

TEST REPORT

COMMISSION REGULATION (EU) No 1194/2012 of 12 December 2012 implementing Directive 2009/125/EC of the European Parliament and of the Council with regard to ecodesign requirements for directional lamps, light emitting diode lamps and related equipment

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SHES1703002401/51
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2017-06-19
16
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Same as applicant.
Same as applicant.
COMMISSION REGULATION (EU) No 1194/2012 + (EU) 2015/1428
SGS-CSTC
🖂 stage 1 🛛 Stage 2 🖾 stage 3
None
1194/2012/EU_B
SGS-CSTC
2016-08
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Test item description	LED Ceiling Light
Trade Mark	IMIGY
Model/Type reference:	C0360
Ratings:	220-240 V~ ; 50/60 Hz; 18 W ;3000 K; 1450 lm ; 30000 h
Lamp cap	-
Product type:	CFL / LED / Mains-voltage filament lamps / conternation filament lamps / High-intensity discharge lamps / other lamps: Luminaires
Bulb type:	Directional / 🛛 Non-directional
Mass of the equipment	-
Commission received from:	-
Date	-
Possible test case verdicts:	
- test case does not apply to the test object	N/A
- test object does meet the requirement	P (Pass)
- test object does not meet the requirement	F (Fail)
Testing	
Date of receipt of test item	2017-04-05
Date (s) of performance of tests:	2017-04-07 to 2017-06-07

General remarks:

The test results presented in this report relate only to the object tested.

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"(see Enclosure #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a comma is used as the decimal separator.

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Summary of testing:

The sample(s) tested complies with the requirements of COMMISSION REGULATION (EU) No 1194/2012

These tests fulfil the requirements of standard ISO/IEC 17025.

When determining the test conclusion, the Measurement Uncertainty of test has been considered.

All the tests performed at manufacturer's test lab:

Testing Location:

IMIGY LIGHTING ELECTRIC CO., LTD NO.366, Hengchangjing Road, Zhoushi Town, Kunshan City, Suzhou, Jiangsu, China

Copy of marking plate

N/A

General product information:

The product is a LED ceiling light,.

According to the client's requirement, full test except the requirements of 'Lamp survival factor at 6 000 h',' Lumen Maintenance at 6 000 h' was performed on the samples.

Product information requirements according to regulation (EC) No 244/2009 see page15.



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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX I	Product information requirements for special p	ourpose products	N/A
1.	If the chromaticity coordinates of a lamp always fall within the following range: $\begin{array}{l} -x < 0,270 \text{ or } x > 0,530 \\ -y < -2,3172x^2 + 2,3653x - 0,2199 \\ \text{ or } y > -2,3172x^2 + 2,3653x - 0,1595 \end{array}$	x: y:	N/A
	The chromaticity coordinates shall be stated in the technical documentation file, which shall indicate that these coordinates make them a special purpose product.		N/A
2.	For all special purpose products, the intended purpose shall be stated in all forms of product information, together with the warning that they are not intended for use in other applications.		N/A
	The technical documentation file shall list the technical parameters that make the product design specific for the stated intended purpose.		N/A
	If needed, the parameters shall be listed in such a way as to avoid disclosing commercially sensitive information linked to the manufacturer's intellectual property rights.		N/A
	If the product is placed on the market in a packaging containing to be visibly displayed to the end-user prior to purchase, the following information shall be clearly and prominently indicated on the packaging and in all other forms of product information:		N/A
	(a) the intended purpose; and		N/A
	(b) that it is not suitable for household room illumination.		N/A



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Clause Requirement + Test

Result - Remark

Verdict

ANNEX III	Ecodesign requirements		Р
1	ENERGY EFFICIENCY REQUIREMENTS		N/A
1.1	Energy efficiency requirements for directional	lamps	N/A
Table 1	Lamps operating on external halogen lamp control gear		N/A
	Lamps operating on external LED lamp control gear		N/A
	Fluorescent lamps of 16 mm diameter (T5 lamps) and 4- pin single capped fluorescent lamps operating on external fluorescent lamp control gear		N/A
	Other lamps operating on external fluorescent lamp control gear		N/A
	Lamps operating on external high-intensity discharge lamp control gear		N/A
	Compact fluorescent lamps with colour rendering index \ge 90		N/A
	Lamps with anti-glare shield		N/A
Table 2	The maximum EEI of directional lamps	(See Annex 1)	N/A
Stage 3	For mains-voltage filament lamps shall apply only if no later than 30 September 2015, evidence is produced by the Commission through a detailed market assessment and communicated to the Consultation Forum that there are mains-voltage lamps on the market that are:		N/A
	 — compliant with the maximum EEI requirement in stage 3; 		
	 affordable in terms of not entailing excessive costs for the majority of end-users; 		
	— broadly equivalent in terms of consumer- relevant functionality parameters to mains- voltage filament lamps available on the date of entry into force of this Regulation, including in terms of luminous fluxes spanning the full range of reference luminous fluxes listed in Table 6;		N/A
	 Compatible with equipment designed for installation between the mains and filament lamps available on the date of entry into force of this Regulation according to state-of-the-art requirements for compatibility. 		N/A
1.2	Energy efficiency requirements for lamp control	ol gear	N/A
Stage 2	The no-load power of a lamp control gear intended for use between the mains and the switch for turning the lamp load on/off shall not exceed 1,0 W		N/A
Stage 2	For lamp control gear with output power (P) over 250 W, the no-load power limits shall be multiplied by P/250 W	Limit:	N/A
Stage 2	The efficiency of a halogen lamp control gear shall be at least 0,91 at 100 % load		N/A
Stage 3	The no-load power of a lamp control gear intended for use between the mains and the switch for turning the lamp load on/off shall not exceed 0,50 W		N/A



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Stage 3	For lamp control gear with output power (P) over 250 W, the no-load power limits shall be multiplied by P/250 W	Limit:	N/A
Stage 3	The standby power of a lamp control gear shall not exceed 0,50 W		N/A
2	FUNCTIONALITY REQUIREMENTS		Ρ
2.1	Functionality requirements for directional lamp	s other than LED lamps	N/A
Table 3	Functionality requirements for directional compact fluorescent lamps	(see Annex 2)	N/A
	If the lamp cap is a standardised type also used with filament lamps, then as from stage 2, the lamp shall comply with state-of-the-art requirements for compatibility with equipment designed for installation between the mains and filament lamps.		N/A
Table 4	Functionality requirements for other directional lamps (excluding LED lamps, compact fluorescent lamps and high-intensity discharge lamps)	(see Annex 3)	N/A
2.2	Functionality requirements for non-directional	and directional LED lamps	Р
Table 5	Functionality requirements for non-directional and directional LED lamps	(see Annex 4)	Ρ
	If the lamp cap is a standardised type also used with filament lamps, then as from stage 2 the lamp shall comply with state-of-the-art requirements for compatibility with equipment designed for installation between the mains and filament lamps.		N/A
2.3	Functionality requirement for equipment design the mains and the lamps	ned for installation between	N/A
Stage 2	Equipment designed for installation between the mains and the lamps shall comply with state-of- the-art requirements for compatibility with lamps whose energy efficiency index is at most:		N/A
	$-$ 0,24 for non-directional lamps (assuming that $\Phi_{use} =$ total rated luminous flux),		N/A
	- 0,40 for directional lamps.		N/A
	A dimming control device is switched on at its lowest control setting for which the operated lamps consume power, the operated lamps shall emit at least 1 % of their luminous flux at full load		N/A
	A luminaire is placed on the market and intended to be marketed to the end-users, and lamps that the end- user can replace are included with the luminaire, these lamps shall be of one of the two highest energy classes, according to Commission Delegated Regulation (EU) No 874/2012, with which the luminaire is labelled to be compatible.		N/A
3	PRODUCT INFORMATION REQUIREMENTS		N/A
	Dreduct information requirements for direction	al lamps	N/A
3.1	Product information requirements for direction		
3.1 Stage 1	The following information shall be provided as otherwise stipulated.	from stage 1, except where	N/A



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Clause	Requirement + Test	Result - Remark	Verdict

	- filament lamps not fulfilling the efficacy	N/A
	requirements of Stage 2, — LED modules when marketed as part of a luminaire from which they are not intended to be	N/A
	removed by the end-user. In all forms of product information, the term 'energy-saving lamp' or any similar product related promotional statement about lamp efficacy may be used only if the energy efficiency index of the lamp (calculated in accordance with the method set out	N/A
3.1.1	in point 1.1 of this Annex) is 0,40 or below. Information to be displayed on the lamp itself	N/A
	Lamps other than high-intensity discharge lamps, the value and unit ('lm', 'K' and '°') of the nominal useful luminous flux, of the colour temperature and of the nominal beam angle shall be displayed in a legible font on the surface of the lamp.	N/A
3.1.2	Information to be visibly displayed to end-users, prior to their purchase, on the packaging and on free access websites	N/A
	The information in paragraphs (a) to (o) below shall be displayed on free access websites and in any other form the manufacturer deems appropriate.	N/A
	If the product is placed on the market in a packaging containing information to be visibly displayed to the end- users, prior to their purchase, the information shall also be clearly and prominently indicated on the packaging.	N/A
	The information does not need to use the exact wording on the list below. It may be displayed in the form of graphs, drawings or symbols rather than text.	N/A
	(a) Nominal useful luminous flux displayed in a font at least twice as large as any display of the nominal lamp power;	N/A
	(b) Nominal life time of the lamp in hours (not longer than the rated life time);	N/A
	(c) Colour temperature, as a value in Kelvins and also expressed graphically or in words;	N/A
	(d) Number of switching cycles before premature failure;	N/A
	(e) Warm-up time up to 60 % of the full light output (may be indicated as 'instant full light' if less than 1 second);	N/A
	(f) A warning if the lamp cannot be dimmed or can be dimmed only on specific dimmers; in the latter case a list of compatible dimmers shall be also provided on the manufacturer's website;	N/A
	(g) If designed for optimum use in non-standard conditions (such as ambient temperature Ta \neq 25 °C or specific thermal management is necessary), information on those conditions;	N/A
	(h) Lamp dimensions in millimetres (length and largest diameter);	N/A
	(i) Nominal beam angle in degrees;	N/A
	 (j) If the lamp's beam angle is ≥ 90° and its useful luminous flux as defined in point 1.1 of this Annex is to be measured in a 120° cone, a warning that the lamp is not suitable for accent lighting; 	N/A



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		1	
	 (k) If the lamp cap is a standardised type also used with filament lamps, but the lamp's dimensions are different from the dimensions of the filament lamp(s) that the lamp is meant to replace, a drawing comparing the lamp's dimensions to the dimensions of the filament lamp(s) it replaces; 		N/A
	 (I) An indication that the lamp is of a type listed in the first column of Table 6 may be displayed only if the luminous flux of the lamp in a 90° cone (Φ90°) is not lower than the reference luminous flux indicated in Table 6 for the smallest wattage among the lamps of the type concerned. 		N/A
	(m) An equivalence claim involving the power of a replaced lamp type may be displayed only if the lamp type is listed in Table 6 and if the luminous flux of the lamp in a 90° cone (Φ 90°) is not lower than the corresponding reference luminous flux in Table 6.		N/A
	If the lamp contains mercury:	1	N/A
	(n) Lamp mercury content as X,X mg;		N/A
	(o) Indication of which website to consult in case of accidental lamp breakage to find instructions on how to clean up the lamp debris.		N/A
3.1.3	Information to be made publicly available on free-a other form the manufacturer deems appropriate	access websites and in any	N/A
	As a minimum, the following information shall be e	xpressed at least as values.	N/A
	(a) The information specified in point 3.1.2;		N/A
	(b) Rated power (0,1 W precision);		N/A
	(c) Rated useful luminous flux;		N/A
	(d) Rated lamp life time;		N/A
	(e) Lamp power factor;		N/A
	(f) Lumen maintenance factor at the end of the nominal life (except for filament lamps);		N/A
	(g) Starting time (as X,X seconds);		N/A
	(h) Colour rendering;		N/A
	(i) Colour consistency (only for LEDs);		N/A
	(j) Rated peak intensity in candela (cd);		N/A
	(k) Rated beam angle;		N/A
	 (I) If intended for use in outdoor or industrial applications, an indication to this effect; 		N/A
	(m) Spectral power distribution in the range 180- 800 nm;		N/A
	If the lamp contains mercury:	1	N/A
	(n) Instructions on how to clean up the lamp debris in case of accidental lamp breakage;		N/A



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Clause	Requirement + Test	Result - Remark	Verdict

	(o) Recommendations on how to dispose of the lamp at the end of its life for recycling in line with Directive 2012/19/EU of the European Parliament and of the Council (1).	N/A
3.2	Additional product information requirements for LED lamps replacing fluorescent lamps without integrated ballast	N/A
Stage 1	Manufacturers of LED lamps replacing fluorescent lamps without integrated ballast shall publish a warning on publicly available free-access websites and in any other form they deem appropriate that the overall energy efficiency and light distribution of any installation that uses such lamps are determined by the design of the installation.	N/A
	Claims that an LED lamp replaces a fluorescent lamp without integrated ballast of a particular wattage may be made only if:	N/A
	- The luminous intensity in any direction around the tube axis does not deviate by more than 25 % from the average luminous intensity around the tube, and	N/A
	— The luminous flux of the LED lamp is not lower than the luminous flux of the fluorescent lamp of the claimed wattage. The luminous flux of the fluorescent lamp shall be obtained by multiplying the claimed wattage with the minimum luminous efficacy value corresponding to the fluorescent lamp in Commission Regulation (EC) No 245/2009, and	N/A
	 The wattage of the LED lamp is not higher than the wattage of the fluorescent lamp it is claimed to replace. The technical documentation file shall provide the data to support such claims. 	N/A
3.3	Product information requirements for equipment other than luminaires, designed for installation between the mains and the lamps	N/A
Stage 2	If the equipment provides no compatibility with any of the energy-saving lamps according to part 2.3 of this Annex, a warning that the equipment is not compatible with energy-saving lamps shall be published on publicly available free-access websites and in other forms the manufacturer deems appropriate.	N/A
3.4	Product information requirements for lamp control gears	N/A
Stage 2	the following information shall be published on publicly available free access websites and in other forms the manufacturer deems appropriate:	N/A
	 Indication that the product is intended to be used as a lamp control gear, 	N/A
	- If applicable, the information that the product may be operated in no-load mode.	N/A



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Table 5: Functionality requirements for non-directional and directional LED lamps

Type reference:	C0360		
Functionality parameter	Limit for Stage 1 except where indicated otherwise	Average results	Verdict
Lamp survival factor at 6 000 h	From 1 March 2014: ≥ 0,90	Not Checked	N/A
Lumen Maintenance at 6 000 h	From 1 March 2014: ≥ 0,80	Not Checked	N/A
Number of switching cycles before failure	⊠ ≥ 15000 if rated lamp life ≥ 30000 h \Box otherwise ≥ half the rated lamp life expressed in hours:	≥ 15000cycles	Ρ
Starting time	< 0,5 s	0,240	Р
Lamp warm-up time to 95 % Φ	≤2 s	0,632	Р
Premature failure rate	≤ 5,0 % at 1000 h	No failed sample found during the testing	Р
Colour rendering (Ra)	$\boxed{\ } \geq 80$ $\boxed{\ } \geq 65$ if the lamp is intended for outdoor or industrial applications in accordance with point 3.1.3(I) of this Annex	84,9	Ρ
Colour consistency	Variation of chromaticity coordinates within a six-step MacAdam ellipse or less.	2,5	Р
Lamp power factor (PF) for lamps with integrated control gear	$\square P ≤ 2 W: no requirement$ $\square 2 W < P ≤ 5 W: PF > 0,4$ $\boxtimes 5 W < P ≤ 25 W: PF > 0,5$ $\square P > 25 W: PF > 0,9$	0,916	Ρ



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Table 5: Functionality requirements for non-directional and directional LED lamps

Sample	Voltage (V)	Power (W)	Power factor	Useful Luminous flux (lm)	CCT (K)	CRI	Colour consistency	Energy efficiency index (EEI)	Useful Luminous flux at 6000 h (Im)	Lumen maintenance (%) at 6000 h	Starting time (s)	Lamp warm-up time to 95% Φ (s)
1	220	16,76	0,917	1447,2	2885	84,9	2,6	0,158	-	-	0,091	0,003
2	220	16,88	0,917	1479,0	2872	84,7	3,0	0,155	-	-	0,093	0,003
3	220	16,56	0,917	1451,2	2883	84,9	2,5	0,155	-	-	0,092	0,003
4	220	16,66	0,916	1482,1	2908	85,0	2,2	0,153	-	-	0,094	0,003
5	220	16,84	0,916	1451,9	2888	84,9	2,4	0,158	-	-	0,095	0,003
6	220	16,62	0,917	1425,3	2895	85,0	2,5	0,159	-	-	0,093	0,003
7	220	16,14	0,915	1413,8	2889	84,9	2,4	0,156	-	-	0,092	0,003
8	220	16,64	0,916	1439,3	2879	84,8	2,7	0,157	-	-	0,090	0,003
9	220	16,82	0,917	1480,1	2889	85,1	2,5	0,155	-	-	0,096	0,003
10	220	16,51	0,916	1448,6	2881	84,9	2,7	0,155	-	-	0,092	0,003
11	220	16,50	0,917	1431,0	2881	85,0	2,7	0,157	-	-	0,092	0,003
12	220	16,50	0,916	1444,7	2893	85,1	2,4	0,156	-	-	0,091	0,003
13	220	16,28	0,915	1432,9	2891	84,9	2,5	0,155	-	-	0,095	0,003
14	220	16,84	0,917	1442,8	2882	84,9	2,5	0,159	-	-	0,089	0,003
15	220	16,40	0,915	1432,0	2883	84,9	2,7	0,156	-	-	0,090	0,003
16	220	16,46	0,917	1439,7	2888	84,9	2,6	0,156	-	-	0,084	0,003
17	220	16,58	0,916	1439,0	2879	85,0	2,8	0,157	-	-	0,094	0,003
18	220	16,42	0,916	1415,8	2888	85,0	2,4	0,158	-	-	0,095	0,003
19	220	16,58	0,916	1422,9	2895	85,0	2,4	0,159	-	-	0,095	0,003
20	220	16,68	0,917	1436,7	2890	85,0	2,4	0,158	-	-	0,098	0,003
AVG	220	16,58	0,916	1442,8	2887	84,9	2,5	0,157	-	-	0,092	0,003



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Number of switching cycles before failure:

Sample	21	22	23	24	25	26	27	28	29	30
Number of switching cycles before failure	≥15000	≥15000	≥15000	≥15000	≥15000	≥15000	≥15000	≥15000	≥15000	≥15000
Sample	31	32	33	34	35	36	37	38	39	40
Number of switching cycles before failure	≥15000	≥15000	≥15000	≥15000	≥15000	≥15000	≥15000	≥15000	≥15000	≥15000



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ANNEX 5	Photo documentation	
Type of equipment,	model: LED Lamp	
Details of: C0360	0	
View:		
[×] general		
[] front		
[] rear		
[] right		
[] left	8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	
[] top		
[] bottom		
		3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1



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ANNEX II	Ecodesign requirements for non-directional household lamps:					
1	LAMP EFFICACY REQUIREMENTS		Ρ			
Table 1	Maximum rated power (Pmax) for a given rated luminous flux (Φ) (W)					
	Clear lamps					
	 ☐ Stages 1 to 5: 0,8 * (0,88√Φ+0,049Φ) ☐ Stage 6: 0,6 * (0,88√Φ+0,049Φ) 					
	Rated Luminous flux (Im)		_			
	Average Luminous flux (Im)		N/A			
	Calculated Pmax (W)		_			
	Rated wattage (W)		N/A			
	Average wattage (W)		N/A			
	Non-clear lamps		Ρ			
	 ☐ Stages 1 to 5: 0,24√Φ+0,0103Φ ☑ Stages 6: 0,24√Φ+0,0103Φ 					
	Rated Luminous flux (Im)	1450	—			
	Average Luminous flux (Im)	1442,8	Ρ			
	Calculated Pmax (W)	24,07	—			
	Rated wattage (W)	18	Ρ			
	Average wattage (W)	16,58	Ρ			
Table 2	Maximum rated power (Pmax) for a given rated luminous flux (Φ) (W)					
	□ Clear lamps 60 lm ≤ Φ ≤ 950 lm in Stage 1: Pmax = 1,1 * (0,88 $\sqrt{\Phi}$ +0,049 Φ) □ Clear lamps 60 lm ≤ Φ ≤ 725 lm in Stage 2: Pmax = 1,1 * (0,88 $\sqrt{\Phi}$ +0,049 Φ) □ Clear lamps 60 lm ≤ Φ ≤ 450 lm in Stage 3: Pmax = 1,1 * (0,88 $\sqrt{\Phi}$ +0,049 Φ) □ Clear lamps with G9 or R7s cap in Stage 6: Pmax = 0,8 * (0,88 $\sqrt{\Phi}$ +0,049 Φ)					
	Rated Luminous flux (Im)		—			
	Average Luminous flux (Im)		N/A			
	Calculated Pmax (W)					
	Rated wattage (W)		N/A			
	Average wattage (W)		N/A			
Table 3	Correction factors		N/A			
2	LAMP FUNCTIONALITY REQUIREMENTS		N/A			
Table 4	Functionality requirements for compact fluorescent lamps	(see Annex 1)	N/A			
Table 5	Functionality requirements for lamps excluding compact fluorescent lamps and LED lamps	(see Annex 2)	N/A			



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ANNEX 5	Additional lamp efficacy requirement of (EC) No 244/2009
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3	PRODUCT INFORMATION REQUIREMENTS ON LAMPS				
	For non-directional household lamps, the following information shall be provided as from Stage 2, except where otherwise stipulated				
3.1	Information to be visibly displayed prior to purchase to end-users on the packaging and on free access websites	N/A			
	 (a) When the nominal lamp power is displayed outside the energy label in accordance with Directive 98/11/EC, the nominal luminous flux of the lamp shall also be separately displayed in a font at least twice as large as the nominal lamp power display outside the label 	N/A			
	(b) Nominal life time of the lamp in hours (not higher than the rated life time)	N/A			
	(c) Number of switching cycles before premature lamp failure	N/A			
	(d) Colour temperature (also expressed as a value in Kelvins)	N/A			
	(e) Warm-up time up to 60 % of the full light output (may be indicated as 'instant full light' if less than 1 second)	N/A			
	(f) A warning if the lamp cannot be dimmed or can be dimmed only on specific dimmers	N/A			
	(g) If designed for optimal use in non-standard conditions (such as ambient temperature Ta \neq 25 °C), information on those conditions;	N/A			
	(h) Lamp dimensions in millimeters (length and diameter)	N/A			
	 (i) If equivalence with an incandescent lamp is claimed on the packaging, the claimed equivalent incandescent lamp power (rounded to 1 W) shall be that corresponding in Table 6 to the luminous flux of the lamp contained in the packaging. 	N/A			
	 (j) The term 'energy saving lamp' or any similar product related promotional statement about lamp efficacy may only be used if the lamp complies with the efficacy requirements applicable to non-clear lamps in Stage 1 according to Tables 1, 2 and 3. 	N/A			
	If the lamp contains mercury	N/A			
	(k) Lamp mercury content as X,X mg	N/A			
	 (I) Indication which website to consult in case of accidental lamp breakage to find instructions on how to clean up the lamp debris 	N/A			
3.2	Information to be made publicly available on free-access websites	N/A			
	(a) The information specified in point 3.1	N/A			
	(b) Rated wattage (0,1 W precision)	N/A			
	(c) Rated luminous flux	N/A			
	(d) Rated lamp life time	N/A			
	(e) Lamp power factor	N/A			
	(f) Lumen maintenance factor at the end of the nominal life	N/A			



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(g) Starting time (as X,X seconds)	N/A
(h) Colour rendering	N/A
If the lamp contains mercury	N/A
(i) Instructions on how to clean up the lamp debris in case of accidental lamp breakage	N/A
(j) Recommendations on how to dispose of the lamp at its end of life	N/A

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