INTERNATIONAL ELECTROTECHNICAL COMMISSION

Technical committee 34: Lamps and related equipment

Sub-committee 34A: Lamps

Document for Comment: Proposal for a Technical Specification:

TS XXXXXX - Self-ballasted compact fluorescent lamps for general lighting services - performance limits

Attached a proposal for a new Technical Specification (TS).

National committees are requested to send their comments on this proposal electronically on IEC 'form comments' to the Central Office using the electronic voting system by no later than

2013-02-01

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PRESCO(OM)026

Proposal

TS XXXXXX - Self-ballasted compact fluorescent lamps for general lighting services - performance limits
DRAFT

Contents

Self-ballasted compact fluorescent lamps for general lighting services - performance limits

1   Scope

This technical specification specifies a number of performance limits that can be applied to self-ballasted compact fluorescent lamps intended for general lighting services.

This Standard applies to self-ballasted compact fluorescent lamps of voltages > 50V and all power ratings with lamp caps complying with IEC 60061-1.

NOTE: Some features of this standard may be applicable to self-ballasted compact fluorescent lamps of voltages ≤ 50V and to other types of self-ballasted gas discharge lamps.

The methods of test to determine compliance with the performance limits in this technical specification are described in IEC 60969.

1   Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050(845), International Electrotechnical Vocabulary—Lighting

IEC 60969, Self-ballasted compact fluorescent lamps for general lighting services - performance requirements

2   Terms and definitions

For terms and definitions refer to IEC 60969.

3   Performance Criteria: assessment and compliance

3.1   General

A lamp, on which compliance with this standard is claimed, shall comply with the requirements of IEC 60968 and IEC 60969.

3.2   Performance requirements

A lamp claiming to comply with a tier listed in Table 1 shall comply with all of the corresponding parameters listed in Table 1.

Table 1 - Compliance criteria

Parameter	Tier 1 (basic)			Tier 2 (standard)			Tier 3 (high)	Tier 4 (aspirational)	Compliance
Min efficacy (lm/W) (bare lamps) [1]	Wattage	≤ 4500K	> 4500K	Wattage	≤ 4500K	> 4500K	$(lm/W) \geq$ $$\dfrac{1}{\dfrac{0.21}{\sqrt{F}} + 0.0103}$$ Where F = initial luminous flux in lumens	TBA	Mean measured value shall be ≥ tier value, and all samples shall measure ≥ 90% of tier value.
	< 5W	40	36	< 5W	45	42			
	5W to < 9W	44	40	5W to < 9W	50	46			
	9W to < 16W	48	44	9W to < 16W	55	52			
	16W to < 25W	55	51	16W to < 25W	60	57			
	≥ 25W	60	57	≥ 25W	65	62			
Min efficacy (lm/W) (covered lamps)	80% of bare lamp value			80% of bare lamp value			85% of bare lamp value	85% of bare lamp value	
Min efficacy (lm/W) (reflector lamps)	60% of bare lamp value			60% of bare lamp value			60% of bare lamp value	60% of bare lamp value	
Min lumen maintenance @ 2000hrs	≥80%			≥80%			≥88%	TBA	Mean measured value shall be ≥ tier values, and all samples shall measure ≥ 90% of tier values.
Min lumen maintenance @ 6000hrs	≥70%			≥70%			≥78%	TBA	
Min lumen maintenance @ 10000hrs	-			-			≥75%	TBA	
Chromaticity coordinates (within max SDCM of target)	7			5			5	3	Chromaticity coordinates of all samples shall measure within ≤ tier value SDCM.
Min colour rendering index (CRI)	80			80			80	90	CRI of all samples shall measure ≥ tier value.
Max startiStang time Starting time (sec)	2.0			1.5			1.0	0.5	Mean measured value shall be ≤ tier value, and all samples shall start within tier value + 25%

Parameter	Tier 1 (basic)	Tier 2 (standard)	Tier 3 (high)	Tier 4 (aspirational)	Compliance
Max run-up time (seconds to 60% flux) Non amalgam lamp Amalgam lamp	180 250	180 250	60 90	30 45	The mean measured time, to reach the specified percentage of initial luminous flux, shall be ≤ the tier value. All samples shall reach the specified percentage of initial luminous flux within 125% of the tier value.
Min median lifetime (hours)	6000	8000	10000	12000	≥ 50% of samples shall survive to the tier value.
Min switching withstand (cycles)	3000	4000	10000	12000	≥ 50% of samples shall survive to the tier value.
Power Quality – Displacement Factor	All samples shall measure within limits listed in IEC 60969, and all samples shall measure within rated limits	All samples shall measure within limits listed in IEC 60969, and all samples shall measure within rated limits.	All samples shall measure within limits listed inIEC 60969, and all samples shall measure within rated limits	All samples shall measure within limits listed in IEC 60969, and all samples shall measure within rated limits	
Power Quality – Distortion Factor	All samples shall be within limits for harmonic distortion as per IEC 61000-3-2, and all samples shall measure within rated limits.	All samples shall be within limits for harmonic distortion as per IEC 61000-3-2, and all samples shall measure within rated limits.	All samples shall be within limits for harmonic distortion as per IEC 61000-3-2, and all samples shall measure within rated limits.	All samples shall be within limits for harmonic distortion as per IEC 61000-3-2, and all samples shall measure within rated limits.	
Maximum mercury content (mg)	5	3	2.5	2.5	
Claimed extended condition % Light output Condition tested: extreme temperature	?	?	?		
Claimed extended conditions Conditions tested: extreme temperature, extreme humidity, extreme voltage	?	?	?		

[1] Note The efficacy binning in tier 1 & 2 is based on current standards available at this level but it is proposed this be replaced with efficacy curves for greater consistency with tier 3.