

Test report

Product Name: LED ring light

Model: SM1888II

Prepared For : Zhejiang Seming Electronic Co., Ltd.

Haicheng Road, Baiguan Industrial District, Shangyu City, Zhejiang Province, China

Prepared By : TMC Testing Services(Shenzhen) Co., Ltd.

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Date of Test : Aug.26,2020 – Sep.02,2020

Date of Report : Sep.02,2020

Report Number : TMC200826108-S

Ecodesign requirement for LED module
Implementation measure (EU) 2019/2015
Report

Reference Number..... : TMC200826108-S

Tested by (Engineer)..... : Bart Deng

Bert Deng

Approved by (Manager)..... : Lemon Rao

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Contents..... : 17 pages

Testing laboratory..... :

Name..... : TMC Testing Services(Shenzhen) Co., Ltd.

Address..... : 1st Floor, Block A1, Zone A, Xinshidai Gongrong Industrial Park, No. 2, Shihuan Road, Shuitian, Shiyuan Street, Baoan District, Shenzhen, China

Testing location..... : Same as above

Applicant's name..... : Zhejiang Seming Electronic Co., Ltd.

Address..... : Haicheng Road, Baiguan Industrial District, Shangyu City, Zhejiang Province, China

Test specification:

 Standard..... : Test program is based on the following standards:
(EU) 2019/2015

Test item description..... : LED ring light

Trade Mark..... : N/A

Manufacturer..... : Zhejiang Seming Electronic Co., Ltd.

Address..... : Haicheng Road, Baiguan Industrial District, Shangyu City, Zhejiang Province, China

Model/Type reference..... : SM1888II

Ratings..... : 110-240V~, 50/60Hz, 90W

Remark:

Clause	Requirement – Test	Measuring result – Remark	Verdict
0	Measurement methods		P
	Recognized state of art measurement methods incl. the one published in the Official Journal taking into account the measurement methods of (EU) 2019/2015	Transitional test method acc. to OJ 2010/C 92/04)	P
1.	Sample		P
	Number of sample used for test	See “General Remarks”	P
1.2	Energy efficiency requirements for lamp control gear		N/A
	Stage 1~2: No-load power $\leq 1.0W$	P(no-load):	N/A
	Stage 3: No-load power $\leq 0.5W$	P(no-load):	N/A
	Stage 3: Standby power $\leq 0.5W$	P(standby power):	N/A
2.	Energy efficiency requirements		N/A
2.1	Non-directional LED lamp (Annex II, cl.1 of (EU) 2019/2015)		N/A
a	Lamp efficacy (η_{lamp})		N/A
	Evaluation : $P \leq P_{max}$		N/A
b	Limit definition:		N/A
	Clear lamps – Stage 1~5: $P_{max} = 0.8 * (0.88\sqrt{\Phi} + 0.049\Phi)$		N/A
	Clear lamps – Stage 6: $P_{max} = 0.6 * (0.88\sqrt{\Phi} + 0.049\Phi)$		N/A
	Non-clear lamps – Stage 1~6: $P_{max} = 0.24\sqrt{\Phi} + 0.0103\Phi$		N/A
c	Exceptions:		N/A
	Clear lamps $60 \text{ lm} \leq \Phi \leq 950 \text{ lm}$ in Stage 1 $P_{max} = 1.1 * (0.88\sqrt{\Phi} + 0.049\Phi)$		N/A
	Clear lamps $60 \text{ lm} \leq \Phi \leq 725 \text{ lm}$ in Stage 2 $P_{max} = 1.1 * (0.88\sqrt{\Phi} + 0.049\Phi)$		N/A
	Clear lamps $60 \text{ lm} \leq \Phi \leq 450 \text{ lm}$ in Stage 3 $P_{max} = 1.1 * (0.88\sqrt{\Phi} + 0.049\Phi)$	P_{max} : (incl. corrections) Φ :	N/A
	Clear lamps with G9 or R7s cap in Stage 6 $P_{max} = 0.8 * (0.88\sqrt{\Phi} + 0.049\Phi)$	P_{max} : (incl. corrections) Φ :	N/A
	Correction factors, which are cumulative where appropriate and also applicable to the products covered by the Exceptions :		N/A
	non-clear lamp with colour rendering index ≥ 90 and $P \leq 0.5 * (0.88\sqrt{\Phi} + 0.049\Phi)$	$P_{max}/0.82$	N/A
	non-clear lamp with second envelope and $P \leq 0.5 * (0.88\sqrt{\Phi} + 0.049\Phi)$	$P_{max}/0.95$	N/A
	LED lamp requiring external power supply	$P_{max}/1.2$	N/A
2.2	Directional LED lamp (Annex III, cl.1.1 of (EU) 2019/2015)		N/A
a	Energy efficiency (EEI)		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
	The energy efficiency index is calculated as follows and rounded to 2 decimal places: $EEI = P_{cor} / P_{ref}$	P_{ref} : P_{cor} : EEI:	N/A
	Stage 1~2: $EEI \max \leq 0.5$	EEI:	N/A
	Stage 3: $EEI \max \leq 0.2$	EEI:	N/A
b	Correction factors, which are cumulative where appropriate		N/A
	No correction appropriate : $P_{cor} = P_{rated}$	P_{rated} :	N/A
	Lamps operating on external LED lamp control gear : $P_{cor} = P_{rated} \times 1.10$	P_{rated} : P_{cor} :	N/A
	Lamps with anti-glare shield: $P_{cor} = P_{rated} \times 0.80$	P_{rated} : P_{cor} :	N/A
c	P_{ref} is the reference power obtained from the useful luminous flux of the lamp (Φ_{use}) by the following formula:		N/A
	For models with $\Phi_{use} < 1\,300$ lumen: $P_{ref} = 0.88\sqrt{\Phi_{use}} + 0.049\Phi_{use}$	Beam angel (°): $\Phi_{use}(lm)$: P_{ref} :	N/A
	For models with $\Phi_{use} \geq 1\,300$ lumen: $P_{ref} = 0.07341 \Phi_{use}$	Beam angel (°): $\Phi_{use}(lm)$: P_{ref} :	N/A
3	Lamp functionality requirements for non-directional and directional LED lamp (Annex III, cl.2.2, table 5 of (EU) 2019/2015)		P
3.1	Lamp survival factor (LSF) at 6000h		P
	From March 1, 2014: $LSF \geq 0.90$	LSF: 100%	P
3.2	Lumen maintenance (LLMF) at 6000h		P
	From March 1, 2014: $LLMF \geq 0.80$	LLMF: 84.4%	P
3.3	Number of switching cycles (n) before failure		P
	$n \geq 15\,000$ if rated lamp life $\geq 30\,000$ h	n: 15400	P
	otherwise: $n \geq$ half the rated lamp life expressed in hours		N/A
3.4	Starting time (t_{start})		P
	$t_{start} < 0.5$ s	t_{start} : 0.18s	P
3.5	Lamp warm-up time (t_{warm}) to 95 % Φ		P
	$t_{warm} < 2$ s	t_{warm} : 0.14s	P
3.6	Premature failure rate (PFR)		P
	$PFR \leq 5.0$ % at 1000 h	PFR: 0%	P
3.7	Colour rendering (Ra)		P
	$Ra \geq 80$		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
	Ra $\geq$ 65 if the lamp is intended for outdoor or industrial applications	Ra:80	P
3.8	Colour consistency		P
	Variation of chromaticity coordinates within a six-step Macadam ellipse or less.	SDCM:5.54	P
3.9	Lamp power factor (PF)		P
	P $\leq$ 2 W: no requirement		N/A
	2 W < P $\leq$ 5 W: PF > 0.4		N/A
	5 W < P $\leq$ 25 W: PF > 0.5		N/A
	P > 25 W: PF > 0.9	PF:0.99	P
3.10	Compatibility requirement for lamps using lamp caps also used with filament lamps		N/A
	Lamps shall comply from stage 2 with state of art requirements for compatibility with equipment designed for installation between the mains and filament lamps (e.g. dimmer, ...)		N/A
4	Product Information Requirements		N/A
4.1	Product information requirements for directional lamps (Annex III, cl.3.1 of EU 1194/2012)		N/A
	These information requirements do not apply to: LED modules when marketed as part of a luminaire from which they are not intended to be removed by the end-user.		N/A
	The following information shall be provided as from stage 1, except where otherwise stipulated.		N/A
	In all forms of product information, the term ' energy-saving lamp ' or any similar product related promotional statement about lamp efficacy may be used only if the energy efficiency index of the lamp (calculated in accordance with the method set out in point 1.1 of this Annex) is 0.40 or below.		N/A
4.1.1	Information to be displayed on the lamp itself		N/A
	For lamps other than high-intensity discharge lamps, the value and unit ('lm', 'K' and '° ') of the nominal useful luminous flux, of the colour temperature and of the nominal beam angle shall be displayed in a legible font on the surface of the lamp if, after the inclusion of safety-related information such as power and voltage, there is sufficient space available for it on the lamp without unduly obstructing the light coming from the lamp.		N/A
	If there is room for only one of the three values, the nominal useful luminous flux shall be provided. If there is room for two values, the nominal useful luminous flux and the colour temperature shall be provided.		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
4.1.2	Information to be visibly displayed to end-users, prior to their purchase, on the packaging and on free access websites		N/A
	The information below shall be displayed on free access websites and in any other form the manufacturer deems appropriate.		N/A
	If the product is placed on the market in a packaging containing information to be visibly displayed to the end- users, prior to their purchase, the information shall also be clearly and prominently indicated on the packaging.		N/A
	The information does not need to use the exact wording on the list below. It may be displayed in the form of graphs, drawings or symbols rather than text.		N/A
(a)	Nominal useful luminous flux displayed in a font at least twice as large as any display of the nominal lamp power;		N/A
(b)	Nominal life time of the lamp in hours (not longer than the rated life time);		N/A
(c)	Colour temperature, as a value in Kelvins and also expressed graphically or in words;		N/A
(d)	Number of switching cycles before premature failure;		N/A
(e)	Warm-up time up to 60 % of the full light output (may be indicated as 'instant full light' if less than 1 second);		N/A
(f)	A warning if the lamp cannot be dimmed or can be dimmed only on specific dimmers; in the latter case a list of compatible dimmers shall be also provided on the manufacturer's website;		N/A
(g)	If designed for optimum use in non-standard conditions (such as ambient temperature $T_a \neq 25^\circ\text{C}$ or specific thermal management is necessary), information on those conditions;		N/A
(h)	Lamp dimensions in millimeters (length and largest diameter);		N/A
(i)	Nominal beam angle in degrees;		N/A
(j)	If the lamp's beam angle is $\geq 90^\circ$ and its useful luminous flux as defined in point 1.1 of this Annex is to be measured in a 120° cone, a warning that the lamp is not suitable for accent lighting;		N/A
(k)	If the lamp cap is a standardized type also used with filament lamps, but the lamp's dimensions are different from the dimensions of the filament lamp(s) that the lamp is meant to replace, a drawing comparing the lamp's dimensions to the dimensions of the filament lamp(s) it replaces;		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
(l)	An indication that the lamp is of a type listed in the first column of Table 6 may be displayed only if the luminous flux of the lamp in a 90° cone (Φ_{90°) is not lower than the reference luminous flux indicated in Table 6 for the smallest wattage among the lamps of the type concerned. The reference luminous flux shall be multiplied by the correction factor in Table 7. For LED lamps, it shall be in addition multiplied by the correction factor in Table 8;	Claimed equivalent: Reference Φ_{90° (lm): (incl. correction factor)	N/A
(m)	An equivalence claim involving the power of a replaced lamp type may be displayed only if the lamp type is listed in Table 6 and if the luminous flux of the lamp in a 90° cone (Φ_{90°) is not lower than the corresponding reference luminous flux in Table 6. The reference luminous flux shall be multiplied by the correction factor in Table 7. For LED lamps, it shall be in addition multiplied by the correction factor in Table 8. The intermediate values of both the luminous flux and the claimed equivalent lamp power (rounded to the nearest 1 W) shall be calculated by linear interpolation between the two adjacent values.	Claimed equivalent: Claimed P: Reference Φ_{90° (lm): (incl. correction factor)	N/A
4.1.3	Information to be made publicly available on free-access websites and in any other form the manufacturer deems appropriate		N/A
(a)	The information specified in above point 4.1.2;		N/A
(b)	Rated power (0.1 W precision)		N/A
l	Rated useful luminous flux		N/A
(d)	Rated lamp life time		N/A
(e)	Lamp power factor		N/A
(f)	Lumen maintenance factor at the end of the nominal life (except for filament lamps)		N/A
(g)	Starting time (as X.X seconds)		N/A
(h)	Colour rendering		N/A
(i)	Colour consistency (only for LEDs)		N/A
(j)	Rated peak intensity in candela (cd)		N/A
(k)	Rated beam angle		N/A
(l)	If intended for use in outdoor or industrial applications, an indication to this effect;		N/A
(m)	Spectral power distribution in the range 180-800 nm		N/A
4.2	Product information requirements for non-directional lamps (Annex II, cl.3 of (EC) 2017/1369)		N/A
4.2.1	Information to be visibly displayed prior to purchase to end-users on the packaging and on free access websites. (It may be displayed using graphs, figures or symbols rather than text.)		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
(a)	When the nominal lamp power is displayed outside the energy label in accordance with Directive 98/11/EC, the nominal luminous flux of the lamp shall also be separately displayed in a font at least twice as large as the nominal lamp power display outside the label	Label acc. to (EU) 874/2012 LED modules used as part of a luminaire and not intended to be removed by the end-user.	N/A
(b)	Nominal life time of the lamp in hours (not higher than the rated life time)		N/A
l	Number of switching cycles before premature lamp failure;		N/A
(d)	Colour temperature (also expressed as a value in Kelvins);		N/A
(e)	Warm-up time up to 60 % of the full light output (may be indicated as 'instant full light' if less than 1 second);		N/A
(f)	A warning if the lamp cannot be dimmed or can be dimmed only on specific dimmers;		N/A
(g)	If designed for optimal use in non-standard conditions (such as ambient temperature $T_a \neq 25^\circ \text{C}$), information on those conditions;		N/A
(h)	Lamp dimensions in millimeters (length and diameter);		N/A
(i)	If equivalence with an incandescent lamp is claimed on the packaging, the claimed equivalent incandescent lamp power (rounded to 1 W) shall be that corresponding in Table 6 to the luminous flux of the lamp contained in the packaging. The intermediate values of both the luminous flux and the claimed incandescent lamp power (rounded to 1W) shall be calculated by linear interpolation between the two adjacent values.		N/A

Clause	Requirement – Test	Measuring result – Remark	Verdict
j	The term ' energy saving lamp ' or any similar product related promotional statement about lamp efficacy may only be used if the lamp complies with the efficacy requirements applicable to non-clear lamps in Stage 1 according to Tables 1, 2 and 3.		N/A
4.2.2	Information to be made publicly available on free-access websites. (Information shall be expressed at least as values.)		N/A
(a)	The information specified in above point 4.2.1		N/A
(b)	Rated wattage (0.1 W precision);		N/A
l	Rated luminous flux;		N/A
(d)	Rated lamp life time;		N/A
(e)	Lamp power factor;		N/A
(f)	Lumen maintenance factor at the end of the nominal life;		N/A
(g)	Starting time (as X.X seconds);		N/A
(h)	Colour rendering.		N/A
5	Temperature reference point (IEC/PAS 62717:2011 clause 4.1)		N/A

Client:

LumCAT:

Luminaire:

Report No:

Ballast type:

Test No:

LampCAT:

Lamp flux(lm): 2377.0

Number of Lamps: 1

Length(mm): 0

Phm Type: C

Voltage(V): 230V

Current(A): 0.375

Power (W): 90

PF: 0.98

Width(mm): 0

Height(mm): 0

Photometric Results

Lumens(lm): 2376.56, Efficiency(%): 99.98% , Luminous Efficacy(lm/W): 112.30

Central intensity(cd): 769.555, Maximum intensity(cd): 787.860

Angle of maximum intensity: C=180.0 γ =10.0

Beam Angle(50%Imax): [C0/180]Total=116.9

[C90/270]Total=118.9

Field angle(10%Imax): [C0/180]Total=161.5

[C90/270]Total=162.0

Maximum s/h(1/2): C0_180=1.33 C90_270=1.32

Maximum s/h(1/4): C0_180=1.45 C90_270=1.44

Up flux rate of lamp(%): 0.11%

Down flux rate of lamp(%): 99.87%

Up flux rate of LUM(%): 0.11%

Down flux rate of LUM(%): 99.89%

CIE Type : Direct lighting

Output flux ratio in π solid angle : 77.830%

Zonal flux distribution table:

$\gamma(^{\circ})$	Average I(cd)	Zonal F(lm)	Sum F(lm)	Eff Flux(%)	Eff Sum(%)
0.0	767.950	0.000	0	0.00%	0.00%
5.0	766.939	18.349	18.349	0.60%	0.60%
10.0	760.816	54.653	73.002	1.79%	2.40%
15.0	750.146	89.629	162.631	2.94%	5.34%
20.0	734.377	122.346	284.977	4.02%	9.36%
25.0	711.959	151.694	436.67	4.98%	14.34%
30.0	684.469	176.719	613.39	5.80%	20.14%
35.0	652.117	196.822	810.211	6.46%	26.60%
40.0	612.958	211.068	1021.279	6.93%	33.53%
45.0	570.145	219.061	1240.34	7.19%	40.73%
50.0	521.630	220.609	1460.95	7.24%	47.97%
55.0	470.382	215.696	1676.646	7.08%	55.05%
60.0	414.850	204.619	1881.265	6.72%	61.77%
65.0	359.133	188.157	2069.421	6.18%	67.95%
70.0	303.391	167.755	2237.177	5.51%	73.46%
75.0	244.126	143.112	2380.289	4.70%	78.16%
80.0	183.654	114.462	2494.751	3.76%	81.92%
85.0	131.117	85.531	2580.282	2.81%	84.73%
90.0	99.553	63.159	2643.441	2.07%	86.80%
95.0	83.075	50.005	2693.446	1.64%	88.44%
100.0	80.158	44.354	2737.8	1.46%	89.90%
105.0	73.088	41.004	2778.805	1.35%	91.24%
110.0	62.602	35.467	2814.272	1.16%	92.41%
115.0	63.732	31.988	2846.26	1.05%	93.46%
120.0	66.019	31.543	2877.803	1.04%	94.49%
125.0	63.417	29.919	2907.721	0.98%	95.48%
130.0	60.631	26.972	2934.694	0.89%	96.36%
135.0	57.582	23.887	2958.58	0.78%	97.15%
140.0	54.271	20.710	2979.291	0.68%	97.83%
145.0	50.828	17.535	2996.826	0.58%	98.40%
150.0	47.779	14.521	3011.346	0.48%	98.88%
155.0	44.915	11.731	3023.077	0.39%	99.26%
160.0	41.919	9.107	3032.184	0.30%	99.56%
165.0	36.005	6.422	3038.606	0.21%	99.77%
170.0	30.381	3.938	3042.544	0.13%	99.90%
175.0	30.145	2.165	3044.709	0.07%	99.98%
180.0	32.962	0.754	3045.464	0.02%	100.00%

 Equipment: GMS-3000
 Temperature($^{\circ}\text{C}$): 25

 Date:
 Humidity(%): 59%

Operator: jarvis

Zonal flux distribution table

Appendix Page: 3 Total: 7

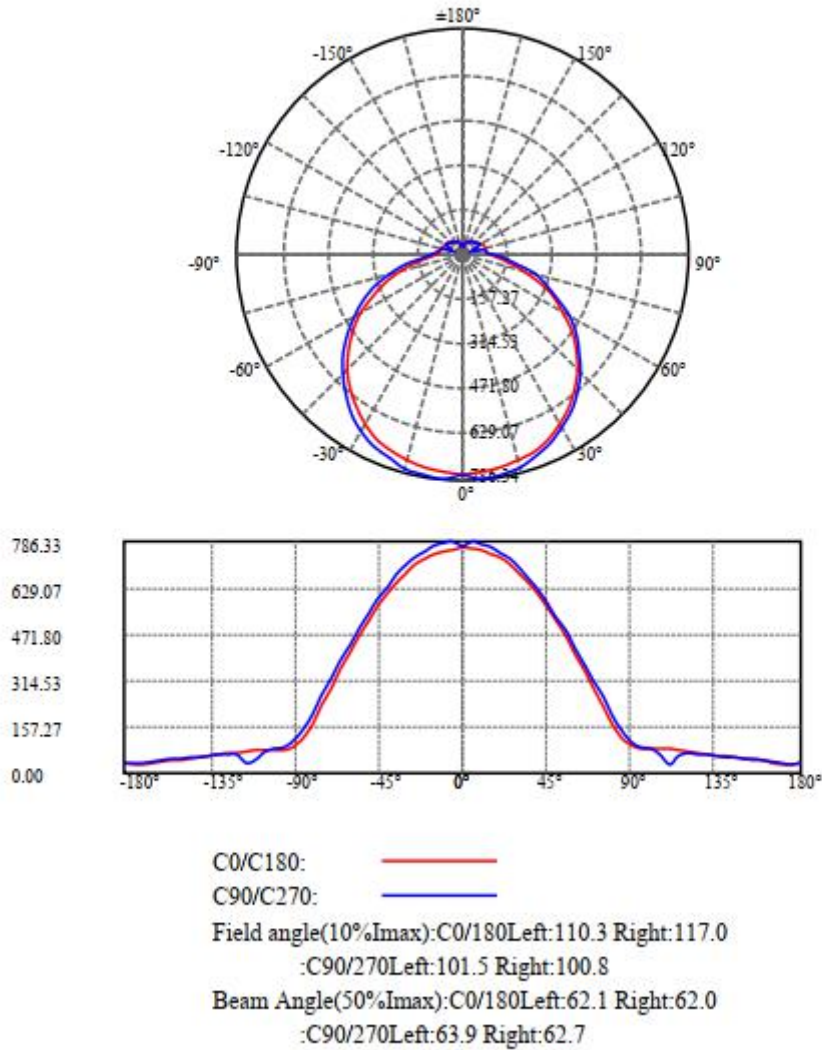
ZONAL LUMEN SUMMARY			
Zone	Lumens	%Lamp	%Fixt
0-30	613.39	20.14%	20.14%
0-40	1021.28	33.53%	33.53%
0-60	1881.26	61.77%	61.77%
0-90	2643.44	86.80%	86.80%
0-120	2877.80	94.49%	94.49%
0-180	3045.46	100.00%	100.00%
60-90	762.18	25.03%	25.03%
90-120	234.36	7.70%	7.70%
90-130	291.25	9.56%	9.56%
90-150	367.91	12.08%	12.08%
90-180	401.27	13.18%	13.18%
0-77.45	2436.37	80.00%	80.00%

ZONAL LUMEN SUMMARY

0-10	73.00
10-20	211.97
20-30	328.41
30-40	407.89
40-50	439.67
50-60	420.32
60-70	355.91
70-80	257.57
80-90	148.69
90-100	94.36
100-110	76.47
110-120	63.53
120-130	56.89
130-140	44.60
140-150	32.06
150-160	20.84
160-170	10.36
170-180	2.17

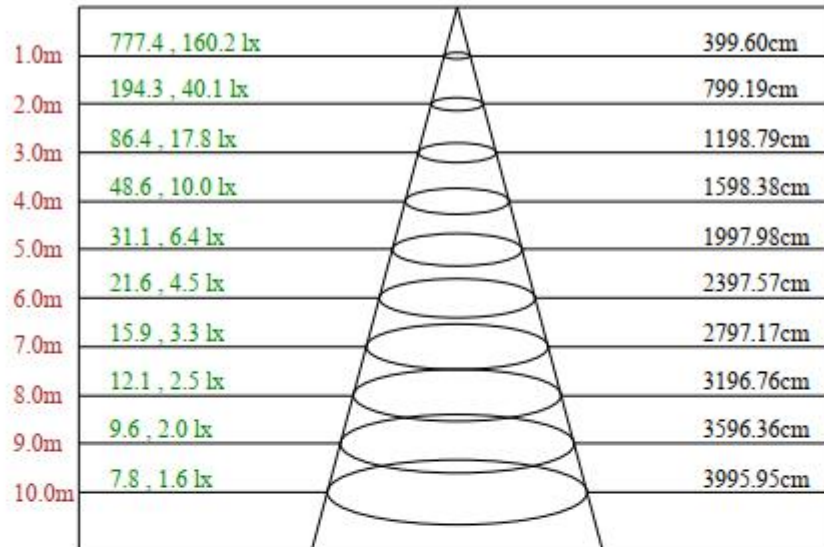
Light Distribution Curve [Unit:cd]

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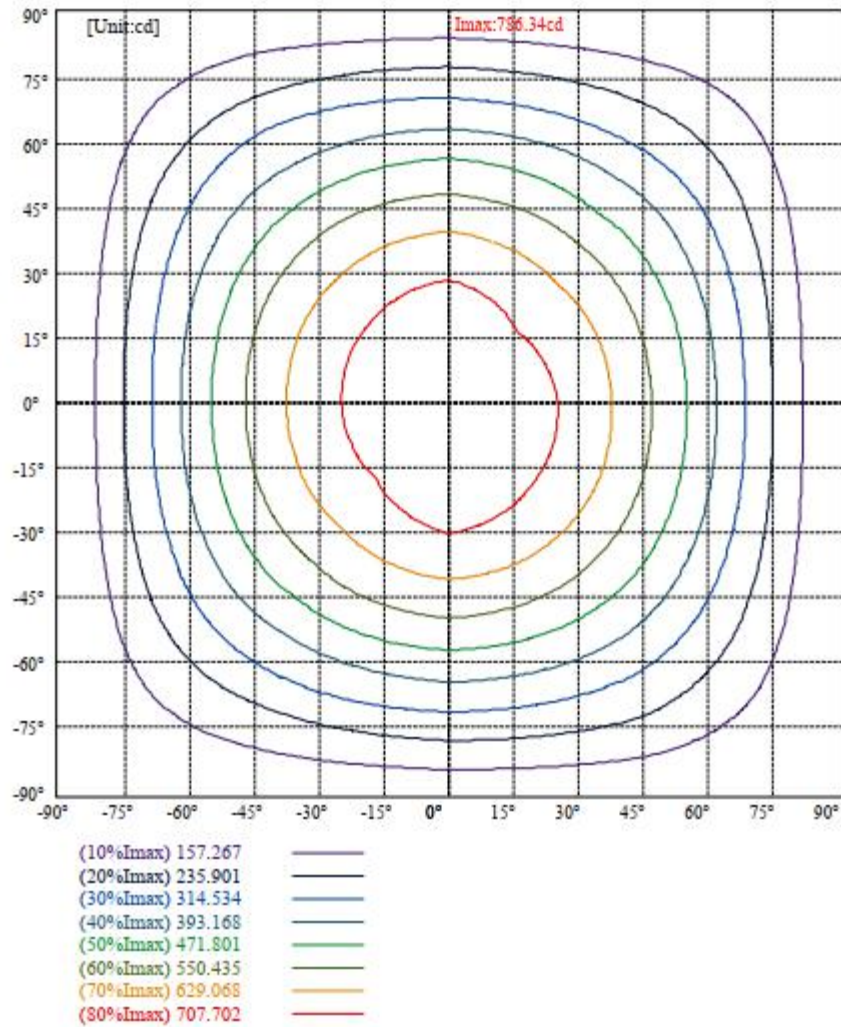


Lux distance Curve

Appendix Page: 5 Total:7



Max , Ave Beam angle of C270 plane 126.82



Intensity data(cd) Appendix Page: 7 Total: 7

C _T (°)	0.0	5.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0
0.0	767.95	759.63	755.01	743.23	730.62	707.07	677.01	646.94	608.46
45.0	767.95	753.54	746.39	735.03	718.85	695.09	669.86	638.11	598.37
90.0	767.95	764.02	777.29	766.78	747.44	725.36	696.14	661.03	622.76
135.0	767.95	768.25	761.32	748.70	735.03	710.01	684.78	649.25	609.52
180.0	767.95	759.42	753.12	742.60	726.83	705.81	677.43	644.42	608.88
225.0	767.95	755.43	749.12	738.40	724.31	702.24	675.32	644.00	606.36
270.0	767.95	766.34	760.66	773.09	753.96	734.61	706.86	676.37	632.01
315.0	767.95	768.88	763.63	753.33	737.98	715.48	688.36	656.82	617.29
360.0	767.95	759.63	755.01	743.23	730.62	707.07	677.01	646.94	608.46
C _T (°)	45.0	50.0	55.0	60.0	65.0	70.0	75.0	80.0	85.0
0.0	563.89	516.16	466.33	407.25	349.02	285.94	223.71	165.47	119.00
45.0	556.53	502.71	452.04	401.16	344.39	287.20	234.22	174.51	124.68
90.0	577.77	528.15	482.31	425.34	365.84	311.80	259.87	195.74	140.45
135.0	570.20	519.32	466.33	411.46	360.37	313.90	245.78	186.91	134.14
180.0	565.15	517.43	465.07	408.94	349.86	289.51	229.80	165.68	116.48
225.0	565.15	518.06	464.86	410.62	350.70	302.34	235.48	178.71	128.25
270.0	568.70	543.29	489.88	432.27	382.23	323.36	263.23	202.26	145.28
315.0	573.77	527.94	476.22	421.76	370.67	313.06	260.92	199.95	140.66
360.0	563.89	516.16	466.33	407.25	349.02	285.94	223.71	165.47	119.00
C _T (°)	90.0	95.0	100.0	105.0	110.0	115.0	120.0	125.0	130.0
0.0	94.61	83.47	82.42	82.84	80.95	78.42	74.43	69.17	64.76
45.0	97.77	83.68	80.95	71.91	69.59	66.65	64.34	62.02	59.92
90.0	104.92	85.99	81.79	61.60	31.12	57.40	68.12	65.60	62.66
135.0	99.45	81.37	78.42	69.80	67.28	65.39	62.23	58.87	56.77
180.0	89.15	78.00	78.00	78.63	76.95	74.22	70.64	66.02	61.39
225.0	97.98	79.90	76.74	72.75	62.44	63.08	60.55	58.24	56.56
270.0	107.86	86.41	81.79	71.28	44.15	36.58	62.66	65.39	62.87
315.0	104.70	85.78	81.16	75.90	68.33	68.12	65.18	62.02	60.13
360.0	94.61	83.47	82.42	82.84	80.95	78.42	74.43	69.17	64.76
C _T (°)	135.0	140.0	145.0	150.0	155.0	160.0	165.0	170.0	175.0
0.0	60.76	56.77	52.14	48.78	45.62	42.89	36.16	29.01	29.86
45.0	57.61	54.67	51.51	48.15	44.99	40.79	34.48	29.65	31.54
90.0	59.29	55.93	52.77	50.67	48.15	45.20	39.32	32.38	30.91
135.0	54.67	52.35	48.99	45.83	43.10	39.95	34.27	30.07	30.70
180.0	57.61	53.82	49.83	46.26	43.52	41.42	34.27	27.96	27.54
225.0	54.03	51.30	48.36	45.62	42.47	38.48	33.85	29.65	27.75
270.0	59.50	56.14	52.56	50.04	47.73	45.62	40.79	34.90	32.17
315.0	57.19	53.19	50.46	46.89	43.73	41.00	34.90	29.44	30.70
360.0	60.76	56.77	52.14	48.78	45.62	42.89	36.16	29.01	29.86
C _T (°)	180.0								
0.0	32.96								
45.0	32.96								
90.0	32.96								
135.0	32.96								
180.0	32.96								
225.0	32.96								
270.0	32.96								
315.0	32.96								
360.0	32.96								

Equipment List:

Equipment	ID No.	Model	Brand/Manufacturer	Calibration due date
Hygrothermograph	TMC-L2-017	HTC-2	MiEO	2020-12-09
Integrating sphere test system	TMC-L2-011	CSLMS-7621	Labsphere	2020-12-09
Oscilloscope	TMC-L1-015	DSO3202A	Agilent	2020-12-09
Oscilloscope probe 100:1	TMC-L1-017-T2	P4100	Agilent	2020-12-09
Stop watch	TMC-L2-018	JS-307	Timestar	2020-12-09
Goniophotometer system	TMC-L2-013	GO-R5000- SML	Everfine	2020-12-09

Attachment - Photo Document



Fig. 1

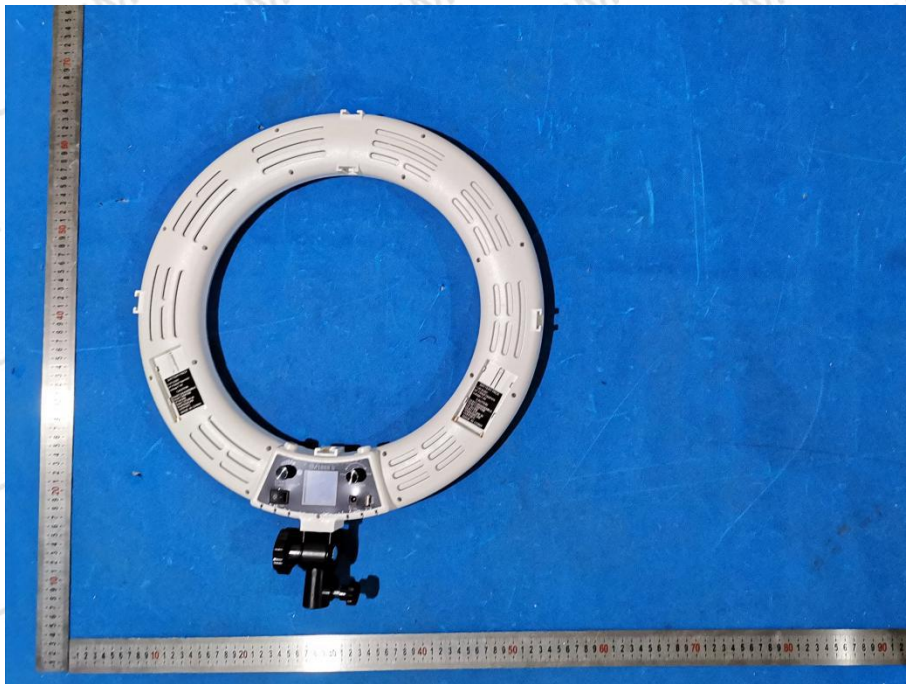


Fig 2

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