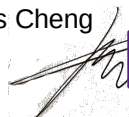




Product Service

Report No.: 64.184.21.04590.02 Rev.00

TEST REPORT PPP 11118C:2021 Rev. 02 TÜV SÜD Test Report for ErP verification of Ecodesign and Energy labelling requirement for Light Source Implementation measure (EU) 2019/2020 and (EU) 2019/2015	
Report No.:	64.184.21.04590.02 Rev.00
Date of issue:	2022-11-01
Project handler:	Elvis Xie
Testing laboratory:	TÜV SÜD Certification and Testing (China) Co., Ltd. Guangzhou branch
Address:	5F&8F East, Communication Building, No.163 Pingyun Road, Huangpu Ave. West, Guangzhou, Guangdong 510656, P.R.China
Testing location:	as above
Client:	Guangdong Yuchen Optoelectronic Technology Co., Ltd
Client number:	--
Address:	Building 1, No.71, Taian Liyuan Rd, Zhangmutou Town, Dongguan City, Guangdong
Contact person:	Mr. Kevin Jiang
Standard:	This TÜV SÜD test report form is based on the following requirements: (EU) 2019/2020:2019-10-01 with Corrigendum; (EU) 2019/2015:2019-03-11; (EU) 2021/341:2021-02-23; (EU) 2021/340:2020-12-17
TRF number and revision:	PPP 11118C:2021 Rev.02:2021-10
TRF originated by:	TÜV SÜD Product Service, Mr. Richard Xu
Copyright blank test report:	This test report is based on the content of the standard (see above). The test report considered selected clauses of the a.m. standard(s) and experience gained with product testing. It was prepared by TÜV SÜD Product Service. TÜV SÜD Group takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.
General disclaimer:	This test report may only be quoted in full. Any use for advertising purposes must be granted in writing. This report is the result of a single examination of the object in question and is not generally applicable evaluation of the quality of other products in regular production.
Scheme:	☐ TÜV Mark ☒ without certification ☐ EU-Directive
Non-standard test method:	☒ No ☐ Yes, see details under <i>Summary of testing</i>
National deviations:	N/A
Number of pages (Report):	51
Number of pages (Attachments):	5
Compiled by: (+ signature)	Elvis Xie  
Approved by: (+ signature)	Adams Cheng  

Test Report PPP 11118C:2021 Rev.02

Report No.: 64.184.21.04590.02 Rev.00

Test sample:	LED Strip Light
Type of test object:	LED Strip Light
Trademark:	 (Eastfine)
Model and/ or type reference:	See model list
Rating(s):	See model list
Manufacturer:	Same as client
Manufacturer number:	Same as client
Address:	Same as client
Name and address of factory(ies) Same as client	
Sub-contractors / tests (clause):	N/A
Name:	N/A
Order description:	☒ Complete test according to TRF
	☐ Partial test according to manufacturer's specifications
	☐ Preliminary test
	☐ Spot check
	☐ Others:
Date of order:	2021-11-25
Date of receipt of test item:	2022-02-24
Date(s) of performance of test:	2022-02-24 to 2022-10-31
Test item particulars:	
Light source type:	
- Containing product is a light source	☐ - see Annex X for manufacturer justification
- LED (Light Emitting Diode)	☒
- OLED (Organic Light Emitting Diode)	☐
- Incandescent Lamp	☐
- CFL (Compact Fluorescent Lamp)	☐
- CFLni (Compact Fluorescent Lamp without integrated ballast)	☐
- HL (Halogen Lamp)	☐
- FL (Fluorescent Lamp, including circular, U-shape, etc.)	☐

Report No.: 64.184.21.04590.02 Rev.00

- LFL (Linear Fluorescent Lamp)	☐
- Magnetic induction light source	☐
- HID (High-intensity Discharge lamp, including metal halide, high-pressure sodium and mercury vapour type)	☐
Use of light source:	
- Indoor	☒
- Outdoor	☐
- Industry	☐
Envelope:	
- No	☒
- Second envelope	☐
- Non-clear envelope	☐
Light source characteristic :	
- NDLS (non-directional light source)	☒
- DLS (directional light source)	☐
- MLS (mains light source)	☐
- NMLS (non-mains light source)	☒
- CTLS (colour-tuneable light source)	☐
- CLS (connected light source)	☐ , Type: Bluetooth , Wifi,...
- Dimmable	☐
- Programmable	☐
- With standby mode	☐
- With networked standby mode	☐
- With anti-glare shield	☐
Useful luminous flux (Φ_{use}) type:	
- Narrow cone (90°)	☐
- Wide cone (120°)	☐
- Sphere (360°)	☒
Lamp cap installed:	N/A
Purpose of the product (description of intended use): The products covered in this report were LED Strip Light as light source for indoor use only. Details of product information list as below table.	

Report No.: 64.184.21.04590.02 Rev.00

Model	Rated input	Rated Power	Rated lumen output (lm)	Rated Life (hr)	Ra	CCT (K)	No. of LED
SA-C27160C	24Vdc	6W	865	30000	80	2700	80
SA-C30160C			960	30000	80	3000	80
SA-C40160C			1020	30000	80	4000	80
SA-C50160C			1020	30000	80	5000	80
SA-C65160C			1015	30000	80	6500	80

LED information:

Model	Manufacturer	IF (mA)	VF (V)	CCT (K) (typ.)
S2835A-W2780-L10**3	Guangdong Guangmu Semiconductor Technology Co., Ltd	60	2.7-3.3	2700K
S2835A-W3080-L10**3		60	2.7-3.3	3000K
S2835A-W4080-L10**3		60	2.7-3.3	4000K
S2835A-W5080-L10**3		60	2.7-3.3	5000K
S2835A-W6580-L10**3		60	2.7-3.3	6500K

Characteristic data (not shown on the marking plate):

Declared technical data:

Rated voltage(V): See model list
Rated current(A): N/A
Rated power(W): See model list
Rated useful luminous flux.....(lm): See model list
Rated beam angle(°): N/A
Rated CCT(K): See model list
Rated life time(h): See model list
Dimensions: Not provided
Weight: Not provided

Attachments:

Report No.: 64.184.21.04590.02 Rev.00

Photometric test record of one lamp at initial measurement(page 47 to 51)

If additional information is necessary, please provide

N/A

Copy of marking plate:

Not provided

Pictures of the product:

See photo documentation (8 pages).

Summary of testing:

This is initial test report, without test survival factor at 3600h, no obvious defective point was found by visual, test is continued. test is continued, in case of 3600h endurance test non-compliances could be located.

For Ecodesign requirement:

The product meets the energy efficiency & information requirement in EU No. 2019/2020 as specified in following details, and partial fulfil the functional requirement in EU No. 2019/2020.

For Energy labelling requirement:

SA-C27160C

Requirement	Rated	Measured
η_{TM}	133.5	136.0
EE class	E	D
E_c (kWh/1000h)	6	6

SA-C30160C

Requirement	Rated	Measured
η_{TM}	148.2	150.2
EE class	D	D
E_c (kWh/1000h)	6	6

SA-C40160C

Requirement	Rated	Measured
η_{TM}	157.4	159.1
EE class	D	D
E_c (kWh/1000h)	6	6

SA-C50160C

Requirement	Rated	Measured
η_{TM}	157.4	161.0

Test Report PPP 11118C:2021 Rev.02

Report No.: 64.184.21.04590.02 Rev.00

EE class	D	C
E _c (kWh/1000h)	6	6

SA-C65160C

Requirement	Rated	Measured
η_{TM}	156.6	159.0
EE class	D	D
E _c (kWh/1000h)	6	6

Energy efficiency class	Total mains efficacy η_{TM} (lm/W)
A (most efficient)	$210 \leq \eta_{TM}$
B	$185 \leq \eta_{TM} < 210$
C	$160 \leq \eta_{TM} < 185$
D	$135 \leq \eta_{TM} < 160$
E	$110 \leq \eta_{TM} < 135$
F	$85 \leq \eta_{TM} < 110$
G (least efficient)	$\eta_{TM} < 85$

Remark:

- ☐ deviation(s) found
☒ no deviations found

Additional information on non-standard test method(s)

Sub clause: N/A
 Page: N/A
 Rational: N/A

Possible test case verdicts:

test case does not apply to the test object: N/A (not applicable / not included in the order)
 test object does meet the requirement: P (Pass)
 test object does not meet the requirement: F (Fail)

General remarks:

"(see remark #)" refers to a remark appended to the report.
 "(see appended table)" refers to a table appended to the report.
 Throughout this report a **comma/point** is used as the decimal separator.
 The test results presented in this report relate only to the object tested.
 This report shall not be reproduced except in full without the written approval of the testing laboratory.

Clause	Requirement + Test	Result – Remark	Verdict
(EU) 2019/2020 - Ecodesign requirement:			
0	Measurement methods		P
	Recognised state of art measurement methods incl. the one published in the Official Journal taking into account the measurement methods of (EU) 2019/2020	EN 62717:2017+A2:2019 EN 13032-4:2015+A1:2019 EU 2019/2020 Annex V	P
1.	Sample		P
	Number of sample used for test	10pcs for each models	P
2.	Energy efficiency requirements (Annex II, clause 1 of EU 2019/2020)		P
2.1	Maximum allowed power P_{onmax} of light source (Annex II, clause 1, (a) of EU 2019/2020)		P
	From 1 September 2021, the declared power consumption of a light source P_{on} shall not exceed the maximum allowed power P_{onmax} (in W), defined as a function of the declared useful luminous flux Φ_{use} (in lm) and the declared colour rendering index CRI (-) as follows	$P_{on}: 6.0$ for all models $P_{on} \leq P_{onmax}$	P
	$P_{onmax} = C \times (L + \Phi_{use} / (F \times \eta)) \times R$	P_{onmax} : See table 1	P
	where:		P
	-The values for threshold efficacy (η in lm/W) and end loss factor (L in W) are specified in Table 1 of EU 2019/2020, depending on the light source type. They are constants used for computations and do not reflect true parameters of light sources. The threshold efficacy is not the minimum required efficacy; the latter can be computed by dividing the useful luminous flux by the computed maximum allowed power	η : 120 L: 1.5	P

Clause	Requirement + Test	Result – Remark	Verdict	
	Table 1 of EU 2019/2020 Threshold efficacy (η) and end loss factor (L)		P	
	Light source description	η [lm/W]		L [W]
	LFL T5-HE	98,8		1,9
	LFL T5-HO, $4\,000 \leq \Phi \leq 5\,000$ lm	83,0		1,9
	LFL T5-HO, other lm output	79,0		1,9
	FL T5 circular	79,0		1,9
	FL T8 (including FL T8 U-shaped)	89,7		4,5
	From 1 September 2023, for FL T8 of 2-, 4- and 5-foot	120,0		1,5
	Magnetic induction light source, any length/flux	70,2		2,3
	CFLni	70,2		2,3
	FL T9 circular	71,5		6,2
	HPS single-ended	88,0		50,0
	HPS double-ended	78,0		47,7
	MH ≤ 405 W single-ended	84,5		7,7
	MH > 405 W single-ended	79,3		12,3
	MH ceramic double-ended	84,5		7,7
	MH quartz double-ended	79,3		12,3
	Organic light-emitting diode (OLED)	65,0		1,5
	Until 1 September 2023: HL G9, G4 and GY6.35	19,5		7,7
	HL R7s $\leq 2\,700$ lm	26,0		13,0
	Other light sources in scope not mentioned above	120,0		1,5 (*)
	(*) For connected light sources (CLS) a factor L = 2,0 shall be applied.			
	-Basic values for correction factor (C) depending on light source type, and additions to C for special light source features are specified in Table 2 of EU 2019/2020	C:1.0	P	

Clause	Requirement + Test	Result – Remark	Verdict
	Table 2 of EU 2019/2020 Correction factor C depending on light source characteristics		P
	Light source type	Basic C value	
	Non-directional (NDLS) not operating on mains (NMLS)	1,00	
	Non-directional (NDLS) operating on mains (MLS)	1,08	
	Directional (DLS) not operating on mains (NMLS)	1,15	
	Directional (DLS) operating on mains (MLS)	1,23	
	Special light source feature	Bonus on C	
	FL or HID with CCT > 5 000 K	+0,10	
	FL with CRI > 90	+0,10	
	HID with second envelope	+0,10	
	MH NDLS > 405 W with non-clear envelope	+0,10	
	DLS with anti-glare shield	+0,20	
	Colour-tuneable light source (CTLS)	+0,10	
	High luminance light sources (HLLS)	+0,0058 • Luminance-HLLS - 0,0167	
	Where applicable, bonuses on correction factor C are cumulative		N/A
	The bonus for HLLS shall not be combined with the basic C-value for DLS (basic C-value for NDLS shall be used for HLLS)		N/A
	-Efficacy factor (F) is:		P
	1,00 for non-directional light sources (NDLS, using total flux)	F:1.0	P
	0,85 for directional light sources (DLS, using flux in a cone)	F:	N/A
	-CRI factor (R) is:		P
	0,65 for CRI ≤ 25	R:	N/A
	(CRI+80)/160 for CRI > 25, rounded to two decimals	R: See table 1	P
	Light sources that allow the end-user to adapt the spectrum and/or the beam angle of the emitted light, thus changing the values for useful luminous flux, colour rendering index (CRI) and/or		N/A

Clause	Requirement + Test	Result – Remark	Verdict
	correlated colour temperature (CCT), and/or changing the directional/non-directional status of the light source, shall be evaluated using the reference control settings.		
	Standby power P_{sb} and networked standby power P_{net} of light source		N/A
	The standby power P_{sb} of a light source shall not exceed 0,5 W	P_{sb} :	N/A
	The networked standby power P_{net} of a connected light source shall not exceed 0,5 W	P_{net} :	N/A
	The allowable values for P_{sb} and P_{net} shall not be added together		N/A
	CLS and CSCG designed and marketed specifically for scene-lighting use in film-studios, TV-studios and locations, and photographic studios and locations, or for stage-lighting use in theatres, discos and during concerts or other entertainment events, for connection to high speed control networks (utilising signalling rates of 250 000 bits per second and higher) in always-listening mode, shall be exempt from the requirements on standby (P_{sb}) and on networked standby (P_{net}) of points 1(a) and 1(b) of Annex II		N/A
3	Functional requirements (Annex II, clause 2 of EU 2019/2020)		P
	From 1 September 2021, the functional requirements should apply for light sources (Annex II, clause 2, table 4 of EU 2019/2020)		P
3.1	Colour rendering		P
	$CRI \geq 80$	CRI: See table 1	P
	except for HID with $\Phi_{use} > 4 \text{ klm}$ and for light sources intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a $CRI < 80$, when a clear indication to this effect is shown on the light source packaging and in all relevant printed and electronic documentation	CRI:	N/A
3.2	Displacement factor (DF, $\cos \varphi_1$) at power input P_{on} for LED and OLED MLS		N/A
	No limit at $P_{on} \leq 5 \text{ W}$	P_{on} :	N/A
	$DF \geq 0,5$ at $5 \text{ W} < P_{on} \leq 10 \text{ W}$	P_{on} : DF:	N/A
	$DF \geq 0,7$ at $10 \text{ W} < P_{on} \leq 25 \text{ W}$	P_{on} : DF:	N/A
	$DF \geq 0,9$ at $25 \text{ W} < P_{on}$	P_{on} : See table 1	N/A

Clause	Requirement + Test	Result – Remark	Verdict
		DF: See table 1	
3.3	Lumen maintenance factor (for LED and OLED)		P
	The lumen maintenance factor $X_{LMF}\%$ after endurance testing shall be at least $X_{LMF,MIN} \%$ calculated as follows		P
	$X_{LMF,MIN}\% = 100 \times e^{\frac{(3000 \times \ln(0.7))}{L_{70}}}$ where L_{70} is the declared $L_{70}B_{50}$ lifetime (in hours)	L_{70} :30000 $X_{LMF,MIN} \%$:0.96 $X_{LMF}\%$: See table 1	P
	If the calculated value for $X_{LMF,MIN}$ exceeds 96,0 %, an $X_{LMF,MIN}$ value of 96,0 % shall be used	$X_{LMF,MIN}\%$ =96,0%	P
3.4	Survival factor (SF) (for LED and OLED)		P
	At least 9 light sources of the 10 test samples must be operational after completing the endurance testing	<u>10</u> light sources are operational after endurance testing	P
3.5	Colour consistency for LED and OLED light sources		P
	Variation of chromaticity coordinates within a six-step MacAdam ellipse or less.		P
3.6	Flicker for LED and OLED MLS		N/A
	$P_{st} LM \leq 1,0$ at full-load		N/A
3.7	Stroboscopic effect for LED and OLED MLS		N/A
	$SVM \leq 0,9$ at full-load		N/A
	From 1 September 2024: $SVM \leq 0,4$ at full-load		N/A
	except for light sources intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a CRI < 80		N/A
4	Information requirements (Annex II, clause 3 of EU 2019/2020)		P
	From 1 September 2021 the following information requirements shall apply:		P
4.1	Information to be displayed on the light source itself		P
	For all light sources, except CTLS, LFL, CFLni, other FL, and HID, the value and physical unit of the useful luminous flux (lm) and correlated colour temperature (K) shall be displayed in a legible font on the surface if, after the inclusion of safety-related information, there is sufficient space available for it without unduly obstructing the light emission		P
	For directional light sources, the beam angle (°) shall also be indicated		N/A
	If there is room for only two values, the useful luminous flux and the correlated colour temperature shall be displayed		N/A

Clause	Requirement + Test	Result – Remark	Verdict
	If there is room for only one value, the useful luminous flux shall be displayed		N/A
4.2	Information to be visibly displayed on the packaging		N/A
4.2.1	Light source placed on the market, not in a containing product		N/A
	If a light source is placed on the market, not in a containing product, in a packaging containing information to be visibly displayed at a point-of-sale prior to its purchase, the following information shall be clearly and prominently displayed on the packaging:		N/A
(a)	the useful luminous flux (Φ_{use}) 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)	the correlated colour temperature, rounded to the nearest 100 K, also expressed graphically or in words, or the range of correlated colour temperatures that can be set		N/A
(c)	the beam angle in degrees (for directional light sources), or the range of beam angles that can be set		N/A
(d)	electrical interface details, e.g. cap- or connector-type, type of power supply (e.g. 230 V AC 50 Hz, 12 V DC)		N/A
(e)	the $L_{70B_{50}}$ lifetime for LED and OLED light sources, expressed in hours		N/A
(f)	the on-mode power (P_{on}), expressed in W		N/A
(g)	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		N/A
(h)	the 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)	the colour rendering index, rounded to the nearest integer, or the range of CRI-values that can be set		N/A
(j)	if $CRI < 80$, and the light source is intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a $CRI < 80$, a clear indication to this effect. For HID light sources with useful luminous flux $> 4\,000\text{ lm}$, this indication is not mandatory		N/A
(k)	if the light source is designed for optimum use in non-standard conditions (such as ambient temperature $T_a \neq 25^\circ\text{C}$ or specific thermal management is necessary): information on those conditions		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		N/A

Clause	Requirement + Test	Result – Remark	Verdict
	and/or methods shall be provided on the manufacturer's website		
(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
	Items (a) to (d) shall be displayed on the packaging in the direction meant to face prospective buyer; for other items this is also recommended, if space permits		N/A
	For light sources that can be set to emit light with different characteristics, the information shall be reported for the reference control settings . In addition, a range of obtainable values may be indicated		N/A
	The information does not need to use the exact wording on the list above. Alternatively, it may be displayed in the form of graphs, drawings or symbols		N/A
5	Removal of light sources and separate control gears (Article 4 of EU 2019/2020)		P
5.1	Manufacturers, importers or authorised representatives of containing products shall ensure that light sources and separate control gears can be replaced with the use of common available tools and without permanent damage to the containing product, unless a technical justification related to the functionality of the containing product is provided in the technical documentation explaining why the replacement of light sources and separate control gear is not appropriate		P
	The technical documentation shall also provide instructions on how light sources and separate control gears can be removed without being permanently damaged for verification purposes by market surveillance authorities		P
5.2	Manufacturers, importers or authorized representatives of containing products shall provide information about the replaceability or non-replaceability of light sources and control gears by end-users or qualified persons without permanent damage to the containing product. Such information shall be available on a free-access website. For products sold directly to end-users, this information shall be on the packaging, at least in the form of a pictogram, and in the user		P

Clause	Requirement + Test	Result – Remark	Verdict
	instructions		
5.3	Manufacturers, importers or authorised representatives of containing products shall ensure that light sources and separate control gears can be dismantled from containing products at end of life. Dismantling instructions shall be available on a free access website		P
6	Circumvention (Article 7 of EU 2019/2020)		P
	The manufacturer, importer or authorised representative shall not place on the market products designed to be able to detect they are being tested (e.g. by recognising the test conditions or test cycle), and to react specifically by automatically altering their performance during the test with the aim of reaching a more favourable level for any of the parameters declared by the manufacturer, importer or authorised representative in the technical documentation or included in any of the documentation provided.		P
	The energy consumption of the product and any of the other declared parameters shall not deteriorate after a software or firmware update when measured with the same test standard originally used for the declaration of conformity, except with explicit consent of the end-user prior to the update.		P
	A software update shall never have the effect of changing the product's performance in a way that makes it non- compliant with the ecodesign requirements applicable for the declaration of conformity.		P



Product Service

Report No.: 64.184.21.04590.02 Rev.00

Table 1	Test data											
Model:	SA-C27160C											
Voltage (V):		DC 24V				Frequency (Hz):			-			
Φ _{use} measured at:		total luminous flux				Ambient (T/rh) (°C / %)			25.0/50			
Test item	Measured Value										Average	Limit
Sample:	1	2	3	4	5	6	7	8	9	10	-	-
U (V) ¹⁾	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	-
I (A) ¹⁾	0.246	0.246	0.245	0.245	0.246	0.246	0.246	0.246	0.247	0.247	0.246	-
P (W) ¹⁾	5.90	5.89	5.88	5.87	5.89	5.91	5.89	5.90	5.92	5.93	5.90	≤Pon max 8.71W
DF (cos φ ₁) ¹⁾²⁾⁷⁾	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	-
Φ _{use} (lm) ¹⁾	868.2	861.3	863.2	858.8	873.4	865.0	865.4	876.4	868.8	863.0	866.3	≥declare 865lm
CCT (K) ¹⁾	2652	2650	2652	2651	2654	2653	2654	2652	2650	2653	2652	-
CRI ¹⁾²⁾	84.7	84.7	84.7	84.7	84.7	84.7	84.7	84.7	84.7	84.7	84.7	≥ 80 ³⁾
R9 ¹⁾⁴⁾	18.9	18.6	18.6	18.7	18.9	18.8	18.9	18.8	18.9	18.7	18.8	-
Color consistency ¹⁾²⁾	3.7	3.8	3.7	3.8	3.6	3.7	3.6	3.7	3.8	3.7	3.7	≤ 6-step
SF @ 3600h ²⁾⁵⁾⁸⁾	S	S	S	S	S	S	S	S	S	S	SF:100%	≥90%
Φ _{use,} @ 3600h ⁸⁾ (lm)	850.2	847.5	851.8	841.2	850.1	843.9	862.6	843.5	847.6	852.6	849.1	-
X _{LMF} @ 3600h ^{2) 8)6)}	0.979	0.984	0.987	0.979	0.973	0.976	0.997	0.962	0.976	0.988	0.980	≥X _{LMF,MIN} % 0.96
Flicker (P _{st} LM) ¹⁾²⁾	--	--	--	--	--	--	--	--	--	--	--	P _{st} LM ≤ 1,0 at full-load
Stroboscopic effect (SVM) ¹⁾²⁾	--	--	--	--	--	--	--	--	--	--	--	SVM ≤ 0,9 at full-load

Test Report PPP 11118C:2021 Rev.02

ID: 107082

Revision: 2 - released

Effective: 14 Oct 2021

Page 15 of 51

TUV®

Report No.: 64.184.21.04590.02 Rev.00

												From 1 September 2024: SVM $\leq 0,4$ at full-load ³⁾
$P_{sb} (W)^{1) 9)}$	--	--	--	--	--	--	--	--	--	--	--	≤ 0.5
$P_{net} (W)^{1) 10)}$	--	--	--	--	--	--	--	--	--	--	--	≤ 0.5

Supplementary information:

¹⁾ initial measurement value after aging of:30min

²⁾ for LED and OLED

³⁾ except for HID with $\Phi_{use} > 4$ klm and for light sources intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a CRI < 80

⁴⁾ means the colour rendering index for a red coloured object as defined in standards

⁵⁾ 'survival factor' (SF) means the defined fraction of the total number of light sources that continue to operate at a given time under defined conditions and switching frequency

⁶⁾ 'lumen maintenance factor' (X_{LMF}) means the ratio of the luminous flux emitted by a light source at a given time in its life to the initial luminous flux

⁷⁾ 'displacement factor (DF) ($\cos \phi_1$)' means the cosine of the phase angle ϕ_1 between the fundamental harmonic of the mains supply voltage and the fundamental harmonic of the mains current. It is used for mains light sources using LED- or OLED-technology. The displacement factor is measured at full-load, for the reference control settings where applicable, with any lighting control parts in control mode and non-lighting parts disconnected, switched off or set to minimum power consumption according to the manufacturer's instructions

⁸⁾ '3600h' refers to (EU)2019/2020 Annex V, the total test time is 3600h (1200 cycle of 150min 'ON' and 30min 'OFF'), the actual operation time is 3000h

⁹⁾ 'standby power' (P_{sb}), expressed in watt, is the electric power consumption of a light source or of a separate control gear in standby mode

¹⁰⁾ 'networked standby power' (P_{net}), expressed in watt, is the electric power consumption of a CLS or of a CSCG in networked standby mode

Additional measurement

Chromaticity coordinates (x,y) ¹⁾: 0.4672, 0.4173

Measured beam angle (°):--

Peak intensity (cd) ¹⁾: --

Φ_{use} @90° (lm) : --

Test Report PPP 11118C:2021 Rev.02



Product Service

Report No.: 64.184.21.04590.02 Rev.00

Table 1	Test data											
Model:	SA-C30160C											
Voltage (V):		DC 24V				Frequency (Hz):			-			
Φ _{use} measured at:		total luminous flux				Ambient (T/rh) (°C / %)			25.0/50			
Test item	Measured Value										Average	Limit
Sample:	1	2	3	4	5	6	7	8	9	10	-	-
U (V) ¹⁾	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	-
I (A) ¹⁾	0.247	0.247	0.245	0.246	0.245	0.248	0.246	0.247	0.246	0.246	0.246	-
P (W) ¹⁾	5.92	5.93	5.89	5.91	5.89	5.97	5.90	5.94	5.90	5.92	5.92	≤Pon max 9.50W
DF (cos φ ₁) ¹⁾²⁾⁷⁾	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	-
Φ _{use} (lm) ¹⁾	958.5	965.2	961.7	956.9	954.1	963.9	958.9	967.4	957.9	957.5	960.2	≥declare 960lm
CCT (K) ¹⁾	2962	2961	2953	2956	2956	2955	2957	2955	2961	2959	2958	-
CRI ¹⁾²⁾	82.5	82.5	82.4	82.4	82.4	82.5	82.5	82.4	82.4	82.5	82.5	≥ 80 ³⁾
R ₉ ¹⁾⁴⁾	9.6	9.7	9.4	9.4	9.3	9.6	9.5	9.4	9.3	9.7	9.5	-
Color consistency ¹⁾²⁾	2.1	2.0	1.8	1.7	1.7	2.0	1.9	1.8	1.9	1.9	1.9	≤ 6-step
SF @ 3600h ²⁾⁵⁾⁸⁾	S	S	S	S	S	S	S	S	S	S	SF:100%	≥90%
Φ _{use} , @ 3600h ⁸⁾ (lm)	935.2	934.8	926.7	930.7	930.8	946.4	937.2	949.0	938.5	950.9	938.0	-
X _{LMF} @ 3600h ^{2) 8)6)}	0.976	0.969	0.964	0.973	0.976	0.982	0.977	0.981	0.980	0.993	0.977	≥X _{LMF,MIN} % 0.96
Flicker (P _{st} LM) ¹⁾²⁾	--	--	--	--	--	--	--	--	--	--	--	P _{st} LM ≤ 1,0 at full-load
Stroboscopic effect (SVM) ¹⁾²⁾	--	--	--	--	--	--	--	--	--	--	--	SVM ≤ 0,9 at full-load From 1 September 2024: SVM ≤ 0,4 at full-load ³⁾

Test Report PPP 11118C:2021 Rev.02

ID: 107082

Revision: 2 - released

Effective: 14 Oct 2021

Page 17 of 51

TUV®

Report No.: 64.184.21.04590.02 Rev.00

$P_{sb} (W)^{1) 9)}$	--	--	--	--	--	--	--	--	--	--	--	≤ 0.5
$P_{net} (W)^{1) 10)}$	--	--	--	--	--	--	--	--	--	--	--	≤ 0.5

Supplementary information:

¹⁾ initial measurement value after aging of: 30min

²⁾ for LED and OLED

³⁾ except for HID with $\Phi_{use} > 4 \text{ klm}$ and for light sources intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a $CRI < 80$

⁴⁾ means the colour rendering index for a red coloured object as defined in standards

⁵⁾ 'survival factor' (SF) means the defined fraction of the total number of light sources that continue to operate at a given time under defined conditions and switching frequency

⁶⁾ 'lumen maintenance factor' (X_{LMF}) means the ratio of the luminous flux emitted by a light source at a given time in its life to the initial luminous flux

⁷⁾ 'displacement factor (DF) ($\cos \phi_1$)' means the cosine of the phase angle ϕ_1 between the fundamental harmonic of the mains supply voltage and the fundamental harmonic of the mains current. It is used for mains light sources using LED- or OLED-technology. The displacement factor is measured at full-load, for the reference control settings where applicable, with any lighting control parts in control mode and non-lighting parts disconnected, switched off or set to minimum power consumption according to the manufacturer's instructions

⁸⁾ '3600h' refers to (EU)2019/2020 Annex V, the total test time is 3600h (1200 cycle of 150min 'ON' and 30min 'OFF'), the actual operation time is 3000h

⁹⁾ 'standby power' (P_{sb}), expressed in watt, is the electric power consumption of a light source or of a separate control gear in standby mode

¹⁰⁾ 'networked standby power' (P_{net}), expressed in watt, is the electric power consumption of a CLS or of a CSCG in networked standby mode

Additional measurement

Chromaticity coordinates (x,y) ¹⁾: 0.4369, 0.3988

Measured beam angle ($^\circ$): --

Peak intensity (cd) ¹⁾: --

$\Phi_{use} @ 90^\circ$ (lm) : --

Test Report PPP 11118C:2021 Rev.02

Report No.: 64.184.21.04590.02 Rev.00

Table 1	Test data											
Model:	SA-C40160C											
Voltage (V):		DC 24V				Frequency (Hz):			-			
Φ _{use} measured at:		total luminous flux				Ambient (T/rh) (°C / %)			25.0/50			
Test item	Measured Value										Average	Limit
Sample:	1	2	3	4	5	6	7	8	9	10	-	-
U (V) ¹⁾	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	-
I (A) ¹⁾	0.248	0.248	0.248	0.248	0.247	0.247	0.247	0.248	0.246	0.248	0.247	-
P (W) ¹⁾	5.96	5.95	5.96	5.95	5.94	5.94	5.93	5.96	5.92	5.96	5.95	≤Pon max 10.00W
DF (cos φ ₁) ¹⁾²⁾⁷⁾	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	-
Φ _{use} (lm) ¹⁾	1016.7	1027.1	1023.4	1026.2	1026.0	1021.1	1029.0	1025.8	1017.2	1012.0	1022.5	≥declare 1020lm
CCT (K) ¹⁾	3912	3906	3901	3900	3901	3902	3904	3911	3907	3914	3906	-
CRI ¹⁾²⁾	82.8	82.7	82.7	82.8	82.8	82.7	82.8	82.7	82.8	82.8	82.8	≥ 80 ³⁾
R ₉ ¹⁾⁴⁾	12.0	12.0	11.9	12.2	12.1	12.0	12.2	12.0	12.1	12.4	12.1	-
Color consistency ¹⁾²⁾	3.3	3.5	3.5	3.6	3.5	3.6	3.6	3.4	3.5	3.4	3.5	≤ 6-step
SF @ 3600h ²⁾⁵⁾⁸⁾	S	S	S	S	S	S	S	S	S	S	SF:100%	≥90%
Φ _{use} , @ 3600h ⁸⁾ (lm)	1004.9	1008.4	1005.3	1006.0	1005.2	1003.3	1009.5	1009.9	997.8	1004.8	1005.5	-
X _{LMF} @ 3600h ^{2) 8)6)}	0.988	0.982	0.982	0.980	0.980	0.983	0.981	0.984	0.981	0.993	0.983	≥X _{LMF,MIN} % 0.96
Flicker (P _{st} LM) ¹⁾²⁾	--	--	--	--	--	--	--	--	--	--	--	P _{st} LM ≤ 1,0 at full-load
Stroboscopic effect (SVM) ¹⁾²⁾	--	--	--	--	--	--	--	--	--	--	--	SVM ≤ 0,9 at full-load From 1 September 2024: SVM ≤ 0,4 at full-load ³⁾

Test Report PPP 11118C:2021 Rev.02

Report No.: 64.184.21.04590.02 Rev.00

$P_{sb} (W)^{1) 9)}$	--	--	--	--	--	--	--	--	--	--	--	≤ 0.5
$P_{net} (W)^{1) 10)}$	--	--	--	--	--	--	--	--	--	--	--	≤ 0.5

Supplementary information:

¹⁾ initial measurement value after aging of: 30min

²⁾ for LED and OLED

³⁾ except for HID with $\Phi_{use} > 4 \text{ klm}$ and for light sources intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a $CRI < 80$

⁴⁾ means the colour rendering index for a red coloured object as defined in standards

⁵⁾ 'survival factor' (SF) means the defined fraction of the total number of light sources that continue to operate at a given time under defined conditions and switching frequency

⁶⁾ 'lumen maintenance factor' (X_{LMF}) means the ratio of the luminous flux emitted by a light source at a given time in its life to the initial luminous flux

⁷⁾ 'displacement factor (DF) ($\cos \phi_1$)' means the cosine of the phase angle ϕ_1 between the fundamental harmonic of the mains supply voltage and the fundamental harmonic of the mains current. It is used for mains light sources using LED- or OLED-technology. The displacement factor is measured at full-load, for the reference control settings where applicable, with any lighting control parts in control mode and non-lighting parts disconnected, switched off or set to minimum power consumption according to the manufacturer's instructions

⁸⁾ '3600h' refers to (EU)2019/2020 Annex V, the total test time is 3600h (1200 cycle of 150min 'ON' and 30min 'OFF'), the actual operation time is 3000h

⁹⁾ 'standby power' (P_{sb}), expressed in watt, is the electric power consumption of a light source or of a separate control gear in standby mode

¹⁰⁾ 'networked standby power' (P_{net}), expressed in watt, is the electric power consumption of a CLS or of a CSCG in networked standby mode

Additional measurement

Chromaticity coordinates (x,y) ¹⁾: 0.3843, 0.3779

Measured beam angle (°): --

Peak intensity (cd) ¹⁾: --

$\Phi_{use} @ 90^\circ$ (lm) : --

Test Report PPP 11118C:2021 Rev.02



Product Service

Report No.: 64.184.21.04590.02 Rev.00

Table 1	Test data											
Model:	SA-C50160C											
Voltage (V):		DC 24V				Frequency (Hz):			-			
Φ _{use} measured at:		total luminous flux				Ambient (T/rh) (°C / %)			25.0/50			
Test item	Measured Value										Average	Limit
Sample:	1	2	3	4	5	6	7	8	9	10	-	-
U (V) ¹⁾	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	-
I (A) ¹⁾	0.247	0.247	0.247	0.247	0.247	0.245	0.247	0.247	0.245	0.246	0.246	-
P (W) ¹⁾	5.93	5.93	5.93	5.93	5.93	5.89	5.93	5.92	5.87	5.90	5.92	≤Pon max 10.00W
DF (cos φ ₁) ¹⁾²⁾⁷⁾	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	-
Φ _{use} (lm) ¹⁾	1027.9	1038.9	1027.1	1033.0	1033.4	1019.2	1040.3	1030.2	1019.3	1021.2	1029.1	≥declare 1020lm
CCT (K) ¹⁾	4958	4951	4955	4938	4957	4952	4951	4961	4956	4950	4953	-
CRI ¹⁾²⁾	82.6	82.6	82.6	82.6	82.7	82.5	82.6	82.6	82.5	82.7	82.6	≥ 80 ³⁾
R ₉ ¹⁾⁴⁾	11.7	11.5	11.6	11.6	11.9	11.4	11.9	11.8	11.4	12.2	11.7	-
Color consistency ¹⁾²⁾	2.3	2.2	2.1	2.3	2.2	2.1	2.2	2.2	2.1	2.4	2.2	≤ 6-step
SF @ 3600h ²⁾⁵⁾⁸⁾	S	S	S	S	S	S	S	S	S	S	SF:100%	≥90%
Φ _{use} , @ 3600h ⁸⁾ (lm)	1012.4	1012.9	1017.4	1010.0	1001.5	994.2	1004.0	1004.5	995.2	1001.1	1005.3	-
X _{LMF} @ 3600h ^{2) 8)6)}	0.985	0.975	0.991	0.978	0.969	0.975	0.965	0.975	0.976	0.980	0.977	≥X _{LMF,MIN} % 0.96
Flicker (P _{st} LM) ¹⁾²⁾	--	--	--	--	--	--	--	--	--	--	--	P _{st} LM ≤ 1,0 at full-load
Stroboscopic effect (SVM) ¹⁾²⁾	--	--	--	--	--	--	--	--	--	--	--	SVM ≤ 0,9 at full-load From 1 September 2024: SVM ≤ 0,4 at full-load ³⁾

Test Report PPP 11118C:2021 Rev.02

ID: 107082

Revision: 2 - released

Effective: 14 Oct 2021

Page 21 of 51

TUV®

Report No.: 64.184.21.04590.02 Rev.00

$P_{sb} (W)^{1) 9)}$	--	--	--	--	--	--	--	--	--	--	--	≤ 0.5
$P_{net} (W)^{1) 10)}$	--	--	--	--	--	--	--	--	--	--	--	≤ 0.5

Supplementary information:

¹⁾ initial measurement value after aging of: 30min

²⁾ for LED and OLED

³⁾ except for HID with $\Phi_{use} > 4 \text{ klm}$ and for light sources intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a $CRI < 80$

⁴⁾ means the colour rendering index for a red coloured object as defined in standards

⁵⁾ 'survival factor' (SF) means the defined fraction of the total number of light sources that continue to operate at a given time under defined conditions and switching frequency

⁶⁾ 'lumen maintenance factor' (X_{LMF}) means the ratio of the luminous flux emitted by a light source at a given time in its life to the initial luminous flux

⁷⁾ 'displacement factor (DF) ($\cos \phi_1$)' means the cosine of the phase angle ϕ_1 between the fundamental harmonic of the mains supply voltage and the fundamental harmonic of the mains current. It is used for mains light sources using LED- or OLED-technology. The displacement factor is measured at full-load, for the reference control settings where applicable, with any lighting control parts in control mode and non-lighting parts disconnected, switched off or set to minimum power consumption according to the manufacturer's instructions

⁸⁾ '3600h' refers to (EU)2019/2020 Annex V, the total test time is 3600h (1200 cycle of 150min 'ON' and 30min 'OFF'), the actual operation time is 3000h

⁹⁾ 'standby power' (P_{sb}), expressed in watt, is the electric power consumption of a light source or of a separate control gear in standby mode

¹⁰⁾ 'networked standby power' (P_{net}), expressed in watt, is the electric power consumption of a CLS or of a CSCG in networked standby mode

Additional measurement

Chromaticity coordinates (x,y) ¹⁾: 0.3467, 0.3556

Measured beam angle (°): --

Peak intensity (cd) ¹⁾: --

$\Phi_{use} @ 90^\circ$ (lm) : --

Test Report PPP 11118C:2021 Rev.02



Product Service

Report No.: 64.184.21.04590.02 Rev.00

Table 1	Test data											
Model:	SA-C65160C											
Voltage (V):		DC 24V				Frequency (Hz):			-			
Φ _{use} measured at:		total luminous flux				Ambient (T/rh) (°C / %)			25.0/50			
Test item	Measured Value										Average	Limit
Sample:	1	2	3	4	5	6	7	8	9	10	-	-
U (V) ¹⁾	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	-
I (A) ¹⁾	247	247	245	247	246	246	247	248	247	247	247	-
P (W) ¹⁾	5.93	5.93	5.88	5.94	5.90	5.91	5.94	5.95	5.94	5.94	5.93	≤P _{on} max 9.96W
DF (cos φ ₁) ¹⁾²⁾⁷⁾	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	-
Φ _{use} (lm) ¹⁾	1019.4	1021.5	1010.1	1016.0	1017.9	1012.9	1026.1	1019.5	1020.6	1018.6	1018.3	≥declare 1015lm
CCT (K) ¹⁾	6246	6216	6214	6236	6222	6218	6218	6220	6214	6216	6222	-
CRI ¹⁾²⁾	83.1	83.0	83.0	83.0	83.0	83.0	82.9	83.0	82.9	83.0	83.0	≥ 80 ³⁾
R ₉ ¹⁾⁴⁾	9.1	8.5	8.3	8.5	8.4	8.4	8.1	8.6	8.1	8.5	8.5	-
Color consistency ¹⁾²⁾	2.5	2.9	2.9	2.7	2.8	2.9	2.9	2.8	2.9	2.9	2.8	≤ 6-step
SF @ 3600h ²⁾⁵⁾⁸⁾	S	S	S	S	S	S	S	S	S	S	SF:100%	≥90%
Φ _{use} , @ 3600h ⁸⁾ (lm)	997.5	993.0	995.7	992.3	988.9	991.0	990.2	992.7	997.2	992.3	993.1	-
X _{LMF} @ 3600h ^{2) 8)6)}	0.979	0.972	0.986	0.977	0.972	0.978	0.965	0.974	0.977	0.974	0.975	≥X _{LMF,MIN} % 0.96
Flicker (P _{st} LM) ¹⁾²⁾	--	--	--	--	--	--	--	--	--	--	--	P _{st} LM ≤ 1,0 at full-load
Stroboscopic effect (SVM) ¹⁾²⁾	--	--	--	--	--	--	--	--	--	--	--	SVM ≤ 0,9 at full-load From 1 September 2024: SVM ≤ 0,4 at full-load ³⁾

Test Report PPP 11118C:2021 Rev.02

ID: 107082

Revision: 2 - released

Effective: 14 Oct 2021

Page 23 of 51

TUV®

Report No.: 64.184.21.04590.02 Rev.00

$P_{sb} (W)^{1) 9)}$	--	--	--	--	--	--	--	--	--	--	--	≤ 0.5
$P_{net} (W)^{1) 10)}$	--	--	--	--	--	--	--	--	--	--	--	≤ 0.5

Supplementary information:

¹⁾ initial measurement value after aging of: 30min

²⁾ for LED and OLED

³⁾ except for HID with $\Phi_{use} > 4 \text{ klm}$ and for light sources intended for use in outdoor applications, industrial applications or other applications where lighting standards allow a $CRI < 80$

⁴⁾ means the colour rendering index for a red coloured object as defined in standards

⁵⁾ 'survival factor' (SF) means the defined fraction of the total number of light sources that continue to operate at a given time under defined conditions and switching frequency

⁶⁾ 'lumen maintenance factor' (X_{LMF}) means the ratio of the luminous flux emitted by a light source at a given time in its life to the initial luminous flux

⁷⁾ 'displacement factor (DF) ($\cos \phi_1$)' means the cosine of the phase angle ϕ_1 between the fundamental harmonic of the mains supply voltage and the fundamental harmonic of the mains current. It is used for mains light sources using LED- or OLED-technology. The displacement factor is measured at full-load, for the reference control settings where applicable, with any lighting control parts in control mode and non-lighting parts disconnected, switched off or set to minimum power consumption according to the manufacturer's instructions

⁸⁾ '3600h' refers to (EU)2019/2020 Annex V, the total test time is 3600h (1200 cycle of 150min 'ON' and 30min 'OFF'), the actual operation time is 3000h

⁹⁾ 'standby power' (P_{sb}), expressed in watt, is the electric power consumption of a light source or of a separate control gear in standby mode

¹⁰⁾ 'networked standby power' (P_{net}), expressed in watt, is the electric power consumption of a CLS or of a CSCG in networked standby mode

Additional measurement

Chromaticity coordinates (x,y) ¹⁾: 0.3170, 0.3398

Measured beam angle (°): --

Peak intensity (cd) ¹⁾: --

$\Phi_{use} @ 90^\circ (\text{lm})$: --

Test Report PPP 11118C:2021 Rev.02

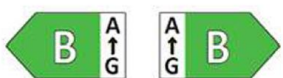
Clause	Requirement + Test	Result – Remark	Verdict
(EU) 2019/2015 - Energy labelling requirement:			
6	Measurment methods		P
	Recognised state of art measurement methods incl. the one published in the Official Journal taking into account the measurement methods of EU 2019/2015	EN 62717:2017+A2:2019 EN 13032-4:2015+A1:2019	P
7	Method for calculating the total mains efficacy (Annex II, EU 2019/2015)		P
7.1	Calculation the total mains efficacy		P
	The energy efficiency class of light sources shall be determined as set out in Annex II, Table 1 of EU 2020/2015	See attached table 3	P
	on the basis of the total mains efficacy η_{TM} , which is calculated by dividing the declared useful luminous flux Φ_{use} (expressed in lm) by the declared on mode power consumption P_{on} (expressed in W) and multiplying by the applicable factor F_{TM} of Annex II, Table 2 of EU 2019/2015 as follow: $\eta_{TM} = (\Phi_{use}/P_{on}) \times F_{TM} \text{ (lm/W)}$	See attached table 3	P
	declared useful luminous flux Φ_{use} (expressed in lm)	See attached table 3	P
	declared on mode power consumption P_{on} (expressed in W)	See attached table 3	P
	applicable factor F_{TM} of Annex II, Table 2 of EU 2019/2015		-
	Factors F_{TM} by light source type (Table 2 of Annex II, EU 2019/2015)		-
	Light source type	Factor F_{TM}	-
	Non-directional (NDLS) operating on mains (MLS)	1,000	N/A
	Non-directional (NDLS) not operating on mains (NMLS)	0,926	P
	Directional (DLS) operating on mains (MLS)	1,176	N/A
	Directional (DLS) not operating on mains (NMLS)	1,089	N/A
7.2	CALCULATION OF THE ENERGY CONSUMPTION		P
	The weighted energy consumption (E_c) is calculated in kWh/1000 h as follows and is rounded to two decimal places: $E_c = P_{on} \times 1000h/1000$	See attached table 3	P
8	Evaluation		P

Clause	Requirement + Test	Result – Remark	Verdict
	Declared values are not more favorable than value based on measured data	See attached table 3	P
9	Product information (Annex V of EU 2019/2015)		P
9.1	Product information sheet	Optional: Manufacturer can declare based on a draft	P
9.1.1	Pursuant to point 1(b) of Article 3, the supplier shall enter into the product database the information as set out in Annex V, Table 3, including when the light source is a part in a containing product	See attached table 4	P
	For light sources that can be tuned to emit light at full-load with different characteristics, the values of parameters that vary with these characteristics shall be reported at the reference control settings		N/A
	If the light source is no longer placed on the EU market, the supplier shall put in the product database the date (month, year) when the placing on the EU market stopped		P
9.2	Information to be displayed in the documentation for a containing product		P
	If a light source is placed on the market as a part in a containing product, the technical documentation for the containing product shall clearly identify the contained light source(s), including the energy efficiency class		P
	If a light source is placed on the market as a part in a containing product, the following text shall be displayed, clearly legible, in the user manual or booklet of instructions:		P
	'This product contains a light source of energy efficiency class <X>'		P
	where <X> shall be replaced by the energy efficiency class of the contained light source		P
	If the product contains more than one light source, the sentence can be in the plural, or repeated per light source, as suitable		N/A
9.3	Information to be displayed on the supplier's free access website	Optional: Manufacturer can declare based on a draft	P
(a)	The reference control settings, and instructions on how they can be implemented, where applicable		N/A
(b)	Instructions on how to remove lighting control parts and/or non-lighting parts, if any, or how to switch them off or minimize their power consumption		P
(c)	If the light source is dimmable: a list of dimmers it is compatible with, and the light source — dimmer compatibility standard(s) it is compliant with, if any		P
(d)	If the light source contains mercury: instructions on how to clean up the debris in case of accidental breakage		N/A

Clause	Requirement + Test	Result – Remark	Verdict
(e)	Recommendations on how to dispose of the light source at the end of its life in line with Directive 2012/19/EU of the European Parliament and of the Council		P
9.4	Information for products specified in point 3 of Annex IV		N/A
	For the light sources specified in point 3 of Annex IV, their intended use shall be stated on all forms of packaging, product information and advertisement, together with a clear indication that the light source is not intended for use in other applications		N/A
	The technical documentation file drawn up for the purposes of conformity assessment, in accordance with paragraph 3 of Article 3 of Regulation (EU) 2017/1369 shall list the technical parameters that make the product design specific to qualify for the exemption		N/A
10	Technical documentation (Annex VI of EU 2019/2015)		P
10.1	The technical documentation referred to in point 1(d) of Article 3 shall include:	Optional: Manufacturer can declare his intention based on a draft	P
(a)	the name and address of the supplier		P
(b)	supplier's model identifier		P
(c)	the model identifier of all equivalent models already placed on the market		P
(d)	identification and signature of the person empowered to bind the supplier		P
(e)	the declared values for the following technical parameters; these values are considered as the declared values for the purpose of the verification procedure in Annex IX		P
(1)	useful luminous flux (Φ_{use}) in lm		P
(2)	colour rendering index (CRI)		P
(3)	on-mode power (P_{on}) in W		P
(4)	beam angle in degrees for directional light sources (DLS)		N/A
(4a)	peak luminous intensity in cd for directional light sources (DLS)		N/A
(5)	correlated colour temperature (CCT) in K		P
(6)	standby power (P_{sb}) in W, including when it is zero		N/A
(7)	networked standby power (P_{net}) in W for connected light sources (CLS)		N/A
(7a)	R9 colour rendering index value for LED and OLED light sources		P
(7b)	survival factor for LED and OLED light sources		P
(7c)	lumen maintenance factor for LED and OLED light sources		P
(7d)	indicative lifetime L70B50 for LED and OLED light sources		P

Clause	Requirement + Test	Result – Remark	Verdict
(8)	displacement factor ($\cos \phi$) for LED and OLED mains light sources		N/A
(9)	colour consistency in MacAdam ellipse steps for LED and OLED light sources		P
(10)	luminance-HLLS in cd/mm^2 (only for HLLS)		N/A
(11)	flicker metric (P_{stLM}) for LED and OLED light sources		N/A
(12)	stroboscopic effect metric (SVM) for LED and OLED light sources		N/A
(13)	excitation purity, only for CTLS, for the following colours and dominant wavelength within the given range		N/A
	Colour Dominant wave-length range		N/A
	Blue 440 nm — 490 nm		N/A
	Green 520 nm — 570 nm		N/A
	Red 610 nm — 670 nm		N/A
(f)	the calculations performed with the parameters, including the determination of the energy efficiency class		P
(g)	references to the harmonised standards applied or other standards used		P
(h)	testing conditions if not described sufficiently in point (g)		P
(i)	the reference control settings, and instructions on how they can be implemented, where applicable		N/A
(j)	instructions on how to remove lighting control parts and/or non-lighting parts, if any, or how to switch them off or minimise their power consumption during light source testing		P
(k)	specific precautions that shall be taken when the model is assembled, installed, maintained or tested		P
10.2	The elements listed under point 1 shall also constitute the mandatory specific parts of the technical documentation that the supplier shall enter into the database, pursuant to point 5 of Article 12 of Regulation (EU) 2017/1369		P
11	Information to be provided in visual advertisements, in technical promotional material and in distance selling, except distance selling on the internet (Annex VII of EU 2019/2015)		N/A
11.1	In visual advertisements, for the purposes of ensuring conformity with the requirements laid down in point 1(e) of Article 3 and point 1(c) of Article 4, the energy class and the range of efficiency classes available on the label shall be shown as set out in point 4 of this Annex	Optional: Manufacturer can declare based on a draft	N/A

Clause	Requirement + Test	Result – Remark	Verdict
11.2	In technical promotional material, for the purposes of ensuring conformity with the requirements laid down in point 1(f) of Article 3 and point 1(d) of Article 4, the energy class and the range of efficiency classes available on the label shall be shown as set out in point 4 of this Annex		N/A
11.3	Any paper-based distance selling must show the energy class and the range of efficiency classes available on the label as set out in point 4 of this Annex		N/A
11.4	The energy efficiency class and the range of energy efficiency classes shall be shown, as indicated in Figure 2, with		N/A
(a)	an arrow, containing the letter of the energy efficiency class in 100 % white, Calibri Bold and in a font size at least equivalent to that of the price, when the price is shown		N/A
(b)	the colour of the arrow matching the colour of the energy efficiency class		N/A
(c)	the range of available energy efficiency classes in 100 % black; and		N/A
(d)	the size shall be such that the arrow is clearly visible and legible. The letter in the energy efficiency class arrow shall be positioned in the centre of the rectangular part of the arrow, with a border of 0,5 pt in 100 % black placed around the arrow and the letter of the energy efficiency class By way of derogation, if the visual advertisement, technical promotional material or paper-based distance selling is printed in monochrome, the arrow can be in monochrome in that visual advertisement, technical promotional material or paper-based distance selling <i>Figure 2</i> Coloured/monochrome left/right arrow, with range of energy efficiency classes indicated 		N/A
11.5	Telemarketing-based distance selling must specifically inform the customer of the energy efficiency class of the product and of the range of energy efficiency classes available on the label, and that the customer can access the full label and the product information sheet through a free access website, or by requesting a printed copy	Optional: Manufacturer can declare based on a draft	N/A
11.6	For all the situations mentioned in points 1 to 3 and 5, it must be possible for the customer to access the label and the product information sheet through a link to the product database website, or to request a printed copy		N/A
12	Information to be provided in the case of distance selling on the internet (Annex VIII of EU 2019/2015)		

Clause	Requirement + Test	Result – Remark	Verdict
12.1	The appropriate label made available by suppliers in accordance with point 1(g) Article 3 shall be shown on the display mechanism in proximity to the price of the product. The size shall be such that the label is clearly visible and legible and shall be proportionate to the size specified for the standard label in Annex III	Optional: Manufacturer can declare based on a draft	N/A
	The label may be displayed using a nested display, in which case the image used for accessing the label shall comply with the specifications laid down in point 3 of this Annex. If nested display is applied, the label shall appear on the first mouse click, mouse roll-over or tactile screen expansion on the image		N/A
12.2	The image used for accessing the label in the case of nested display, as indicated in Figure 3, shall		N/A
(a)	be an arrow in the colour corresponding to the energy efficiency class of the product on the label		N/A
(b)	indicate the energy efficiency class of the product on the arrow in 100 % white, Calibri Bold and in a font size equivalent to that of the price		N/A
(c)	have the range of available energy efficiency classes in 100 % black; and		N/A
(d)	have one of the following two formats, and its size shall be such that the arrow is clearly visible and legible. The letter in the energy efficiency class arrow shall be positioned in the centre of the rectangular part of the arrow, with a visible border in 100 % black placed around the arrow and the letter of the energy efficiency class: Figure 3 Coloured left/right arrow, with range of energy efficiency classes indicated 		N/A
12.3	In the case of nested display, the sequence of display of the label shall be as follows		N/A
(a)	the image referred to in point 2 of this Annex shall be shown on the display mechanism in proximity to the price of the product		N/A
(b)	the image shall link to the label set out in Annex III		N/A
(c)	the label shall be displayed after a mouse click, mouse roll-over or tactile screen expansion on the image		N/A
(d)	the label shall be displayed by pop up, new tab, new page or inset screen display		N/A
(e)	for magnification of the label on tactile screens, the device conventions for tactile magnification shall apply		N/A
(f)	the label shall cease to be displayed by means of a close option or other standard-closing mechanism		N/A

Clause	Requirement + Test	Result – Remark	Verdict
(g)	the alternative text for the graphic, to be displayed upon failure to display the label, shall be the energy efficiency class of the product in a font size equivalent to that of the price		N/A
12.4	The appropriate product information sheet made available by suppliers in accordance with point 1(h) of Article 3 shall be shown on the display mechanism in proximity to the price of the product. The size shall be such that the product information sheet is clearly visible and legible. The product information sheet may be displayed using a nested display or by referring to the product database, in which case the link used for accessing the product information sheet shall clearly and legibly indicate 'Product information sheet' . If nested display is used, the product information sheet shall appear on the first mouse click, mouse roll-over or tactile screen expansion on the link		N/A

Clause	Requirement + Test	Result – Remark	Verdict
--------	--------------------	-----------------	---------

Table 2	Measured Values					P
Model	SA-C27160C					
Frequency (Hz):	--		Ambient temperature (°C):		25.0	
Φ_{use} measured at:	total luminous flux		Ambient humidity (%):		50	
Sample no.	U (V)	I (A)	Power (W)	Φ_{use} (lm)	Color temperature (K)	
1	24.0	0.246	5.90	868.2	2652	
2	24.0	0.246	5.89	861.3	2650	
3	24.0	0.245	5.88	863.2	2652	
4	24.0	0.245	5.87	858.8	2651	
5	24.0	0.246	5.89	873.4	2654	
6	24.0	0.246	5.91	865.0	2653	
7	24.0	0.246	5.89	865.4	2654	
8	24.0	0.246	5.90	876.4	2652	
9	24.0	0.247	5.92	868.8	2650	
10	24.0	0.247	5.93	863.0	2653	
Average	--	--	5.90	866.3	--	
Remarks: Used lamp control gear for test (manufacturer, model no., ...):-- Measured beam angle (°): -- Total average luminous flux (lm): 866.3						

Table 2	Measured Values					P
Model	SA-C30160C					
Frequency (Hz):	--		Ambient temperature (°C):		25.0	
Φ_{use} measured at:	total luminous flux		Ambient humidity (%):		50	
Sample no.	U (V)	I (A)	Power (W)	Φ_{use} (lm)	Color temperature (K)	
1	24.0	0.247	5.92	958.5	2962	
2	24.0	0.247	5.93	965.2	2961	
3	24.0	0.245	5.89	961.7	2953	
4	24.0	0.246	5.91	956.9	2956	
5	24.0	0.245	5.89	954.1	2956	
6	24.0	0.248	5.97	963.9	2955	
7	24.0	0.246	5.90	958.9	2957	
8	24.0	0.247	5.94	967.4	2955	
9	24.0	0.246	5.90	957.9	2961	
10	24.0	0.246	5.92	957.5	2959	
Average	--	--	5.92	960.2	--	
Remarks:						

Clause	Requirement + Test	Result – Remark	Verdict
Used lamp control gear for test (manufacturer, model no., ...):-- Measured beam angle (°): -- Total average luminous flux (lm): 960.2			

Table 2	Measured Values					P
Model	SA-C40160C					
Frequency (Hz):	--		Ambient temperature (°C):		25.0	
Φ_{use} measured at:	total luminous flux		Ambient humidity (%):		50	
Sample no.	U (V)	I (A)	Power (W)	Φ_{use} (lm)	Color temperature (K)	
1	24.0	0.248	5.96	1016.7	3912	
2	24.0	0.248	5.95	1027.1	3906	
3	24.0	0.248	5.96	1023.4	3901	
4	24.0	0.248	5.95	1026.2	3900	
5	24.0	0.247	5.94	1026.0	3901	
6	24.0	0.247	5.94	1021.1	3902	
7	24.0	0.247	5.93	1029.0	3904	
8	24.0	0.248	5.96	1025.8	3911	
9	24.0	0.246	5.92	1017.2	3907	
10	24.0	0.248	5.96	1012.0	3914	
Average	--	--	5.95	1022.5	--	
Remarks: Used lamp control gear for test (manufacturer, model no., ...):-- Measured beam angle (°): -- Total average luminous flux (lm): 1022.5						

Table 2	Measured Values					P
Model	SA-C50160C					
Frequency (Hz):	--		Ambient temperature (°C):		25.0	
Φ_{use} measured at:	total luminous flux		Ambient humidity (%):		50	
Sample no.	U (V)	I (A)	Power (W)	Φ_{use} (lm)	Color temperature (K)	
1	24.0	0.247	5.93	1027.9	4958	
2	24.0	0.247	5.93	1038.9	4951	
3	24.0	0.247	5.93	1027.1	4955	
4	24.0	0.247	5.93	1033.0	4938	
5	24.0	0.247	5.93	1033.4	4957	
6	24.0	0.245	5.89	1019.2	4952	
7	24.0	0.247	5.93	1040.3	4951	
8	24.0	0.247	5.92	1030.2	4961	
9	24.0	0.245	5.87	1019.3	4956	
10	24.0	0.246	5.90	1021.2	4950	

Clause	Requirement + Test			Result – Remark		Verdict
Average	--	--	5.92	1029.1	--	
Remarks: Used lamp control gear for test (manufacturer, model no., ...):-- Measured beam angle (°):-- Total average luminous flux (lm): 1029.1						

Table 2	Measured Values					P
Model	SA-C65160C					
Frequency (Hz):	--		Ambient temperature (°C):		25.0	
Φ_{use} measured at:	total luminous flux		Ambient humidity (%):		50	
Sample no.	U (V)	I (A)	Power (W)	Φ_{use} (lm)	Color temperature (K)	
1	24.0	0.247	5.93	1019.4	6246	
2	24.0	0.247	5.93	1021.5	6216	
3	24.0	0.245	5.88	1010.1	6214	
4	24.0	0.247	5.94	1016.0	6236	
5	24.0	0.246	5.90	1017.9	6222	
6	24.0	0.246	5.91	1012.9	6218	
7	24.0	0.247	5.94	1026.1	6218	
8	24.0	0.248	5.95	1019.5	6220	
9	24.0	0.247	5.94	1020.6	6214	
10	24.0	0.247	5.94	1018.6	6216	
Average	--	--	5.93	1018.3	--	
Remarks: Used lamp control gear for test (manufacturer, model no., ...):-- Measured beam angle (°):-- Total average luminous flux (lm): 1018.3						

Table 3	Data calculation & comparison				P
Item	Rated value	Measured value	Deviation	Remark	
Beam angle (°)	-	-	-		
Φ_{use} (lm)	865.0	866.3	0.2%		
P_{on} (W)	6.0	5.90	-1.7%		
η_{TM}	133.5	136.0	1.8%		
Energy efficiency class	E	D	--		
E_c (kWh/1000h)	6	6	0.0%		
Remarks: SA-C27160C.					

Table 3	Data calculation & comparison	P
---------	-------------------------------	---

Clause	Requirement + Test		Result – Remark	Verdict
Item	Rated value	Measured value	Deviation	Remark
Beam angle (°)	-	-	-	
Φ_{use} (lm)	960.0	960.2	0.0%	
P_{on} (W)	6.0	5.92	-1.3%	
η_{TM}	148.2	150.2	1.4%	
Energy efficiency class	D	D	--	
E_c (kWh/1000h)	6	6	0.0%	
Remarks: SA-C30160C.				

Table 3	Data calculation & comparison				P
Item	Rated value	Measured value	Deviation	Remark	
Beam angle (°)	-	-	-		
Φ_{use} (lm)	1020.0	1022.5	0.2%		
P_{on} (W)	6.0	5.95	-0.8%		
η_{TM}	157.4	159.1	1.1%		
Energy efficiency class	D	D	--		
E_c (kWh/1000h)	6	6	0.0%		
Remarks: SA-C40160C.					

Table 3	Data calculation & comparison				P
Item	Rated value	Measured value	Deviation	Remark	
Beam angle (°)	-	-	-		
Φ_{use} (lm)	1020.0	1029.1	0.9%		
P_{on} (W)	6.0	5.92	-1.3%		
η_{TM}	157.4	161.0	2.2%		
Energy efficiency class	D	C	--		
E_c (kWh/1000h)	6	6	0.0%		
Remarks: SA-C50160C.					

Table 3	Data calculation & comparison				P
Item	Rated value	Measured value	Deviation	Remark	
Beam angle (°)	-	-	-		
Φ_{use} (lm)	1015.0	1018.3	0.3%		
P_{on} (W)	6.0	5.93	-1.2%		
η_{TM}	156.6	159.0	1.5%		
Energy efficiency class	D	D	--		

Clause	Requirement + Test		Result – Remark		Verdict
E _c (kWh/1000h)	6	6	0.0%		
Remarks: SA-C65160C.					

Report No.: 64.184.21.04590.02 Rev.00

Table 4		Product information sheet	
Supplier' s name or trade mark:	Guangdong Yuchen Optoelectronic Technology Co., Ltd		
Supplier' s address:	Building 1, No.71, Taian Liyuan Rd, Zhangmutou Town, Dongguan City, Guangdong		
Model identifier:	SA-C27160C		
Type of light source:	LED Strip Light		
Lighting technology used:	☐ HL ☐ LFL T5 HE ☐ LFL T5 HO ☐ CFLni ☐ other FL ☐ HPS ☐ MH ☐ other HID ☒ LED ☐ OLED ☐ mixed ☐ other	Non-directional or directional:	☒ NDLS ☐ DLS
Light source cap-type (or other electric interface)	N/A		
Mains or non-mains:	☐ MLS ☒ NMLS	Connected light source (CLS):	☐ yes ☒ no
Colour-tuneable light source:	☐ yes ☒ no	Envelope:	☒ no ☐ second ☐ non-clear
High luminance light source:	☐ yes ☒ no		
Anti-glare shield:	☐ yes ☒ no	Dimmable:	☐ yes ☐ only with specific dimmers ☒ no
Product parameters			
Parameter	Value	Parameter	Value
General product parameters:			
Energy consumption in on-mode (kWh/1 000 h), rounded up to the nearest integer	6	Energy efficiency class	☐ A ☐ B ☐ C ☐ D ☒ E ☐ F ☐ G

Test Report PPP 11118C:2021 Rev.02

Useful luminous flux (Φ_{use}), indicating if it refers to the flux in a sphere (360°), in a wide cone (120°) or in a narrow cone (90°)		865lm in sphere	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 (P_{on}), expressed in W		6.0W	Standby power (P_{sb}), expressed in W and rounded to the second decimal	N/A
Networked standby power (P_{net}) for CLS, expressed in W and rounded to the second decimal		N/A	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 nonlighting control parts, if any (millimetre)	Height	Not provided	Spectral power distribution in the range 250 nm to 800 nm, at full-load	See attachment 1
	Width	Not provided		
	Depth	Not provided		
Claim of equivalent power		☐ yes ☒ -	If yes, equivalent power (W)	N/A
			Chromaticity coordinates (x and y)	x=0.463, y=0.420
Parameters for directional light sources:				
Peak luminous intensity (cd)		N/A	Beam angle in degrees, or the range of beam angles that can be set	N/A
Parameters for LED and OLED light sources:				
R9 colour rendering index value	0	Survival factor	0.90	
the lumen maintenance factor	0.96			
Parameters for LED and OLED mains light sources:				
displacement factor ($\cos \phi 1$)	N/A	Colour consistency in McAdam ellipses	6	
Claims that an LED light source replaces a fluorescent light source without integrated ballast of a particular wattage.	☐ yes ☒ -	If yes then replacement claim (W)	N/A	
Flicker metric (P_{st} LM)	N/A	Stroboscopic effect metric (SVM)	N/A	

Report No.: 64.184.21.04590.02 Rev.00

Table 4		Product information sheet	
Supplier' s name or trade mark:	Guangdong Yuchen Optoelectronic Technology Co., Ltd		
Supplier' s address:	Building 1, No.71, Taian Liyuan Rd, Zhangmutou Town, Dongguan City, Guangdong		
Model identifier:	SA-C30160C		
Type of light source:	LED Strip Light		
Lighting technology used:	☐ HL ☐ LFL T5 HE ☐ LFL T5 HO ☐ CFLni ☐ other FL ☐ HPS ☐ MH ☐ other HID ☒ LED ☐ OLED ☐ mixed ☐ other	Non-directional or directional:	☒ NDLS ☐ DLS
Light source cap-type (or other electric interface)	N/A		
Mains or non-mains:	☐ MLS ☒ NMLS	Connected light source (CLS):	☐ yes ☒ no
Colour-tuneable light source:	☐ yes ☒ no	Envelope:	☒ no ☐ second ☐ non-clear
High luminance light source:	☐ yes ☒ no		
Anti-glare shield:	☐ yes ☒ no	Dimmable:	☐ yes ☐ only with specific dimmers ☒ no
Product parameters			
Parameter	Value	Parameter	Value
General product parameters:			
Energy consumption in on-mode (kWh/1 000 h), rounded up to the nearest integer	6	Energy efficiency class	☐ A ☐ B ☐ C ☒ D ☐ E ☐ F ☐ G

Test Report PPP 11118C:2021 Rev.02

Useful luminous flux (Φ_{use}), indicating if it refers to the flux in a sphere (360°), in a wide cone (120°) or in a narrow cone (90°)		960lm in sphere	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	3000
On-mode power (P_{on}), expressed in W		6.0W	Standby power (P_{sb}), expressed in W and rounded to the second decimal	N/A
Networked standby power (P_{net}) for CLS, expressed in W and rounded to the second decimal		N/A	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 nonlighting control parts, if any (millimetre)	Height	Not provided	Spectral power distribution in the range 250 nm to 800 nm, at full-load	See attachment 1
	Width	Not provided		
	Depth	Not provided		
Claim of equivalent power		☐ yes ☒ -	If yes, equivalent power (W)	N/A
			Chromaticity coordinates (x and y)	x=0.440, y=0.403
Parameters for directional light sources:				
Peak luminous intensity (cd)		N/A	Beam angle in degrees, or the range of beam angles that can be set	N/A
Parameters for LED and OLED light sources:				
R9 colour rendering index value	0	Survival factor	0.90	
the lumen maintenance factor	0.96			
Parameters for LED and OLED mains light sources:				
displacement factor ($\cos \phi 1$)	N/A	Colour consistency in McAdam ellipses	6	
Claims that an LED light source replaces a fluorescent light source without integrated ballast of a particular wattage.	☐ yes ☒ -	If yes then replacement claim (W)	N/A	
Flicker metric (P_{st} LM)	N/A	Stroboscopic effect metric (SVM)	N/A	

Report No.: 64.184.21.04590.02 Rev.00

Table 4		Product information sheet	
Supplier' s name or trade mark:	Guangdong Yuchen Optoelectronic Technology Co., Ltd		
Supplier' s address:	Building 1, No.71, Taian Liyuan Rd, Zhangmutou Town, Dongguan City, Guangdong		
Model identifier:	SA-C40160C		
Type of light source:	LED Strip Light		
Lighting technology used:	☐ HL ☐ LFL T5 HE ☐ LFL T5 HO ☐ CFLni ☐ other FL ☐ HPS ☐ MH ☐ other HID ☒ LED ☐ OLED ☐ mixed ☐ other	Non-directional or directional:	☒ NDLS ☐ DLS
Light source cap-type (or other electric interface)	N/A		
Mains or non-mains:	☐ MLS ☒ NMLS	Connected light source (CLS):	☐ yes ☒ no
Colour-tuneable light source:	☐ yes ☒ no	Envelope:	☒ no ☐ second ☐ non-clear
High luminance light source:	☐ yes ☒ no		
Anti-glare shield:	☐ yes ☒ no	Dimmable:	☐ yes ☐ only with specific dimmers ☒ no
Product parameters			
Parameter	Value	Parameter	Value
General product parameters:			
Energy consumption in on-mode (kWh/1 000 h), rounded up to the nearest integer	6	Energy efficiency class	☐ A ☐ B ☐ C ☒ D ☐ E ☐ F ☐ G

Test Report PPP 11118C:2021 Rev.02

Useful luminous flux (Φ_{use}), indicating if it refers to the flux in a sphere (360°), in a wide cone (120°) or in a narrow cone (90°)		1020lm in sphere	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	4000
On-mode power (P_{on}), expressed in W		6.0W	Standby power (P_{sb}), expressed in W and rounded to the second decimal	N/A
Networked standby power (P_{net}) for CLS, expressed in W and rounded to the second decimal		N/A	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 nonlighting control parts, if any (millimetre)	Height	Not provided	Spectral power distribution in the range 250 nm to 800 nm, at full-load	See attachment 1
	Width	Not provided		
	Depth	Not provided		
Claim of equivalent power		☐ yes ☒ -	If yes, equivalent power (W)	N/A
			Chromaticity coordinates (x and y)	x=0.380, y=0.380
Parameters for directional light sources:				
Peak luminous intensity (cd)		N/A	Beam angle in degrees, or the range of beam angles that can be set	N/A
Parameters for LED and OLED light sources:				
R9 colour rendering index value	0	Survival factor	0.90	
the lumen maintenance factor	0.96			
Parameters for LED and OLED mains light sources:				
displacement factor ($\cos \phi 1$)	N/A	Colour consistency in McAdam ellipses	6	
Claims that an LED light source replaces a fluorescent light source without integrated ballast of a particular wattage.	☐ yes ☒ -	If yes then replacement claim (W)	N/A	
Flicker metric ($P_{st LM}$)	N/A	Stroboscopic effect metric (SVM)	N/A	

Report No.: 64.184.21.04590.02 Rev.00

Table 4		Product information sheet	
Supplier' s name or trade mark:	Guangdong Yuchen Optoelectronic Technology Co., Ltd		
Supplier' s address:	Building 1, No.71, Taian Liyuan Rd, Zhangmutou Town, Dongguan City, Guangdong		
Model identifier:	SA-C50160C		
Type of light source:	LED Strip Light		
Lighting technology used:	☐ HL ☐ LFL T5 HE ☐ LFL T5 HO ☐ CFLni ☐ other FL ☐ HPS ☐ MH ☐ other HID ☒ LED ☐ OLED ☐ mixed ☐ other	Non-directional or directional:	☒ NDLS ☐ DLS
Light source cap-type (or other electric interface)	N/A		
Mains or non-mains:	☐ MLS ☒ NMLS	Connected light source (CLS):	☐ yes ☒ no
Colour-tuneable light source:	☐ yes ☒ no	Envelope:	☒ no ☐ second ☐ non-clear
High luminance light source:	☐ yes ☒ no		
Anti-glare shield:	☐ yes ☒ no	Dimmable:	☐ yes ☐ only with specific dimmers ☒ no
Product parameters			
Parameter	Value	Parameter	Value
General product parameters:			
Energy consumption in on-mode (kWh/1 000 h), rounded up to the nearest integer	6	Energy efficiency class	☐ A ☐ B ☐ C ☒ D ☐ E ☐ F ☐ G

Test Report PPP 11118C:2021 Rev.02

Useful luminous flux (Φ_{use}), indicating if it refers to the flux in a sphere (360°), in a wide cone (120°) or in a narrow cone (90°)		1020lm in sphere	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	5000
On-mode power (P_{on}), expressed in W		6.0W	Standby power (P_{sb}), expressed in W and rounded to the second decimal	N/A
Networked standby power (P_{net}) for CLS, expressed in W and rounded to the second decimal		N/A	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 nonlighting control parts, if any (millimetre)	Height	Not provided	Spectral power distribution in the range 250 nm to 800 nm, at full-load	See attachment 1
	Width	Not provided		
	Depth	Not provided		
Claim of equivalent power		☐ yes ☒ -	If yes, equivalent power (W)	N/A
			Chromaticity coordinates (x and y)	x=0.346, y=0.359
Parameters for directional light sources:				
Peak luminous intensity (cd)		N/A	Beam angle in degrees, or the range of beam angles that can be set	N/A
Parameters for LED and OLED light sources:				
R9 colour rendering index value	0	Survival factor	0.90	
the lumen maintenance factor	0.96			
Parameters for LED and OLED mains light sources:				
displacement factor ($\cos \phi 1$)	N/A	Colour consistency in McAdam ellipses	6	
Claims that an LED light source replaces a fluorescent light source without integrated ballast of a particular wattage.	☐ yes ☒ -	If yes then replacement claim (W)	N/A	
Flicker metric (P_{st} LM)	N/A	Stroboscopic effect metric (SVM)	N/A	

Report No.: 64.184.21.04590.02 Rev.00

Table 4		Product information sheet	
Supplier' s name or trade mark:	Guangdong Yuchen Optoelectronic Technology Co., Ltd		
Supplier' s address:	Building 1, No.71, Taian Liyuan Rd, Zhangmutou Town, Dongguan City, Guangdong		
Model identifier:	SA-C65160C		
Type of light source:	LED Strip Light		
Lighting technology used:	☐ HL ☐ LFL T5 HE ☐ LFL T5 HO ☐ CFLni ☐ other FL ☐ HPS ☐ MH ☐ other HID ☒ LED ☐ OLED ☐ mixed ☐ other	Non-directional or directional:	☒ NDLS ☐ DLS
Light source cap-type (or other electric interface)	N/A		
Mains or non-mains:	☐ MLS ☒ NMLS	Connected light source (CLS):	☐ yes ☒ no
Colour-tuneable light source:	☐ yes ☒ no	Envelope:	☒ no ☐ second ☐ non-clear
High luminance light source:	☐ yes ☒ no		
Anti-glare shield:	☐ yes ☒ no	Dimmable:	☐ yes ☐ only with specific dimmers ☒ no
Product parameters			
Parameter	Value	Parameter	Value
General product parameters:			
Energy consumption in on-mode (kWh/1 000 h), rounded up to the nearest integer	6	Energy efficiency class	☐ A ☐ B ☐ C ☒ D ☐ E ☐ F ☐ G

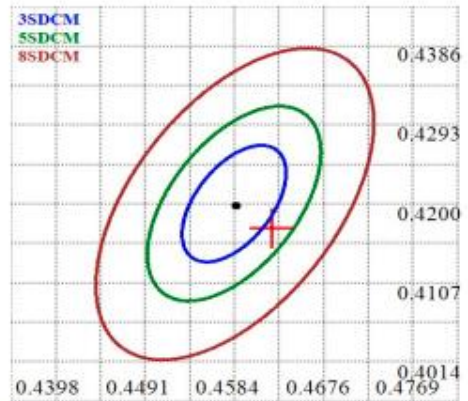
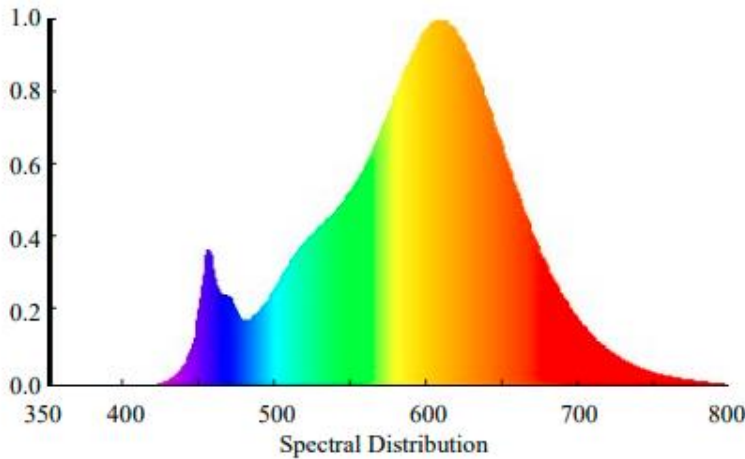
Test Report PPP 11118C:2021 Rev.02

Useful luminous flux (Φ_{use}), indicating if it refers to the flux in a sphere (360°), in a wide cone (120°) or in a narrow cone (90°)		1015lm in sphere	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 (P_{on}), expressed in W		6.0W	Standby power (P_{sb}), expressed in W and rounded to the second decimal	N/A
Networked standby power (P_{net}) for CLS, expressed in W and rounded to the second decimal		N/A	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 nonlighting control parts, if any (millimetre)	Height	Not provided	Spectral power distribution in the range 250 nm to 800 nm, at full-load	See attachment 1
	Width	Not provided		
	Depth	Not provided		
Claim of equivalent power		☐ yes ☒ -	If yes, equivalent power (W)	N/A
			Chromaticity coordinates (x and y)	x=0.313, y=0.337
Parameters for directional light sources:				
Peak luminous intensity (cd)		N/A	Beam angle in degrees, or the range of beam angles that can be set	N/A
Parameters for LED and OLED light sources:				
R9 colour rendering index value	0	Survival factor	0.90	
the lumen maintenance factor	0.96			
Parameters for LED and OLED mains light sources:				
displacement factor ($\cos \phi 1$)	N/A	Colour consistency in McAdam ellipses	6	
Claims that an LED light source replaces a fluorescent light source without integrated ballast of a particular wattage.	☐ yes ☒ -	If yes then replacement claim (W)	N/A	
Flicker metric ($P_{st LM}$)	N/A	Stroboscopic effect metric (SVM)	N/A	

Attachment 1: Photometric test record

SA-C27160C

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.4669$ $y=0.4171$ $u'=0.2641$ $v'=0.5309$ $Duv=0.0018$

Correlated Color Temperature: 2653K

Dominant Wavelength: 583.0nm

Rendering Index: $R_a=84.7$

Peak Wavelength: 611.0nm

Purity: 0.2054

Bandwidth: 119nm

Flux: 862.97lm

Radiant Flux: 2568.74mW

Color Ratio: Red $K_r=50\%$ Green $K_g=44\%$ Blue $K_b=6\%$

SDCM : 3.6 [IEC_F2700]

Luminous Efficacy: 145.23 lm/W

Rf: 83.6

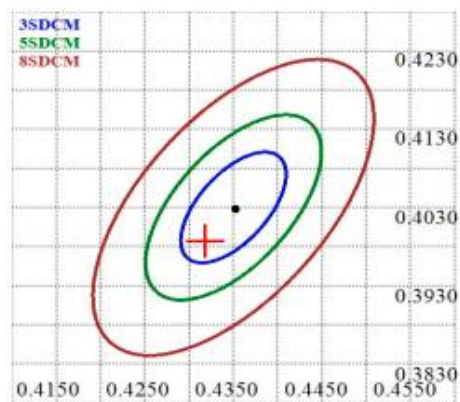
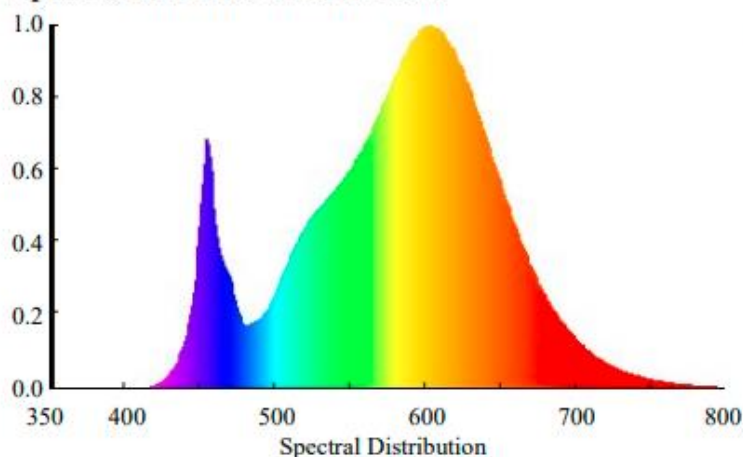
Rg: 92.7

White Classify: In_LED_2700K

R1=84	R2=94	R3=95	R4=82	R5=84	R6=94	R7=83	R8=62
R9=19	R10=86	R11=82	R12=76	R13=86	R14=98	R15=76	

SA-C30160C

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.4368$ $y=0.3987$ $u'=0.2528$ $v'=0.5192$ $Duv=-0.0021$

Correlated Color Temperature:2959K

Dominant Wavelength:479.0nm

Rendering Index: Ra=82.5

Peak Wavelength:604.5nm

Purity:0.0307

Bandwidth:126nm

Flux:957.47lm

Radiant Flux:2756.84mW

Color Ratio:Red Kr=48% Green Kg=46% Blue Kb=6%

SDCM :1.9 [IEC_F3000]

Luminous Efficacy:161.76 lm/W

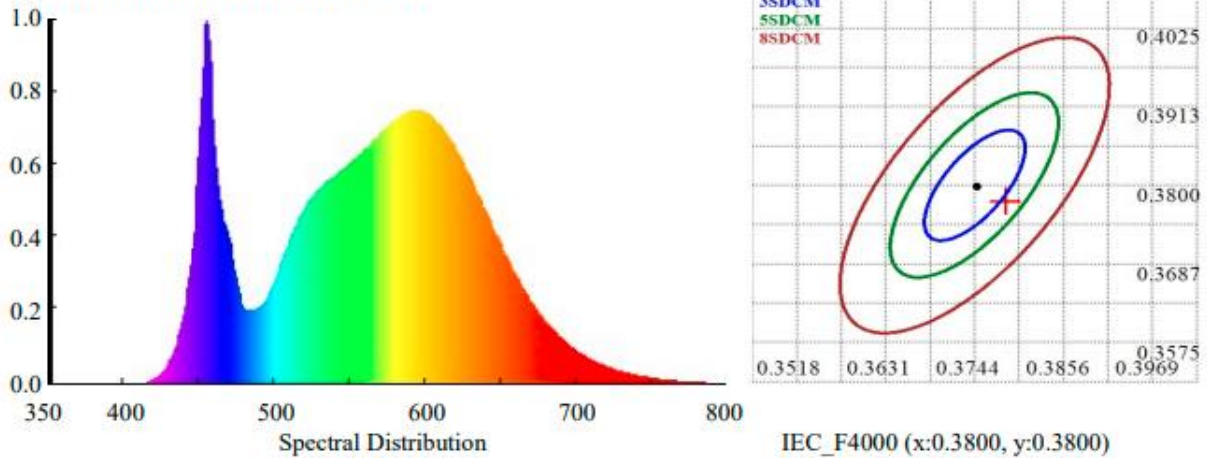
Rf:81.2

Rg:95.2

White.Classify:In_LED_3000K

R1=82	R2=92	R3=96	R4=79	R5=81	R6=90	R7=82	R8=59
R9=10	R10=80	R11=78	R12=68	R13=84	R14=99	R15=75	

SA-C40160C

Spectroradiometric ParametersChromaticity Coordinates: $x=0.3839$ $y=0.3777$ $u'=0.2270$ $v'=0.5025$ $Duv=-0.0006$

Correlated Color Temperature: 3914K

Dominate Wavelength: 486.0nm

Rendering Index: $R_a=82.8$

Peak Wavelength: 456.2nm

Purity: 0.1641

Bandwidth: 17nm

Flux: 1011.98lm

Radiant Flux: 2895.91mW

Color Ratio: Red $K_r=41\%$ Green $K_g=51\%$ Blue $K_b=8\%$

SDCM : 3.4 [IEC_F4000]

Luminous Efficacy: 169.91 lm/W

Rf: 79.8

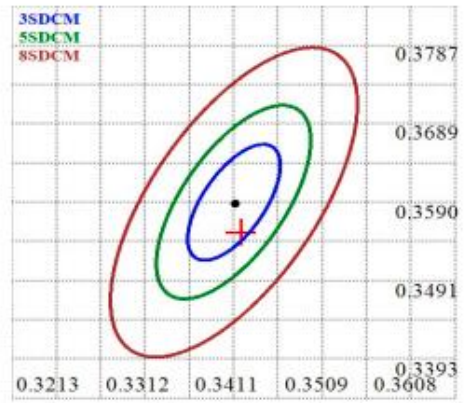
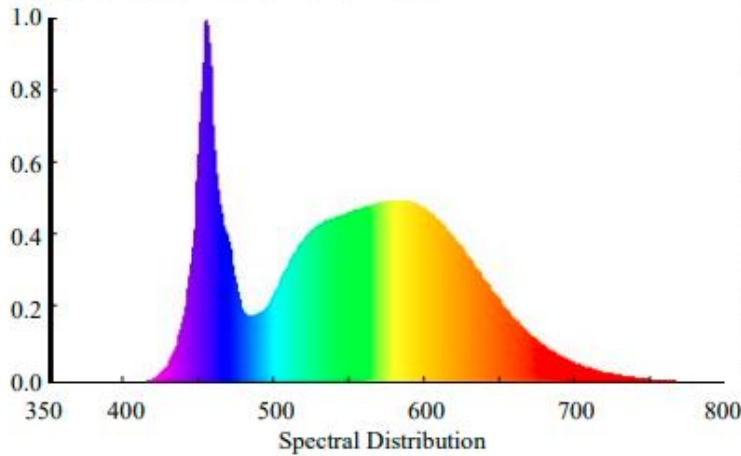
Rg: 93.8

White.Classify: In_LED_4000K

R1=82	R2=90	R3=95	R4=80	R5=81	R6=85	R7=85	R8=65
R9=12	R10=75	R11=77	R12=56	R13=84	R14=97	R15=77	

SA-C50160C

Spectroradiometric Parameters



Chromaticity Coordinates: x=0.3468 y=0.3552 u'=0.2112 v'=0.4867 Duv=0.0011

Correlated Color Temperature:4950K

Dominant Wavelength:485.0nm

Rendering Index: Ra=82.7

Peak Wavelength:456.0nm

Purity:0.2630

Bandwidth:17nm

Flux:1021.20lm

Radiant Flux:2984.36mW

Color Ratio:Red Kr=36% Green Kg=54% Blue Kb=10%

SDCM :2.4 [IEC_F5000]

Luminous Efficacy:173.00 lm/W

Rf:79

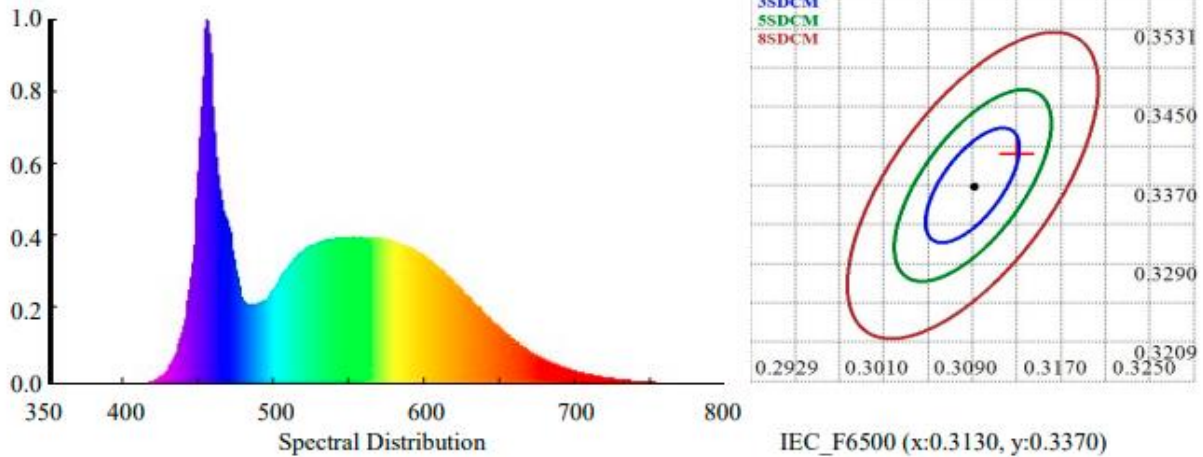
Rg:92.9

White.Classify:In_LED_5000K

R1=82	R2=90	R3=93	R4=79	R5=80	R6=84	R7=87	R8=67
R9=12	R10=74	R11=77	R12=50	R13=84	R14=96	R15=77	

SA-C65160C

Spectroradiometric Parameters



Chromaticity Coordinates: $x=0.3170$ $y=0.3402$ $u'=0.1966$ $v'=0.4748$ $Duv=0.0067$

Correlated Color Temperature: 6216K

Dominant Wavelength: 485.0nm

Rendering Index: $R_a=83.0$

Peak Wavelength: 456.5nm

Purity: 0.3402

Bandwidth: 18nm

Flux: 1018.55lm

Radiant Flux: 3049.30mW

Color Ratio: Red $K_r=32\%$ Green $K_g=56\%$ Blue $K_b=12\%$

SDCM :2.9 [IEC_F6500]

Luminous Efficacy: 171.44 lm/W

Rf: 79.1

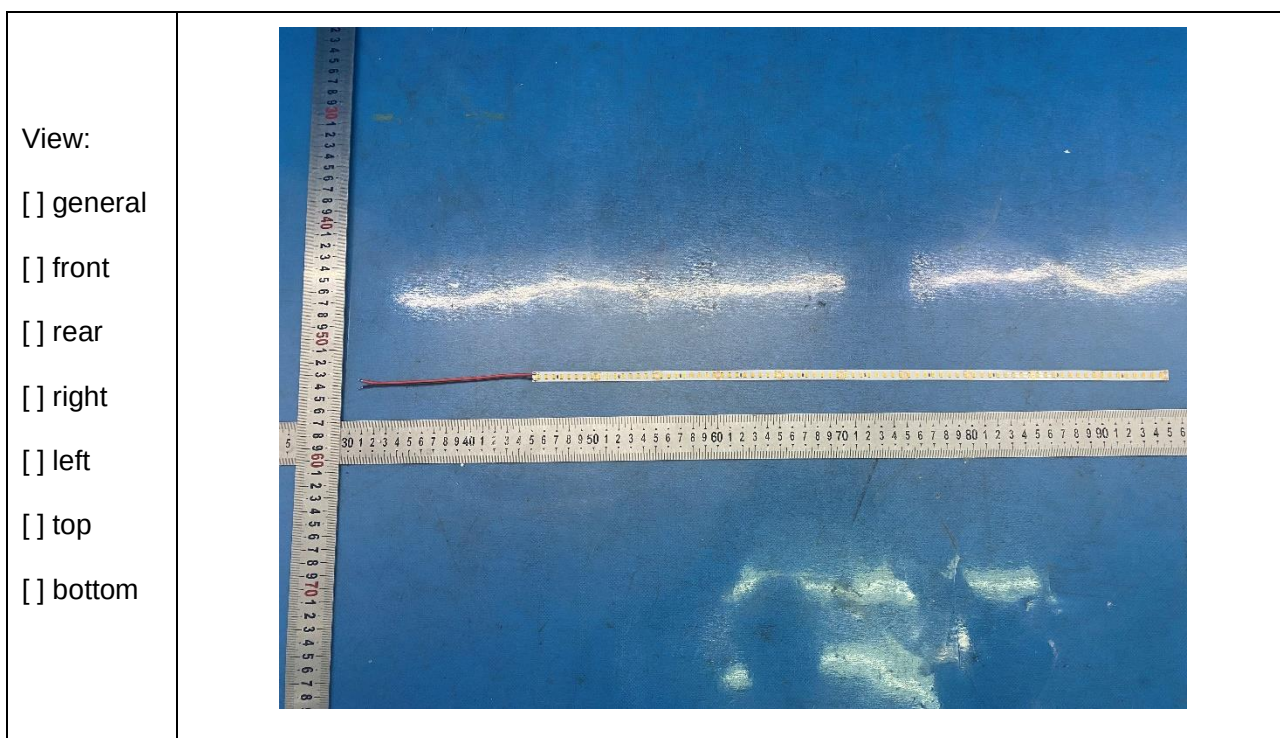
Rg: 90.6

White Classify: In_LED_6500K

R1=81	R2=91	R3=94	R4=78	R5=80	R6=86	R7=86	R8=68
R9=9	R10=77	R11=77	R12=53	R13=85	R14=97	R15=76	

Photo documentation

Details of: General view for model SA-C27160C



Details of: General view for model SA-C27160C

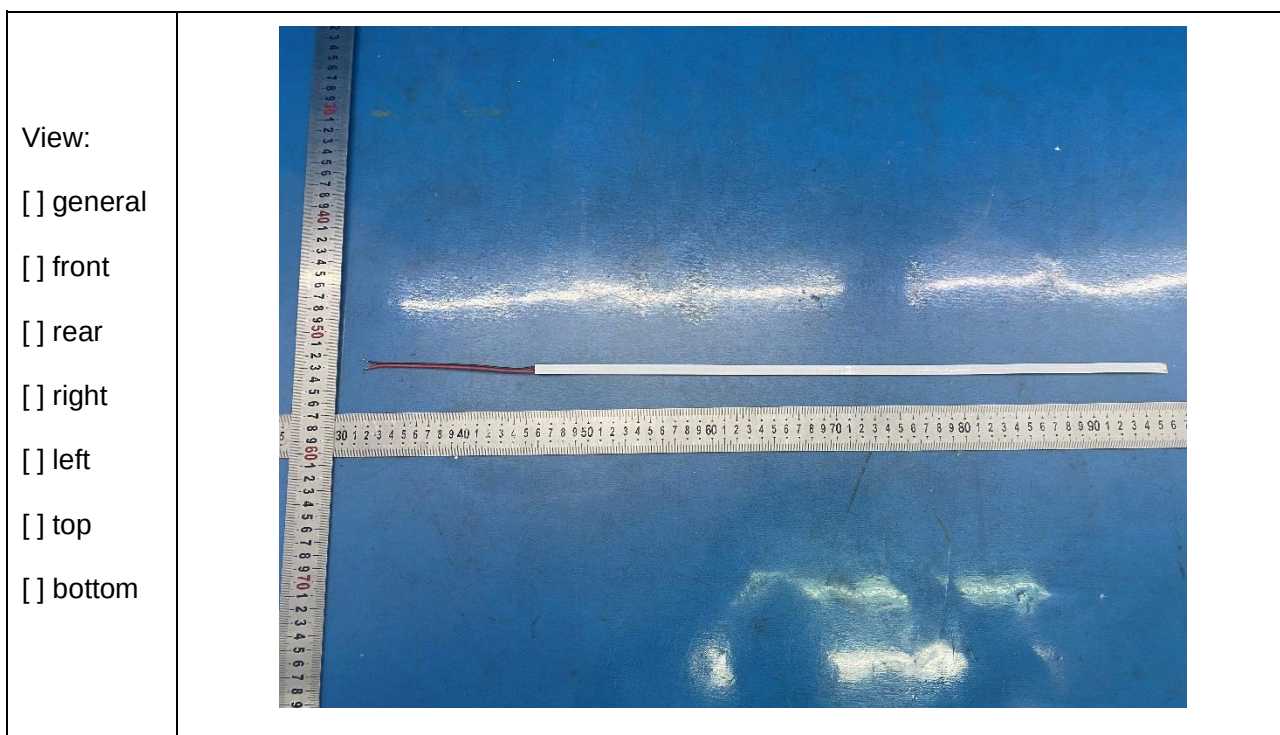
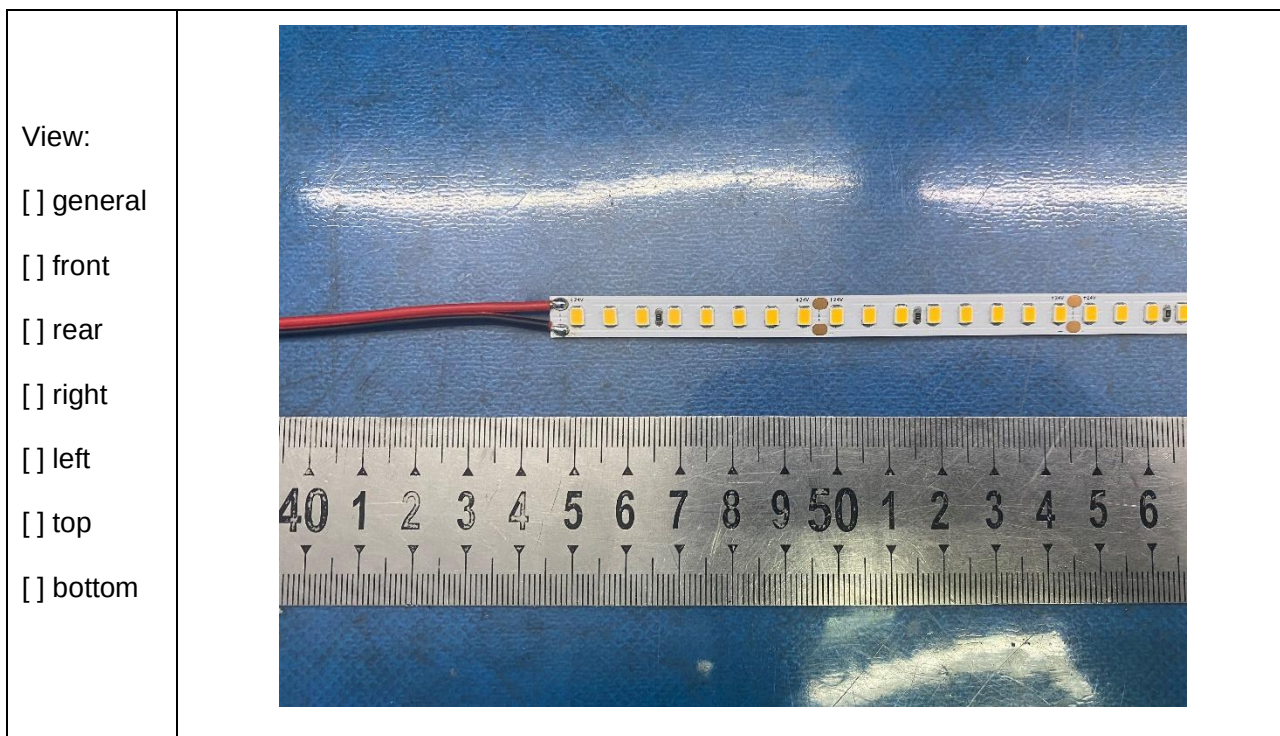


Photo documentation

Details of: LED module view for model SA-C27160C



Details of: General view for model SA-C30160C

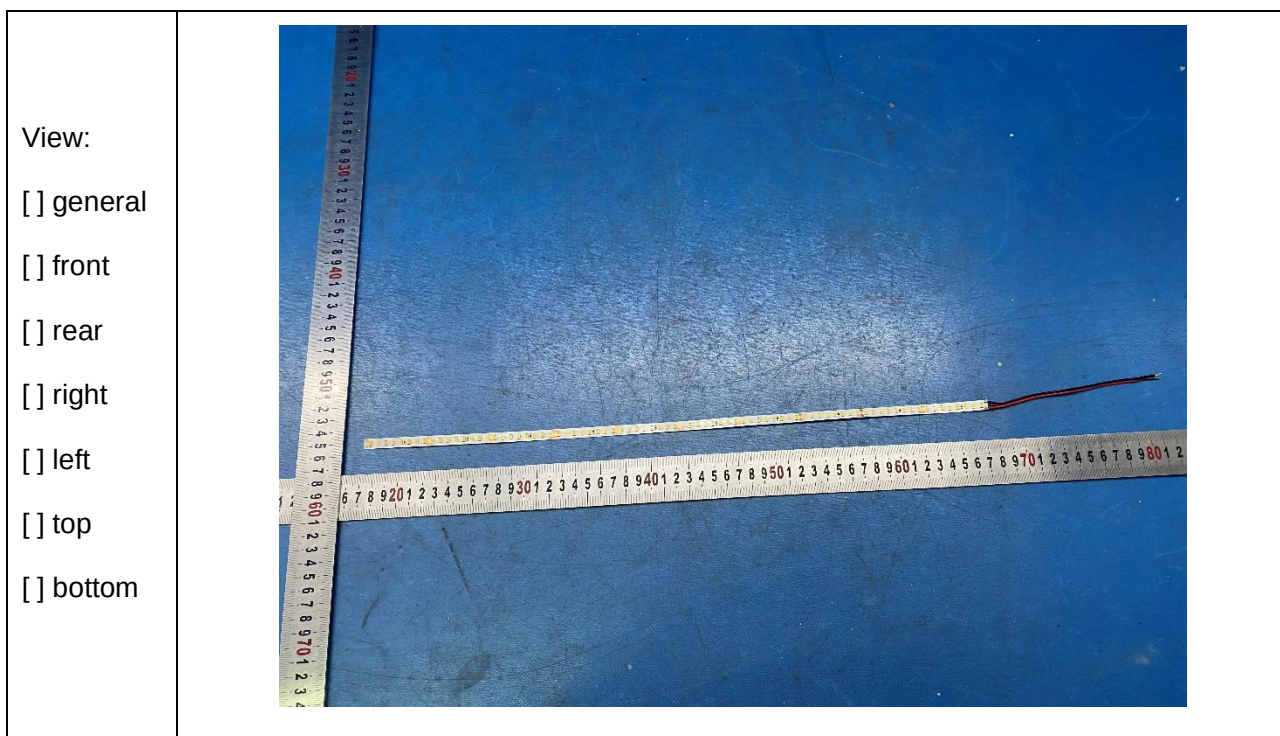
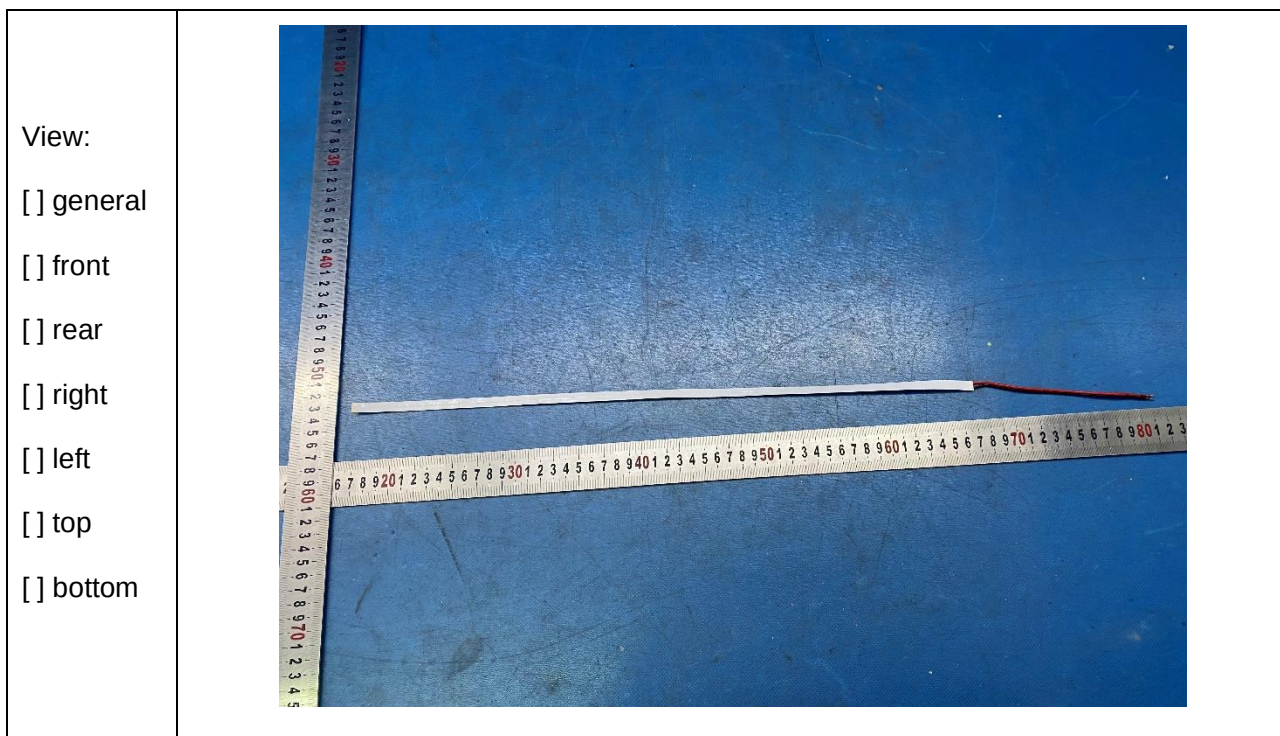


Photo documentation

Details of: General view for model SA-C30160C



Details of: LED module view for model SA-C30160C

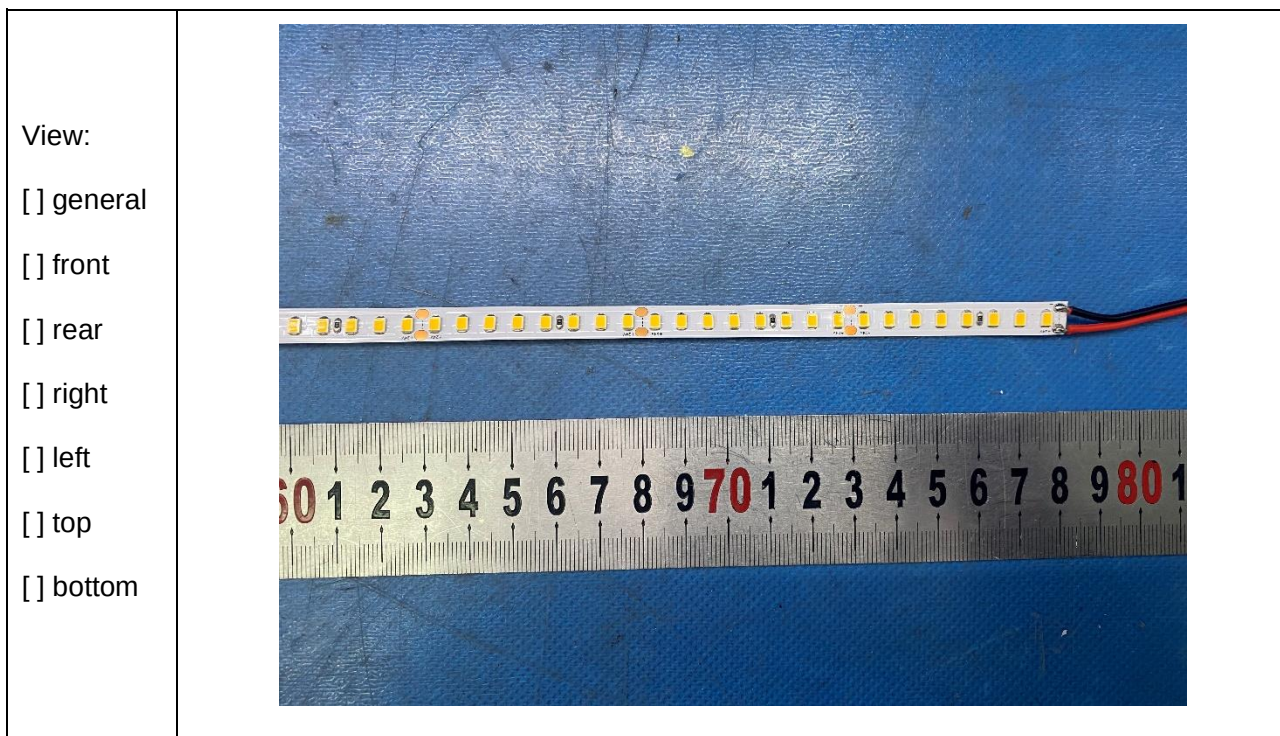
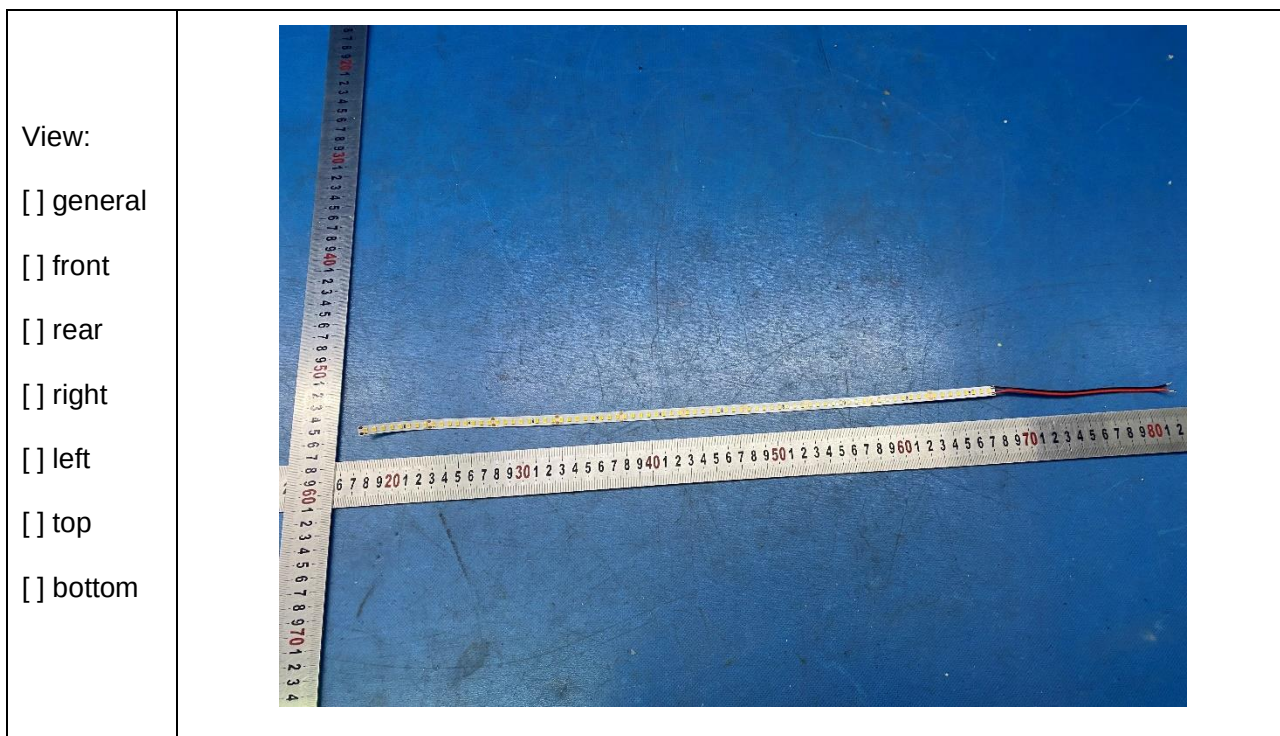


Photo documentation

Details of: General view for model SA-C40160C



Details of: General view for model SA-C40160C

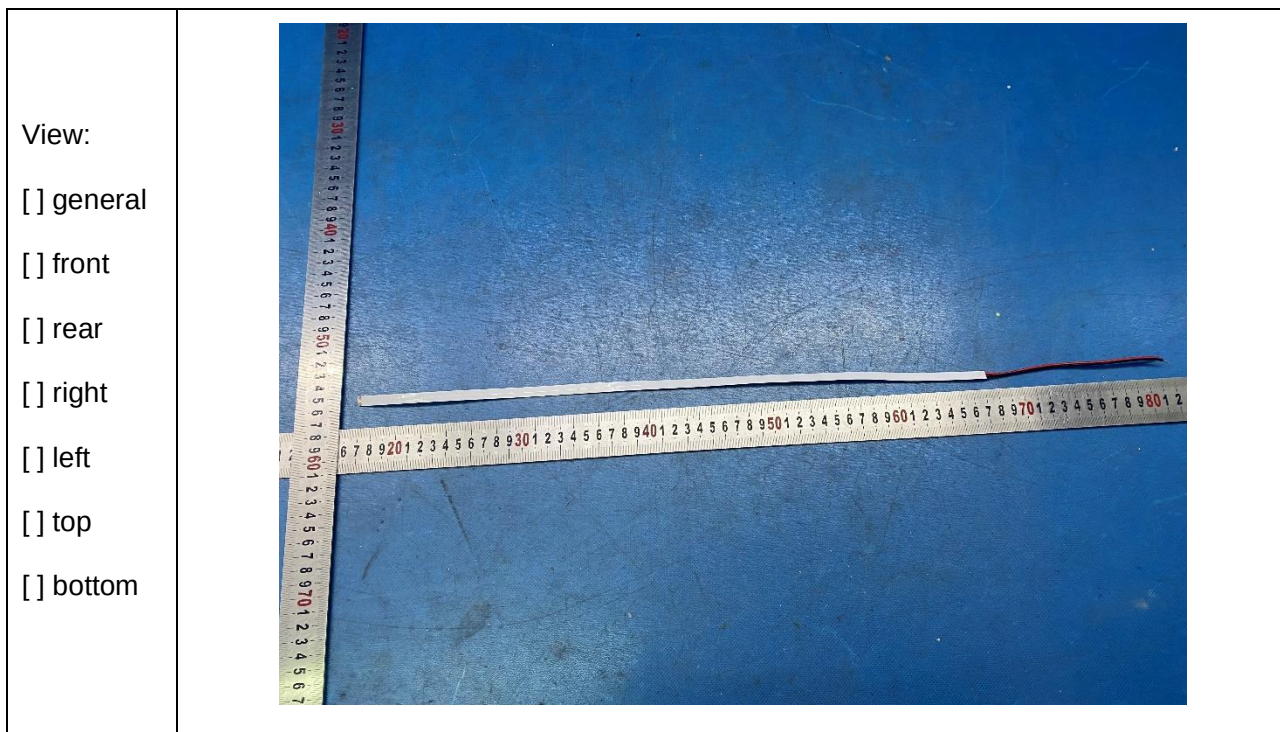
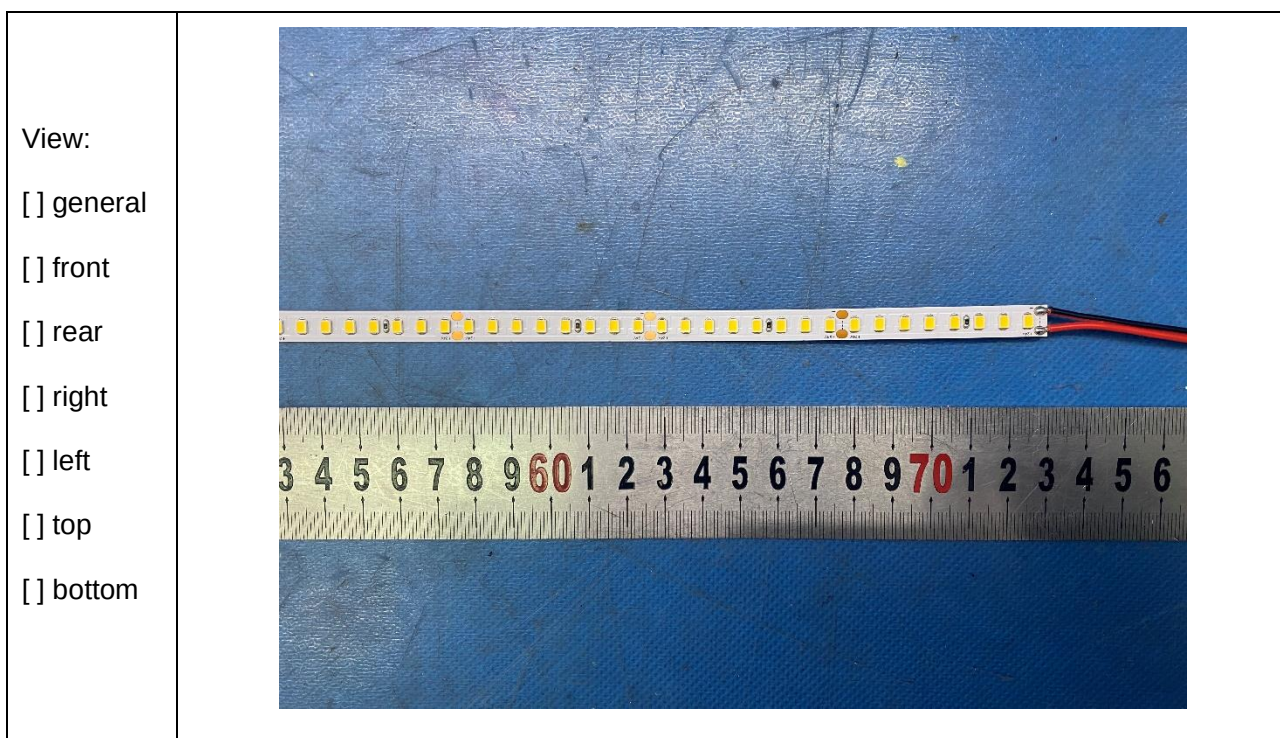


Photo documentation

Details of: LED module view for model SA-C40160C



Details of: General view for model SA-C50160C

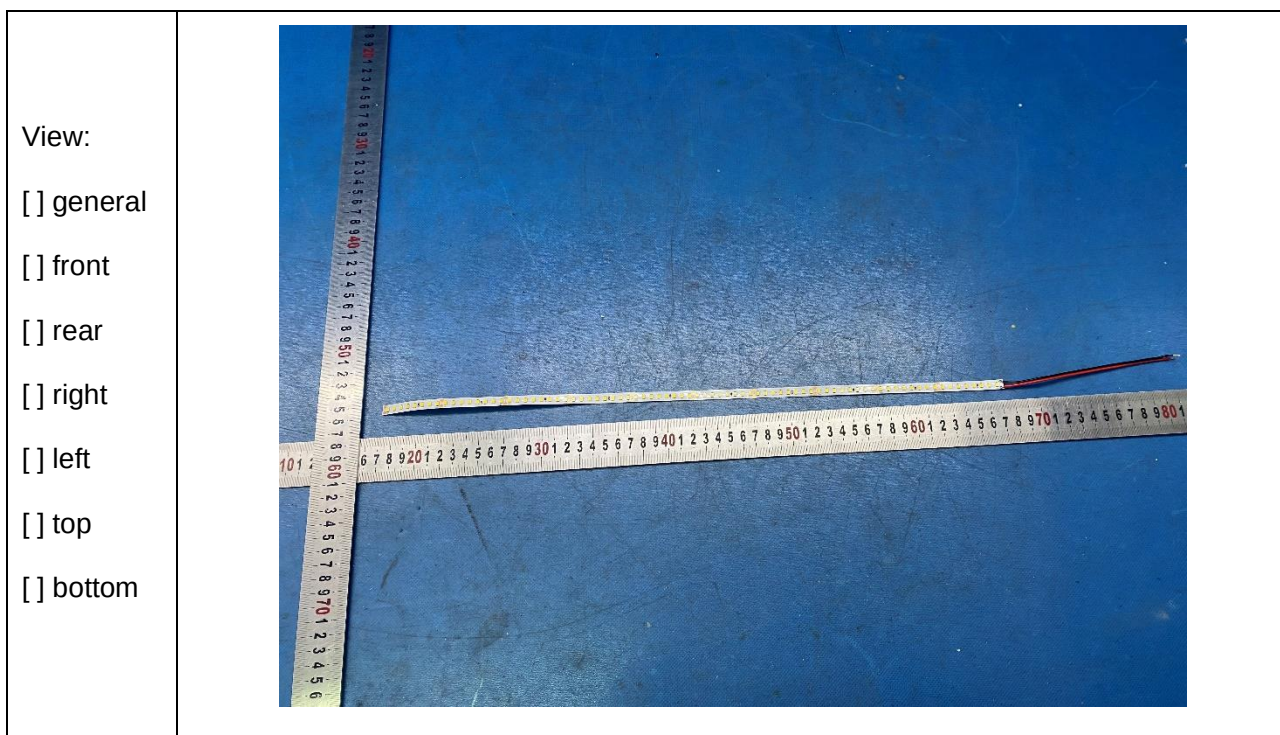
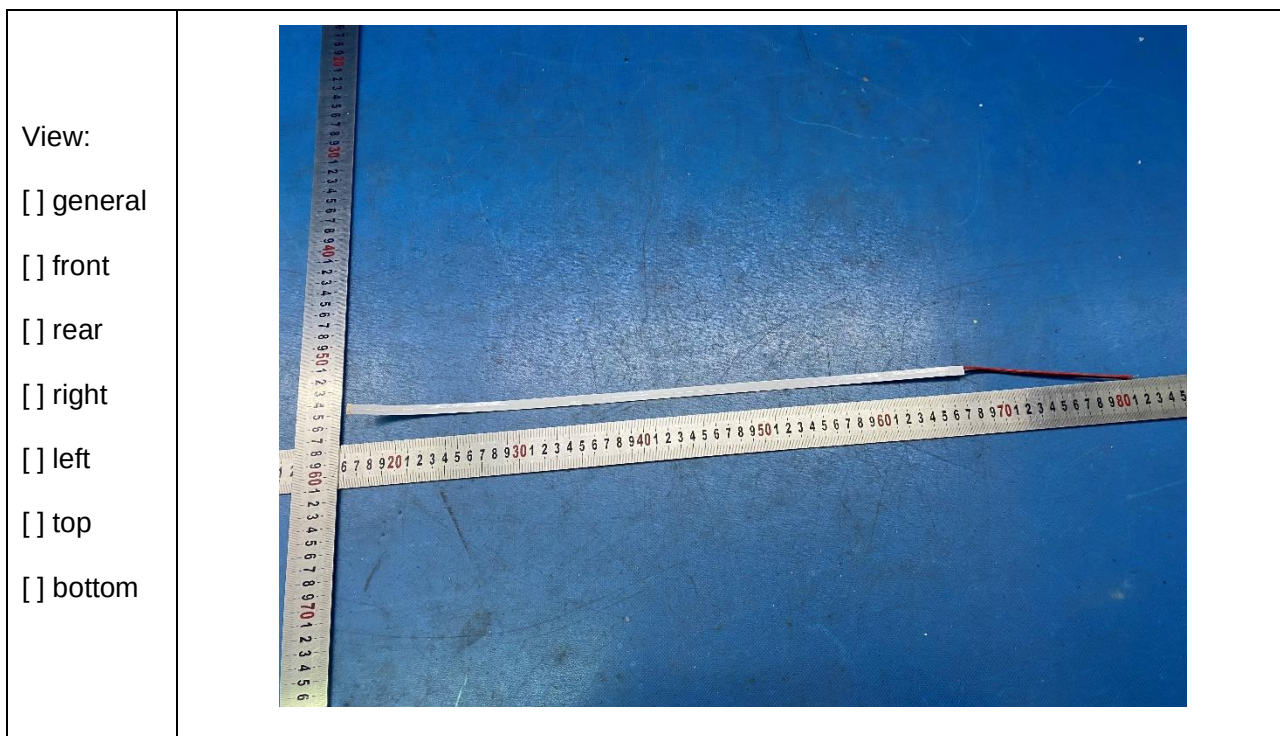


Photo documentation

Details of: General view for model SA-C50160C



Details of: LED module view for model SA-C50160C

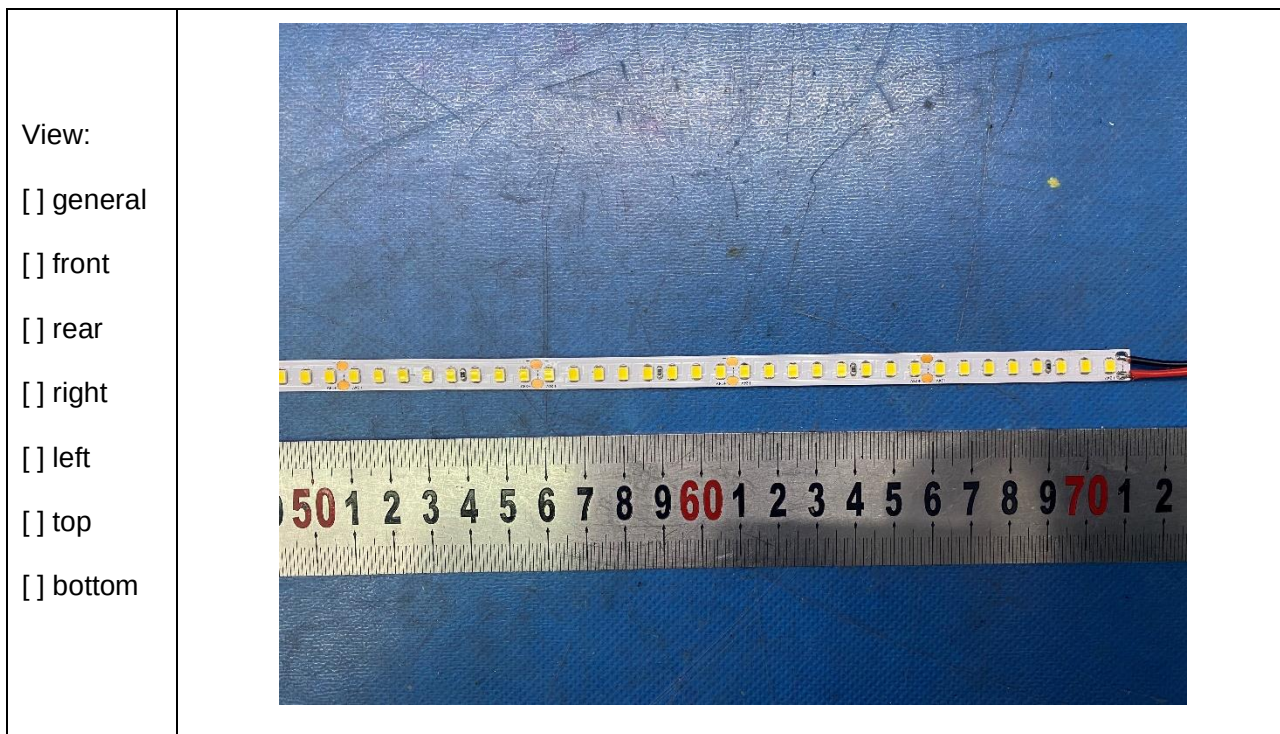


Photo documentation

Details of: General view for model SA-C65160C

View: ☐ general ☐ front ☐ rear ☐ right ☐ left ☐ top ☐ bottom	
--	--

Details of: General view for model SA-C65160C

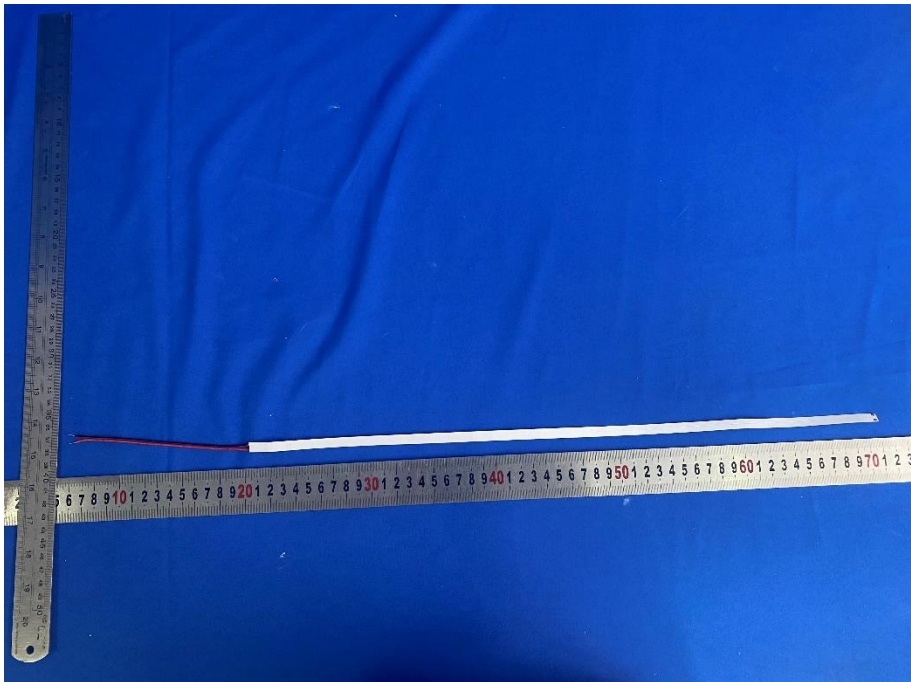
View: ☐ general ☐ front ☐ rear ☐ right ☐ left ☐ top ☐ bottom	
--	--

Photo documentation

Details of: LED module view for model SA-C65160C

View:

☐ general

☐ front

☐ rear

☐ right

☐ left

☐ top

☐ bottom

