



The SEAD Global Efficiency Medal Competition for Lighting

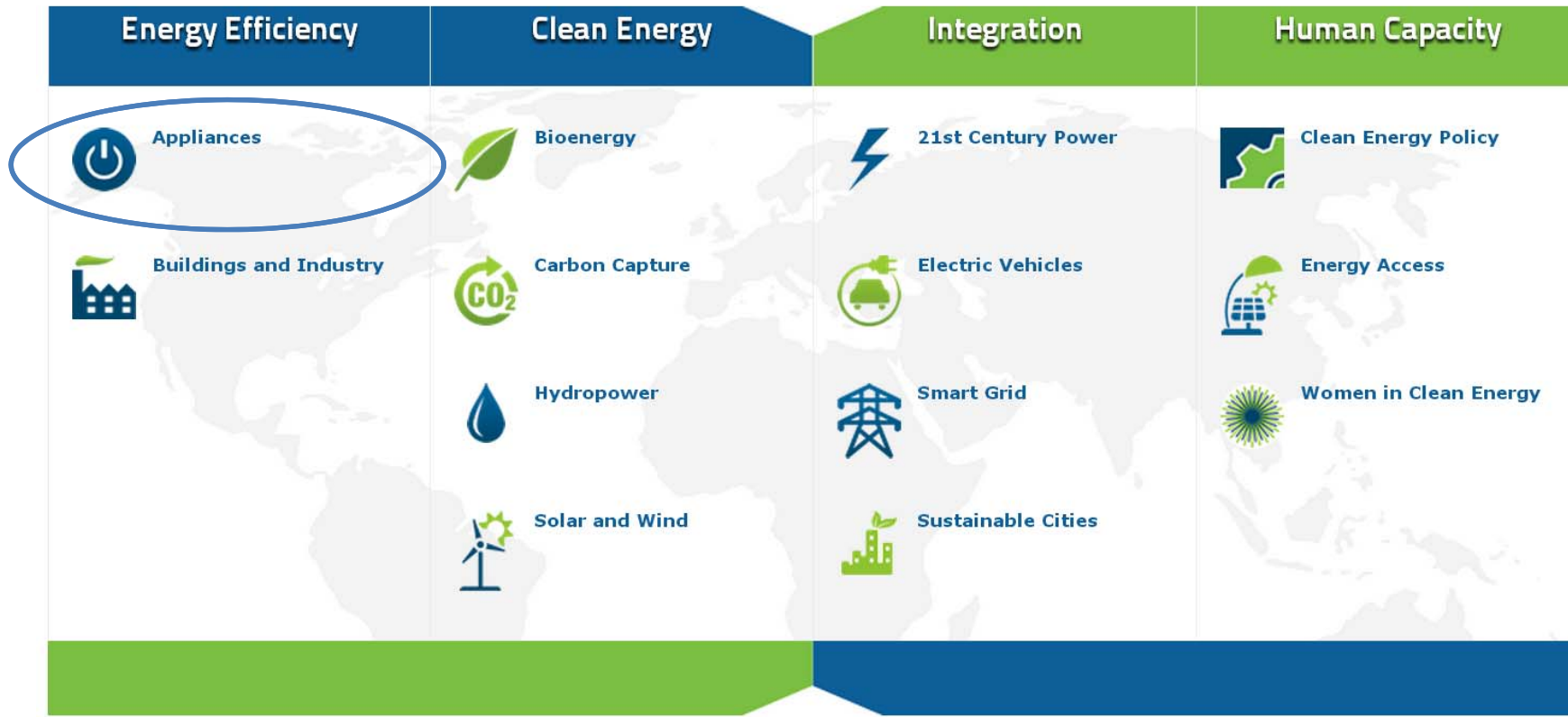
15 July 2014



Clean Energy Ministerial Initiatives

CEM unites 23 [participating governments](#) in efforts to increase energy efficiency, expand clean energy supplies, and enhance clean energy access. Work is divided into three main activities:

- [Annual ministerial meetings](#) advance international collaboration to accelerate adoption of clean energy technologies.
- [Public-private engagement](#) builds the industry-government cooperation needed to scale up clean energy worldwide.
- Thirteen clean energy [initiatives](#) expand the deployment of clean energy technologies and policies.





SUPER-EFFICIENT EQUIPMENT AND APPLIANCE DEPLOYMENT INITIATIVE



Brazil



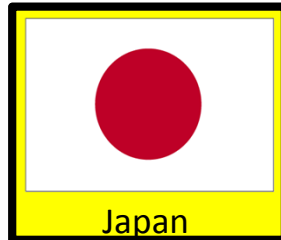
European
Commission



France



Germany



Korea



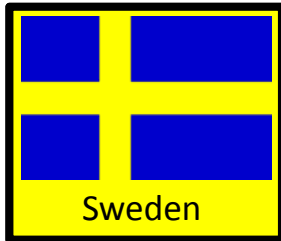
Mexico



Russia



South Africa



United Arab
Emirates



- *China is an observer to the SEAD Initiative*
- *Yellow highlighted countries participate in the SEAD Awards Working Group*



SEAD Initiative

Collaborator

Technical Analysis

Operating Agent





SEAD accelerates the pace of market transformation for energy efficient products



Awards

Showcase leadership in energy efficiency

Incentives

Increase demand for efficient products

Proc

Lead by example, with tools & best practice

Standards

Ensure energy efficiency performance

Technical

Provide foundation for policy success

Technical Assistance

Support Implementation



SEAD Global Efficiency Medal

Awards

Showcase leadership in energy efficiency

Realize greatest savings potential

Increase market share

Spur innovation

Support test method harmonization

Build test lab capacity

Complement Standards and Labeling policies





SEAD Awards

- The SEAD Global Efficiency Medal helps identify the world's most efficient products to increase market share of highly efficient products.
 - It is the only global mark of energy efficiency
 - Series of product competitions
 - Recognition award (not financial)



2012

Flat-panel TVs



2013

Displays



2013

Electric Motors



2014

Lighting



Why should manufacturers participate?

- ✓ **Entry form is simple.** It will take a short time to complete.
- ✓ **Entry is free and no need to submit products.** SEAD will procure sample products and pay for verification testing.
- ✓ **Entry is confidential.** Only the SEAD Awards organizers and Working Group know who has entered.
- ✓ **Bragging rights.** The Global Efficiency Medal differentiates products in a crowded and changing market.
- ✓ **Free marketing.** SEAD will promote the winners and work with the winners to support marketing strategies.



The Competitions

	TVs	Computer Monitors	Electric Motors	And beyond...
Status	Complete -Analysis	Complete - Marketing and analysis	Ongoing	Lighting and...
Winners	Samsung, LG	Samsung, LG, Acer	??	??
Savings	33% - 44%	12% - 43%	??	??



- First-of-its-kind global competition launched in 2012 to encourage the production and sale of [super-efficient televisions](#) by size within four regions
- The competitions (and winners) received significant coverage (Times Square billboard on left)
- SEAD works with a marketing team to optimize media coverage (trade journals, press releases, efficiency advocacy groups, etc.)
- Award ceremony at the CEM meetings leads to high visibility to energy ministers from the 23 participating governments



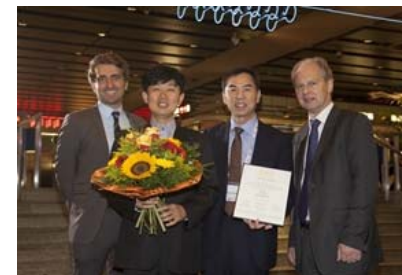
Competition Promotion

Audiences: Manufacturers, retailers, consumers, and NGOs

Audiences: Ministerial and conference attendees



Global Awards Ceremony
CEM4 – New Delhi, 17 April 2013



European Awards Ceremony
IFA Fair



EE Motors conference
EEMODS'13



SEAD | Super-efficient Equipment and Appliance Deployment



CLEAN ENERGY MINISTERIAL

Accelerating the Transition to Clean Energy Technologies



Global Awards Ceremony
CEM5 – Seoul, 12 May 2014



Lighting Awards: Overview and Timeline

- Awards identify the most efficient products within a sub-category and region
- Recognize both established and new technology products
- Compare regional winners to determine the global award winners
 - Comparability of test results is important
- Winners selected from manufacturer self-nominations, subject to verification testing

❖ Open to manufacturers and resellers (labelers) of lighting products

❖ Nomination period:
12 May – 3 Oct, 2014

❖ Up to thirty-two (32) available regional awards

❖ Winners to be announced in April 2015









Product categories and competition criteria



Lighting Awards Categories Summary

	General Lighting Service Lamps (Omnidirectional)	Directional Lamps	Planar Luminaires	Downlight Luminaires
Picture				
Description	Lamps that emit light in all directions (“omni-directional”); e.g., A19 shape, mains voltage replacement lamp	Lamps that emit directional light; e.g., MR16, PAR38 shapes, mains and low voltage replacement lamps	Recessed ceiling fixtures commonly used in offices for general illumination	Recessed directional fixtures that deliver light to a space or highlight an object or area
Sectors	Primarily residential, some commercial	Residential and commercial	Commercial	Commercial and residential



Lighting Awards Product Classes

Regional Awards	GLS Lamps		Directional Lamps		Planar Luminaires	Downlight Luminaires		
	Commercially Available		New Technology		Commercially Available	Commercially Available		
	≥800 lumens 2700-3000K CCT	≥800 lumens 4000-5500K CCT	≥1500 lumens 4000-5500K CCT	Low-voltage ≥600 lumens	Mains-voltage ≥600 lumens	600mm x 600mm (2ft x 2ft); ≥2000 lumens	≤51mm (2 in) ≥700 lumens 3000K CCT	≥102mm (4 in) ≥1500 lumens 4000K CCT
AUSTRALIA	• 230V	• 230V	• 230V	• 12V	• 230V	•	•	•
EUROPE	• 230V	• 230V	• 230V	• 12V	• 230V	•	•	•
INDIA	• 230V	• 230V	• 230V	• 12V	• 230V	•	•	•
NORTH AMERICA	• 120V	• 120V	• 120V	• 12V	• 120V	•	•	•
GLOBAL AWARDS	• 230V	• 230V	• 230V	• 12V	• 230V	•	•	•

Up to 40 Global Efficiency Medals to be awarded:

- 32 regional awards (8 product classes in each of the 4 award regions)
- 8 global awards (one for each product class compared across regional winners)



Competition criteria

1. Claimed criteria to be verified through testing
2. Criteria requiring supporting documentation (not to be tested)
3. Cost criteria (minimum price thresholds)

The SEAD Efficient Lighting Competition is based on **efficiency** – **luminous efficacy** will ultimately determine the winners



Claimed Criteria to be Verified by Testing

Metric	GLS Lamps	Directional Lamps	Planar Luminaires	Downlight Luminaires
1. Efficacy & Light Output – Subject to verification testing				
A. Lamp/fixture luminous efficacy (lm/w)	x	x	x	x
B. Light output (lm)	x	x	x	x
C. Replacement lamp equivalent wattage claims	x	x		
D. Luminous intensity distribution	x			
E. Zonal lumen density		x	x	x
F. Centre beam luminous intensity		x		x
2. Colour & Light Quality – Subject to verification testing				
A. Colour rendering (CRI and R9)	x	x	x	x
B. Correlated colour temperature (CCT)	x	x	x	x
C. Chromaticity tolerance (Duv)	x	x	x	x
D. Minimum power factor	x	x	x	x
E. Flicker (flicker index)	x	x	x	x



Criteria Requiring Supporting Documentation

Metric	GLS Lamps	Directional Lamps	Planar Luminaires	Downlight Luminaires
3. Lifetime – Supporting documentation required				
A. Minimum lumen maintenance (time to L70)	x	x	x	x
B. Colour maintenance ($\Delta u'v'$ at 6,000h)	x	x	x	x
C. Endurance test	x	x	x	x
D. Warranty duration	x	x	x	x
4. Health & Environment – Supporting documentation required				
A. Safety requirements	x	x	x	x
B. Hazardous substances	x	x	x	x
C. Blue Light Photo-biological hazard class	x	x	x	x
D. Compatibility with controls			x	x



Lighting Products Cost Thresholds

Nominated products may not cost more than the maximum allowed manufacturer’s suggested retail price (MSRP) in the table below (listed in USD):

<i>Prices listed are \$/unit</i>	GLS lamp, Commercially Available [^]	Directional lamp, low-voltage	Directional lamp, mains-voltage	Planar luminaire	Downlight luminaire	
					700 lumens	1500 lumens
Australia	\$30	\$25	\$35	\$400	\$80	\$175
Europe	\$22	\$25	\$32	\$400	\$75	\$165
India	\$20	\$15	\$25	\$325	\$60	\$130
North America	\$18	\$20	\$25	\$350	\$50	\$110

[^]These price thresholds do not apply to the GLS lamp New Technology class. This class has no price threshold.



Minimum Lumen Maintenance (time to L₇₀)

Criteria:	Depending on the maximum life claim, products must have the following lumen maintenance compared with their initial lumens after 6,000 hours of operation: For any lamp or luminaire with life claims greater than 25,000 hours, the lamp or luminaire shall maintain greater than or equal to 91.5% of initial light output after completion of the manufacturer's (or supplier of component) testing for a test duration corresponding to lamp's life claim per the table on the right.
Test Method:	IES LM-80-08 and TM-21-11
Applicable Categories:	GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires
Method and Analysis:	Applicants shall provide evidence from an accredited third-party test facility to substantiate that this criterion has been met. Applicants must provide at least 2,000 hours of test data upon product nomination (by 3 October 2014), 3,000 hours of test data by 1 November 2014, and 6,000 hours of test data by 6 March 2015.

Maximum Life Claim (hours to L ₇₀)	Minimum Lumen Maintenance after Test Duration
15,000	86.7%
20,000	89.9%
25,000	91.8%
30,000	93.1%
35,000	94.1%
40,000	94.8%
45,000	95.4%
50,000	95.8%

Maximum Life Claim (hours to L ₇₀)	Test Duration (hours)
30,000	7,500
35,000	8,750
40,000	10,000
45,000	11,250
50,000	12,500

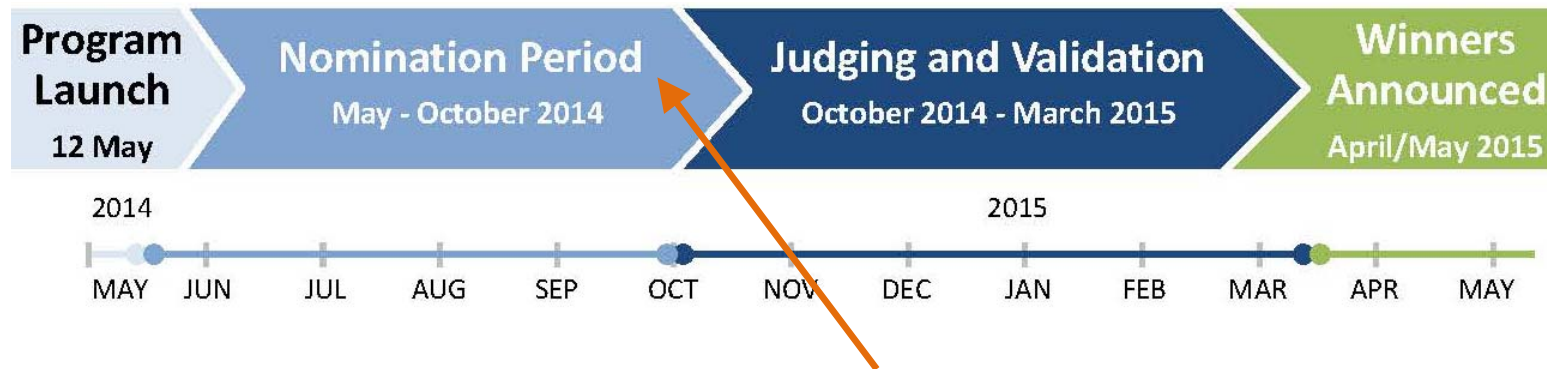




Competition logistics



Competition timeline: Nominations



The **Nomination period closes 3 October 2014**

Items to be submitted for nominated products:

- ✓ Declaration of Performance form
- ✓ 2,000 hours (minimum) lumen maintenance testing
- ✓ LM79 and other required documentation



Competition timeline: Judging and Validation

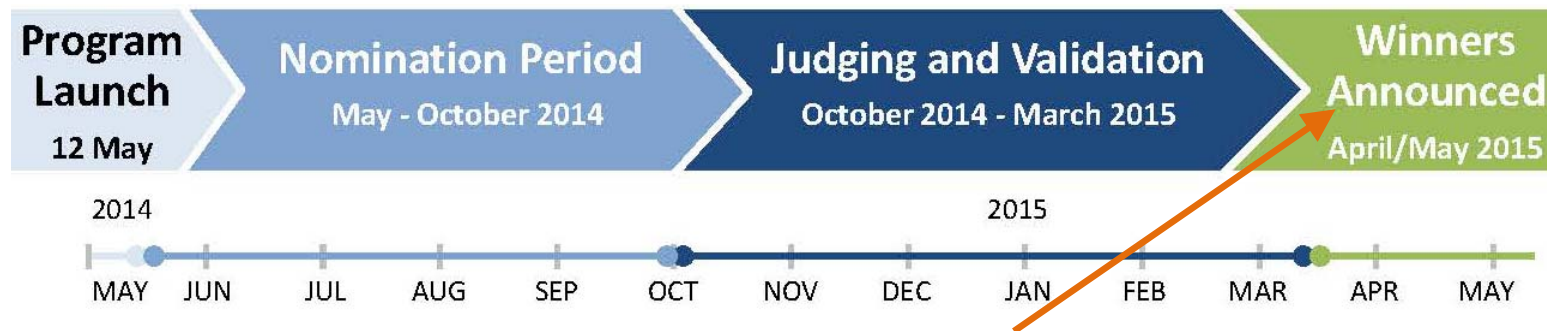


During the **Judging and Validation** period, SEAD will:

- ✓ Review nomination forms
- ✓ Procure samples from the marketplace
- ✓ Test relevant criteria for sample products at accredited lab(s)
- ✓ Notify winners



Competition timeline: Winner Announcements



For **Winner Announcements**, SEAD will:

- ✓ Publicize winners through press releases
- ✓ Work with manufacturers of winning products to support promotion of the winners and the competition
- ✓ Organize regional award ceremonies
- ✓ Organize a global award ceremony at the 6th Clean Energy Ministerial in Mexico City



Nomination Process

- All manufacturers and resellers (labelers) with products that meet the eligibility criteria are encouraged to nominate
- To participate, complete a **Declaration of Performance** for each nominated model and submit via email to: awards@superefficient.org
- **Competition materials** including factsheet, official rules, and Declaration of Performance can be downloaded at: <http://superefficient.org/LightingAwards>
- **Declaration of Performance** also available at: <http://superefficient.org/LightingAwardEntry>



Nomination Form: Declaration of Performance

- Simple form that requests information on:
 - Applicant contact information
 - Product Nomination Details, including:
 - Brand Name, Model Number, Award Category, Award Regions
 - Declared Product Characteristics (detail to follow)
 - Additional Product Characteristics (detail to follow)
 - With supporting evidence
 - Product Image
 - Packaging Image



Declared Product Characteristics

Declared Product Characteristics	
Product Characteristic	Declaration
<i>Light output (lm)</i>	
<i>Power in on-mode (w)</i>	
<i>Power in standby mode (w)</i>	
<i>Luminous intensity distribution (GLS lamps only)</i>	
<i>Zonal lumen density (Directional lamps, Planar luminaires, and Downlight luminaires only)</i>	
<i>Centre beam luminous intensity (cd) (Directional lamps and Downlight luminaires only)</i>	
<i>Colour Rendering Index</i>	
<i>Colour rendering: R9</i>	
<i>Correlated colour temperature (CCT)</i>	
<i>Chromaticity tolerance (Duv)</i>	
<i>Power factor</i>	
<i>Operating voltage (v)</i>	
<i>Size (cm or inches) (Directional lamps and Downlight luminaires only)</i>	
<i>Manufacturer Suggested Retail Price (MSRP)</i>	



Additional Product Characteristics

Submit measurement data and evidence of these characteristics, as described in the Official Rules:

Product Characteristic	Comment and/or Submitted File Name
<i>Lumen maintenance at 6,000 hours</i>	
<i>Colour maintenance ($\Delta u/v$) at 6,000 hours</i>	
<i>Endurance (Switching Withstand)</i>	
<i>Warranty duration</i>	
<i>Safety requirement (for each nominated market)</i>	
<i>Compliance with hazardous substances policies (for each nominated market)</i>	
<i>Blue Light Photo-biological hazard class</i>	
<i>Compatibility with lighting controls system (Planar and Downlight luminaires only)</i>	



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- ✓ **Free marketing.** SEAD will promote the winners and work with the winners to support marketing strategies.



Thank you!

Questions?

Please contact Debbie Karpay Weyl at
awards@superefficient.org
with any additional questions or comments

For more information on the SEAD Lighting Awards, please visit:
<http://superefficient.org/LightingAwards>



Extra slides – criteria specifics



Criteria to be tested



Luminous efficacy (lm/w)

The total light output (measured in lumens) of the lamp or luminaire divided by the power consumed (measured in watts). The higher the efficacy value, the more energy-efficient the lighting product. Manufacturers shall submit efficacy claims for nominated products, and these claims may be verified through testing. “Luminous efficacy” refers to lamp efficacy for the GLS or directional lamps, and complete luminaire efficacy for the downlight or planar luminaires.

Test Method:	IES LM-79-08
Applicable Categories:	GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires
Sample Size:	3 lamps or 2 luminaires
Method and Analysis:	Two of the lamps shall be tested base-up and one shall be tested base-down. The luminaires shall all be measured with light output directed downward. The sample of lamps or luminaires shall have their efficacy averaged together to determine the efficacy of the representative sample.



Light output (lm)

The total light output (measured in lumens) is total light emitted by the lamp or luminaire.

Criteria:	The light output of the lamp or luminaire must be greater than 95% of the defined output for the relevant Award Category.
Test Method:	IES LM-79-08
Applicable Categories:	GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires
Sample Size:	3 lamps or 2 luminaires
Method and Analysis:	Two of the lamps shall be tested base-up and one shall be tested base-down. The luminaires shall all be measured with light output directed downward. The sample of lamps or luminaires shall have their light output averaged together to determine the light output of the representative sample.



Replacement lamp equivalent voltage claims

The measured level of light output will assist in evaluating manufacturer claims that a given efficient lighting product is an equivalent replacement for a typical wattage incandescent light product.

Criteria:	The minimal luminous flux required for the given equivalency claims for incandescent lamps shall apply as shown in the chart below with a 5% tolerance.				
Test Method:	IES LM-79-08	Non-Directional Lamps		Directional Lamps	
Applicable Categories:		Watts (W) of equivalent incandescent lamp	Lumens (lm)	Watts (W) of equivalent incandescent lamp	Lumens (lm)
Sample Size:	3 lamps	60	800	50	600
		75	1050	60	700
		100	1500	75	900
Method and Analysis:	If the lamp packaging or information published with the lamp contains an equivalency comparison to an incandescent lamp source (at any voltage), the sample average must be within 5% of the defined threshold of the luminous flux levels presented in the tables above for GLS or directional lamps. Two of the lamps shall be tested base-up and one shall be tested base-down.				



Luminous intensity distribution

This criterion describes the measured distribution of light of a GLS lamp.

Criteria:	For a GLS lamp: Products shall have an even distribution of luminous intensity within the 0° to 135° zone (symmetrical about the vertical axis). Luminous intensity at any angle within this zone shall not differ from the mean luminous intensity for the entire 0° to 135° zone by more than 20%. At least 5% of total flux must be emitted in the 135°-180° zone. Distribution shall be vertically symmetric in three vertical planes, 0°, 45°, 90° with an intensity tolerance of ±10% at each gamma angle.
Test Method:	IES LM-79-08
Applicable Categories:	GLS Lamps
Sample Size:	3 lamps
Method and Analysis:	The sample of lamps shall be tested base-up. The sample of lamps shall have their measurements averaged together to determine the luminous intensity distribution of the representative sample.



Zonal lumen density

For this competition, this criterion describes the spatial distribution of light of Directional Lamps and Planar and Downlight Luminaires in various zones.

Criteria:	<p>For Directional lamps: Products shall have at least 80% light output with a solid angle of π sr, corresponding to a cone with an angle of 120°.</p> <p>For Planar Luminaires: Products shall have at least 75% light output with a solid angle corresponding to a cone with an angle of 60°.</p> <p>For Downlight Luminaires: Products shall have at least 85% light output with a solid angle corresponding to a cone with an angle of 90°.</p>
Test Method:	IES LM-79-08
Applicable Categories:	Directional Lamps; Planar Luminaires; Downlight Luminaires
Sample Size:	3 lamps or 2 luminaires
Method and Analysis:	The sample of lamps shall be tested base-up. The luminaires shall all be measured with light output directed downward. The sample of lamps or luminaires shall have their measurements averaged together to determine the zonal lumen density of the representative sample.



Centre beam luminous intensity

This is a measurement of the intensity of the light on the optical beam axis for reflector directional lamp or downlight luminaire with beam angles less than 65° that have a light output distribution pattern that is very high at the centre of the beam of light emitted from the lamp or luminaire.

Criteria:	<p>Must be provided by manufacturer and greater than or equal to 50 percent of flux shall be in the declared beam angle.</p> <p>For products with a distribution similar to a MR or PAR lamp with a beam angle less than 65°, centre beam intensity should meet equivalent levels using the online tool: http://www.energystar.gov/ia/products/lighting/iledl/IntLampCenterBeamTool.zip</p>
Test Method:	IES LM-79-08
Applicable Categories:	Directional Lamps; Downlight Luminaires
Sample Size:	3 lamps or 2 luminaires
Method and Analysis:	The sample of lamps shall be tested base-up. The luminaires shall all be measured with light output directed downward. The sample of lamps or luminaires shall have their measurements averaged together to determine the centre beam luminous intensity of the representative sample.



Colour rendering

Colour rendering is a measure of how similar object colours appear under one light source as compared to the object colours under a reference light source (usually an incandescent light or daylight).

Criteria:	The average colour rendering index (CRI) of the sample shall be greater than or equal to 80 with R9 greater than 0. No unit shall have CRI less than 75, and no more than 2 units shall have CRI less than 77.
Test Method:	IES LM-79-08 (CIE 13.3-1995)
Applicable Categories:	GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires
Sample Size:	3 lamps or 2 luminaires
Method and Analysis:	R9 shall be assessed in addition to CRI. Two of the lamps shall be tested base-up and one shall be tested base-down. The luminaires shall all be measured with light output directed downward. The sample shall have their CRI averaged together and their R9 averaged together to determine the CRI and R9 of the representative sample.



Correlated colour temperature

The temperature of the lighting product in relation to the Planckian (black body) locus, measured in Kelvins (K).

Criteria:		Nominal CCT	Target CCT and tolerance (K)
		2700K	2725 ± 83
		3000K	3045 ± 100
		3500K	3465 ± 124
		4000K	3985 ± 154
		5000K	5029 ± 220
Test Method:	IES LM-79-08 (CIE 15:2004: Colorimetry)		
Applicable Categories:	GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires		
Sample Size:	3 lamps or 2 luminaires		
Method and Analysis:	Two of the lamps shall be tested base-up and one shall be tested base-down. The luminaires shall all be measured with light output directed downward. All products shall be measured in their out-of-the-box state. The sample shall have their CCT averaged together to determine the CCT of the representative sample.		



Chromaticity tolerance

Specifies the allowable deviation in light's colour. Technically, it is the distance of a light's chromaticity from the Planckian (black body) locus.

Criteria:	Nominal CCT	Target Duv and tolerance range
	2700K	-0.0001 ± 0.0033
	3000K	0.0001 ± 0.0033
	3500K	0.0004 ± 0.0033
	4000K	0.0009 ± 0.0033
	5000K	0.0019 ± 0.0033
Test Method:	IES LM-79-08	
Applicable Categories:	GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires	
Sample Size:	3 lamps or 2 luminaires	
Method and Analysis:	Two of the lamps shall be tested base-up and one shall be tested base-down. The luminaires shall all be measured with light output directed downward.	
	The sample of luminaires shall have their measurements averaged together to determine the chromaticity tolerance of the representative sample.	



Minimum power factor

Power factor is the ratio of the real power flowing to the load over the apparent power of the circuit.

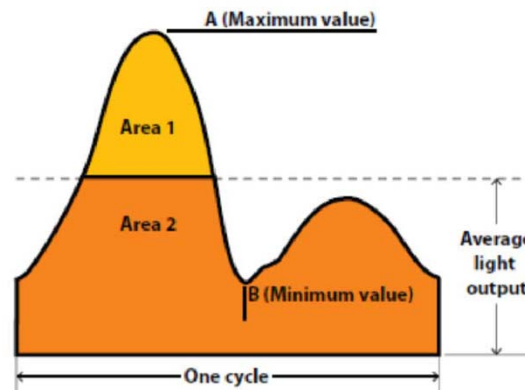
Criteria:	Power Factor for luminaires greater than or equal to 0.90; power factor for lamps greater than or equal to 0.7
Test Method:	IEC 61000-3-2 Ed. 3.2 Consol. with Amendments 1&2: Electromagnetic compatibility (EMC) - Part 3-2: Limits - Limits for harmonic current emissions (equipment input current less than or equal to 16 A per phase). 2009-04.
Applicable Categories:	GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires
Sample Size:	3 lamps or 2 luminaires
Method and Analysis:	The sample of lamps or luminaires shall have their measurements averaged together to determine the power factor of the representative sample.



Flicker (flicker index)

Measures the perceived photometric “flicker” of a light source.

Criteria:	Products with a light output modulation frequency of 100 Hz must have a flicker index less than 0.10. Products with a light output modulation frequency of 120 Hz must have a flicker index less than 0.12.
Applicable Categories:	GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires
Sample Size:	3 lamps or 2 luminaires
Method and Analysis:	The light output waveform must be measured at a minimum sampling rate of 10 kHz. If higher frequency components are superimposed on the 100 Hz or 120 Hz modulation, these higher frequency oscillations must be averaged out before calculating flicker index. Plot of waveform of light output of the product must also be submitted.

$$\text{Flicker Index} = \frac{\text{Area above the Average Light Output}}{\text{Total Area}} = \frac{\text{Area 1}}{(\text{Area 1} + \text{Area 2})}$$




Criteria requiring supporting documentation



Minimum Lumen Maintenance (time to L₇₀)

Criteria:	Depending on the maximum life claim, products must have the following lumen maintenance compared with their initial lumens after 6,000 hours of operation: For any lamp or luminaire with life claims greater than 25,000 hours, the lamp or luminaire shall maintain greater than or equal to 91.5% of initial light output after completion of the manufacturer's (or supplier of component) testing for a test duration corresponding to lamp's life claim per the table on the right.
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Maximum Life Claim (hours to L ₇₀)	Minimum Lumen Maintenance after Test Duration
15,000	86.7%
20,000	89.9%
25,000	91.8%
30,000	93.1%
35,000	94.1%
40,000	94.8%
45,000	95.4%
50,000	95.8%

Maximum Life Claim (hours to L ₇₀)	Test Duration (hours)
30,000	7,500
35,000	8,750
40,000	10,000
45,000	11,250
50,000	12,500





Colour maintenance ($\Delta u'v'$ at 6,000h)

Specifies the allowable shift of the light colour of a lighting product over time.

Criteria:	GLS and directional lamps: $\Delta u',v'$ at 6,000h less than 0.006 Planar luminaires and downlight luminaires: $\Delta u',v'$ at 6,000h less than 0.004
Test Method:	LM-79-08 (CIE 15:2004: Colorimetry)
Applicable Categories:	GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires
Method and Analysis:	Applicants shall provide evidence from an accredited third-party test facility to substantiate that this criterion has been met using test data derived from the test method shown. Applicants must provide at least 2,000 hours of test data upon product nomination (by 3 October 2014), 3,000 hours of test data by 1 November 2014, and 6,000 hours of test data by 6 March 2015.



Endurance test

Requires that a lighting product is rapidly switched on and off to simulate how a product will be used over its lifetime. This criterion requires that a test is carried out to stress a lighting product over a short period of time to determine the failure rates of a product.

Criteria:	Using section 11.3.3 of IEC 62612 (on/off for 30 seconds each), the lamp or luminaire must survive one on/off cycle for every hour of rated service life.
Test Method:	IEC 62612 Edition 1.0
Applicable Categories:	GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires
Method and Analysis:	Applicants shall provide evidence from an accredited third-party test facility to substantiate that this criterion has been met.



Warranty duration

Specifies the duration of the warranty in years from the date of manufacture of a lighting product.

Criteria:	Products shall have rated lifetimes greater than or equal to 15,000 hours and all luminaires shall be backed by a minimum warranty of 3 years.
Applicable Categories:	GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires
Method and Analysis:	Applicants shall provide evidence to substantiate that this criterion has been met including, for example, a photograph of the warranty statement on the packaging and a copy of the warranty.



Safety requirement

Specifies that a product meets electrical safety requirements and marking requirements (where applicable). All products must meet all safety regulations in an economy. Evidence that the product meets safety requirements in market must be supplied.

Criteria:	<p>All products must meet all safety regulations in an economy. Evidence that the product meets safety requirements in market must be supplied. For example:</p> <table border="1" data-bbox="695 781 1761 1089"> <thead> <tr> <th data-bbox="695 781 1094 857">Region</th> <th data-bbox="1098 781 1761 857">Example evidence of meeting safety requirements</th> </tr> </thead> <tbody> <tr> <td data-bbox="695 860 1094 898">Australia</td> <td data-bbox="1098 860 1761 898">Regulatory Compliance Mark</td> </tr> <tr> <td data-bbox="695 901 1094 938">Europe</td> <td data-bbox="1098 901 1761 938">CE Marking</td> </tr> <tr> <td data-bbox="695 941 1094 1011">India</td> <td data-bbox="1098 941 1761 1011">Evidence that products comply with BIS safety requirements</td> </tr> <tr> <td data-bbox="695 1015 1094 1089">North America</td> <td data-bbox="1098 1015 1761 1089">Safety marks: ANSI/UL 1993-2012 and ANSI/UL 8750-2009</td> </tr> </tbody> </table>	Region	Example evidence of meeting safety requirements	Australia	Regulatory Compliance Mark	Europe	CE Marking	India	Evidence that products comply with BIS safety requirements	North America	Safety marks: ANSI/UL 1993-2012 and ANSI/UL 8750-2009
Region	Example evidence of meeting safety requirements										
Australia	Regulatory Compliance Mark										
Europe	CE Marking										
India	Evidence that products comply with BIS safety requirements										
North America	Safety marks: ANSI/UL 1993-2012 and ANSI/UL 8750-2009										
Applicable Categories:	<p>GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires</p>										
Method and Analysis:	<p>Applicants shall provide evidence to substantiate that this criterion has been met. Competition assessors will review the evidence provided to determine whether products contain the necessary safety requirements for the relevant markets.</p>										



Hazardous substances

Requires products meet requirements that limit the use of certain hazardous materials. For example, for products sold in the European Union, the EU's Regulation of Hazardous Substances (RoHS) Directive prevents the use of certain hazardous materials in new electrical and electronic equipment placed on the European market after 1 July 2006. For products sold in North America, the ENERGY STAR Lamp Specification version 1.0 section 13 details Lamp Toxics Reduction. Products sold in other countries may use other, similar requirements.

Criteria:	Products shall be supplied with documentation stating their compliance with the RoHS Directive or equivalent requirement for the Region where they are marketed.
Applicable Categories:	GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires
Method and Analysis:	Applicants shall provide evidence to substantiate that this criterion has been met.



Blue Light Photo-biological hazard class

This hazard class has been defined in IEC 62471 and this criterion specifies the allowable amount of radiation contributing to “blue light hazard” that a lighting product shall emit.

Criteria:	RG0 or RG1, at a distance which produces an illuminance of 500 lux, but not at a distance less than 200 mm.
Test Method:	CIE S 009 / IEC 62471
Applicable Categories:	GLS Lamps; Directional Lamps; Planar Luminaires; Downlight Luminaires
Method and Analysis:	Applicants shall provide evidence to substantiate that this criterion has been met.



Compatibility with controls

Evaluates whether a luminaire will operate well with a lighting controls system.

Criteria:	All luminaires must be compatible with a must be compatible with the DALI standard or other common 1-10V dimming lighting controls system.
Applicable Categories:	Planar Luminaires; Downlight Luminaires
Method and Analysis:	Applicants shall provide evidence that luminaires are compatible with the DALI standard or other common 1-10V dimming lighting controls system.