Xiamen Topstar Lighting Co., Ltd

TEST REPORT

SCOPE OF WORK
ErP Test Report

REPORT NUMBER
230402488SHA-001 A2

INITIAL ISSUE DATE
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ErP Test Report_2019/2020_LED_A

Report No.: 230402488SHA-001 A2

TEST REPORT

ECODESIGN REQUIREMENTS FOR LIGHT SOURCES AND SEPARATE CONTROL GEARS OF COMMISSION REGULATION (EU) 2019/2020 PURSUANT TO DIRECTIVE 2009/125/EC OF THE EUROPE PARLIAMENT AND OF THE COUNCIL,

Applicant, identification of the test sample

Applicant	Xiamen Topstar Lighting Co., Ltd
Applicant Address	676 Meixi Avenue, Tong'an District, Xiamen, China
Contact Name	Nancy Na
Email & Phone No,	nsq@topstar.com.cn; +86 13055515305
Manufacturer	Same as applicant
Light Source Type	☒ Non-directional ☐ Directional, Beam Angle: ☒ LED Lamp ☐ LED Module ☐ Others:
Brand Name	TOPSTAR
Type	TSZ6.5FA60-HD002-27K; TSZ6.5FA60-HD003-27K
No, of Sample	10 pcs
Electrical rating	220-240 VAC; 50/60 Hz; 6,5 W; 806 lm; 15000h; Dimmable; CRI80; TSZ6.5FA60-HD002-27K: 2700K, E27; TSZ6.5FA60-HD003-27K: 2700K, B22; TSZ6.5FA60-HD002-65K: 6500K, E27. Total Mains Efficacy: 124,00 lm/W Energy Efficiency Class: E
Control Gear	☒ Internal ☐ External ☐ None
Control Gear Manufacturer	Same as applicant
Control Gear Model No,	Integrated driver
Photometric no	N/A
Date Received	04 March 2023
Date Test Conducted	04 March 2023 to 04 August 2023

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Summary of test results:

These results are in compliance with the ecodesign requirements of the Commission Regulation (EU) 2019/2020 and (EU) 2019/2015,
Note: when determining the test conclusion, the Measurement Uncertainty of test has been considered according to Accuracy Method stated in IEC Guide 115.

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Standard and environmental condition

Test Laboratory	Intertek Testing Services Shanghai Limited
Address	Building No,86, 1198 Qinzhou Road (North), Shanghai 200233, China,
Test Location	As above
Standard Applied	☒ CIE 13,3: 1995; ☒ CIE 15: 2004; ☒ CIE 84: 1989; ☒ CIE 127: 2007; ☒ IEC 62717: 2019; ☒ IEC 62612: 2013+A1; ☐ IEC 62722-1: 2014; ☐ IEC 62722-2-1: 2014; ☒ Regulation (EU) 2019/2020
Tested At	230 V, 50 Hz
Ambient Temp,	25,0°C
THD	< 3,0%

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Measurement Conditions

1.1 Lamp Pre-Conditioning

No pre-conditioning for LED lamps before the initial lumen measurement,

1.2 Test Condition Parameters

Test voltage	±0,2 % During measurement
Test frequency	±0,5 %,
Total harmonic content of the test voltage	≤3% (up to and including the 13th harmonic)
Relative humidity	≤65%
Temperature	25±1°C

1.3 Possible Test Case Verdicts

Test case does not apply to the test object	N/A
Test case does meet the requirement	P (Pass)
Test object does not meet the requirement	F (Fail)
Test result to be determined	TBD

The test results only relate to the items tested

Throughout this report a ☒ comma ☐ point is used as the decimal separator,

1,4 Equipment List

Description	Equipment No,
Temperature Meter	EC2753
Power Meter	EC4760-10
DC Power Supply	EC4760-9
AC Power Supply for Integrating Sphere	EC4760-12
Two Meter Integrating Sphere System	EC4760
Standard Lamp	EC5893
Digital Power Meter	EC4753-6
AC power source for Goniophotometer	EC4753-8
Goniophotometer System	EC4753
Standard Lamp	EC5893
Light Flickering Analyzer	EC5848
Life Temperature Meter	EC4865,EC5060,EC5328
Life Power Meter	EC4848,EC4981

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Test and Verification Results

Annex I (Clause)	**Definitions** in Regulation (EU) 2019/2020	Result - Remark	Verdict
(3)	Directional Light Source		N/A
	at least 80 % of total luminous flux within a solid angle of π sr (corresponding to a cone with angle of 120°)		N/A
(15)	Useful luminous flux Φ_{use}		P
	for non-directional light sources it is the total flux emitted in a solid angle of 4π sr (corresponding to a 360° sphere)	792,6lm	P
	for directional light sources with beam angle ≥ 90° it is the flux emitted in a solid angle of π sr (corresponding to a cone with angle of 120°)		N/A
	for directional light sources with beam angle < 90° it is the flux emitted in a solid angle of 0,586π sr (corresponding to a cone with angle of 90°)		N/A

Annex II (Clause)	**Energy Efficiency** Requirements in Regulation (EU) 2019/2020	Result - Re mark	Verdict
1,(a)	**Energy Efficiency Requirements – Light Source**		
	On-mode Power P_{on} (W):	5,86	P
	Maximum Allowed Power P_{onmax} (W): $P_{onmax} = C \times (L + \Phi_{use}/(F \times \eta))$ x R	8,87	P
	Threshold efficacy η (lm/W): *η for LED: 120,0*	120	P
	End loss factor L (W) depending on light source: *L for LED: 1,5*	1,5	P
	End loss factor L (W) for connected light sources: 2,0		N/A
	Efficacy Factor F: *1,00 for non-directional light sources (NDLS, using total flux)*	1,00	P
	Efficacy Factor F: *0,85 for directional light sources (DLS, using flux in a cone)*		N/A
	CRI Factor R: *0,65 for CRI ⩽ 25*		N/A
	CRI Factor R: *(CRI+80)/160 for CRI > 25, rounded to two decimals*	1,00	P

	Correction Factor C Depending on Light Source Characteristics in Table 2		N/A
	Non-directional (NDLS) not operating on mains (NMLS), *Basic Value: 1,00*		N/A
	Non-directional (NDLS) operating on mains (MLS), *Basic Value: 1,08*	1,08	P
	Directional (DLS) not operating on mains (NMLS), *Basic Value: 1,15*		N/A
	Directional (DLS) operating on mains (MLS), *Basic Value: 1,23*		N/A
	Special Light Source Bonus on C		N/A

Annex II (Clause)	**Energy Efficiency** Requirements in Regulation (EU) 2019/2020	Result - Remark	Verdict
1,(a)	**Standby power – Light Source**		
	The standby power P_{sb} of a light source shall not exceed 0,5 W		N/A
	The networked standby power P_{net} of a connected light source shall not exceed 0,5 W		N/A
	The allowable values for P_{sb} and P_{net} shall not be added together		N/A

Annex II (Clause)	**Energy Efficiency** Requirements in Regulation (EU) 2019/2020	Result - Remark	Verdict
1,(b)	**Energy Efficiency Requirements – Separate Control Gear (at full-load)**		
	Control gear for LED or OLED light sources: $P_{eg}^{0.81}/(1.09 \times P_{eg}^{0.81} + 2.10)$		N/A
	The no-load power P_{no} of a separate control gear shall not exceed 0,5 W		N/A
	The standby power P_{sb} of a separate control gear shall not exceed 0,5 W		N/A
	The networked standby power P_{net} of a connected separate control gear shall not exceed 0,5 W		N/A
	The allowable values for P_{sb} and P_{net} shall not be added together		N/A

Annex II (Clause)	**Functional** Requirements in Regulation (EU) 2019/2020	Result - Remark	Verdict
2,	**Functional Requirements – Light Source (Table 4)**		
	Colour Rendering Index CRI: ≥ 80	83,4	P
	Displacement Factor DF at Power Input P_{on} for		--

	LED and OLED MLS:		
	No limit at $P_{on} \leq 5$ W DF ≥ 0,5 at 5 W < $P_{on} \leq 10$ W, DF ≥ 0,7 at 10 W < $P_{on} \leq 25$ W DF ≥ 0,9 at 25 W < P_{on}	0,986	P
	Lumen Maintenance Factor (for LED and OLED): $X_{LMF,MIN}\% = 100 \times e^{\frac{(3000 \times \ln(0.7))}{L_{70}}}$	Required: ≥93,1%; Measured: 98,8%.	P
	Survival Factor (for LED and OLED): *At least 9 light sources of the test sample must be operational after completing the test in Annex V of this Regulation,*	10 samples measured; 10 samples survived.	P
	Colour consistency for LED and OLED light sources: *Variation of chromaticity coordinates within a six-step MacAdam ellipse or less,*	5,5	P
	Flicker for LED and OLED MLS: P_{st} *LM ≤ 1,0 at full-load.*	0,063	P
	Stroboscopic effect for LED and OLED MLS: *SVM ≤ 0,9 at full-load* *From 1 September 2024: SVM ≤ 0,4 at full-load.*	0,132	P

Annex II (Clause)	**Information** Requirements in Regulation (EU) 2019/2020	Result - Remark	Verdict
3,(a)	Information to be displayed on the **light source itself**		
	Useful luminous flux (lm)		N/A
	Correlated colour temperature (K)		N/A
	Beam angle (°) *For directional light sources*		N/A
3,(b)	Information to be visibly displayed on the **packaging**		N/A
3,(b)(1)	**Light source** placed on the market, not in a containing product		N/A
	(a) Useful luminous flux (lm): - *In a font at least twice as large as the display of the on-mode power (P_{on})* - *Clearly indicating if it refers to the flux in a sphere (360°), in a wide cone (120°) or in a narrow cone (90°)*		N/A
	(b) Correlated Colour Temperature, rounded to the nearest 100 K		N/A
	(c) Beam angle in degrees *For directional light sources*		N/A
	(d) electrical interface details, *e,g, cap- or*		N/A

	connector-type, type of power supply (e,g, 230 V AC 50 Hz, 12 V DC)		
	(e) $L_{70}B_{50}$ lifetime for LED and OLED light sources, expressed in hours	15000	P
	(f) on-mode power (P_{on}), expressed in W		N/A
	(g) standby power (P_{sb}), expressed in W and rounded to the second decimal, *If the value is zero, it may be omitted from the packaging*		N/A
	(h) networked standby power (P_{net}) for CLS, expressed in W and rounded to the second decimal, *If the value is zero, it may be omitted from the packaging*		N/A
	(i) Colour Rendering Index, rounded to the nearest integer		N/A
	(j) Clear indication to this effect, *if CRI< 80, and the light source is intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a CRI< 80,*		N/A
	(k) Information on non-standard conditions *(such as ambient temperature Ta ≠ 25 °C or specific thermal management is necessary)*		N/A
	(l) a warning if the light source cannot be dimmed or can be dimmed only with specific dimmers or with specific wired or wireless dimming methods, In the latter cases a list of compatible dimmers and/or methods shall be provided on the manufacturer's website		N/A
	(m) if the light source contains mercury: a warning of this, including the mercury content in mg rounded to the first decimal place		N/A
	(n) if the light source is within the scope of Directive 2012/19/EU, without prejudice to marking obligations pursuant to Article 14(4) of Directive 2012/19/EU, or contains mercury: a warning that it shall not be disposed of as unsorted municipal waste		N/A

Annex II (Clause)	**Information** Requirements in Regulation (EU) 2019/2020	Result - Remark	Verdict
3,(b)(2)	**Separate control gears** *For separate control gear placed on the market as a stand-alone product, not as a part of a containing product*		N/A

	(a) the maximum output power of the control gear (for HL, LED and OLED) or the power of the light source for which the control gear is intended (for FL and HID)		N/A
	(b) the type of light source(s) for which it is intended		N/A
	(c) the efficiency in full-load, expressed in percentage		N/A
	(d) the no-load power (P_{no}), expressed in W and rounded to the second decimal, or the indication that the gear is not intended to operate in no-load mode, *If the value is zero, it may be omitted from the packaging but shall nonetheless be declared in the technical documentation and on websites*		N/A
	(e) the standby power (P_{sb}), expressed in W and rounded to the second decimal, *If the value is zero, it may be omitted from the packaging but shall nonetheless be declared in the technical documentation and on websites*		N/A
	(f) the networked standby power (P_{net}), expressed in W and rounded to the second decimal, *If the value is zero, it may be omitted from the packaging but shall nonetheless be declared in the technical documentation and on websites*		N/A
	(g) a warning if the control gear is not suitable for dimming of light sources or can be used only with specific types of dimmable light sources or using specific wired or wireless dimming methods, *In the latter cases, detailed information on the conditions in which the control gear can be used for dimming shall be provided on the manufacturer's or importer's website*		N/A
	(h) a QR-code redirecting to a free-access website of the manufacturer, importer or authorised representative, or the internet address for such a website, where full information on the control gear can be found		N/A

Annex II (Clause)	**Information** Requirements in Regulation (EU) 2019/2020	Result - Remark	Verdict
3,(c)	Information to be visibly displayed on a **free-access website** of the manufacturer, importer or authorised representative		N/A
3,(c)(1)	Separate control gears *For any separate control gear that is placed on the EU market, the following information shall be displayed on at least one free-access website:*		N/A
	(a) the information specified in point 3(b)(2), except 3(b)(2)(h)		N/A
	(b) the outer dimensions in mm		N/A
	(c) the mass in grams of the control gear, without packaging, and without lighting control parts and non-lighting parts, if any and if they can be physically separated from the control gear		N/A
	(d) instructions on how to remove lighting control parts and non-lighting parts, if any, or how to switch them off or minimise their power consumption during control-gear testing for market surveillance purposes		N/A
	(e) if the control gear can be used with dimmable light sources, a list of minimum characteristics that the light sources should have to be fully compatible with the control gear during dimming, and possibly a list of compatible dimmable light sources		N/A
	(f) recommendations on how to dispose of it at the end of its life in line with Directive 2012/19/EU		N/A

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	Appendix 1: LED components

object/part No,	manufac-turer/ trademark	type/model	technical data	standard	mark(s) of conformity
LED	Samsung Electronics Co., Ltd.	SPMWH*FC52IB****C*	IF=25mA, VF=68-73V, CCT:2700K/6500K.	EU 2019/2020	Tested with appliance

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Appendix 3-Test Data Sheet

1, Initial Lumen Measurement and Color Performance

Model No,	Sample No,	Current (A)	Displacement Factor/DF	Power P_{on} (W)	Luminous Flux Φ_{use} (lm)	CCT (K)	CRI (%)	CRI R9 (%)	SDCM (≤6,0)	Efficacy (lm/W)
TSZ6.5FA60-HD002-27K	1	0,037	0,984	5,83	779,2	2811	83,4	10	5,4	133,64
	2	0,037	0,985	5,87	801,6	2810	83,5	10	5,4	136,57
	3	0,037	0,989	5,89	799,6	2817	83,4	10	5,6	135,75
	4	0,037	0,984	5,81	788,9	2811	83,5	10	5,4	135,78
	5	0,037	0,991	5,78	781,9	2817	83,5	10	5,5	135,27
	6	0,037	0,985	5,86	790,3	2820	83,5	10	5,6	134,86
	7	0,037	0,986	5,83	785,2	2798	83,4	9	5,4	134,69
	8	0,037	0,985	5,87	796,3	2806	83,4	10	5,3	135,65
	9	0,037	0,985	5,90	801,5	2813	83,5	10	5,3	135,84
	10	0,038	0,981	5,92	802,0	2815	83,4	9	5,6	135,48
Average	-----	0,037	0,986	5,86	792,6	2817	83,4	10	5,5	135,35

Note: Nominal center point for SDCM calculated by: g11=440000,g12=186000,g22=270000,
Centre point: (x,y)=(0,4578, 0,4101).

Model No,	Sample No,	Current (A)	Displacement Factor/DF	Power P_{on} (W)	Luminous Flux Φ_{use} (lm)	CCT (K)	CRI (%)	CRI R9 (%)	SDCM (≤6,0)	Efficacy (lm/W)
TSZ6.5FA60-HD002-65K	1	0,037	0,984	6,10	788,9	6693	84,1	14	1,9	129,32
	2	0,037	0,984	6,09	789,2	6681	84,4	14	1,9	129,58
	3	0,037	0,988	6,10	787,9	6636	84,2	14	1,4	129,16
	4	0,037	0,985	6,04	786,5	6594	84,0	13	1,1	130,22
	5	0,037	0,987	6,06	784,6	6654	84,2	14	1,5	129,48
	6	0,037	0,983	6,11	787,9	6639	84,1	14	1,3	128,94
	7	0,037	0,987	6,00	778,9	6647	84,1	14	1,4	129,82
	8	0,037	0,984	6,06	788,3	6608	83,7	12	1,1	130,09
	9	0,037	0,985	6,07	782,8	6693	84,4	15	1,9	128,96
	10	0,037	0,985	6,10	785,1	6652	84,3	14	1,7	128,70
Average	-----	0,037	0,985	6,07	786,0	6650	84,2	14	1,5	129,43

Note: Nominal center point for SDCM calculated by: g11=860000,g12=400000,g22=450000,
Centre point: (x,y)=(0,3123, 0,3283).

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Appendix 3-Test Data Sheet

2,1 Different Mode Power and Lumen Maintenance Test at 1000H

Model No,	Sample No,	No-Load Power P_{no} (≤0,5W)	Standby Power P_{sb} (≤0,5W)	Network Sb, Power P_{net} (≤0,5W)
TSZ6.5FA60-HD002-27K	1	N/A	N/A	N/A
	2	N/A	N/A	N/A
	3	N/A	N/A	N/A
	4	N/A	N/A	N/A
	5	N/A	N/A	N/A
	6	N/A	N/A	N/A
	7	N/A	N/A	N/A
	8	N/A	N/A	N/A
	9	N/A	N/A	N/A
	10	N/A	N/A	N/A
Average	-----	N/A	N/A	N/A

2,2 Lumen Maintenance Test at 3600H

Model No,	Sample No,	Luminous Flux Φ_{use} (lm) (3,6 khrs)	Lumen Maintenance Factor (%) (3,6 khrs)	Survival Factor (≥0,9)
TSZ6.5FA60-HD002-27K	1	774,6	99,4%	Survived
	2	788,9	98,4%	Survived
	3	789,2	98,7%	Survived
	4	781,3	99,0%	Survived
	5	771,6	98,7%	Survived
	6	778,8	98,5%	Survived
	7	776,3	98,9%	Survived
	8	786,7	98,8%	Survived
	9	793,0	98,9%	Survived
	10	790,8	98,6%	Survived
Average	-----	**783,1**	**98,8%**	**1,0**

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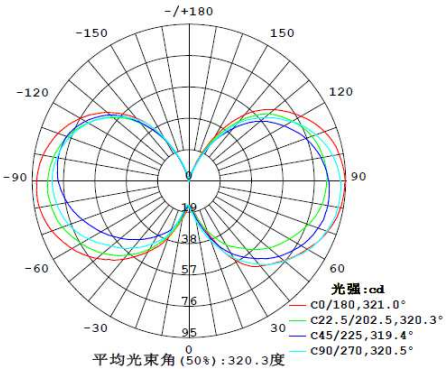
Appendix 3-Test Data Sheet

3, Flicker and Stroboscopic Effect Test

Model No,	Sample No,	Flicker P_{st} LM (≤1,0)	Stroboscopic Effect SVM (≤0,4)
TSZ6.5FA60-HD002-27K	1	0,049	0,135
	2	0,048	0,141
	3	0,084	0,128
	4	0,052	0,121
	5	0,055	0,115
	6	0,055	0,149
	7	0,060	0,120
	8	0,062	0,126
	9	0,075	0,149
	10	0,093	0,134
Average	-----	0,063	0,132

4, Light Distribution Measurements



5, Zonal Lumen Summary and Percentages

Zone	% Luminaire (%)
0-30	3,59
0-40	7,68
0-60	21,3
0-90	52,8
60-90	31,5
0-180	100,0

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Appendix 3-Test Data Sheet

6, Beam Angle

Total Beam Angle
320,3°

Annex II, Table 3 – Energy Efficiency for Control Gear for LED Lighting Sources

Model No,	Sample No,	No-Load Power P_{no} (≤0,5W)	Standby Power P_{sb} (≤0,5W)	Network Sb, Power P_{net} (≤0,5W)	Min, Energy Efficiency (Calculated)*	Efficiency at Full Load (≥Min,)
TSZ6.5FA60-HD002-27K	1	N/A	N/A	N/A	N/A	N/A
	2	N/A	N/A	N/A	N/A	N/A
	3	N/A	N/A	N/A	N/A	N/A
Average	-----	N/A	N/A	N/A	N/A	N/A

*Note: *Min, Energy Efficiency is calculated by the following formula*

$$P_{eg}{}^{0.81}/(1.09 \times P_{eg}{}^{0.81} + 2.10)$$

(P_{cg}: Declared output power of the control gear,)

Remarks:

1. No Pre-conditioning for LED lamp before initial measurement,
2. All tests were conducted at voltage 230 V, frequency 50 Hz; All measurements were conducted with the samples reach stable condition at ambient temperature 25°C±1°C,
3. The tests were performed with the lamp in base-up position.

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Appendix 3-Test Data Sheet

Energy efficiency classes of light sources under EU 2019/2015			
Model name :	TSZ6.5FA60-HD002-27K; TSZ6.5FA60-HD003-27K		
Φuse: 806lm	Pon :6,5W	FTM:	1
ηTM = (Φuse / Pon) x FTM (lm/W) = 124,00			
Total mains efficacy ηTM	**Energy efficiency class**	**Rated energy efficiency class**	**Test energy efficiency class**
210 ≤ ηTM	A	☐	☐
185 ≤ ηTM < 210	B	☐	☐
160 ≤ ηTM < 185	C	☐	☐
135 ≤ ηTM < 160	D	☐	☐
110 ≤ ηTM < 135	E	☒	☒
85 ≤ ηTM < 110	F	☐	☐
ηTM < 85	G	☐	☐

Energy efficiency classes of light sources under EU 2019/2015			
Model name :	TSZ6.5FA60-HD002-65K		
Φuse: 806lm	Pon :6,5W	FTM:	1
ηTM = (Φuse / Pon) x FTM (lm/W) = 124,00			
Total mains efficacy ηTM	**Energy efficiency class**	**Rated energy efficiency class**	**Test energy efficiency class**
210 ≤ ηTM	A	☐	☐
185 ≤ ηTM < 210	B	☐	☐
160 ≤ ηTM < 185	C	☐	☐
135 ≤ ηTM < 160	D	☐	☐
110 ≤ ηTM < 135	E	☒	☒
85 ≤ ηTM < 110	F	☐	☐
ηTM < 85	G	☐	☐

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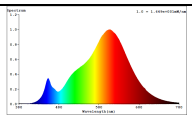
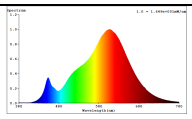
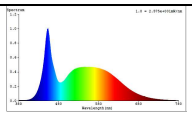
Product information sheet

For light source (including it is a part in a containing product) under EU 2019/2015			
Supplier's name or trade mark: Xiamen Topstar Lighting Co., Ltd			
Supplier's address: 676 Meixi Avenue, Tong'an District, Xiamen, China			
Model identifier: TSZ6.5FA60-HD002-27K			
Type of light source:			
Lighting technology used:	LED	Non-directional or directional:	NDLS
Light source cap-type(or other electric interface)	E27		
Mains or non-mains:	MLS	Connected light source (CLS):	No
Colour-tuneable light source:	No		
High luminance light source:	No	Envelope:	No
Anti-glare shield:	No	Dimmable:	Yes
Product parameters			
General product parameters:			
Energy consumption in on- mode (kWh/1 000 h)	7	Energy efficiency class	E
Useful luminous flux (Φuse), indicating if it refers to the flux in a sphere (360°), in a wide cone (120°) or in a narrow cone (90°)	806 in a sphere (360°)	Correlated colour temperature, rounded to the nearest 100 K, or the range of correlated colour temperatures, rounded to the nearest 100 K, that can be set	2700
On-mode power (Pon), expressed in W	6,5	Standby power (Psb), expressed in W and rounded to the second decimal	No
Networked standby power (Pnet) for CLS, expressed in W and rounded to the second decimal	-	Colour rendering index, rounded to the nearest integer, or the range of CRI-values that can be set	80
Outer dimensions without separate control gear, lighting control parts and non-lighting control parts, if any (millimetre)	Height: 106 Width: 60 Depth: 60	Spectral power distribution in the range 250 nm to 800 nm, at full-load	
Claim of equivalent power (3)	No	Chromaticity coordinates (x and y)	0,458
If yes, equivalent power (W)	--		0,410
Parameters for directional light sources:			
Peak luminous intensity (cd)	-	Beam angle in degrees, or the range of beam angles that can be set	-
Parameters for LED and OLED light sources:			
R9 colour rendering index value	10	Survival factor	1,00
the lumen maintenance factor	0,96		
Parameters for LED and OLED mains light sources:			
displacement factor (cos φ1)	0,98	Colour consistency in Adam ellipses	6
Claims that an LED light source replaces a fluorescent light source without integrated ballast of a particular wattage,	No	If yes then replacement claim (W)	No
Flicker metric (Pst LM)	1,0	Stroboscopic effect metric (SVM)	0,4

********** End of Page **********

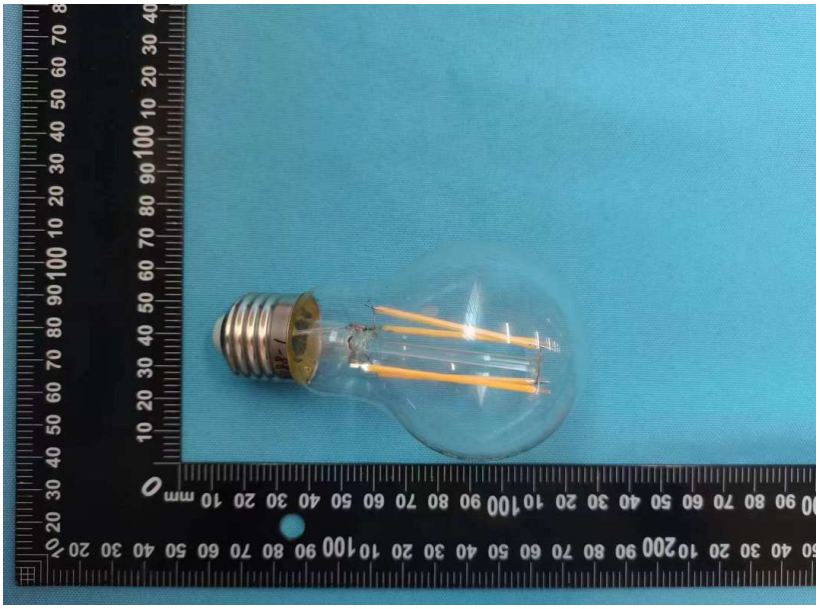
For light source (including it is a part in a containing product) under EU 2019/2015			
Supplier's name or trade mark: Xiamen Topstar Lighting Co., Ltd			
Supplier's address: 676 Meixi Avenue, Tong'an District, Xiamen, China			
Model identifier: TSZ6.5FA60-HD003-27K			
Type of light source:			
Lighting technology used:	LED	Non-directional or directional:	NDLS
Light source cap-type(or other electric interface)	B22		
Mains or non-mains:	MLS	Connected light source (CLS):	No
Colour-tuneable light source:	No		
High luminance light source:	No	Envelope:	No
Anti-glare shield:	No	Dimmable:	Yes
Product parameters			
General product parameters:			
Energy consumption in on- mode (kWh/1 000 h)	7	Energy efficiency class	E
Useful luminous flux (Φuse), indicating if it refers to the flux in a sphere (360°), in a wide cone (120°) or in a narrow cone (90°)	806 in a sphere (360°)	Correlated colour temperature, rounded to the nearest 100 K, or the range of correlated colour temperatures, rounded to the nearest 100 K, that can be set	2700
On-mode power (Pon), expressed in W	6,5	Standby power (Psb), expressed in W and rounded to the second decimal	No
Networked standby power (Pnet) for CLS, expressed in W and rounded to the second decimal	-	Colour rendering index, rounded to the nearest integer, or the range of CRI-values that can be set	80
Outer dimensions without separate control gear, lighting control parts and non-lighting control parts, if any (millimetre)	Height: 106 Width: 60 Depth: 60	Spectral power distribution in the range 250 nm to 800 nm, at full-load	
Claim of equivalent power (3)	No	Chromaticity coordinates (x and y)	0,458 0,410
If yes, equivalent power (W)	--		
Parameters for directional light sources:			
Peak luminous intensity (cd)	-	Beam angle in degrees, or the range of beam angles that can be set	-
Parameters for LED and OLED light sources:			
R9 colour rendering index value	10	Survival factor	1,00
the lumen maintenance factor	0,96		
Parameters for LED and OLED mains light sources:			
displacement factor (cos φ1)	0,98	Colour consistency in Adam ellipses	6
Claims that an LED light source replaces a fluorescent light source without integrated ballast of a particular wattage,	No	If yes then replacement claim (W)	No
Flicker metric (Pst LM)	1,0	Stroboscopic effect metric (SVM)	0,4

********** End of Page **********

For light source (including it is a part in a containing product) under EU 2019/2015			
Supplier's name or trade mark: Xiamen Topstar Lighting Co., Ltd			
Supplier's address: 676 Meixi Avenue, Tong'an District, Xiamen, China			
Model identifier: TSZ6.5FA60-HD002-65K			
Type of light source:			
Lighting technology used:	LED	Non-directional or directional:	NDLS
Light source cap-type(or other electric interface)	E27		
Mains or non-mains:	MLS	Connected light source (CLS):	No
Colour-tuneable light source:	No		
High luminance light source:	No	Envelope:	No
Anti-glare shield:	No	Dimmable:	Yes
Product parameters			
General product parameters:			
Energy consumption in on- mode (kWh/1 000 h)	7	Energy efficiency class	E
Useful luminous flux (Φuse), indicating if it refers to the flux in a sphere (360°), in a wide cone (120°) or in a narrow cone (90°)	806 in a sphere (360°)	Correlated colour temperature, rounded to the nearest 100 K, or the range of correlated colour temperatures, rounded to the nearest 100 K, that can be set	6500
On-mode power (Pon), expressed in W	6,5	Standby power (Psb), expressed in W and rounded to the second decimal	No
Networked standby power (Pnet) for CLS, expressed in W and rounded to the second decimal	-	Colour rendering index, rounded to the nearest integer, or the range of CRI-values that can be set	80
Outer dimensions without separate control gear, lighting control parts and non-lighting control parts, if any (millimetre)	Height: 106 Width: 60 Depth: 60	Spectral power distribution in the range 250 nm to 800 nm, at full-load	
Claim of equivalent power (3)	No	Chromaticity coordinates (x and y)	0,312 0,328
If yes, equivalent power (W)	--		
Parameters for directional light sources:			
Peak luminous intensity (cd)	-	Beam angle in degrees, or the range of beam angles that can be set	-
Parameters for LED and OLED light sources:			
R9 colour rendering index value	10	Survival factor	1,00
the lumen maintenance factor	0,96		
Parameters for LED and OLED mains light sources:			
displacement factor (cos φ1)	0,98	Colour consistency in Adam ellipses	6
Claims that an LED light source replaces a fluorescent light source without integrated ballast of a particular wattage,	No	If yes then replacement claim (W)	No
Flicker metric (Pst LM)	1,0	Stroboscopic effect metric (SVM)	0,4

********** End of Page **********

Photos of appliance:



External view of product TSZ6.5FA60-HD002-27K

TSZ6.5FA60-HD003-27K

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The results only relate to the item tested

Tested by:

Heven Liu
Engineer

Approved by:

Jordan Rao
Reviewer

REVISION HISTORY

JOB NUMBER	DATE OF REVISION	PROJECT HANDLER	REVIEWED BY
230402488SHA	27-Jun-2023	Heven Liu	Jordan Rao
Amendment 1:	Added test data of TSZ6.5FA60-HD002-65K on page 13 and Added product information sheet on page 22; Corrected LED model from 'LF518A' to 'SPMWH*FC52IB****C*' and VF from '68-72V' to '68-73V' on page 12.		
230402488SHA	4-Sept-2023	Heven Liu	Jordan Rao
Amendment 2:	Added 3600H test data on page 14.		

********** End of Report **********