

Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for

Cooper Lighting Solutions

Brand: HALO

Report Number: P644131

Luminaire Tested: ML5615LSWW9FS1E - 692H WW - 1500LM - 2700K

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644131
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-132)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 692H WW - 1500LM - 2700K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH HAZE TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1007.3 lumens
Efficiency: N/A
Efficacy: 58.9 lumens/watt
Spacing Criteria (0/90/45): 1.15 / 1.12 / 1.23
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

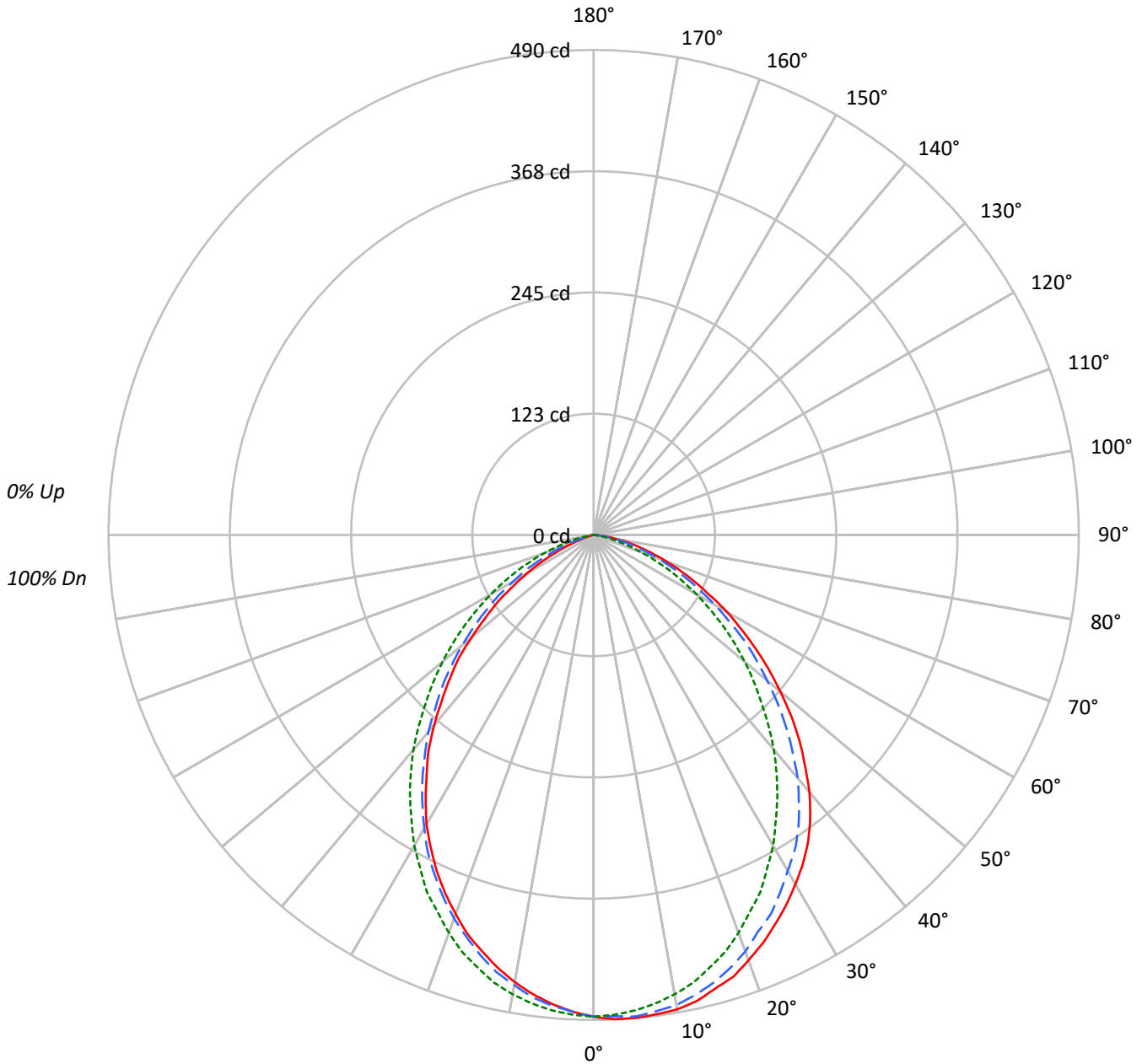
Input Watts (W): 17.1
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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Luminous Intensity Polar Plot





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COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20					20					20					20				
RC	80					70					50					30				
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10	0		
RCR																				
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100		
1	111	107	103	100	108	104	101	98	100	98	95	96	94	92	93	91	90	88		
2	102	95	89	84	100	93	88	83	90	85	81	86	83	79	84	80	78	76		
3	94	85	78	72	92	83	77	71	80	75	70	78	73	69	75	71	68	66		
4	87	76	68	62	85	75	67	62	72	66	61	70	65	60	68	63	59	57		
5	80	69	60	54	78	68	60	54	66	59	54	64	58	53	62	57	53	51		
6	75	62	54	48	73	61	54	48	60	53	48	58	52	47	57	51	47	45		
7	69	57	49	43	68	56	48	43	55	48	43	53	47	42	52	46	42	40		
8	65	52	44	39	63	52	44	39	50	43	38	49	43	38	48	42	38	36		
9	61	48	40	35	59	48	40	35	46	40	35	45	39	35	44	39	35	33		
10	57	45	37	32	56	44	37	32	43	37	32	42	36	32	41	36	32	30		

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	26686	26686	26686	26686	26686
5°	26959	26876	26535	26277	26189
10°	27098	26842	26235	25712	25539
15°	26924	26572	25687	24983	24716
20°	26678	26130	24951	24047	23773
25°	26245	25592	24086	22955	22671
30°	25795	24808	22940	21662	21364
35°	25290	24146	21650	20191	19675
40°	24267	22929	20259	18585	17919
45°	22793	21343	18568	16761	15916
50°	20955	19496	16980	14720	13663
55°	19029	17691	15158	12635	11297
60°	17049	15514	13135	10229	8530
65°	14723	13322	10896	7666	5448
70°	12470	10963	8223	4744	2500
75°	10209	8557	5274	1652	996
80°	7356	5904	2462	505	505
85°	3900	2956	1006	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 22793 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	45.7	4.5
10°-20°	127.8	12.7
20°-30°	184.2	18.3
30°-40°	205.9	20.4
40°-50°	188.8	18.7
50°-60°	141.8	14.1
60°-70°	81.0	8.0
70°-80°	28.3	2.8
80°-90°	3.7	0.4
90°-100°	0.0	0.0
100°-110°	0.0	0.0
110°-120°	0.0	0.0
120°-130°	0.0	0.0
130°-140°	0.0	0.0
140°-150°	0.0	0.0
150°-160°	0.0	0.0
160°-170°	0.0	0.0
170°-180°	0.0	0.0
0°-30°	357.8	35.5
0°-40°	563.7	56.0
0°-60°	894.4	88.8
0°-90°	1007.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1007.3	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	487	487	487	487	487	
5°	490	488	482	478	476	47
15°	474	468	453	440	436	134
25°	434	423	398	380	375	200
35°	378	361	324	302	294	235
45°	294	275	240	216	205	226
55°	199	185	159	132	118	178
65°	114	103	84	59	42	113
75°	48	40	25	8	5	52
85°	6	5	2	0	0	9
90°	0	0	0	0	0	



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CANDELA DISTRIBUTION (FULL):

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	486.8	486.8	486.8	486.8	486.8	486.8	486.8	486.8	486.8	486.8	486.8
2.5°	489.9	488.4	488.4	488.4	488.4	488.4	488.4	488.4	488.4	488.4	486.8
5°	489.9	489.9	489.9	489.9	489.9	489.9	489.9	488.4	488.4	488.4	488.4
7.5°	488.4	488.4	488.4	488.4	488.4	488.4	488.4	486.8	486.8	485.3	485.3
10°	486.8	486.8	486.8	485.3	485.3	485.3	485.3	485.3	483.7	483.7	482.2
12.5°	482.2	482.2	482.2	482.2	480.6	480.6	480.6	479.0	477.5	477.5	475.9
15°	474.4	475.9	475.9	474.4	474.4	474.4	474.4	472.8	471.3	469.7	468.2
17.5°	468.2	468.2	468.2	466.6	465.0	466.6	465.0	463.5	461.9	460.4	458.8
20°	457.3	457.3	455.7	455.7	455.7	455.7	454.2	452.6	451.0	449.5	447.9
22.5°	446.4	446.4	446.4	443.3	443.3	443.3	441.7	441.7	438.6	437.0	433.9
25°	433.9	433.9	433.9	432.4	430.8	429.3	430.8	427.7	426.2	423.1	423.1
27.5°	421.5	421.5	419.9	419.9	418.4	418.4	416.8	413.7	412.2	410.6	407.5
30°	407.5	407.5	405.9	405.9	404.4	402.8	402.8	399.7	398.2	395.1	391.9
32.5°	393.5	393.5	391.9	391.9	390.4	388.8	388.8	385.7	382.6	379.5	377.9
35°	377.9	377.9	376.4	376.4	374.8	373.3	371.7	368.6	367.1	362.4	360.8
37.5°	359.3	360.8	357.7	357.7	356.2	354.6	353.1	351.5	348.4	345.3	340.6
40°	339.1	337.5	337.5	336.0	334.4	334.4	332.8	329.7	328.2	323.5	320.4
42.5°	315.7	315.7	315.7	314.2	312.6	312.6	309.5	308.0	304.8	301.7	297.1
45°	294.0	294.0	292.4	292.4	289.3	289.3	287.7	284.6	283.1	278.4	275.3
47.5°	270.6	269.1	269.1	267.5	266.0	266.0	264.4	262.9	259.7	255.1	252.0
50°	245.7	245.7	245.7	244.2	242.6	242.6	241.1	238.0	236.4	233.3	228.6
52.5°	222.4	222.4	222.4	220.9	219.3	219.3	217.7	216.2	213.1	210.0	206.9
55°	199.1	199.1	199.1	197.5	197.5	194.4	194.4	192.9	189.8	186.6	185.1
57.5°	175.8	175.8	175.8	175.8	174.2	174.2	172.6	171.1	168.0	166.4	161.8
60°	155.5	154.0	154.0	152.4	152.4	150.9	149.3	147.8	146.2	143.1	141.5
62.5°	132.2	133.8	132.2	132.2	130.6	130.6	130.6	127.5	126.0	122.9	121.3
65°	113.5	113.5	113.5	113.5	110.4	110.4	110.4	107.3	105.8	105.8	102.7
67.5°	94.9	94.9	94.9	93.3	93.3	93.3	91.8	90.2	88.7	87.1	85.5
70°	77.8	77.8	77.8	76.2	76.2	74.7	74.7	73.1	71.5	71.5	68.4
72.5°	62.2	62.2	62.2	62.2	60.7	60.7	59.1	59.1	57.5	56.0	54.4
75°	48.2	48.2	48.2	46.7	46.7	46.7	45.1	45.1	43.5	42.0	40.4
77.5°	35.8	34.2	34.2	34.2	34.2	32.7	32.7	32.7	31.1	29.6	29.6
80°	23.3	23.3	23.3	23.3	23.3	21.8	21.8	21.8	20.2	20.2	18.7
82.5°	14.0	14.0	14.0	14.0	14.0	12.4	12.4	12.4	10.9	10.9	10.9
85°	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	4.7	4.7	4.7
87.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	486.8	486.8	486.8	486.8	486.8	486.8	486.8	486.8	486.8	486.8	486.8
2.5°	488.4	488.4	486.8	486.8	486.8	486.8	486.8	485.3	485.3	485.3	485.3
5°	488.4	486.8	485.3	485.3	485.3	485.3	483.7	483.7	483.7	482.2	482.2
7.5°	483.7	483.7	483.7	482.2	482.2	480.6	480.6	479.0	479.0	477.5	477.5
10°	480.6	479.0	479.0	477.5	477.5	475.9	475.9	472.8	471.3	471.3	469.7
12.5°	474.4	472.8	472.8	469.7	469.7	469.7	468.2	465.0	463.5	463.5	461.9
15°	466.6	465.0	463.5	460.4	460.4	458.8	457.3	455.7	454.2	452.6	451.0
17.5°	457.3	454.2	452.6	451.0	449.5	447.9	446.4	444.8	441.7	441.7	438.6
20°	446.4	443.3	441.7	438.6	437.0	437.0	433.9	430.8	429.3	427.7	424.6
22.5°	432.4	430.8	427.7	424.6	423.1	423.1	419.9	416.8	415.3	412.2	410.6
25°	419.9	415.3	413.7	410.6	409.1	409.1	405.9	402.8	399.7	398.2	395.1
27.5°	404.4	401.3	399.7	395.1	393.5	391.9	388.8	385.7	382.6	379.5	376.4
30°	388.8	385.7	382.6	377.9	377.9	374.8	371.7	367.1	365.5	362.4	357.7
32.5°	373.3	370.2	365.5	362.4	359.3	357.7	353.1	350.0	346.8	342.2	340.6
35°	356.2	351.5	348.4	343.7	342.2	339.1	336.0	331.3	328.2	323.5	318.8
37.5°	337.5	331.3	328.2	323.5	322.0	318.8	315.7	312.6	308.0	303.3	300.2
40°	317.3	311.1	306.4	303.3	300.2	297.1	295.5	289.3	286.2	283.1	280.0
42.5°	294.0	289.3	284.6	281.5	278.4	276.8	272.2	269.1	264.4	261.3	258.2
45°	272.2	267.5	262.9	258.2	256.6	255.1	252.0	247.3	242.6	239.5	236.4
47.5°	248.9	245.7	239.5	238.0	234.9	233.3	228.6	225.5	224.0	219.3	216.2
50°	225.5	222.4	219.3	214.6	213.1	211.5	208.4	205.3	202.2	199.1	196.0
52.5°	202.2	200.6	197.5	192.9	192.9	191.3	188.2	185.1	182.0	178.9	175.8
55°	182.0	178.9	175.8	172.6	171.1	169.5	166.4	164.9	161.8	158.6	155.5
57.5°	160.2	157.1	155.5	152.4	150.9	149.3	146.2	144.6	141.5	138.4	135.3
60°	140.0	136.9	135.3	132.2	130.6	130.6	127.5	124.4	122.9	119.8	116.7
62.5°	119.8	116.7	115.1	112.0	112.0	110.4	108.9	105.8	104.2	101.1	99.5
65°	101.1	99.5	96.4	94.9	93.3	91.8	90.2	88.7	85.5	84.0	80.9
67.5°	84.0	80.9	79.3	77.8	76.2	74.7	73.1	71.5	68.4	66.9	63.8
70°	66.9	65.3	63.8	62.2	60.7	60.7	57.5	56.0	52.9	51.3	48.2
72.5°	52.9	51.3	49.8	46.7	46.7	45.1	43.5	42.0	38.9	37.3	34.2
75°	38.9	38.9	35.8	34.2	34.2	32.7	31.1	29.6	28.0	24.9	23.3
77.5°	28.0	26.4	24.9	23.3	21.8	21.8	20.2	18.7	17.1	15.6	12.4
80°	18.7	17.1	15.6	14.0	14.0	12.4	10.9	10.9	9.3	7.8	6.2
82.5°	9.3	9.3	7.8	7.8	6.2	6.2	6.2	4.7	4.7	3.1	3.1
85°	4.7	3.1	3.1	3.1	3.1	3.1	1.6	1.6	1.6	1.6	0.0
87.5°	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	486.8	486.8	486.8	486.8	486.8	486.8	486.8	486.8	486.8	486.8	486.8
2.5°	485.3	483.7	485.3	485.3	483.7	483.7	483.7	483.7	482.2	483.7	482.2
5°	482.2	480.6	480.6	480.6	480.6	479.0	479.0	477.5	477.5	477.5	477.5
7.5°	475.9	474.4	474.4	472.8	472.8	472.8	472.8	471.3	471.3	469.7	469.7
10°	469.7	468.2	466.6	466.6	465.0	465.0	465.0	463.5	461.9	461.9	460.4
12.5°	458.8	458.8	457.3	457.3	455.7	455.7	454.2	452.6	452.6	451.0	451.0
15°	449.5	447.9	446.4	446.4	444.8	443.3	441.7	441.7	440.2	440.2	438.6
17.5°	437.0	433.9	433.9	432.4	430.8	430.8	429.3	427.7	426.2	426.2	426.2
20°	423.1	421.5	419.9	418.4	416.8	416.8	415.3	413.7	412.2	410.6	410.6
22.5°	407.5	405.9	404.4	402.8	402.8	401.3	399.7	398.2	396.6	395.1	395.1
25°	391.9	390.4	388.8	387.3	385.7	384.2	382.6	381.1	379.5	377.9	377.9
27.5°	374.8	371.7	370.2	368.6	367.1	365.5	365.5	362.4	362.4	360.8	359.3
30°	356.2	353.1	350.0	350.0	348.4	346.8	343.7	343.7	342.2	340.6	339.1
32.5°	336.0	334.4	331.3	331.3	328.2	326.6	325.1	323.5	322.0	320.4	320.4
35°	317.3	312.6	311.1	311.1	308.0	306.4	304.8	301.7	301.7	298.6	298.6
37.5°	297.1	294.0	292.4	289.3	287.7	286.2	284.6	281.5	280.0	278.4	276.8
40°	276.8	273.7	270.6	269.1	267.5	264.4	262.9	259.7	259.7	256.6	255.1
42.5°	255.1	252.0	248.9	247.3	245.7	242.6	241.1	238.0	236.4	234.9	233.3
45°	233.3	230.2	228.6	227.1	225.5	224.0	219.3	217.7	216.2	213.1	211.5
47.5°	213.1	210.0	206.9	206.9	203.7	202.2	199.1	196.0	194.4	191.3	189.8
50°	192.9	189.8	186.6	185.1	185.1	180.4	178.9	175.8	172.6	169.5	168.0
52.5°	172.6	169.5	166.4	164.9	163.3	160.2	157.1	155.5	152.4	149.3	147.8
55°	152.4	149.3	146.2	144.6	143.1	140.0	138.4	133.8	132.2	129.1	126.0
57.5°	133.8	130.6	127.5	126.0	124.4	121.3	118.2	115.1	113.5	110.4	107.3
60°	113.5	112.0	108.9	107.3	105.8	104.2	99.5	96.4	93.3	91.8	88.7
62.5°	96.4	93.3	90.2	88.7	87.1	85.5	82.4	79.3	77.8	73.1	70.0
65°	79.3	76.2	73.1	71.5	70.0	68.4	65.3	62.2	59.1	56.0	54.4
67.5°	60.7	59.1	56.0	56.0	54.4	51.3	48.2	46.7	43.5	42.0	38.9
70°	46.7	45.1	42.0	40.4	38.9	35.8	34.2	31.1	29.6	28.0	24.9
72.5°	32.7	31.1	28.0	26.4	24.9	23.3	20.2	18.7	17.1	15.6	14.0
75°	21.8	18.7	17.1	15.6	15.6	12.4	10.9	9.3	7.8	6.2	6.2
77.5°	12.4	10.9	7.8	7.8	7.8	6.2	4.7	4.7	3.1	3.1	3.1
80°	6.2	4.7	3.1	3.1	3.1	3.1	1.6	1.6	1.6	1.6	1.6
82.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
85°	0.0	0.0	0.0	0.0	0.0	1.6	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0



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CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	486.8	486.8	486.8	486.8	486.8	486.8	486.8	486.8
2.5°	482.2	482.2	482.2	482.2	482.2	482.2	482.2	482.2
5°	477.5	475.9	475.9	475.9	475.9	475.9	475.9	475.9
7.5°	469.7	469.7	468.2	469.7	468.2	468.2	468.2	468.2
10°	460.4	460.4	460.4	460.4	458.8	458.8	458.8	458.8
12.5°	451.0	449.5	449.5	449.5	447.9	449.5	447.9	447.9
15°	438.6	437.0	437.0	437.0	437.0	435.5	437.0	435.5
17.5°	424.6	424.6	423.1	424.6	423.1	423.1	423.1	423.1
20°	409.1	409.1	409.1	407.5	409.1	407.5	407.5	407.5
22.5°	393.5	393.5	391.9	391.9	391.9	391.9	391.9	391.9
25°	376.4	376.4	376.4	376.4	374.8	374.8	374.8	374.8
27.5°	359.3	357.7	357.7	357.7	356.2	357.7	356.2	356.2
30°	339.1	339.1	337.5	337.5	337.5	336.0	336.0	337.5
32.5°	317.3	317.3	317.3	317.3	315.7	315.7	315.7	315.7
35°	297.1	297.1	295.5	295.5	295.5	294.0	294.0	294.0
37.5°	275.3	275.3	273.7	273.7	273.7	272.2	272.2	273.7
40°	253.5	253.5	252.0	252.0	252.0	250.4	250.4	250.4
42.5°	231.7	230.2	230.2	228.6	228.6	228.6	227.1	227.1
45°	210.0	208.4	208.4	208.4	206.9	205.3	205.3	205.3
47.5°	188.2	186.6	185.1	185.1	183.5	183.5	183.5	185.1
50°	166.4	164.9	164.9	163.3	161.8	161.8	161.8	160.2
52.5°	144.6	143.1	143.1	141.5	141.5	140.0	138.4	138.4
55°	124.4	122.9	121.3	119.8	119.8	118.2	118.2	118.2
57.5°	104.2	102.7	101.1	101.1	99.5	99.5	98.0	96.4
60°	85.5	84.0	82.4	82.4	80.9	79.3	77.8	77.8
62.5°	68.4	66.9	65.3	63.8	62.2	60.7	59.1	60.7
65°	52.9	49.8	48.2	46.7	46.7	45.1	43.5	42.0
67.5°	37.3	35.8	34.2	32.7	31.1	29.6	28.0	28.0
70°	23.3	20.2	20.2	20.2	18.7	17.1	15.6	15.6
72.5°	12.4	10.9	9.3	9.3	7.8	7.8	7.8	7.8
75°	4.7	4.7	4.7	4.7	4.7	4.7	4.7	4.7
77.5°	3.1	3.1	3.1	3.1	3.1	3.1	3.1	3.1
80°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
82.5°	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
85°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
87.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
90°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Signify Classified - Internal
Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269

Scaled Data Report



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— 0°-180° - - 45°-225° - - - - 90°-270°

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