LM-79 Test Report

Testing Laboratory of Xiamen Topstar Lighting Co., Ltd.
No.676 Meixi Avenue, Xike, Tong'an District, Xiamen, Fujian, China

Test Request Number: BG-NW250110-3-01

Lamp specifics

Manufacturer:	LEDVANCE LLC	Watts:	10W
Lamp:	LED11A19F8SC310YV	Rated Lumens:	1100Lumens
Trademark:	LEDVANCE & SYLVANIA	Orientation:	VBU and VBD
Test Requester:	Huang Chengqi	Rated Voltage:	120V AC(tested @ 60Hz)
Telephone:	0592-7263029	Beam Angle:	N/A
Sample Size:	10	Center Beam:	N/A
Date of Received:	2025.01.22	CCT:	2700K/3000K/3500K/4000K/5000K
Date of Tests:	2025.02.07~2025.02.12	Current Burn Time:	0 hr

Test Purpose

Electrical and Photometric tests as required by IES LM-79 test standard

Standards used

ANSI/IES LM-79:2019 Optical and Electrical Measurements of Solid-State Lighting Products
IES LM-20:2013 Photometric testing of reflector type lamps
IES LM-58:2013 Spectroradiometric Measurement Methods for Light Sources
CIE Pub.13.3:1995 Method of measuring and Specifying Color Rendering Properties of Light Sources
CIE Pub.15:2004 Method of measuring and Specifying Color Rendering of Light Sources
ANSI C82.77:2002 Harmonic Emission Limits- Related Power Quality Requirements for Lighting Equipment

Disclaimers

1. It's not allowed if partly use this report without written authorization.
2. Test conclusion in this report is solely applicable for referring samples.
3. The test sample information in this report is provided by the customer.
4. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Measurements performed by one or more of the following authorized operators:

Xu guohua, He Chunfang,
Zhou Lei

Report prepared by: Zhou Lei

Report was checked and issued by
Chen Xiangbing
Authorized signatory

Issue Date：2025.02.14
E-mail: chenxb@topstar.com.cn
Phone: +86-592-7263892

Instrumentation

Goniometry Instrumentation

EVERFINE TYPE C High Speed Mirror Goniophotometer R5000
EVERFINE HAAS-2000 High Accuracy Array Spectroradiometer
EVERFINE ID-1000 Accurate Photometer
EVERFINE PF2010 Digital Power Analyzer
EVERFINE WY12010 DC Power source
NF EC1000S AC Power source
D980s total luminous flux and spectral flux standard lamp certified by NIM

Sphere Spectroradiometry Instrumentation

EVERFINE HAAS-2000 High Accuracy Array Spectroradiometer, FWHM = 2nm
Yokogawa WT1800 Digital power meter
EVERFINE PCR-1000W AC power source
EVERFINE WY305 DC Power source
EVERFINE 1.5 meter sphere with high reflectance coating
D204 total luminous flux and spectral flux standard lamp certified by NIM

Test Objectives

Goniometric measurement:

Measure distribution photometry and input electrical parameters and report candela distribution, calculated lumen output, voltage (V), current (A) and power (W).

Sphere spectroradiometric measurement:

Measure sphere photometry and input electrical parameters and report the total flux output (lumens), Correlated Color Temperature (CCT), Color Rendering Index (CRI), Chromaticity Coordinates (x,y), Spectral Power Distribution (SPD), voltage (V), current (A) and power (W).

Test Procedures and Conditions

Goniometry:

Electrical conditions and physical orientation were set as required by the lamp manufacturer or the customer.

Ambient temperature was controlled at 25+/-1 degree Celsius and measured at the approximate height of the sample mounted on the Goniometer equipment.

Calibration was based on NIM certified total luminous flux and spectral flux standard lamp.

Lamps were stabilized per LM-79 requirements.

EVERFINE type C High Speed Mirror Goniometer was used to measure intensity (candela) at each angle of distribution.

Burn time during testing for each lamp: 2 hours

Stabilization time during testing for each lamp: 0.5 hours

Sphere Spectroradiometry

Electrical conditions and physical orientation were set as required by the luminaires/lamps manufacturer or the customer.

Ambient temperature was controlled at 25+/-1 degree Celsius and measured inside of the sphere, shielded from direct radiation of the lamp.

Calibration was based on NIM certified total luminous flux and spectral flux standard lamp.

Luminaires/lamps were stabilized per LM-79 requirements.

HAAS-2000 Spectroradiometer attached to 1.5 meter sphere painted with high reflectance paint (＞98%) was used to measure correlated color temperature, chromaticity coordinates, color rendering index, total luminous flux and spectral power distribution. Sphere measurement was set up in 4π geometry and used continuous self-absorption correction.

Burn time during testing for each luminaires/lamps: 2 hours

Stabilization time during testing for each luminaires/lamps: 0.5 hours

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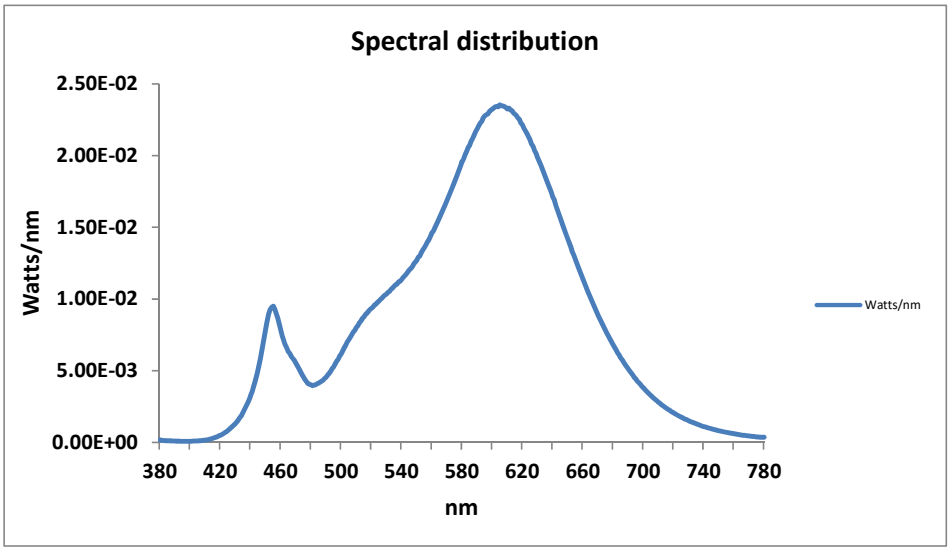
Test data in 2700K

Average Sphere Spectroradiometry Test Data

Lamp Volts(V)	Lamp Current(A)	Lamp Watts(W)	Power Factor	Lumens (lm)	LPW (lm/W)
119.99	0.135	9.0	0.552	1101.9	122.8

CCX	CCY	u′	v′	Duv	CCT(K)	CRI	R9	Rf	Rg
0.4574	0.4095	0.2614	0.5266	-0.0002	2726	82.2	6.0	84	96

Spectral Power Distribution



nm	Watts/nm
380	1.80E-04
385	1.24E-04
390	9.68E-05
395	7.77E-05
400	8.80E-05
405	1.09E-04
410	1.61E-04
415	2.84E-04
420	4.99E-04
425	8.43E-04
430	1.33E-03
435	2.09E-03
440	3.26E-03
445	5.09E-03
450	7.91E-03
455	9.51E-03
460	7.82E-03

nm	Watts/nm
465	6.35E-03
470	5.53E-03
475	4.57E-03
480	4.02E-03
485	4.12E-03
490	4.54E-03
495	5.27E-03
500	6.18E-03
505	7.18E-03
510	8.00E-03
515	8.74E-03
520	9.35E-03
525	9.87E-03
530	1.04E-02
535	1.09E-02
540	1.14E-02
545	1.20E-02

nm	Watts/nm
550	1.27E-02
555	1.36E-02
560	1.46E-02
565	1.57E-02
570	1.69E-02
575	1.82E-02
580	1.96E-02
585	2.07E-02
590	2.19E-02
595	2.28E-02
600	2.32E-02
605	2.35E-02
610	2.33E-02
615	2.29E-02
620	2.21E-02
625	2.11E-02
630	1.99E-02

nm	Watts/nm
635	1.86E-02
640	1.72E-02
645	1.57E-02
650	1.42E-02
655	1.28E-02
660	1.14E-02
665	1.01E-02
670	8.90E-03
675	7.79E-03
680	6.80E-03
685	5.91E-03
690	5.14E-03
695	4.43E-03
700	3.80E-03
705	3.27E-03
710	2.81E-03
715	2.41E-03

nm	Watts/nm
720	2.07E-03
725	1.77E-03
730	1.52E-03
735	1.30E-03
740	1.11E-03
745	9.53E-04
750	8.18E-04
755	7.03E-04
760	6.05E-04
765	5.19E-04
770	4.52E-04
775	3.91E-04
780	3.57E-04

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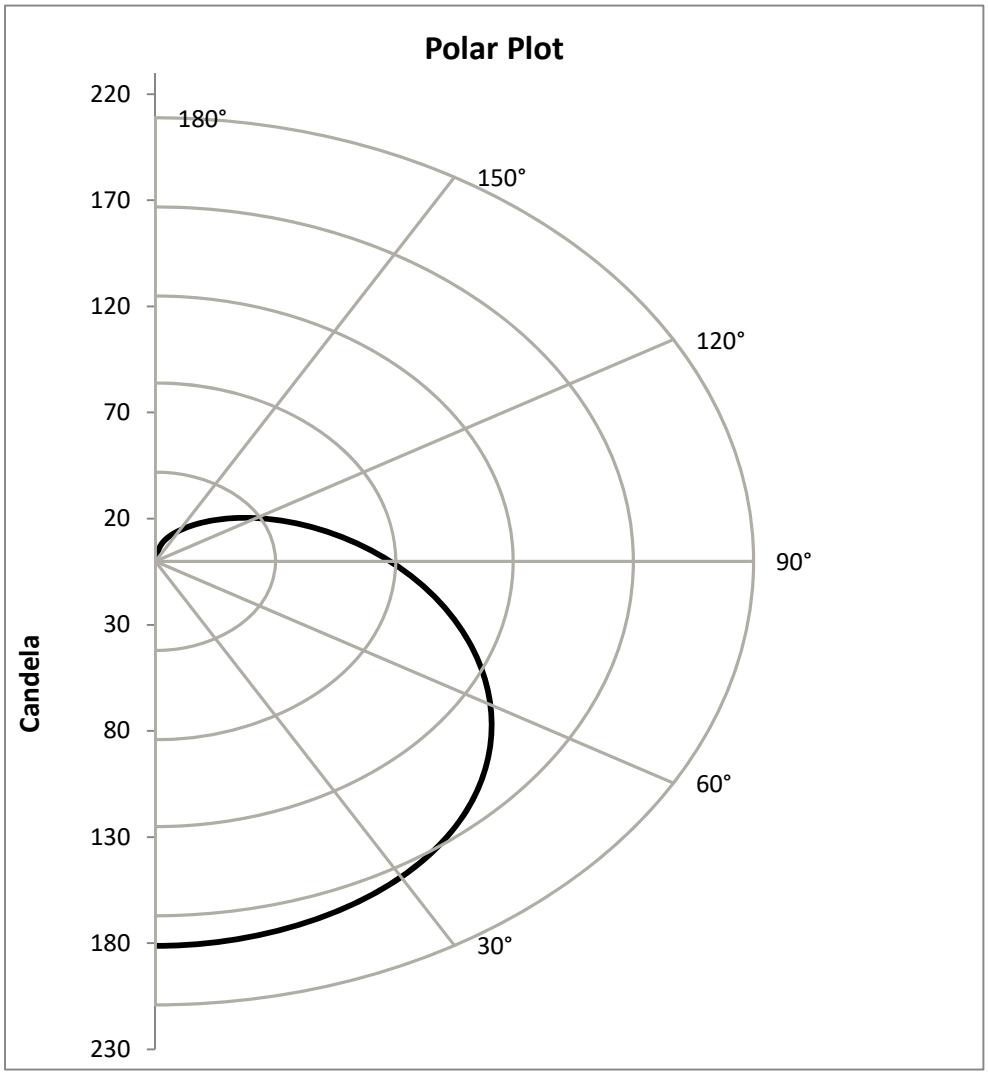
Average Goniometry Test Data

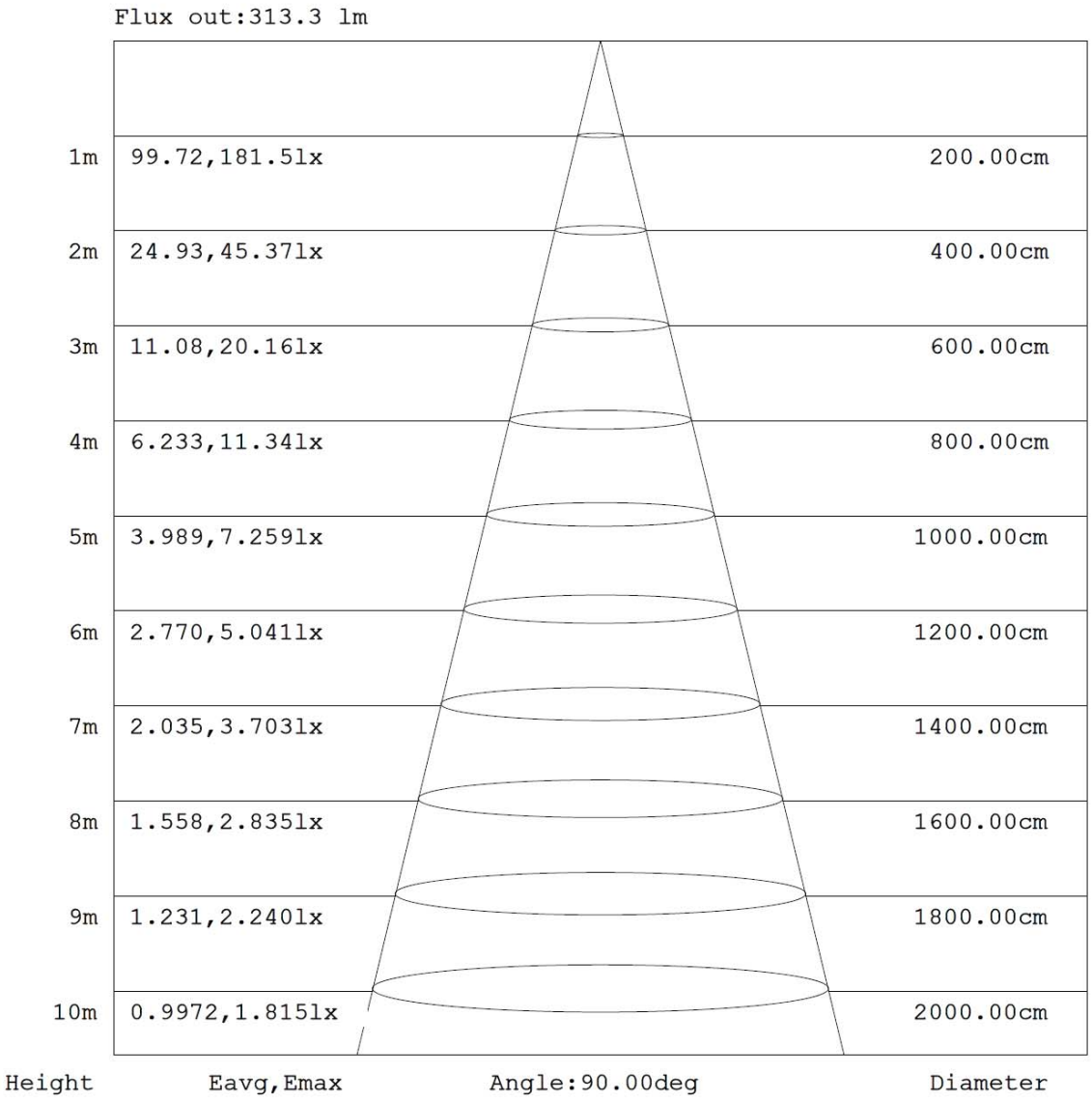
Beam Angle				Color Distribution
	Candela	Half Angle	Full Angle	Δu'v'
Max	181	1.0	-----	-----
50%of Max	91	84.7	169.4	-----
10%of Max	18	-----	-----	-----

Volts	Amps	Watts	PF
120.04	0.141	9.1	0.541
Total Downlight Lumens:			842.9
Total Uplight Lumens:			264.2
Total Lumens:			1107.1
Total Lumens/ Watt:			121.3

Intensity Distribution

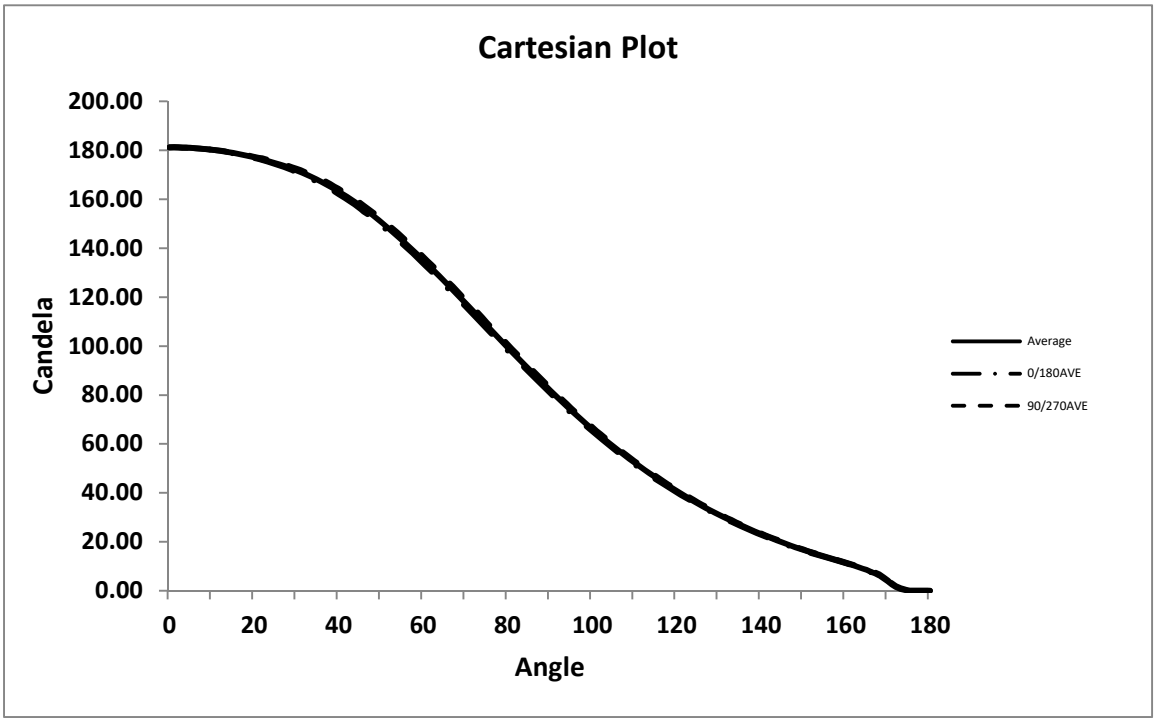


Cone Diagram



Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

Cartesian Plot



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Cartesian Distribution

Angle	Average cd	0/180 Average	90/270 Average	Zonal Lumens	Cumulative Lumens	%Total
0	181.16	181.16	181.16	0.00	0.00	0.00%
5	180.95	180.95	180.89	4.33	4.33	0.39%
10	180.20	180.17	180.20	12.92	17.25	1.56%
15	178.88	178.80	178.99	21.30	38.55	3.48%
20	177.11	176.87	177.39	29.34	67.89	6.13%
25	174.77	174.34	175.27	36.91	104.79	9.47%
30	171.76	171.10	172.48	43.86	148.65	13.43%
35	167.94	167.08	168.82	50.03	198.68	17.95%
40	163.13	162.11	164.23	55.25	253.93	22.94%
45	157.39	156.25	158.62	59.36	313.29	28.30%
50	150.75	149.47	152.04	62.27	375.56	33.92%
55	143.27	141.97	144.63	63.94	439.50	39.70%
60	135.17	133.81	136.57	64.36	503.87	45.51%
65	126.51	125.19	127.94	63.62	567.48	51.26%
70	117.59	116.27	118.91	61.80	629.29	56.84%
75	108.51	107.20	109.78	59.09	688.38	62.18%
80	99.50	98.24	100.69	55.65	744.03	67.21%
85	90.64	89.46	91.70	51.65	795.68	71.87%
90	82.04	80.96	83.07	47.26	842.94	76.14%
95	73.77	72.78	74.70	42.64	885.58	79.99%
100	66.11	65.24	66.95	37.99	923.57	83.42%
105	58.96	58.18	59.72	33.45	957.02	86.44%
110	52.38	51.68	53.05	29.09	986.11	89.07%
115	46.35	45.72	46.95	24.99	1011.09	91.33%
120	40.78	40.24	41.29	21.17	1032.26	93.24%
125	35.72	35.23	36.18	17.68	1049.94	94.84%
130	31.11	30.68	31.50	14.52	1064.46	96.15%
135	26.92	26.55	27.25	11.72	1076.19	97.21%
140	23.15	22.82	23.43	9.27	1085.46	98.05%
145	19.74	19.48	19.99	7.16	1092.61	98.69%
150	16.70	16.48	16.89	5.37	1097.98	99.18%
155	13.99	13.83	14.15	3.89	1101.87	99.53%
160	11.39	11.29	11.52	2.67	1104.54	99.77%
165	8.48	8.38	8.72	1.66	1106.20	99.92%
170	3.84	4.08	4.26	0.78	1106.98	99.99%
175	0.01	0.01	0.01	0.11	1107.09	100.00%
180	0.00	0.00	0.00	0.00	1107.09	100.00%

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Individual Lamp Data- Sphere

Position	Sample No.	Lamp Volts (V)	Lamp Current (A)	Lamp Watts (W)	PF	Luminous Lumens (lm)	LPW (lm/W)	CCX	CCY	CCT (K)	CRI	R9	Duv	Rf	Rg
VBU	1	119.98	0.138	9.1	0.547	1080.9	119.0	0.4555	0.4089	2749	82.0	5.7	-0.0002	84	95
	2	119.98	0.137	9.1	0.551	1121.9	123.8	0.4582	0.4113	2730	82.3	6.6	0.0004	84	95
	3	119.98	0.135	8.9	0.550	1102.1	124.1	0.4579	0.4096	2720	82.5	7.5	-0.0002	84	96
	4	119.98	0.138	9.1	0.548	1095.3	121.0	0.4553	0.4096	2757	82.1	5.8	0.0000	84	95
	5	119.99	0.135	8.9	0.552	1111.2	124.6	0.4600	0.4083	2680	82.2	5.1	-0.0009	84	96
VBD	7	119.99	0.133	8.8	0.556	1110.9	125.7	0.4598	0.4091	2690	82.5	6.0	-0.0005	84	96
	8	119.99	0.130	8.8	0.567	1118.1	126.9	0.4585	0.4121	2731	82.5	6.9	0.0007	84	95
	9	119.99	0.137	9.1	0.552	1108.4	122.5	0.4561	0.4106	2753	82.1	5.8	0.0003	84	95
	10	120.00	0.137	9.1	0.551	1091.7	120.5	0.4544	0.4085	2762	82.2	6.3	-0.0003	84	96
	11	120.00	0.137	9.0	0.549	1078.0	119.8	0.4586	0.4069	2689	81.8	4.0	-0.0013	84	96
Average		**119.99**	**0.135**	**9.0**	**0.552**	**1101.9**	**122.8**	**0.4574**	**0.4095**	**2726**	**82.2**	**6.0**	**-0.0002**	**84**	**96**

Individual Lamp Data- Goniometer

Sample No.	Lamp Volts (V)	Lamp Current (A)	Lamp Watts (W)	Total Lumens (lm)	Beam Angle （°）	CBCP （cd）	90 cone lumen(lm)	E*Δu'v'
1	120.04	0.141	9.1	1107.1	169.4	181	313.3	---

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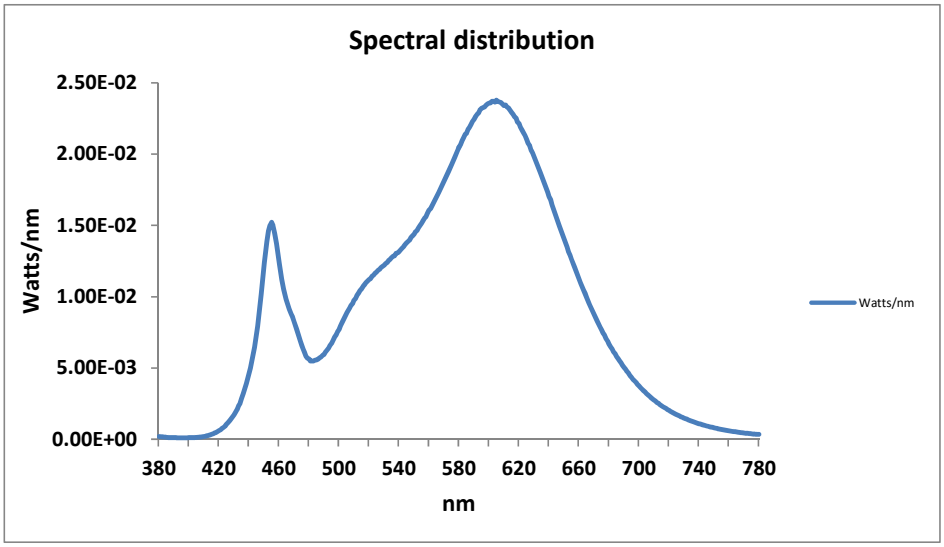
Test data in 3000K

Average Sphere Spectroradiometry Test Data

Lamp Volts(V)	Lamp Current(A)	Lamp Watts(W)	Power Factor	Lumens (lm)	LPW (lm/W)
120.01	0.140	9.2	0.549	1170.2	127.2

CCX	CCY	u′	v′	Duv	CCT(K)	CRI	R9	Rf	Rg
0.4301	0.3951	0.2500	0.5168	-0.0027	3045	84.3	14.5	85	97

Spectral Power Distribution



nm	Watts/nm
380	1.92E-04
385	1.43E-04
390	1.14E-04
395	9.41E-05
400	1.10E-04
405	1.30E-04
410	1.97E-04
415	3.40E-04
420	6.06E-04
425	1.06E-03
430	1.73E-03
435	2.84E-03
440	4.58E-03
445	7.42E-03
450	1.21E-02
455	1.52E-02
460	1.25E-02

nm	Watts/nm
465	9.70E-03
470	8.26E-03
475	6.63E-03
480	5.62E-03
485	5.57E-03
490	5.95E-03
495	6.72E-03
500	7.71E-03
505	8.83E-03
510	9.74E-03
515	1.05E-02
520	1.12E-02
525	1.17E-02
530	1.22E-02
535	1.27E-02
540	1.32E-02
545	1.38E-02

nm	Watts/nm
550	1.44E-02
555	1.52E-02
560	1.61E-02
565	1.70E-02
570	1.81E-02
575	1.93E-02
580	2.05E-02
585	2.15E-02
590	2.24E-02
595	2.32E-02
600	2.36E-02
605	2.38E-02
610	2.34E-02
615	2.29E-02
620	2.21E-02
625	2.11E-02
630	1.98E-02

nm	Watts/nm
635	1.85E-02
640	1.70E-02
645	1.55E-02
650	1.41E-02
655	1.26E-02
660	1.12E-02
665	9.97E-03
670	8.77E-03
675	7.67E-03
680	6.69E-03
685	5.81E-03
690	5.04E-03
695	4.35E-03
700	3.73E-03
705	3.21E-03
710	2.75E-03
715	2.36E-03

nm	Watts/nm
720	2.03E-03
725	1.74E-03
730	1.48E-03
735	1.27E-03
740	1.09E-03
745	9.34E-04
750	8.01E-04
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765	5.10E-04
770	4.41E-04
775	3.87E-04
780	3.53E-04

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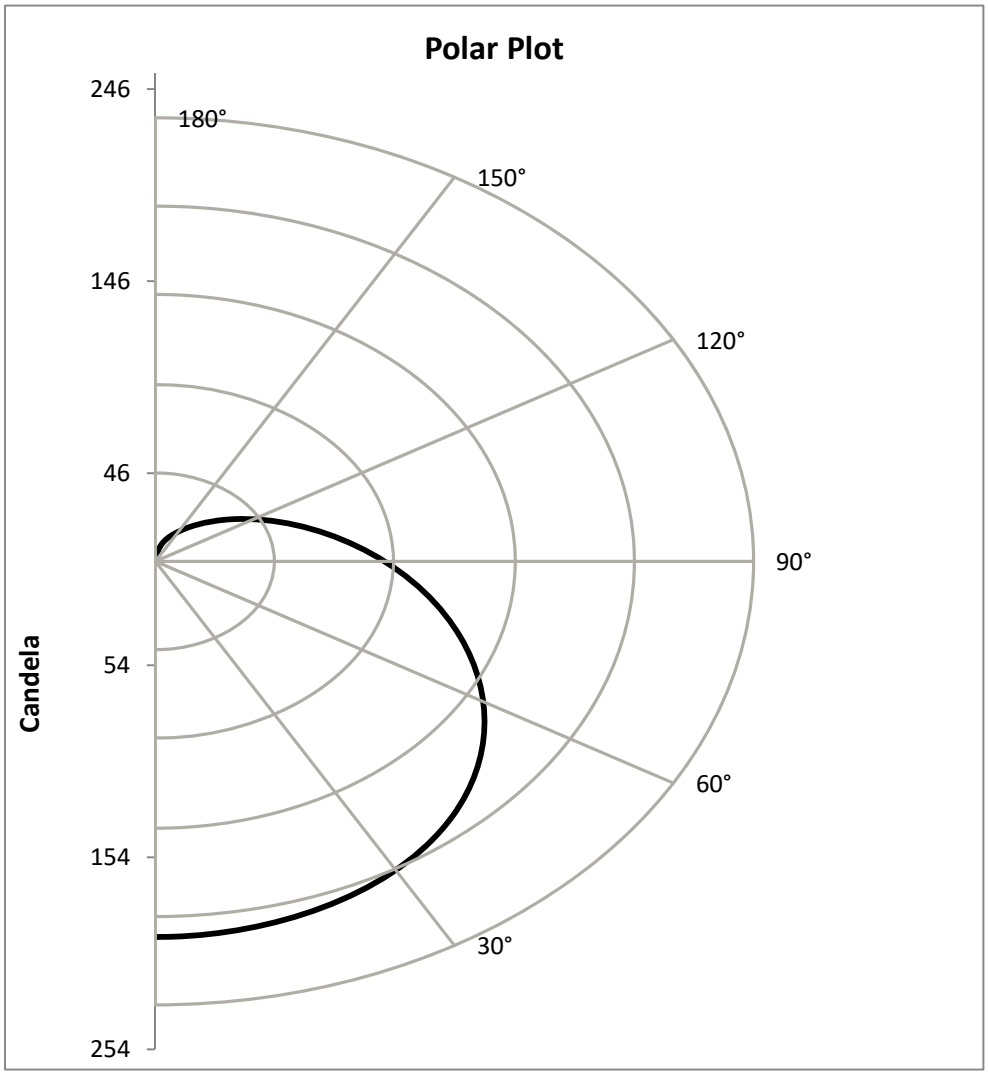
Average Goniometry Test Data

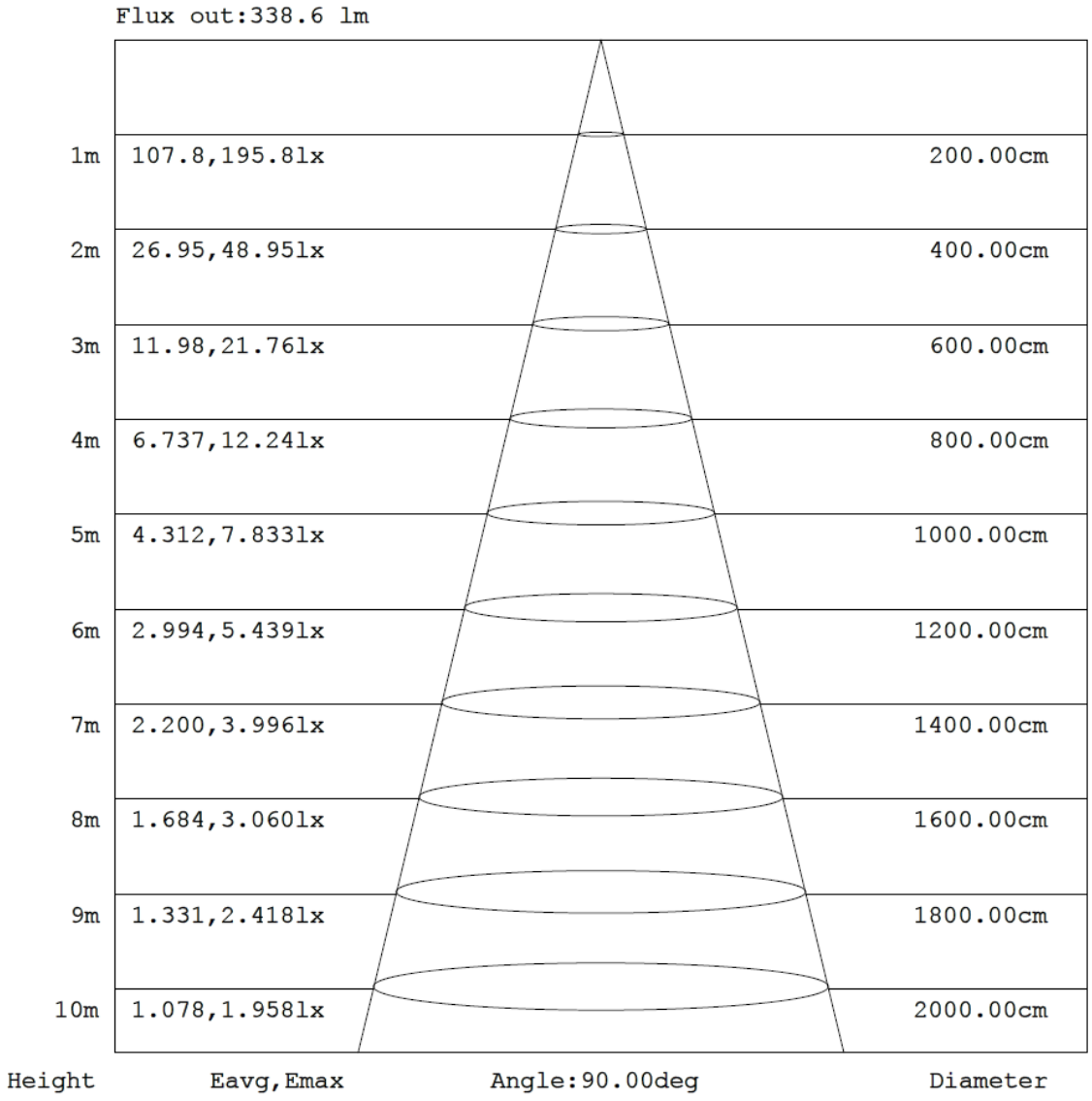
Beam Angle				Color Distribution
	Candela	Half Angle	Full Angle	Δu'v'
Max	196	0.0	-----	-----
50%of Max	98	84.6	169.1	-----
10%of Max	20	-----	-----	-----

Volts	Amps	Watts	PF
120.01	0.143	9.3	0.543
Total Downlight Lumens:			911.3
Total Uplight Lumens:			284.3
Total Lumens:			1195.6
Total Lumens/ Watt:			128.2

Intensity Distribution

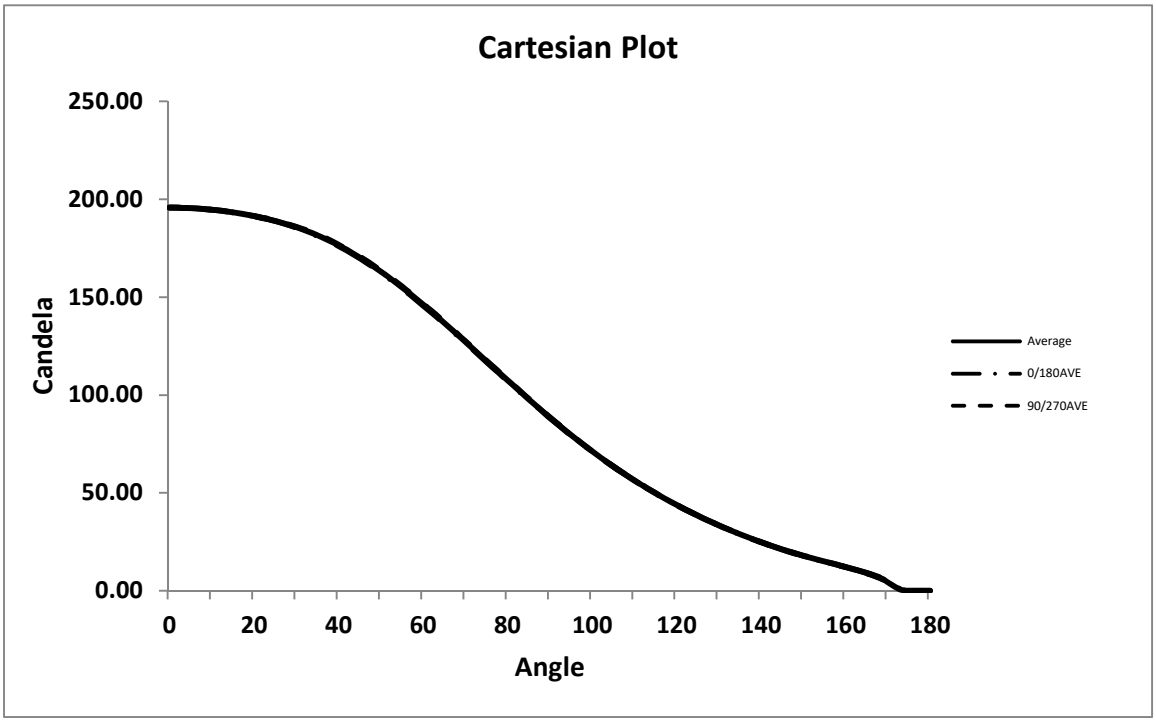


Cone Diagram



Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

Cartesian Plot



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Cartesian Distribution

Angle	Average cd	0/180 Average	90/270 Average	Zonal Lumens	Cumulative Lumens	%Total
0	195.65	195.65	195.65	0.00	0.00	0.00%
5	195.36	195.38	195.40	4.67	4.67	0.39%
10	194.58	194.57	194.60	13.95	18.63	1.56%
15	193.29	193.29	193.33	23.00	41.63	3.48%
20	191.37	191.35	191.39	31.70	73.33	6.13%
25	188.87	188.77	189.02	39.88	113.21	9.47%
30	185.69	185.45	185.91	47.40	160.62	13.43%
35	181.56	181.30	181.86	54.09	214.70	17.96%
40	176.42	176.05	176.79	59.74	274.45	22.95%
45	170.27	169.80	170.70	64.20	338.65	28.32%
50	163.06	162.58	163.47	67.36	406.01	33.96%
55	154.99	154.49	155.42	69.17	475.17	39.74%
60	146.21	145.72	146.67	69.63	544.80	45.57%
65	136.87	136.41	137.29	68.81	613.62	51.32%
70	127.15	126.77	127.50	66.84	680.46	56.91%
75	117.30	116.99	117.57	63.89	744.35	62.26%
80	107.49	107.24	107.72	60.14	804.49	67.29%
85	97.86	97.63	98.04	55.79	860.28	71.95%
90	88.51	88.31	88.69	51.02	911.29	76.22%
95	79.56	79.42	79.67	45.99	957.28	80.07%
100	71.24	71.17	71.30	40.96	998.24	83.49%
105	63.53	63.47	63.60	36.04	1034.28	86.51%
110	56.39	56.32	56.43	31.32	1065.60	89.13%
115	49.85	49.81	49.86	26.89	1092.49	91.37%
120	43.87	43.85	43.89	22.77	1115.26	93.28%
125	38.39	38.37	38.38	19.01	1134.27	94.87%
130	33.42	33.39	33.41	15.61	1149.88	96.17%
135	28.92	28.88	28.90	12.59	1162.47	97.23%
140	24.84	24.77	24.82	9.95	1172.42	98.06%
145	21.17	21.09	21.16	7.68	1180.10	98.70%
150	17.92	17.86	17.92	5.76	1185.86	99.18%
155	14.98	14.87	15.01	4.16	1190.02	99.53%
160	12.17	12.07	12.13	2.86	1192.88	99.77%
165	9.06	9.14	8.95	1.77	1194.65	99.92%
170	4.37	4.89	4.55	0.85	1195.50	99.99%
175	0.01	0.01	0.01	0.13	1195.62	100.00%
180	0.00	0.00	0.00	0.00	1195.62	100.00%

LM-79 Test Report

Testing Laboratory of Xiamen Topstar Lighting Co., Ltd.
No.676 Meixi Avenue, Xike, Tong'an District, Xiamen, Fujian, China

Test Request Number: BG-NW250110-3-01

Individual Lamp Data- Sphere

Position	Sample No.	Lamp Volts (V)	Lamp Current (A)	Lamp Watts (W)	PF	Luminous Lumens (lm)	LPW (lm/W)	CCX	CCY	CCT (K)	CRI	R9	Duv	Rf	Rg
VBU	1	120.00	0.141	9.3	0.547	1170.1	126.2	0.4276	0.3945	3084	84.5	15.6	-0.0025	85	96
	2	120.00	0.142	9.3	0.550	1170.5	125.5	0.4286	0.3954	3073	84.4	15.4	-0.0023	85	96
	3	120.01	0.140	9.2	0.548	1169.0	127.3	0.4271	0.3937	3087	84.9	17.5	-0.0028	85	97
	4	119.99	0.138	9.1	0.549	1161.4	127.5	0.4346	0.3964	2977	84.2	12.8	-0.0028	85	97
	5	120.01	0.140	9.2	0.548	1151.8	125.5	0.4335	0.3947	2982	83.9	12.0	-0.0033	84	97
VBD	7	120.01	0.139	9.2	0.551	1157.4	126.4	0.4329	0.3950	2994	84.0	12.5	-0.0031	85	97
	8	120.02	0.139	9.2	0.550	1185.1	129.5	0.4280	0.3957	3086	84.5	15.6	-0.0021	85	96
	9	120.01	0.140	9.2	0.551	1195.4	129.4	0.4284	0.3961	3083	84.5	15.3	-0.0020	85	96
	10	120.02	0.140	9.3	0.550	1177.6	127.3	0.4272	0.3947	3093	84.5	15.7	-0.0024	85	96
	11	120.02	0.139	9.2	0.549	1163.6	127.0	0.4329	0.3947	2991	84.0	12.4	-0.0032	84	97
Average		**120.01**	**0.140**	**9.2**	**0.549**	**1170.2**	**127.2**	**0.4301**	**0.3951**	**3045**	**84.3**	**14.5**	**-0.0027**	**85**	**97**

Individual Lamp Data- Goniometer

Sample No.	Lamp Volts (V)	Lamp Current (A)	Lamp Watts (W)	Total Lumens (lm)	Beam Angle （°）	CBCP （cd）	90 cone lumen(lm)	E*Δu'v'
1	120.01	0.143	9.3	1195.6	169.1	196	338.7	---

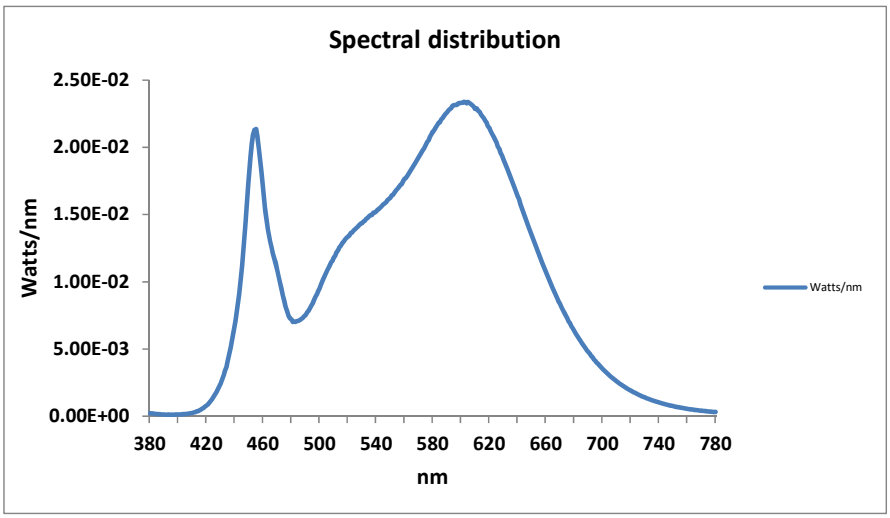
Test data in 3500K

Average Sphere Spectroradiometry Test Data

Lamp Volts(V)	Lamp Current(A)	Lamp Watts(W)	Power Factor	Lumens (lm)	LPW (lm/W)
120.02	0.143	9.4	0.551	1248.0	132.2

CCX	CCY	u′	v′	Duv	CCT(K)	CRI	R9	Rf	Rg
0.4020	0.3818	0.2373	0.5070	-0.0032	3501	86.1	22.0	86	97

Spectral Power Distribution



nm	Watts/nm
380	2.29E-04
385	1.68E-04
390	1.39E-04
395	1.21E-04
400	1.36E-04
405	1.67E-04
410	2.47E-04
415	4.45E-04
420	8.08E-04
425	1.45E-03
430	2.44E-03
435	4.10E-03
440	6.76E-03
445	1.11E-02
450	1.78E-02
455	2.14E-02
460	1.69E-02

nm	Watts/nm
465	1.30E-02
470	1.09E-02
475	8.57E-03
480	7.21E-03
485	7.09E-03
490	7.51E-03
495	8.38E-03
500	9.52E-03
505	1.08E-02
510	1.18E-02
515	1.27E-02
520	1.34E-02
525	1.39E-02
530	1.44E-02
535	1.49E-02
540	1.52E-02
545	1.58E-02

nm	Watts/nm
550	1.63E-02
555	1.69E-02
560	1.77E-02
565	1.84E-02
570	1.93E-02
575	2.02E-02
580	2.11E-02
585	2.19E-02
590	2.26E-02
595	2.32E-02
600	2.33E-02
605	2.34E-02
610	2.29E-02
615	2.23E-02
620	2.14E-02
625	2.03E-02
630	1.91E-02

nm	Watts/nm
635	1.78E-02
640	1.64E-02
645	1.49E-02
650	1.34E-02
655	1.21E-02
660	1.07E-02
665	9.49E-03
670	8.34E-03
675	7.28E-03
680	6.35E-03
685	5.51E-03
690	4.77E-03
695	4.12E-03
700	3.52E-03
705	3.03E-03
710	2.59E-03
715	2.23E-03

nm	Watts/nm
720	1.91E-03
725	1.64E-03
730	1.40E-03
735	1.20E-03
740	1.02E-03
745	8.80E-04
750	7.56E-04
755	6.49E-04
760	5.58E-04
765	4.79E-04
770	4.14E-04
775	3.62E-04
780	3.31E-04

LM-79 Test Report

Testing Laboratory of Xiamen Topstar Lighting Co., Ltd.
No.676 Meixi Avenue, Xike, Tong'an District, Xiamen, Fujian, China

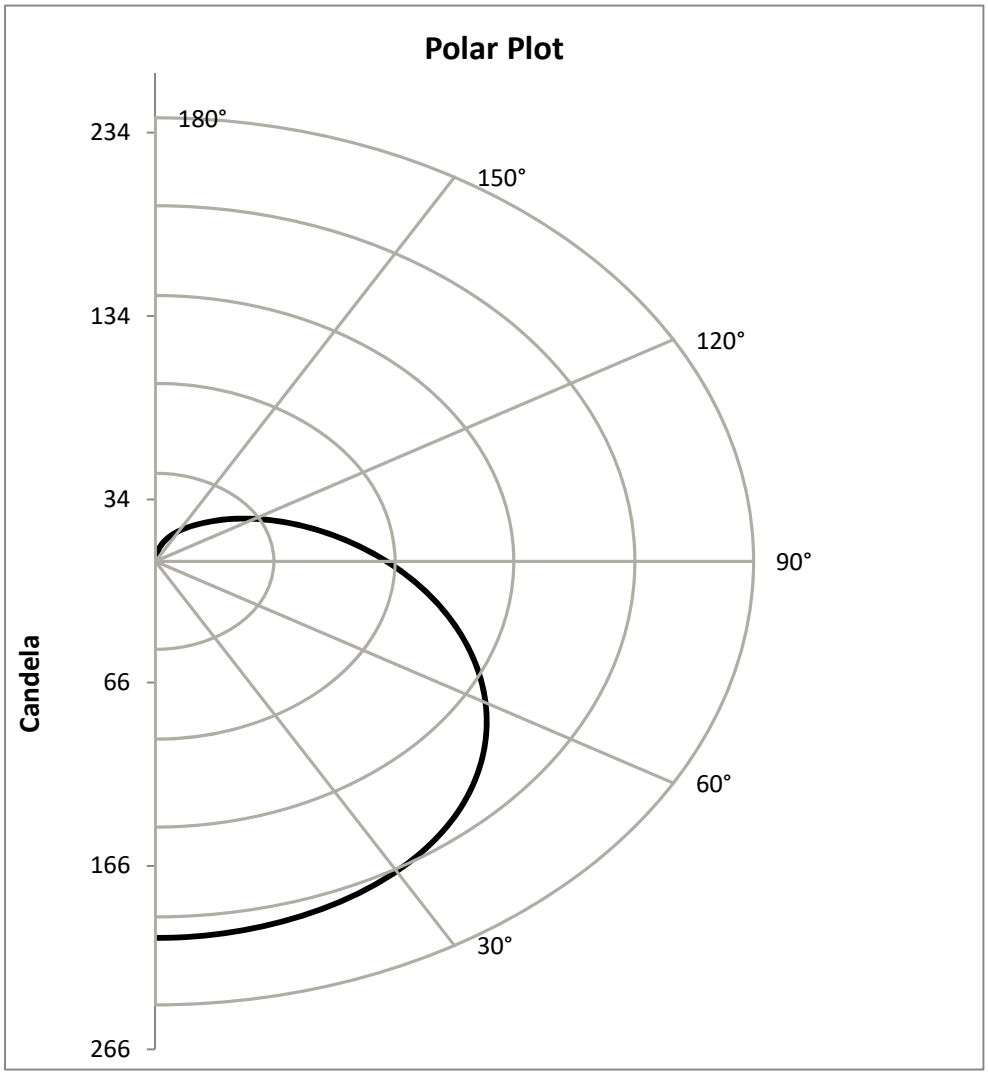
Test Request Number: BG-NW250110-3-01

Average Goniometry Test Data

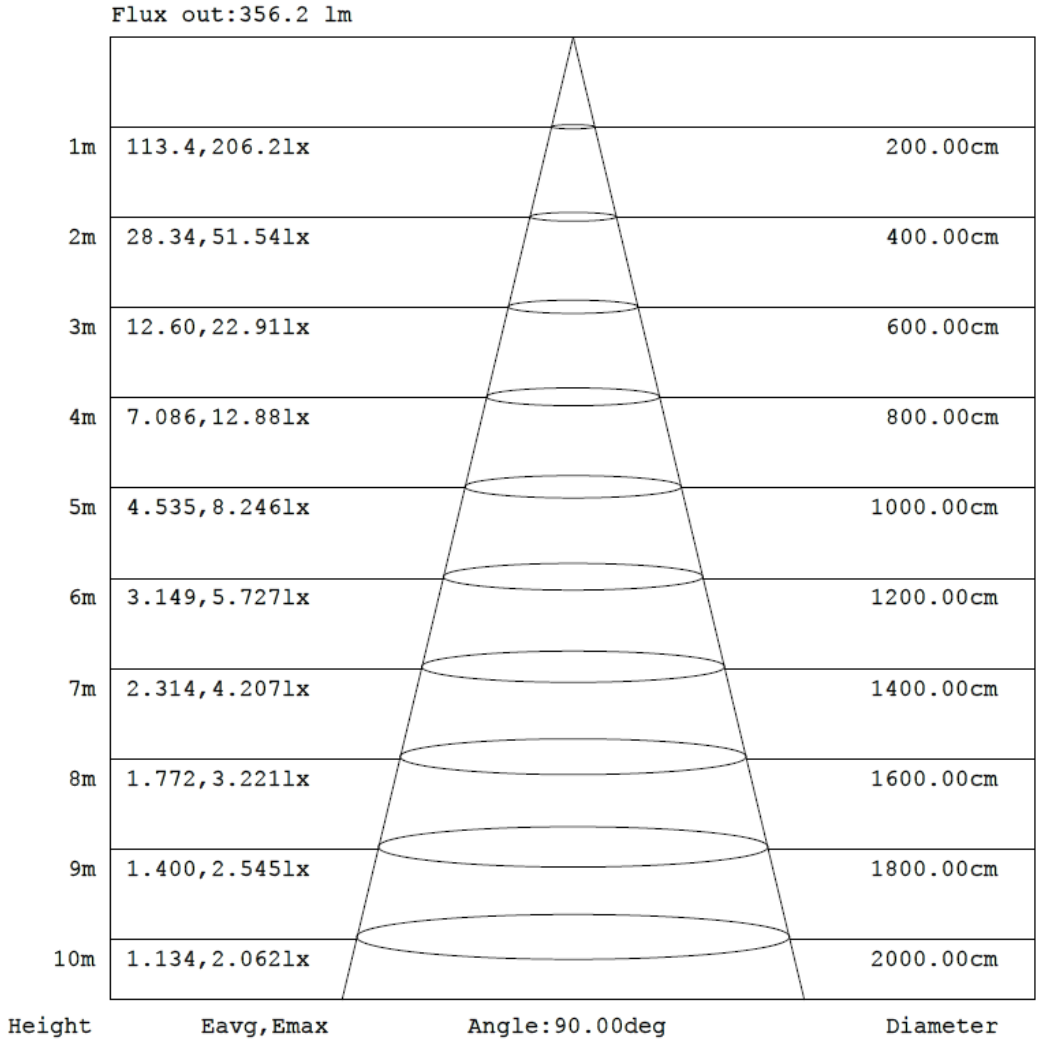
Beam Angle				Color Distribution
	Candela	Half Angle	Full Angle	Δu'v'
Max	206	0.0	-----	-----
50%of Max	103	84.9	169.8	-----
10%of Max	21	-----	-----	-----

Volts	Amps	Watts	PF
120.00	0.146	9.6	0.545
Total Downlight Lumens:			960.6
Total Uplight Lumens:			300.7
Total Lumens:			1261.3
Total Lumens/ Watt:			131.9

Intensity Distribution

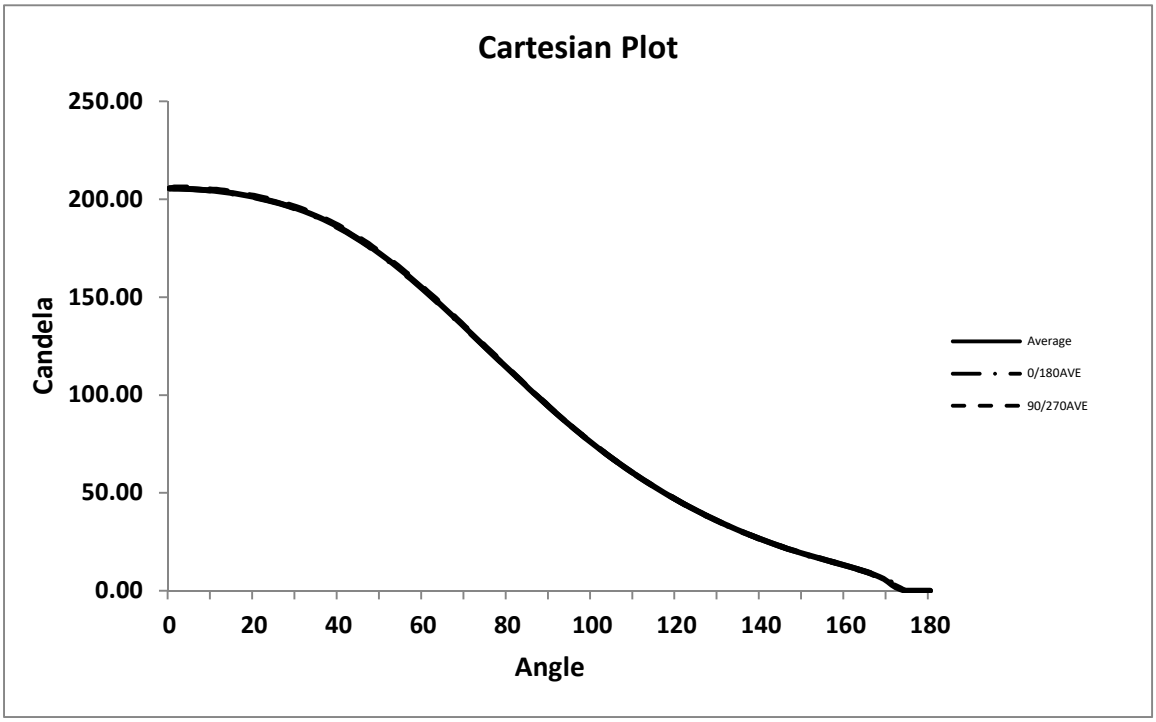


Cone Diagram



Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

Cartesian Plot



Cartesian Distribution

Angle	Average cd	0/180 Average	90/270 Average	Zonal Lumens	Cumulative Lumens	%Total
0	205.50	205.50	205.50	0.00	0.00	0.00%
5	205.20	205.13	205.80	4.91	4.91	0.39%
10	204.41	204.28	204.93	14.65	19.56	1.55%
15	203.04	202.93	203.65	24.17	43.73	3.47%
20	201.08	200.93	201.69	33.31	77.04	6.11%
25	198.56	198.38	199.19	41.92	118.96	9.43%
30	195.29	195.07	195.98	49.85	168.80	13.38%
35	191.06	190.77	191.68	56.90	225.70	17.89%
40	185.73	185.40	186.48	62.88	288.58	22.88%
45	179.33	179.01	180.02	67.61	356.19	28.24%
50	171.87	171.48	172.61	70.97	427.16	33.87%
55	163.45	163.03	164.16	72.91	500.08	39.65%
60	154.24	153.90	154.92	73.44	573.51	45.47%
65	144.46	144.13	145.00	72.61	646.12	51.23%
70	134.27	133.99	134.78	70.57	716.69	56.82%
75	123.89	123.71	124.34	67.47	784.16	62.17%
80	113.57	113.44	113.90	63.53	847.69	67.21%
85	103.43	103.39	103.71	58.95	906.64	71.88%
90	93.56	93.50	93.77	53.93	960.57	76.16%
95	84.12	84.12	84.27	48.62	1009.19	80.01%
100	75.34	75.41	75.46	43.31	1052.50	83.45%
105	67.19	67.23	67.25	38.11	1090.61	86.47%
110	59.65	59.72	59.70	33.13	1123.75	89.09%
115	52.73	52.80	52.75	28.44	1152.19	91.35%
120	46.41	46.49	46.42	24.09	1176.28	93.26%
125	40.62	40.69	40.61	20.11	1196.39	94.85%
130	35.36	35.41	35.35	16.52	1212.91	96.16%
135	30.59	30.63	30.58	13.32	1226.23	97.22%
140	26.28	26.29	26.27	10.53	1236.76	98.05%
145	22.41	22.37	22.41	8.12	1244.88	98.70%
150	18.94	18.86	18.96	6.09	1250.97	99.18%
155	15.85	15.78	15.89	4.41	1255.38	99.53%
160	12.89	12.80	12.85	3.03	1258.41	99.77%
165	9.60	9.71	9.45	1.87	1260.28	99.92%
170	4.60	5.29	4.63	0.90	1261.18	99.99%
175	0.01	0.01	0.01	0.13	1261.31	100.00%
180	0.00	0.00	0.00	0.00	1261.31	100.00%

LM-79 Test Report

Testing Laboratory of Xiamen Topstar Lighting Co., Ltd.
No.676 Meixi Avenue, Xike, Tong'an District, Xiamen, Fujian, China

Test Request Number: BG-NW250110-3-01

Individual Lamp Data- Sphere

Position	Sample No.	Lamp Volts (V)	Lamp Current (A)	Lamp Watts (W)	PF	Luminous Lumens (lm)	LPW (lm/W)	CCX	CCY	CCT (K)	CRI	R9	Duv	Rf	Rg
VBU	1	120.01	0.144	9.5	0.549	1253.3	131.8	0.3991	0.3807	3558	86.3	23.5	-0.0031	86	97
	2	120.01	0.145	9.6	0.550	1256.8	131.5	0.4005	0.3816	3533	86.3	23.2	-0.0030	86	97
	3	120.01	0.143	9.4	0.550	1248.2	132.4	0.3967	0.3791	3601	86.8	25.7	-0.0032	86	97
	4	120.01	0.143	9.5	0.551	1256.9	132.4	0.3985	0.3809	3573	86.4	23.7	-0.0028	86	96
	5	120.01	0.142	9.4	0.549	1211.0	129.2	0.4092	0.3833	3353	85.4	18.1	-0.0041	85	98
VBD	7	120.02	0.141	9.3	0.552	1233.4	132.1	0.4093	0.3842	3358	85.5	18.2	-0.0037	85	98
	8	120.02	0.141	9.4	0.554	1263.8	134.4	0.3996	0.3816	3554	86.3	23.3	-0.0028	86	97
	9	120.02	0.143	9.5	0.553	1274.6	134.5	0.4002	0.3821	3544	86.3	22.9	-0.0027	86	97
	10	120.02	0.143	9.5	0.553	1256.4	132.4	0.3997	0.3815	3551	86.3	23.1	-0.0029	86	97
	11	120.02	0.142	9.4	0.550	1225.7	131.0	0.4077	0.3828	3380	85.5	18.6	-0.0040	85	98
Average		**120.02**	**0.143**	**9.4**	**0.551**	**1248.0**	**132.2**	**0.4021**	**0.3818**	**3501**	**86.1**	**22.0**	**-0.0032**	**86**	**97**

Individual Lamp Data- Goniometer

Sample No.	Lamp Volts (V)	Lamp Current (A)	Lamp Watts (W)	Total Lumens (lm)	Beam Angle （°）	CBCP （cd）	90 cone lumen(lm)	E*Δu'v'
1	120.00	0.146	9.6	1261.3	169.8	206	356.2	---

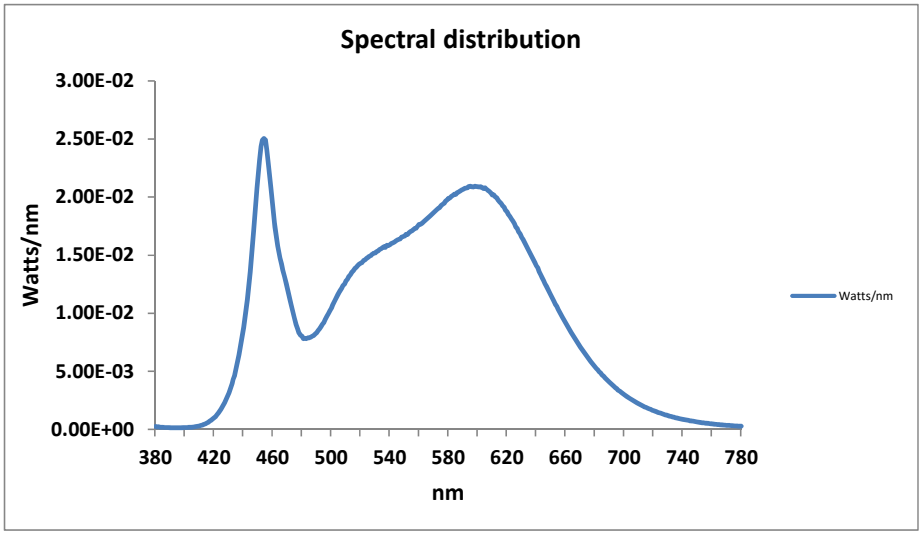
Test data in 4000K

Average Sphere Spectroradiometry Test Data

Lamp Volts(V)	Lamp Current(A)	Lamp Watts(W)	Power Factor	Lumens (lm)	LPW (lm/W)
120.01	0.138	9.1	0.548	1207.3	132.5

CCX	CCY	u′	v′	Duv	CCT(K)	CRI	R9	Rf	Rg
0.3766	0.3697	0.2254	0.4979	-0.0022	4057	86.5	24.3	86	97

Spectral Power Distribution



nm	Watts/nm
380	2.65E-04
385	1.83E-04
390	1.44E-04
395	1.42E-04
400	1.55E-04
405	1.96E-04
410	3.04E-04
415	5.45E-04
420	1.01E-03
425	1.83E-03
430	3.12E-03
435	5.26E-03
440	8.64E-03
445	1.41E-02
450	2.19E-02
455	2.49E-02
460	1.92E-02

nm	Watts/nm
465	1.48E-02
470	1.22E-02
475	9.49E-03
480	8.01E-03
485	7.88E-03
490	8.30E-03
495	9.22E-03
500	1.04E-02
505	1.17E-02
510	1.28E-02
515	1.36E-02
520	1.43E-02
525	1.48E-02
530	1.52E-02
535	1.56E-02
540	1.59E-02
545	1.63E-02

nm	Watts/nm
550	1.67E-02
555	1.71E-02
560	1.76E-02
565	1.81E-02
570	1.87E-02
575	1.93E-02
580	1.99E-02
585	2.02E-02
590	2.07E-02
595	2.09E-02
600	2.09E-02
605	2.08E-02
610	2.02E-02
615	1.96E-02
620	1.87E-02
625	1.77E-02
630	1.66E-02

nm	Watts/nm
635	1.54E-02
640	1.41E-02
645	1.28E-02
650	1.15E-02
655	1.03E-02
660	9.17E-03
665	8.11E-03
670	7.12E-03
675	6.21E-03
680	5.40E-03
685	4.68E-03
690	4.06E-03
695	3.50E-03
700	2.99E-03
705	2.57E-03
710	2.20E-03
715	1.89E-03

nm	Watts/nm
720	1.62E-03
725	1.38E-03
730	1.18E-03
735	1.02E-03
740	8.71E-04
745	7.42E-04
750	6.39E-04
755	5.48E-04
760	4.73E-04
765	4.08E-04
770	3.52E-04
775	3.10E-04
780	2.86E-04

LM-79 Test Report

Testing Laboratory of Xiamen Topstar Lighting Co., Ltd.
No.676 Meixi Avenue, Xike, Tong'an District, Xiamen, Fujian, China

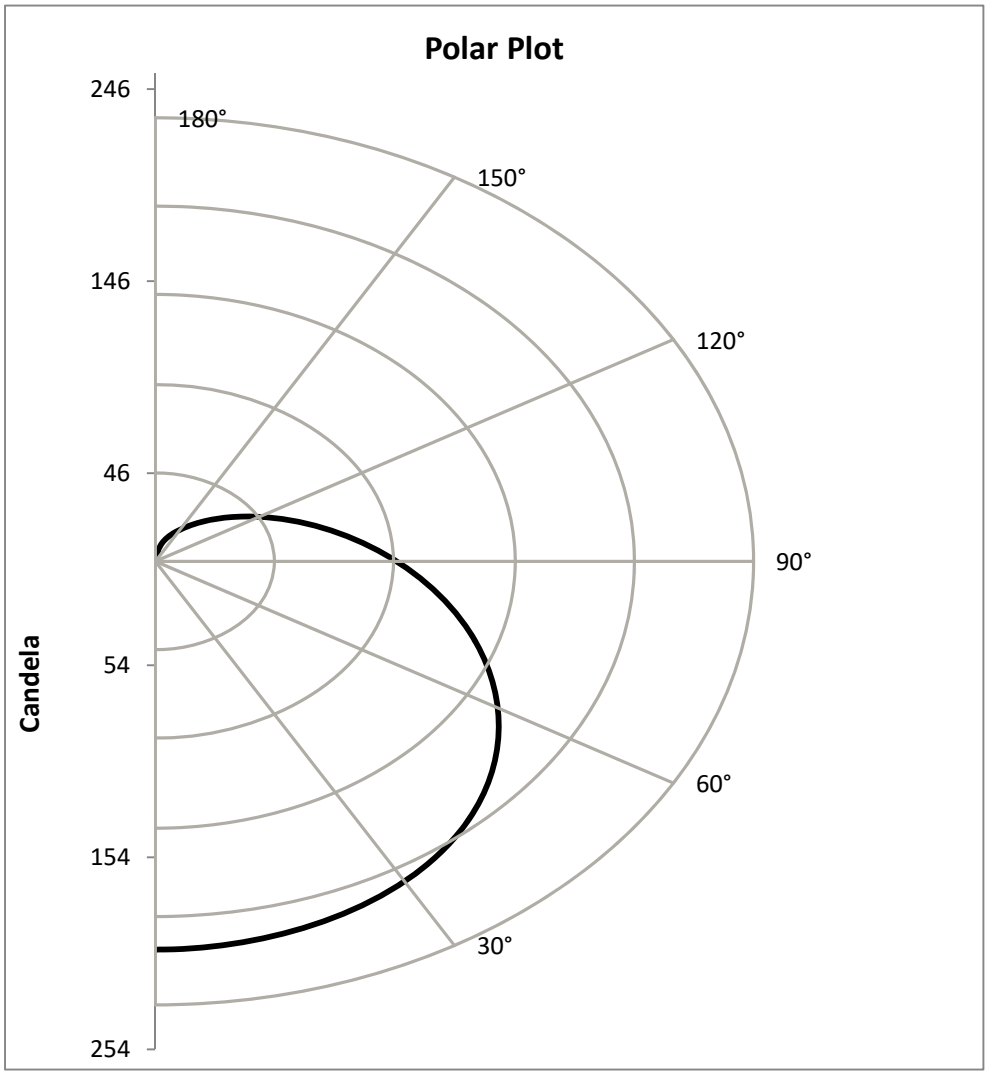
Test Request Number: BG-NW250110-3-01

Average Goniometry Test Data

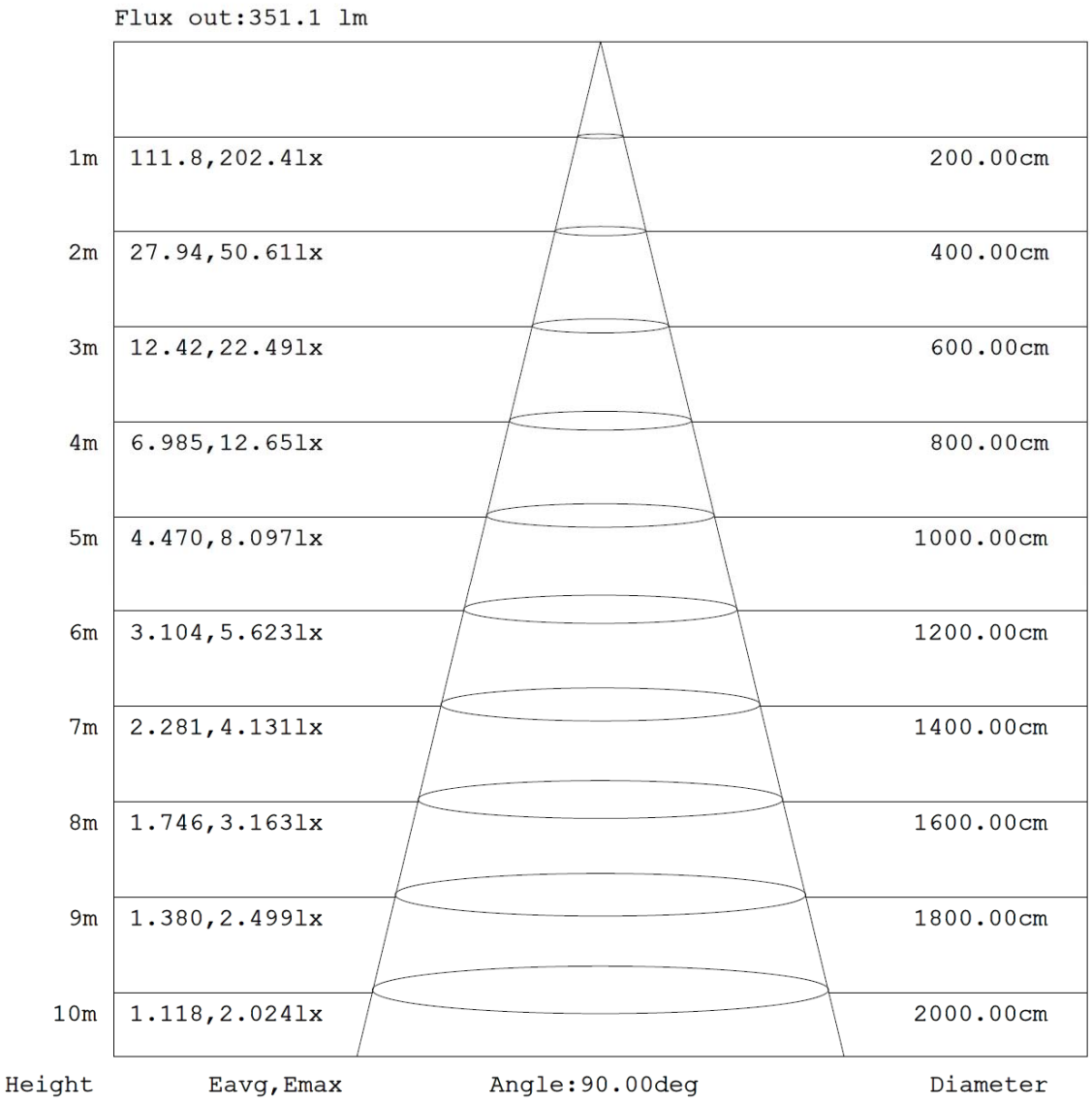
Beam Angle				Color Distribution
	Candela	Half Angle	Full Angle	Δu'v'
Max	202	0.0	-----	-----
50%of Max	101	85.6	171.3	-----
10%of Max	20	-----	-----	-----

Volts	Amps	Watts	PF
120.02	0.143	9.3	0.543
Total Downlight Lumens:			950.1
Total Uplight Lumens:			300.4
Total Lumens:			1250.5
Total Lumens/ Watt:			134.6

Intensity Distribution

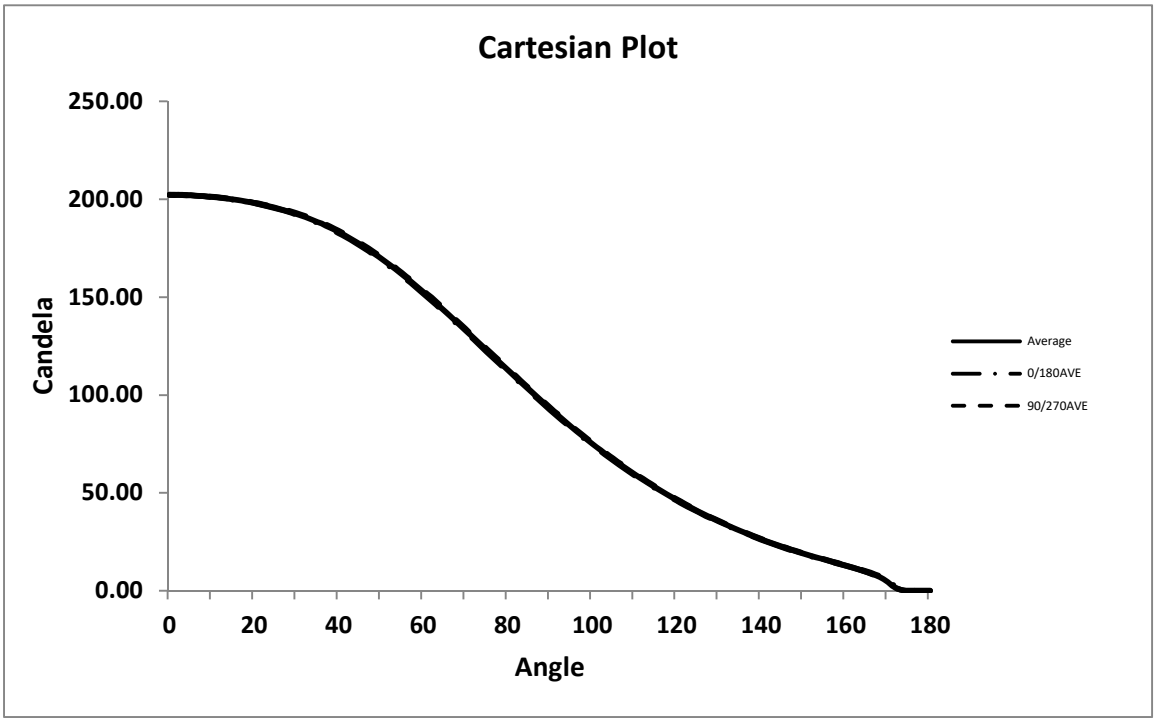


Cone Diagram



Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

Cartesian Plot



LM-79 Test Report

Testing Laboratory of Xiamen Topstar Lighting Co., Ltd.
No.676 Meixi Avenue, Xike, Tong'an District, Xiamen, Fujian, China

Test Request Number: BG-NW250110-3-01

Cartesian Distribution

Angle	Average cd	0/180 Average	90/270 Average	Zonal Lumens	Cumulative Lumens	%Total
0	202.21	202.21	202.21	0.00	0.00	0.00%
5	201.96	202.01	202.05	4.83	4.83	0.39%
10	201.19	201.09	201.31	14.42	19.25	1.54%
15	199.86	199.76	199.97	23.79	43.04	3.44%
20	198.06	197.97	198.18	32.80	75.84	6.06%
25	195.60	195.40	195.88	41.29	117.13	9.37%
30	192.46	192.15	192.89	49.12	166.24	13.29%
35	188.40	187.95	188.90	56.09	222.34	17.78%
40	183.27	182.67	183.93	62.02	284.36	22.74%
45	177.07	176.36	177.73	66.73	351.09	28.08%
50	169.83	169.09	170.57	70.10	421.19	33.68%
55	161.63	160.87	162.38	72.08	493.27	39.44%
60	152.68	151.85	153.46	72.66	565.93	45.25%
65	143.10	142.32	143.83	71.90	637.83	51.00%
70	133.14	132.34	133.91	69.94	707.77	56.60%
75	122.99	122.17	123.68	66.94	774.71	61.95%
80	112.86	112.10	113.51	63.10	837.81	67.00%
85	102.89	102.10	103.51	58.61	896.42	71.68%
90	93.17	92.49	93.74	53.67	950.10	75.97%
95	83.84	83.23	84.37	48.44	998.54	79.85%
100	75.16	74.59	75.66	43.18	1041.72	83.30%
105	67.08	66.58	67.52	38.04	1079.76	86.34%
110	59.61	59.13	60.04	33.10	1112.86	88.99%
115	52.74	52.34	53.11	28.43	1141.29	91.26%
120	46.44	46.09	46.75	24.10	1165.39	93.19%
125	40.67	40.36	40.95	20.13	1185.52	94.80%
130	35.42	35.14	35.66	16.54	1202.06	96.12%
135	30.66	30.39	30.87	13.35	1215.41	97.19%
140	26.35	26.11	26.53	10.55	1225.96	98.03%
145	22.46	22.25	22.63	8.14	1234.10	98.69%
150	18.98	18.80	19.13	6.10	1240.21	99.17%
155	15.89	15.73	16.01	4.42	1244.63	99.53%
160	12.91	12.81	13.05	3.03	1247.66	99.77%
165	9.58	9.53	9.85	1.88	1249.53	99.92%
170	4.41	4.71	4.78	0.89	1250.42	99.99%
175	0.01	0.01	0.01	0.11	1250.54	100.00%
180	0.00	0.00	0.00	0.00	1250.54	100.00%

LM-79 Test Report

Testing Laboratory of Xiamen Topstar Lighting Co., Ltd.
No.676 Meixi Avenue, Xike, Tong'an District, Xiamen, Fujian, China

Test Request Number: BG-NW250110-3-01

Individual Lamp Data- Sphere

Position	Sample No.	Lamp Volts (V)	Lamp Current (A)	Lamp Watts (W)	PF	Luminous Lumens (lm)	LPW (lm/W)	CCX	CCY	CCT (K)	CRI	R9	Duv	Rf	Rg
VBU	1	120.01	0.141	9.2	0.548	1227.4	132.8	0.3740	0.3689	4125	86.9	26.1	-0.0018	86	96
	2	120.01	0.141	9.3	0.549	1228.2	132.3	0.3746	0.3691	4109	86.9	26.2	-0.0019	86	96
	3	120.01	0.140	9.2	0.548	1225.0	133.4	0.3729	0.3681	4152	87.2	27.8	-0.0018	86	96
	4	119.99	0.136	8.9	0.547	1164.3	130.2	0.3818	0.3719	3928	85.7	20.9	-0.0027	85	98
	5	120.01	0.137	9.0	0.547	1166.4	129.7	0.3800	0.3699	3959	85.7	21.2	-0.0031	85	98
VBD	7	120.02	0.137	9.0	0.547	1174.2	130.8	0.3800	0.3704	3965	85.8	21.2	-0.0029	85	98
	8	120.02	0.138	9.1	0.550	1240.8	136.1	0.3742	0.3694	4122	86.9	26.2	-0.0016	86	96
	9	120.02	0.139	9.2	0.551	1240.2	134.8	0.3749	0.3700	4105	86.9	25.9	-0.0015	86	96
	10	120.02	0.139	9.2	0.552	1228.5	133.4	0.3747	0.3700	4112	86.8	25.6	-0.0015	86	96
	11	120.02	0.137	9.0	0.547	1178.1	131.0	0.3789	0.3694	3988	85.8	21.6	-0.0030	85	98
Average		**120.01**	**0.138**	**9.1**	**0.548**	**1207.3**	**132.5**	**0.3766**	**0.3697**	**4057**	**86.5**	**24.3**	**-0.0022**	**86**	**97**

Individual Lamp Data- Goniometer

Sample No.	Lamp Volts (V)	Lamp Current (A)	Lamp Watts (W)	Total Lumens (lm)	Beam Angle （°）	CBCP （cd）	90 cone lumen(lm)	E*Δu'v'
1	120.02	0.143	9.3	1250.5	171.3	202	351.1	---

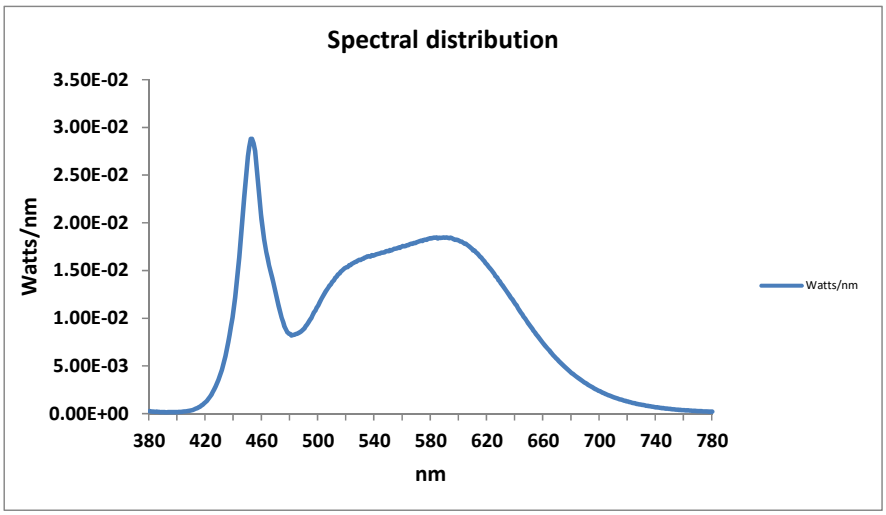
Test data in 5000K

Average Sphere Spectroradiometry Test Data

Lamp Volts(V)	Lamp Current(A)	Lamp Watts(W)	Power Factor	Lumens (lm)	LPW (lm/W)
120.02	0.132	8.7	0.549	1152.8	132.2

CCX	CCY	u′	v′	Duv	CCT(K)	CRI	R9	Rf	Rg
0.3483	0.3582	0.2110	0.4883	0.0020	4906	84.6	17.3	85	96

Spectral Power Distribution



nm	Watts/nm
380	2.78E-04
385	2.06E-04
390	1.62E-04
395	1.55E-04
400	1.73E-04
405	2.36E-04
410	3.54E-04
415	6.63E-04
420	1.23E-03
425	2.28E-03
430	3.94E-03
435	6.72E-03
440	1.12E-02
445	1.83E-02
450	2.70E-02
455	2.75E-02
460	2.00E-02

nm	Watts/nm
465	1.56E-02
470	1.25E-02
475	9.60E-03
480	8.34E-03
485	8.37E-03
490	8.91E-03
495	1.00E-02
500	1.14E-02
505	1.28E-02
510	1.38E-02
515	1.47E-02
520	1.53E-02
525	1.58E-02
530	1.61E-02
535	1.65E-02
540	1.66E-02
545	1.69E-02

nm	Watts/nm
550	1.70E-02
555	1.73E-02
560	1.76E-02
565	1.77E-02
570	1.80E-02
575	1.82E-02
580	1.84E-02
585	1.84E-02
590	1.84E-02
595	1.84E-02
600	1.81E-02
605	1.78E-02
610	1.71E-02
615	1.65E-02
620	1.56E-02
625	1.47E-02
630	1.36E-02

nm	Watts/nm
635	1.26E-02
640	1.15E-02
645	1.04E-02
650	9.32E-03
655	8.31E-03
660	7.35E-03
665	6.48E-03
670	5.68E-03
675	4.93E-03
680	4.28E-03
685	3.71E-03
690	3.20E-03
695	2.75E-03
700	2.35E-03
705	2.01E-03
710	1.73E-03
715	1.48E-03

nm	Watts/nm
720	1.27E-03
725	1.08E-03
730	9.24E-04
735	7.93E-04
740	6.78E-04
745	5.80E-04
750	4.98E-04
755	4.28E-04
760	3.69E-04
765	3.18E-04
770	2.76E-04
775	2.41E-04
780	2.23E-04

LM-79 Test Report

Testing Laboratory of Xiamen Topstar Lighting Co., Ltd.
No.676 Meixi Avenue, Xike, Tong'an District, Xiamen, Fujian, China

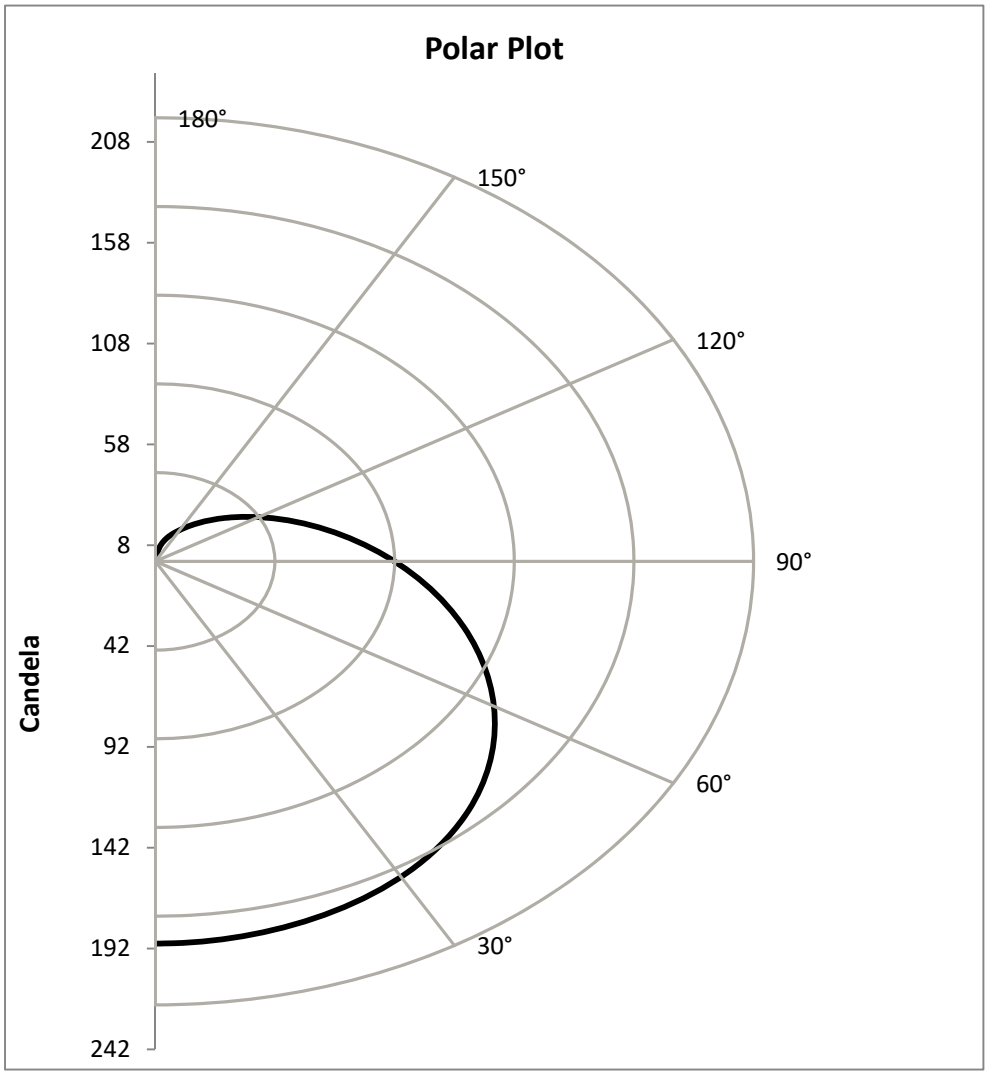
Test Request Number: BG-NW250110-3-01

Average Goniometry Test Data

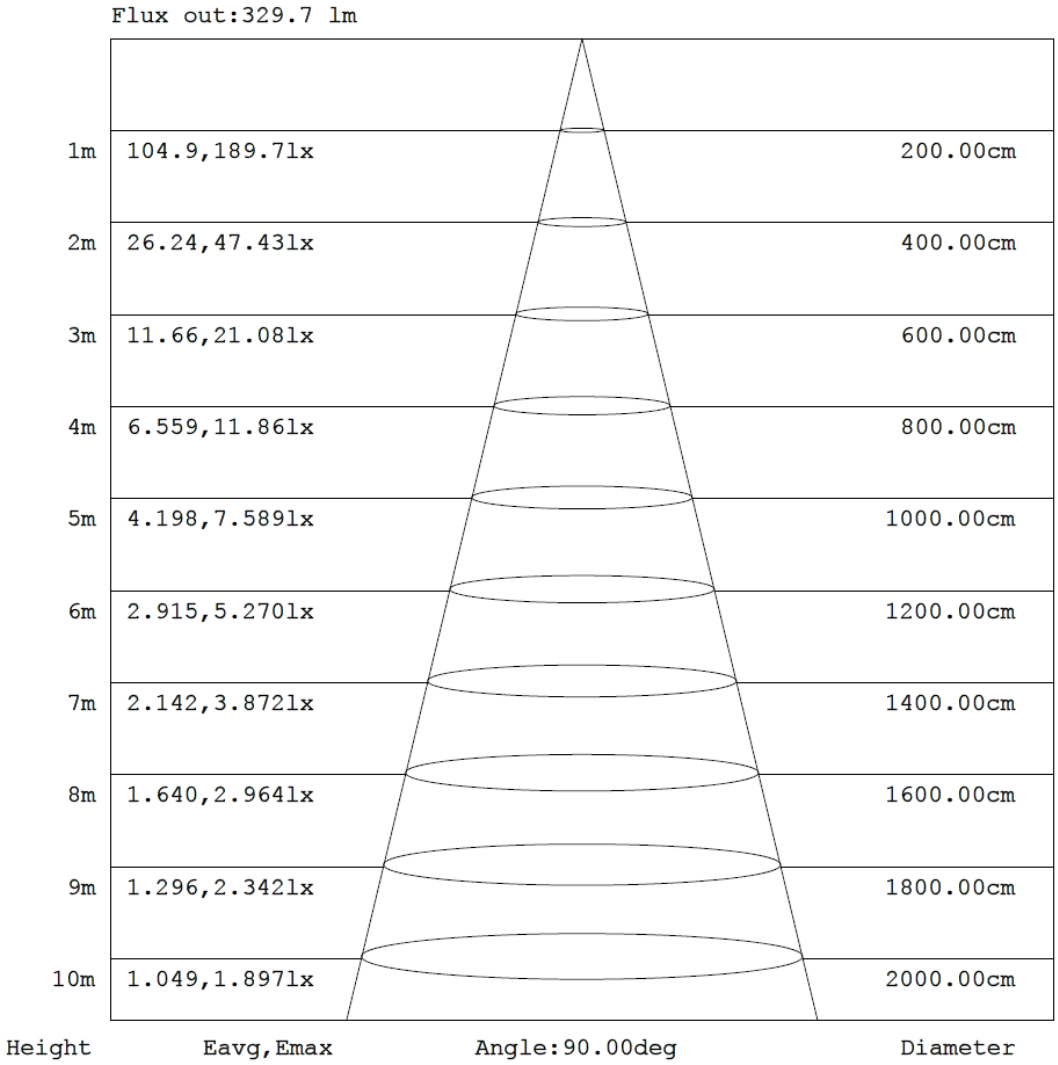
Beam Angle				Color Distribution
	Candela	Half Angle	Full Angle	Δu'v'
Max	190	0.0	-----	-----
50%of Max	95	86.0	172.0	-----
10%of Max	19	-----	-----	-----

Volts	Amps	Watts	PF
120.03	0.138	9.0	0.541
Total Downlight Lumens:			894.2
Total Uplight Lumens:			283.9
Total Lumens:			1178.1
Total Lumens/ Watt:			131.1

Intensity Distribution

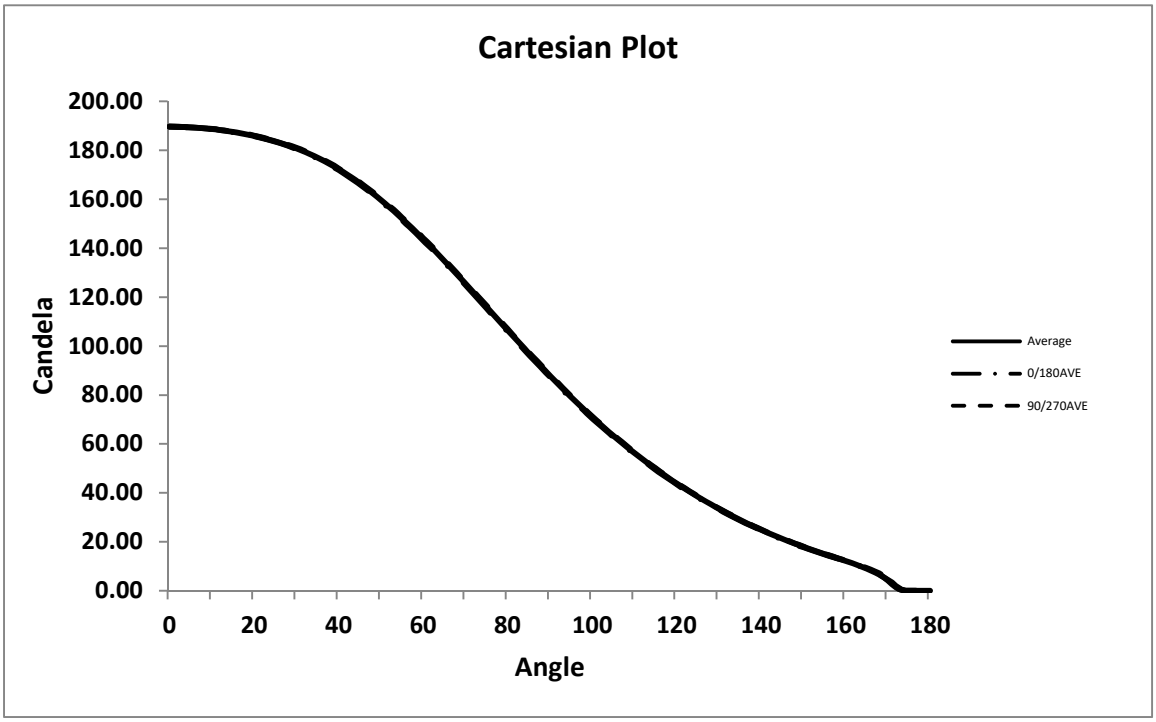


Cone Diagram



Note:The Curves indicate the illuminated area and the average illumination when the luminaire is at different distance.

Cartesian Plot



LM-79 Test Report

Testing Laboratory of Xiamen Topstar Lighting Co., Ltd.
No.676 Meixi Avenue, Xike, Tong'an District, Xiamen, Fujian, China

Test Request Number: BG-NW250110-3-01

Cartesian Distribution

Angle	Average cd	0/180 Average	90/270 Average	Zonal Lumens	Cumulative Lumens	%Total
0	189.59	189.59	189.59	0.00	0.00	0.00%
5	189.36	189.30	189.38	4.53	4.53	0.38%
10	188.65	188.58	188.66	13.52	18.05	1.53%
15	187.51	187.45	187.61	22.31	40.37	3.43%
20	185.85	185.77	185.97	30.77	71.13	6.04%
25	183.61	183.44	183.82	38.75	109.89	9.33%
30	180.70	180.49	180.95	46.11	156.00	13.24%
35	176.99	176.68	177.30	52.68	208.68	17.71%
40	172.24	171.94	172.51	58.28	266.96	22.66%
45	166.51	166.07	166.93	62.74	329.70	27.99%
50	159.76	159.25	160.24	65.94	395.64	33.58%
55	152.12	151.59	152.53	67.83	463.47	39.34%
60	143.78	143.22	144.19	68.41	531.88	45.15%
65	134.84	134.33	135.29	67.74	599.62	50.90%
70	125.54	125.00	126.01	65.93	665.55	56.50%
75	116.01	115.45	116.50	63.13	728.68	61.85%
80	106.50	105.92	106.94	59.53	788.21	66.91%
85	97.11	96.57	97.49	55.31	843.52	71.60%
90	87.97	87.48	88.36	50.67	894.18	75.90%
95	79.18	78.69	79.54	45.74	939.93	79.79%
100	70.99	70.57	71.32	40.79	980.71	83.25%
105	63.38	62.96	63.70	35.93	1016.65	86.30%
110	56.32	55.97	56.59	31.27	1047.92	88.95%
115	49.84	49.52	50.10	26.87	1074.78	91.23%
120	43.89	43.61	44.11	22.78	1097.56	93.17%
125	38.44	38.20	38.64	19.02	1116.59	94.78%
130	33.49	33.27	33.65	15.64	1132.22	96.11%
135	28.98	28.77	29.13	12.62	1144.84	97.18%
140	24.91	24.73	25.04	9.98	1154.82	98.03%
145	21.24	21.06	21.36	7.70	1162.52	98.68%
150	17.95	17.79	18.06	5.77	1168.29	99.17%
155	15.02	14.88	15.11	4.18	1172.47	99.53%
160	12.20	12.11	12.31	2.87	1175.33	99.77%
165	9.06	9.03	9.29	1.77	1177.10	99.92%
170	4.18	4.51	4.51	0.84	1177.94	99.99%
175	0.01	0.01	0.01	0.11	1178.05	100.00%
180	0.00	0.00	0.00	0.00	1178.05	100.00%

LM-79 Test Report

Testing Laboratory of Xiamen Topstar Lighting Co., Ltd.
No.676 Meixi Avenue, Xike, Tong'an District, Xiamen, Fujian, China

Test Request Number: BG-NW250110-3-01

Individual Lamp Data- Sphere

Position	Sample No.	Lamp Volts (V)	Lamp Current (A)	Lamp Watts (W)	PF	Luminous Lumens (lm)	LPW (lm/W)	CCX	CCY	CCT (K)	CRI	R9	Duv	Rf	Rg
VBU	1	120.01	0.135	8.9	0.548	1183.5	133.3	0.3478	0.3580	4922	85.2	19.0	0.0021	85	96
	2	120.01	0.136	8.9	0.548	1174.8	131.7	0.3476	0.3575	4927	85.3	19.5	0.0020	85	96
	3	120.03	0.134	8.8	0.550	1189.8	134.7	0.3488	0.3590	4888	85.6	20.8	0.0022	86	96
	4	120.01	0.135	8.9	0.550	1175.4	132.5	0.3482	0.3584	4908	85.5	19.9	0.0022	85	95
	5	120.01	0.127	8.4	0.549	1091.1	130.2	0.3494	0.3585	4867	82.8	11.6	0.0017	83	97
VBD	7	120.02	0.130	8.5	0.547	1070.6	126.0	0.3485	0.3573	4895	83.1	12.3	0.0015	83	97
	8	120.02	0.132	8.7	0.550	1186.3	136.0	0.3481	0.3589	4915	85.2	18.9	0.0024	85	96
	9	120.02	0.133	8.8	0.554	1186.0	134.6	0.3482	0.3587	4911	85.4	19.6	0.0023	86	96
	10	120.02	0.134	8.9	0.550	1166.2	131.6	0.3478	0.3584	4925	85.3	19.2	0.0023	85	96
	11	120.02	0.127	8.4	0.550	1104.2	131.3	0.3484	0.3577	4898	83.0	12.2	0.0017	83	97
Average		**120.02**	**0.132**	**8.7**	**0.549**	**1152.8**	**132.2**	**0.3483**	**0.3582**	**4906**	**84.6**	**17.3**	**0.0021**	**85**	**96**

Individual Lamp Data- Goniometer

Sample No.	Lamp Volts (V)	Lamp Current (A)	Lamp Watts (W)	Total Lumens (lm)	Beam Angle （°）	CBCP （cd）	90 cone lumen(lm)	E*Δu'v'
1	120.03	0.138	9.0	1178.1	172.0	190	329.7	---

(The End of Report)