



Moving Mirror Goniophotometer Test Report

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

Customer ANDlight, 1951 Franklin St., Vancouver, British Columbia , Canada, V5L 0C7

General Information		Lamp Details: CY4567		Driver Details: CY2076	
DUT Lab ID	SRIS 2824-10	Seasoning	0 Hour	Type	LED Power Supply
Lamp Type	LED/SSL	Test Product	SLA-90-P-30	Manufacturer	Meanwell
Current Mode	AC	Manufacturer	EPISTAR	Catalog No.	IDLV-45-12
Test Report	S2011252-R1	Lamp Catalog No.	OMNICHIP (320404-xx-300-12-4.4)	Maximum Power	45 W
Test Date	25 November 2020	Drive Current	1050 mA	Input Voltage	120.00 V
Report Date	14 December 2020	Nominal Color	3000 K	Operating Frequency	60 Hz
Ambient	25.2 °C	Burning Position	Junction Horizontal	Input Power	14.19 W

Luminaire Data

General Information		Optics		Aperture (feet)	
Manufacturer	ANDlight	Reflector	None	X	0.0260
Name	SLAB	Housing	Black Body	Y	2.9375
Catalog No.	SLA-90-P-30	Lens	Polycarbonate	Z	0.1875

Stabilization Time: 1 hour 15 minutes

Approved Signatory: Chrisnel Blot

Signature:



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	KIKUSUI	SPEC 77766A	1450001	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	2020/09/05	2021/09/05

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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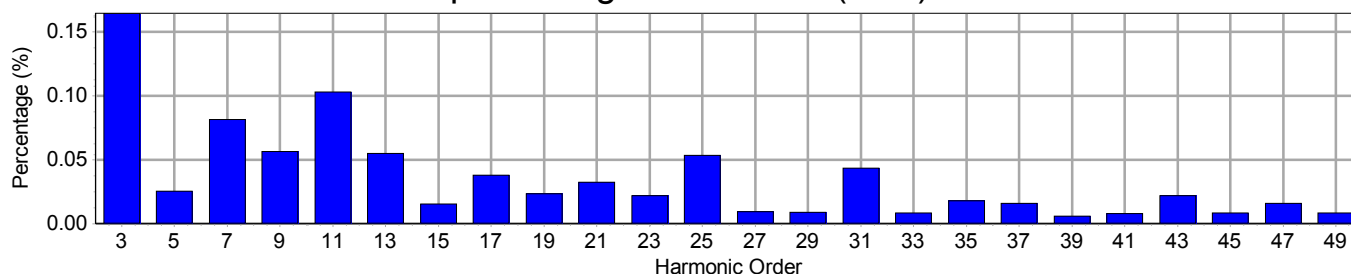
Lab Code: 200899-0

Electrical Measurements

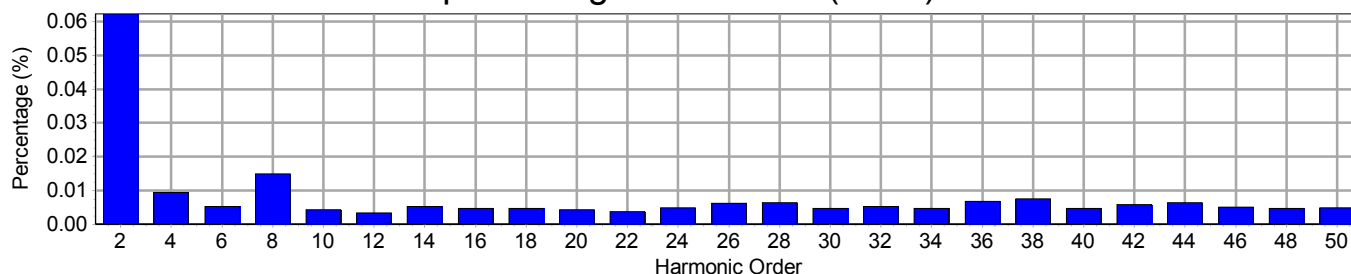
Input

Frequency	60 Hz	Active Power	14.19 W	THDV [ANSI]	0.26 %
Voltage	120.0 V(rms)	Apparent Power	14.59 VA	THDA [ANSI]	8.40 %
Current	0.1216 A(rms)	Power Factor	0.973	Max. Harmonic At	5th order

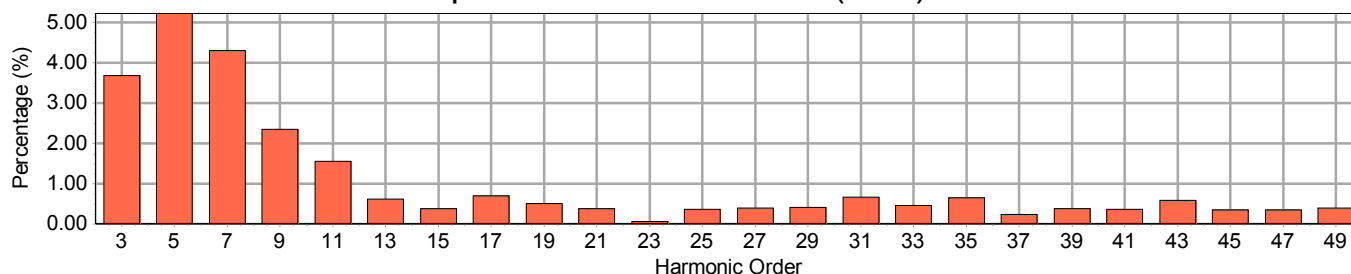
Input Voltage Harmonics (Odd)



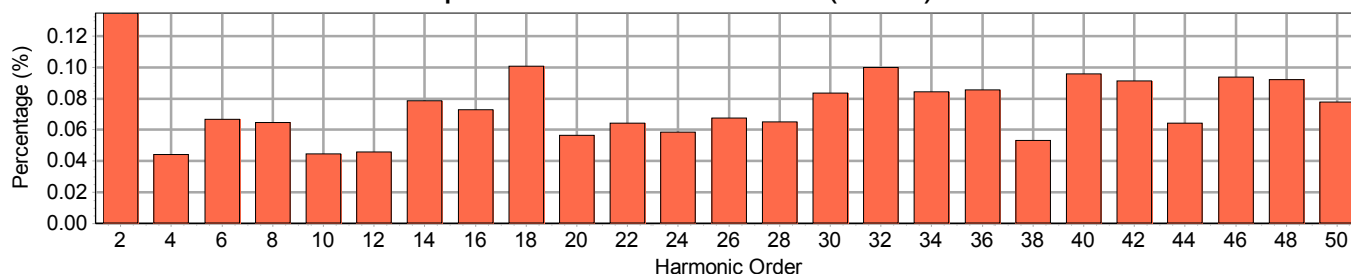
Input Voltage Harmonics (Even)



Input Current Harmonics (Odd)



Input Current Harmonics (Even)





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Lab Code: 200899-0

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	0.062	0.135
3	180	0.165	3.684	4	240	0.009	0.044
5	300	0.025	5.228	6	360	0.005	0.067
7	420	0.081	4.303	8	480	0.015	0.065
9	540	0.056	2.351	10	600	0.004	0.045
11	660	0.103	1.544	12	720	0.003	0.046
13	780	0.055	0.607	14	840	0.005	0.079
15	900	0.015	0.377	16	960	0.005	0.073
17	1020	0.038	0.693	18	1080	0.005	0.101
19	1140	0.023	0.498	20	1200	0.004	0.056
21	1260	0.032	0.371	22	1320	0.004	0.064
23	1380	0.022	0.052	24	1440	0.005	0.059
25	1500	0.053	0.353	26	1560	0.006	0.068
27	1620	0.010	0.384	28	1680	0.006	0.065
29	1740	0.009	0.404	30	1800	0.005	0.084
31	1860	0.044	0.664	32	1920	0.005	0.100
33	1980	0.008	0.453	34	2040	0.005	0.085
35	2100	0.018	0.641	36	2160	0.007	0.086
37	2220	0.016	0.233	38	2280	0.008	0.053
39	2340	0.006	0.375	40	2400	0.005	0.096
41	2460	0.008	0.360	42	2520	0.006	0.091
43	2580	0.022	0.583	44	2640	0.006	0.064
45	2700	0.008	0.335	46	2760	0.005	0.094
47	2820	0.016	0.344	48	2880	0.005	0.092
49	2940	0.008	0.388	50	3000	0.005	0.078



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Photometric Report: S2011252-R1

Prepared for: ANDlight · Test Date: 25 November 2020

Luminaire: SLAB · Lumcat: SLA-90-P-30

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		120	120	120	120	115	115	115	115	110	110	110	110	102	102	102	87	87	87	87	87	87	83
1		110	104	99	95	105	100	96	92	100	96	92	89	89	86	83	76	74	73	76	74	73	69
2		100	91	84	78	96	88	81	76	92	84	78	73	78	73	69	67	64	61	67	64	61	58
3		92	80	72	65	88	77	70	63	84	75	68	62	69	63	59	60	56	53	60	56	53	50
4		84	71	62	55	80	69	61	54	77	67	59	53	62	56	50	54	49	46	54	49	46	43
5		78	64	55	48	74	62	53	47	71	60	52	46	56	49	44	49	44	40	49	44	40	38
6		72	58	49	42	69	56	47	41	66	54	46	40	51	44	39	44	39	36	44	39	36	33
7		67	52	44	37	64	51	42	37	61	49	41	36	46	39	35	41	36	32	41	36	32	30
8		62	48	39	33	59	46	38	33	57	45	37	32	42	36	31	38	33	29	38	33	29	27
9		58	44	36	30	56	43	35	30	53	42	34	29	39	33	28	35	30	26	35	30	26	24
10		54	41	33	27	52	39	32	27	50	38	31	26	36	30	26	32	27	24	32	27	24	22

Zonal Lumen Summary

Zone	Lumens	% Lamp	% Luminaire
0 - 10	25	3.41	3.41
10 - 20	69	9.39	9.39
20 - 30	96	13.15	13.15
30 - 40	108	14.78	14.78
40 - 50	103	14.08	14.08
50 - 60	85	11.63	11.63
60 - 70	62	8.50	8.50
70 - 80	40	5.43	5.43
80 - 90	22	2.99	2.99
90 - 120	63	8.66	8.66
90 - 130	84	11.54	11.54
90 - 150	113	15.49	15.49
90 - 180	122	16.65	16.65
0 - 180	732	100.00	100.00

Average Luminance (Cd/m²)

Angle	0 Degree	45 Degree	90 Degree
0			
45.0	3809	3722	3542
55.0	3179	3349	3069
65.0	2616	3078	2651
75.0	2229	3108	2530
85.0	2118	4924	4252

Luminaire Luminous Flux: 732

Measured Input Power: 14.19 W

Total Luminaire Efficiency: N/A

Luminaire Luminous Efficacy: 51.6 lm/W

Luminaire Spacing Criterion (0 Degree): 1.1603

Luminaire Spacing Criterion (90 Degree): 1.0644

Category: Up and Down

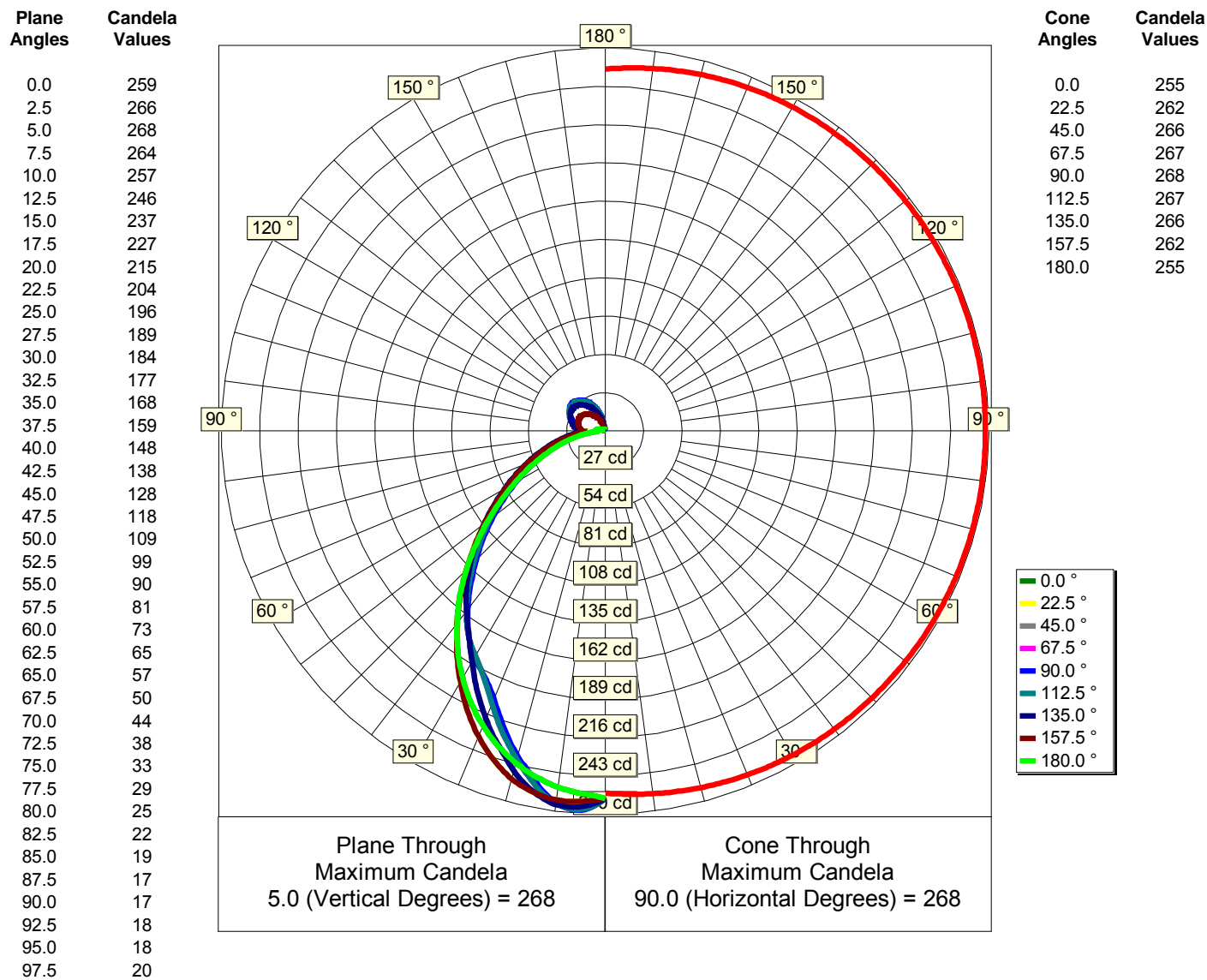


Photometric Report: S2011252-R1

Prepared for: ANDlight · Test Date: 25 November 2020

Luminaire: SLAB · Lumcat: SLA-90-P-30

Luminous Intensity - Polar Curve for each Plane(1)



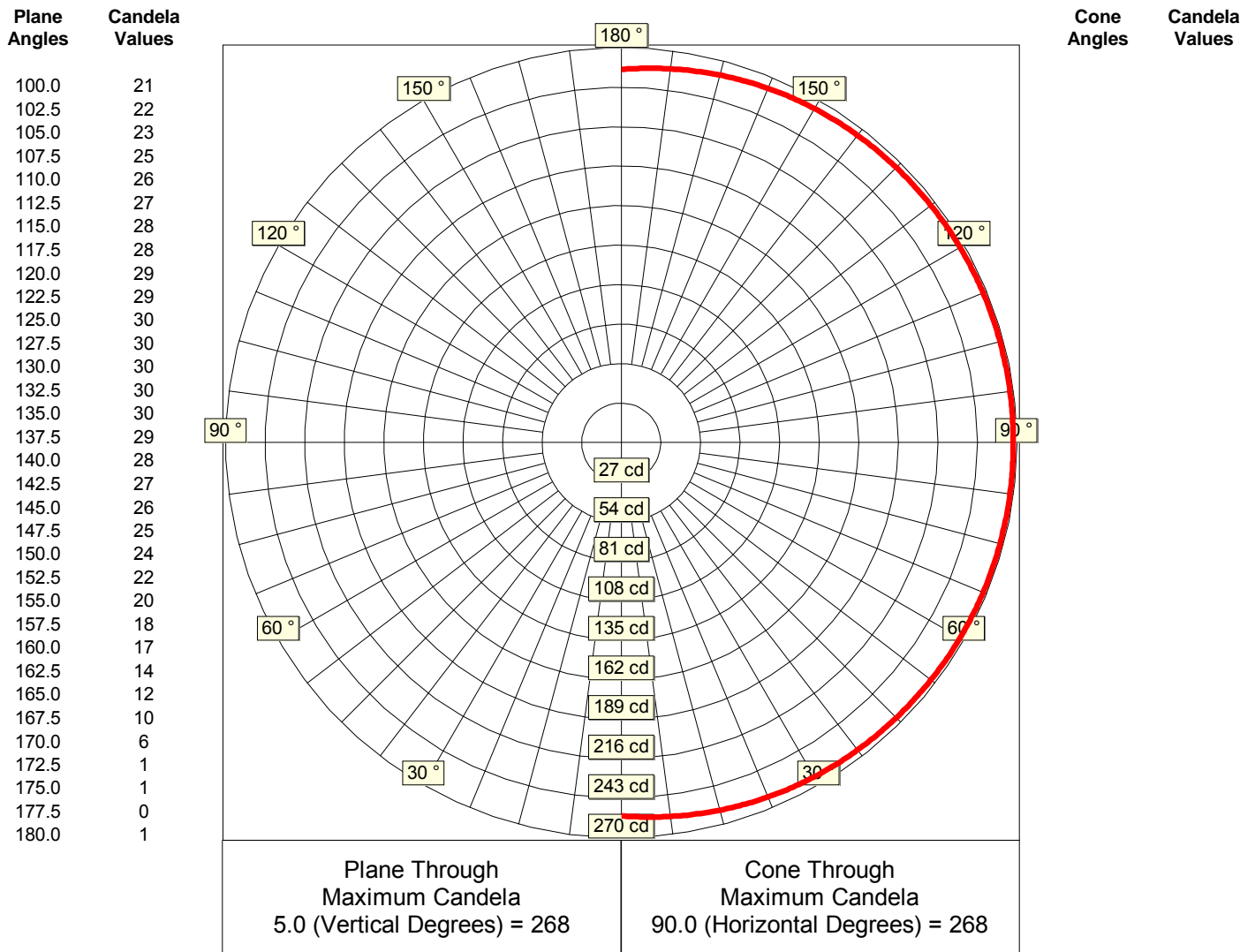


Photometric Report: S2011252-R1

Prepared for: ANDlight · Test Date: 25 November 2020

Luminaire: SLAB · Lumcat: SLA-90-P-30

Luminous Intensity - Polar Curve for each Plane(2)





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IES File Headers

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IESNA:LM-63
[ISSUEDATE]      25 November 2020
[TESTLAB]        Spectra Lux
[TEST]           S2011252-R1
[MANUFAC]        ANDlight
[LUMCAT]          SLA-90-P-30
[LUMINAIRE]       SLAB
[LAMP]           Clusters of EPISTAR OMNICHIP (320404-xx-300-12-4.4) LEDs c/w Meanwell Driver IDLV-45-12 @ 120.00V
[_BURNING]        Horizontal (732 Luminaire Lumens)
[_REFLECTOR]      None
[_LENS]           Polycarbonate
[_HOUSING]        Black Body
[_NOMINAL COLOR]  3000 K
[_DRIVE CURRENT]  1050 mA
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Candela Table

Lateral Angles

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0
V e r t i c a l	0.0	259	259	259	259	259	259	259	259
	2.5	256	261	264	266	266	266	264	256
	5.0	255	262	266	267	268	267	266	255
	7.5	253	262	265	264	264	264	265	253
	10.0	250	261	262	258	257	258	262	250
	12.5	246	258	256	249	246	249	256	246
	15.0	242	254	248	240	237	240	248	242
	17.5	237	248	238	229	227	229	238	237
	20.0	231	241	229	219	215	219	229	231
	22.5	224	233	219	208	204	208	219	224
	25.0	217	224	209	197	196	197	209	217
	27.5	209	214	198	189	189	189	198	209
	30.0	201	204	187	183	184	183	187	201
	32.5	191	193	177	177	177	177	193	191
	35.0	181	182	168	169	168	169	182	181
	37.5	171	171	160	160	159	160	171	171
	40.0	160	160	152	150	148	150	160	160
	42.5	149	149	144	140	138	140	149	149
A n g l e s	45.0	138	138	135	131	128	131	138	138
	47.5	126	127	126	121	118	121	126	126
	50.0	115	117	116	111	109	111	117	115
	52.5	104	107	107	102	99	102	107	104
	55.0	93	98	98	93	90	93	98	93
	57.5	83	89	90	84	81	84	89	83
	60.0	74	81	82	76	73	76	81	74
	62.5	65	73	74	68	65	68	73	65
	65.0	57	65	67	61	57	61	65	57
	67.5	49	58	60	54	50	54	58	49
	70.0	42	52	53	47	44	47	52	42
	72.5	35	46	47	42	38	42	46	35
	75.0	30	40	41	36	33	36	40	30
	77.5	24	34	36	31	29	31	34	24
	80.0	19	29	31	27	25	27	29	19
	82.5	14	24	26	23	22	23	24	14
	85.0	9	20	22	20	19	20	20	9
	87.5	7	17	19	17	17	17	17	7
	90.0	6	17	19	17	17	17	17	6



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Lateral Angles

	0.0	22.5	45.0	67.5	90.0	112.5	135.0	157.5	180.0	
V e r t i c a l	92.5	6	17	19	18	18	18	19	17	6
	95.0	6	17	20	19	18	19	20	17	6
	97.5	5	18	21	20	20	20	21	18	5
	100.0	5	19	22	21	21	21	22	19	5
	102.5	5	19	23	23	22	23	23	19	5
	105.0	4	19	24	24	23	24	24	19	4
	107.5	4	20	25	25	25	25	25	20	4
	110.0	4	20	26	26	26	26	26	20	4
	112.5	4	20	26	27	27	27	26	20	4
	115.0	3	20	27	28	28	28	27	20	3
	117.5	3	20	27	28	28	28	27	20	3
	120.0	3	20	28	29	29	29	28	20	3
	122.5	3	20	28	29	29	29	28	20	3
	125.0	3	19	28	30	30	30	28	19	3
	127.5	2	19	28	30	30	30	28	19	2
	130.0	2	18	27	30	30	30	27	18	2
	132.5	2	18	27	29	30	29	27	18	2
	135.0	2	17	26	29	30	29	26	17	2
	137.5	2	16	25	28	29	28	25	16	2
	A n g l e s	140.0	2	15	24	28	28	28	24	15
142.5		1	14	23	27	27	27	23	14	1
145.0		1	13	22	25	26	25	22	13	1
147.5		1	12	20	24	25	24	20	12	1
150.0		1	11	19	23	24	23	19	11	1
152.5		1	10	17	21	22	21	17	10	1
155.0		1	9	16	19	20	19	16	9	1
157.5		1	7	14	17	18	17	14	7	1
160.0		1	4	12	16	17	16	12	4	1
162.5		1	3	11	14	14	14	11	3	1
165.0		1	2	7	11	12	11	7	2	1
167.5		1	1	5	8	10	8	5	1	1
170.0		1	1	1	4	6	4	1	1	1
172.5		1	1	1	1	1	1	1	1	1
175.0		1	1	1	1	1	1	1	1	1
177.5		1	1	1	1	0	1	1	1	1
180.0		1	1	1	1	1	1	1	1	1