



Moving Mirror Goniophotometer Test Report

Standard(s): IES LM-63, IES LM-79, ANSI C82.77

Customer ANDlight, 505B Railway Street, Vancouver, BC, Canada, V6A 1A7

General Information		Lamp Details: CY4439		Driver Details: CY2023	
DUT Lab ID	SRIS 2823-15	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	SPO-P-B-C-VA-120	Manufacturer	Bulbrite
Current Mode	AC	Manufacturer	Bulbrite	Catalog No.	Integrated LED Driver
Test Report	S2008136-R1	Lamp Catalog No.	(2) G25 Frosted LED 7W	Nominal Power	14 W
Test Date	13 August 2020	Drive Current	116.7 mA	Input Voltage	120.00 V
Report Date	15 October 2020	Nominal Color	2700 K	Operating Frequency	60 Hz
Ambient	24.7 °C	Burning Position	Vertical Base Up & Down	Input Power	14.73 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	ANDlight	Reflector	Vanilla Spun Aluminum	X	-1.1667
Name	SPOT LIGHT VOLUMES	Housing	Shades (B-C) - Aluminum Profile	Y	-1.1667
Catalog No.	SPO-P-B-C-VA-120	Lens	None	Z	0.0000

Stabilization Time: 1 hour 15 minutes

Approved Signatory: Chrisnel Blot

Signature:



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Lab Code: 200899-0

Luminaire Test Method

Precise installation and alignment of the luminaire to the rotation axis of the photometer is governed by a servomotor controlled via a microcontroller. A laser is used to validate the luminaire positioning. Before photometric measurements are taken, luminaire is operated long enough to reach stabilization and temperature equilibrium.

All movement commands issued to the photometer axes are mediated by the software to ensure the motion is within the limits of operation. The photometric detector used is a silicon detector corrected to closely match the spectral luminous efficiency photopic curve with a quality index less than 1.5%. Proper shielding is incorporated to the photometric test bench such that only the light from the unit under test is measured.

Luminous intensity measurements are performed at a distance great enough so that the inverse-square law applies. During each measurement the computer records the luminous intensity associated to the corresponding angles of radiation, as well as input electrical operational parameters and temperature measurements. Candela values are reported in IES format as per LM-63.

Equipment, reference standards are traceable to National Institute of Standards and Technology (NIST) and National Research Council of Canada (NRC).





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Electrical Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Power Supply	iRDC	CIF-3000A	974998	N.P.C.R.	N.P.C.R.
Input Power Meter	Yokogawa	WT210	27E116584	2020/07/22	2021/09/22
Output Power Meter	N/A	N/A	N/A	N.P.C.R.	N.P.C.R.

Photometric Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Photometer	N/A	N/A	N/A	N.P.C.R.	N.P.C.R.
Photodetector	INPHORA	IPR-PDET 19	110802	2019/09/05	2020/09/05

Environment Equipment

Equipment	Manufacturer	Model	Serial Number	Calibration Date	Calibration Due Date
Temperature Humidity Sensor	Omega	HH311	120504176	2020/07/16	2021/07/16



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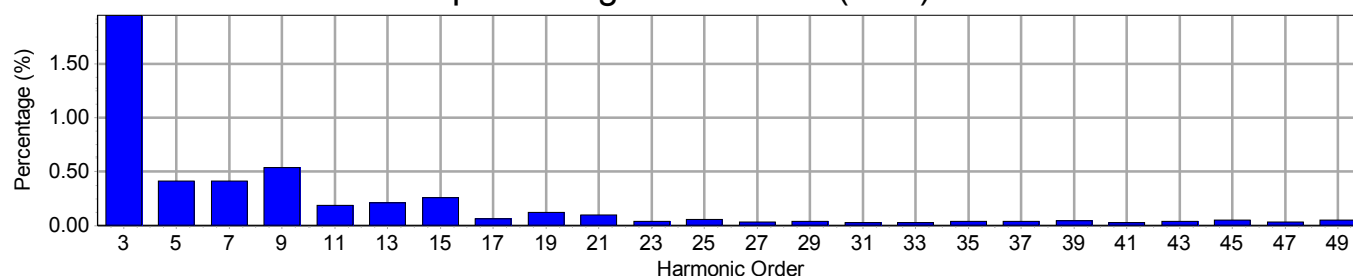
Lab Code: 200899-0

Electrical Measurements

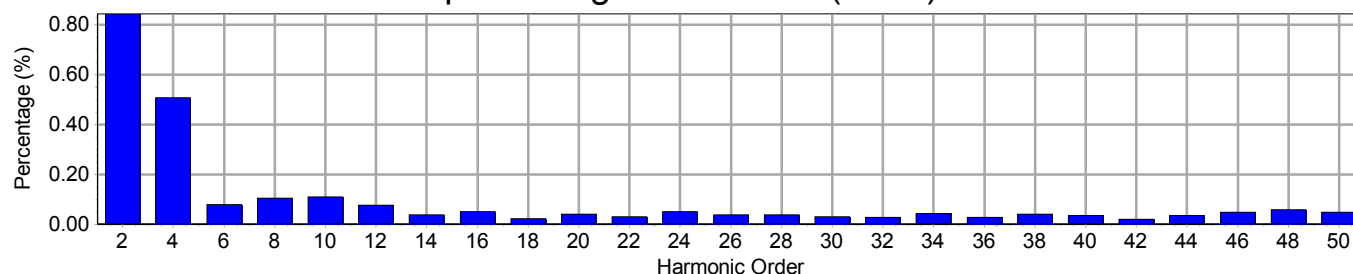
Input

Frequency	60 Hz	Active Power	14.73 W	THDV [ANSI]	2.38 %
Voltage	120.1 V(rms)	Apparent Power	15.91 VA	THDA [ANSI]	37.92 %
Current	0.1325 A(rms)	Power Factor	0.926	Max. Harmonic At	3rd order

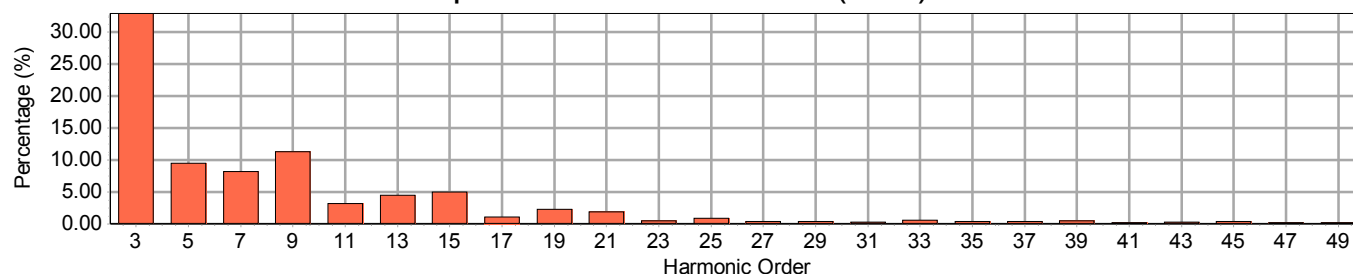
Input Voltage Harmonics (Odd)



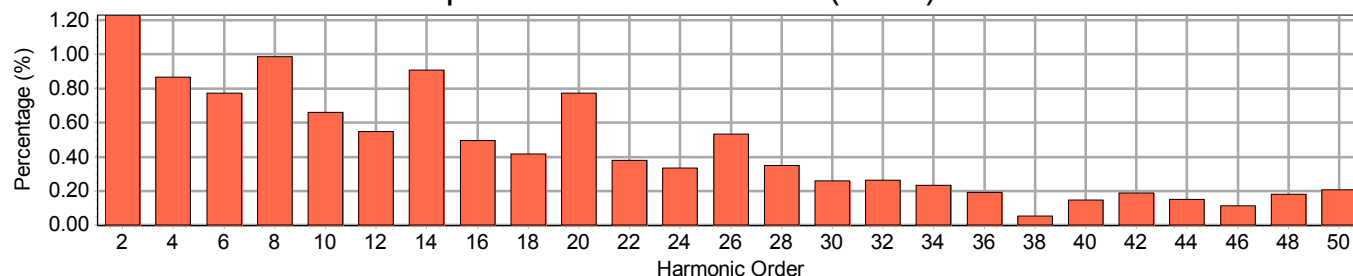
Input Voltage Harmonics (Even)



Input Current Harmonics (Odd)



Input Current Harmonics (Even)





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Harmonic Measurements

Odd Harmonics				Even Harmonics			
Harmonic Order	Frequency (HZ)	Voltage Harmonics (%)	Current Harmonics (%)	Harmonic Order	Frequency (HZ)	Voltage Harmonics (%)	Current Harmonics (%)
1	60	100.000	100.000	2	120	0.844	1.230
3	180	1.957	32.908	4	240	0.507	0.867
5	300	0.416	9.409	6	360	0.079	0.774
7	420	0.411	8.185	8	480	0.105	0.985
9	540	0.540	11.214	10	600	0.109	0.658
11	660	0.187	3.186	12	720	0.075	0.546
13	780	0.210	4.476	14	840	0.036	0.907
15	900	0.257	4.934	16	960	0.050	0.494
17	1020	0.062	1.078	18	1080	0.022	0.419
19	1140	0.121	2.271	20	1200	0.039	0.771
21	1260	0.096	1.809	22	1320	0.030	0.380
23	1380	0.039	0.426	24	1440	0.051	0.334
25	1500	0.056	0.890	26	1560	0.037	0.531
27	1620	0.033	0.330	28	1680	0.036	0.348
29	1740	0.037	0.335	30	1800	0.030	0.261
31	1860	0.024	0.240	32	1920	0.027	0.262
33	1980	0.029	0.532	34	2040	0.043	0.235
35	2100	0.036	0.316	36	2160	0.028	0.191
37	2220	0.036	0.373	38	2280	0.040	0.056
39	2340	0.043	0.499	40	2400	0.034	0.149
41	2460	0.029	0.193	42	2520	0.020	0.190
43	2580	0.037	0.266	44	2640	0.035	0.150
45	2700	0.049	0.306	46	2760	0.047	0.116
47	2820	0.031	0.122	48	2880	0.057	0.182
49	2940	0.054	0.179	50	3000	0.048	0.207



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Photometric Report: S2008136-R1

Prepared for: ANDlight · Test Date: 13 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPO-P-B-C-VA-120

Coefficients of Utilization - Zonal Cavity Method

RCR	RC				0.9				0.8				0.7				0.5			0.1			0
	RW	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.7	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0.5	0.3	0.1	0
0		118	118	118	118	111	111	111	111	105	105	105	105	93	93	93	71	71	71				67
1		108	103	99	95	102	98	94	90	96	92	89	86	82	79	77	64	62	61				57
2		99	90	83	77	93	85	79	74	87	81	75	70	72	68	64	56	54	51				48
3		90	79	71	64	85	75	67	61	79	71	64	59	63	58	54	50	46	44				40
4		82	70	61	54	77	66	58	52	73	63	55	50	56	50	45	44	40	37				34
5		76	62	53	46	71	59	50	44	66	56	48	43	50	44	39	40	36	32				30
6		69	56	46	40	65	53	44	38	61	50	42	37	45	39	34	36	32	28				26
7		64	50	41	35	60	48	39	33	57	45	38	32	41	34	30	32	28	25				23
8		59	45	37	31	56	43	35	30	53	41	34	28	37	31	26	30	25	22				20
9		55	41	33	27	52	39	32	26	49	37	30	25	34	28	24	27	23	20				18
10		52	38	30	24	49	36	29	24	46	34	27	23	31	25	21	25	21	18				16

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	14	2.14	2.14
10 - 20	39	6.17	6.17
20 - 30	60	9.45	9.45
30 - 40	75	11.80	11.80
40 - 50	85	13.41	13.41
50 - 60	82	12.93	12.93
60 - 70	46	7.33	7.33
70 - 80	18	2.79	2.79
80 - 90	4	0.60	0.60
90 - 120	26	4.08	4.08
90 - 130	52	8.14	8.14
90 - 150	130	20.57	20.57
90 - 180	212	33.38	33.38
0 - 180	634	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
45.0	1570	1570	1570
55.0	1645	1645	1645
65.0	1107	1107	1107
75.0	646	646	646
85.0	351	351	351

Luminaire Luminous Flux: 634

Measured Input Power: 14.73 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 43.0 lm/W

Luminaire Spacing Criterion (0 Degree): 1.2983

Luminaire Spacing Criterion (90 Degree): 1.2983

Category: Up and Down

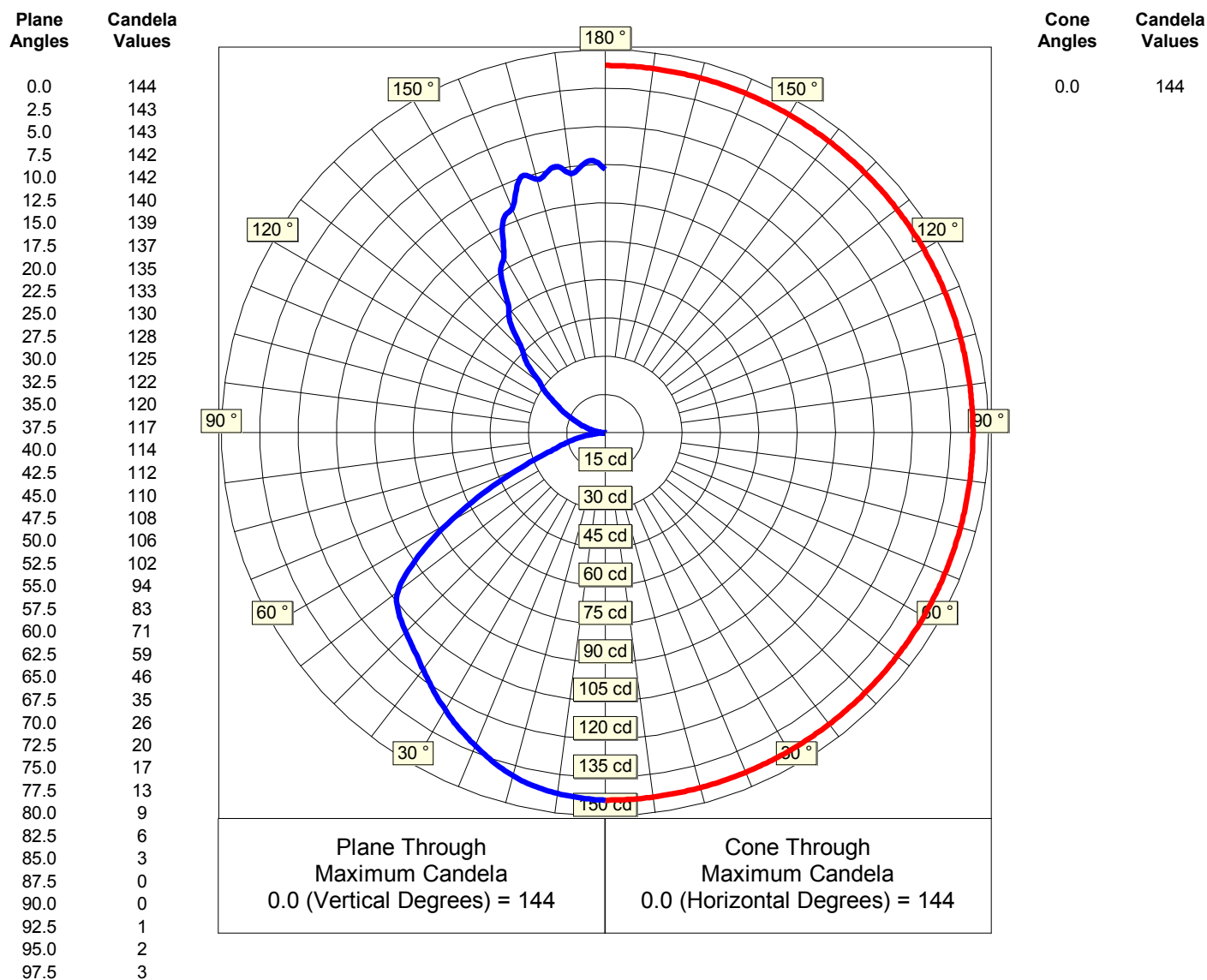


Photometric Report: S2008136-R1

Prepared for: ANDlight · Test Date: 13 August 2020

Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPO-P-B-C-VA-120

Luminous Intensity - Polar Curve for each Plane(1)



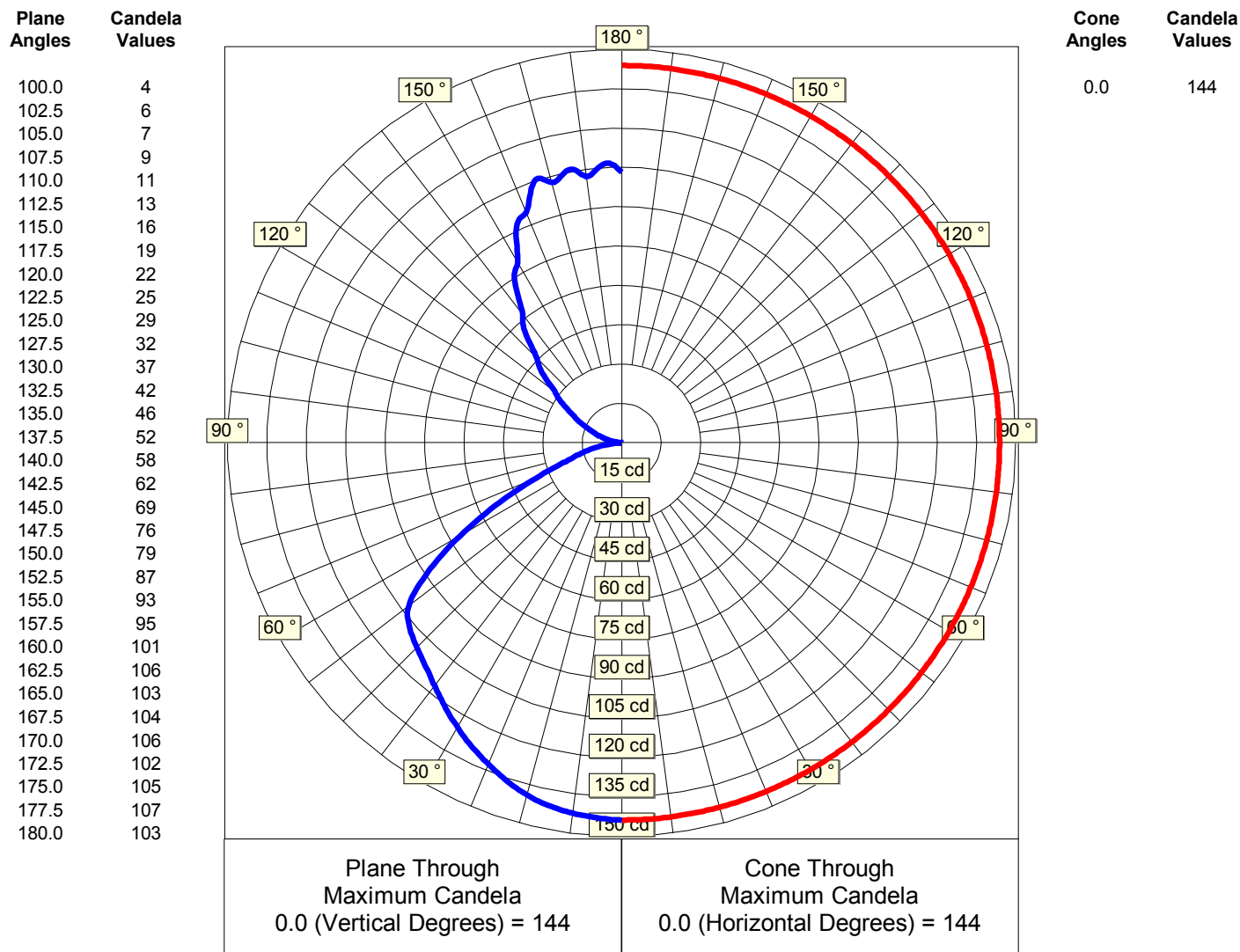


Photometric Report: S2008136-R1

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Luminaire: SPOT LIGHT VOLUMES · Lumcat: SPO-P-B-C-VA-120

Luminous Intensity - Polar Curve for each Plane(2)





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IES File Headers

IESNA:LM-63
[ISSUEDATE] 13 August 2020
[TESTLAB] Spectra Lux
[TEST] S2008136-R1
[MANUFAC] ANDlight
[LUMCAT] SPO-P-B-C-VA-120
[LUMINAIRE] SPOT LIGHT VOLUMES
[LAMP] (2)BulBrite G25 Frosted LED 7W Bulb c/w Integrated LED Driver @ 120.00V
[_BURNING] Vertical Base Up & Down (634 Luminaire Lumens)
[_REFLECTOR] Vanilla Spun Aluminum
[_LENS] None
[_HOUSING] Shades (B-C)- Aluminum Profile
[_NOMINAL COLOR] 2700 K
[_DRIVE CURRENT] 116.7 mA

Candela Table

Lateral Angles

	0.0
V e r t i c a l	0.0 144
	2.5 143
	5.0 143
	7.5 142
	10.0 142
	12.5 140
	15.0 139
	17.5 137
	20.0 135
	22.5 133
	25.0 130
	27.5 128
	30.0 125
	32.5 122
	35.0 120
	37.5 117
	40.0 114
	42.5 112
A n g l e s	45.0 110
	47.5 108
	50.0 106
	52.5 102
	55.0 94
	57.5 83
	60.0 71
	62.5 59
	65.0 46
	67.5 35
	70.0 26
	72.5 20
	75.0 17
	77.5 13
	80.0 9
	82.5 6
	85.0 3
	87.5 0
	90.0 0



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Lateral Angles

	0.0
	92.5
	95.0
	97.5
	100.0
	102.5
	105.0
	107.5
	110.0
	112.5
V e r t i c a l	115.0
	117.5
	120.0
	122.5
	125.0
	127.5
	130.0
	132.5
	135.0
	137.5
A n g l e s	140.0
	142.5
	145.0
	147.5
	150.0
	152.5
	155.0
	157.5
	160.0
	162.5
	165.0
	167.5
	170.0
	172.5
	175.0
	177.5
	180.0