allowing stakeholder comments to this important ENERGY STAR Program Requirements for Luminaires. Xicato would appreciate the EPA's comments with respect to the recommendations proposed by Xicato. Please email any questions to [phil.elizondo@xicato.com](mailto:phil.elizondo@xicato.com) or call at the phone number below if an urgent response is required.

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