

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: P644146

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

Issue Date: 2/17/2023

Test Information

Test Method: LM-79-2019
Report Number: P644146
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-131)
Test Lab: COOPER LIGHTING SOLUTIONS
Issue Date: 2/17/2023
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: HALO
Catalog Number: ML5615LSWW9FS1E - 692SC WW - 1500LM - 2700K
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH SPECULAR CLEAR TRIM
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 2700K CCT
Ballast/Driver: -

Summary

Lumens per Lamp: N/A
Luminaire Lumens: 1031.1 lumens
Efficiency: N/A
Efficacy: 60.3 lumens/watt
Spacing Criteria (0/90/45): 1.13 / 1.09 / 1.17
Luminous Opening: Circular (Dia: 0.5' x H: 0')
CIE Type: Direct

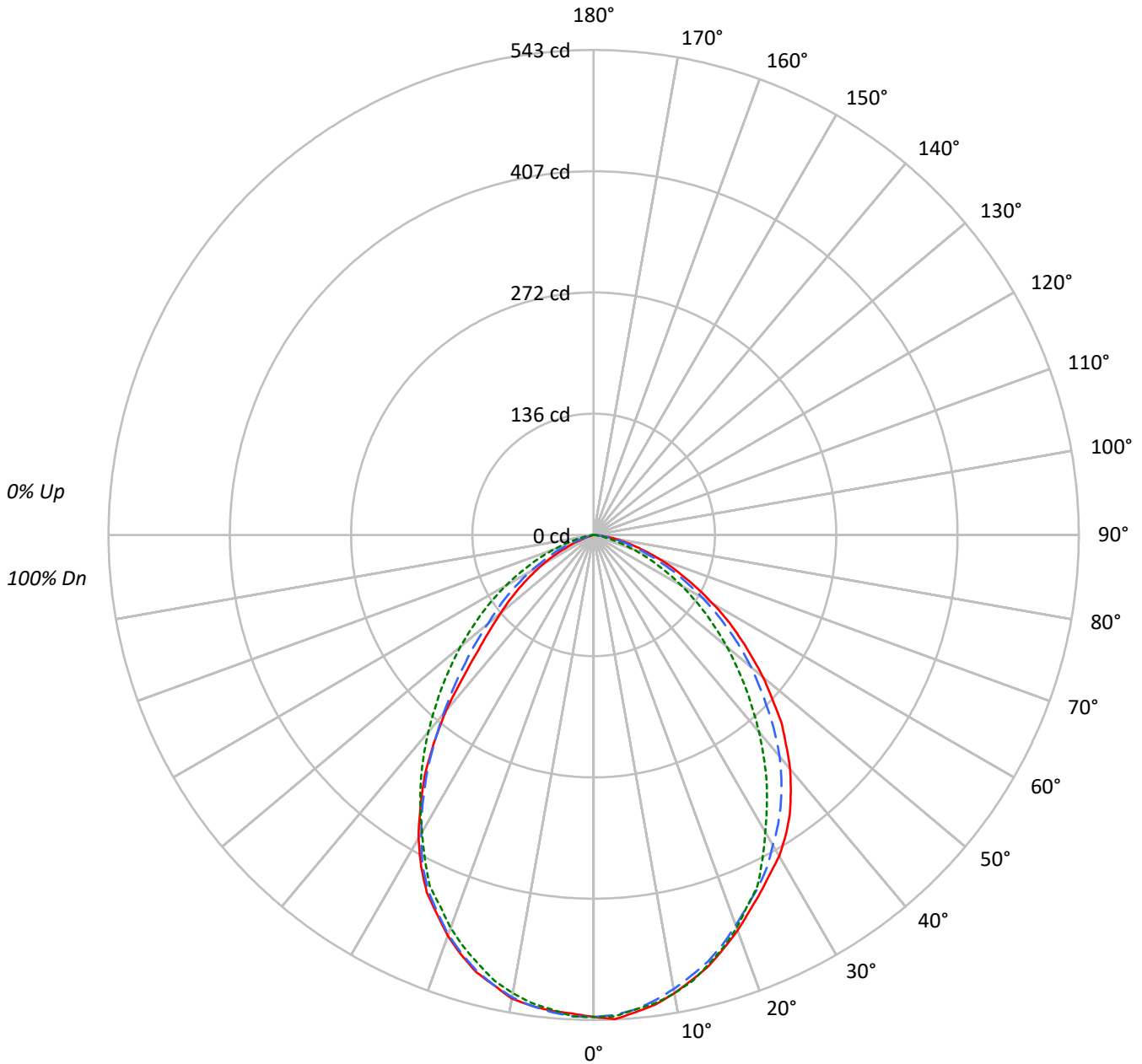
Input Watts (W): 17.1
Input Voltage (V): NR
Input Current (A_{in}): NR
Voltage Rise (V): NR
Power Factor: NR
Total Harmonic Distortion (THDi): NR
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT



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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					10					0
RW	70	50	30	10	70	50	30	10	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	104	100	108	105	102	99	101	98	96	97	95	93	93	92	90	88								
2	103	96	90	85	100	94	89	84	90	86	82	87	84	80	84	81	79	77								
3	95	86	79	73	92	84	78	72	81	76	71	79	74	70	76	72	69	67								
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61	59								
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52								
6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	53	48	46								
7	70	58	50	45	69	57	50	44	56	49	44	55	48	44	53	48	44	42								
8	66	53	46	40	64	53	45	40	52	45	40	50	44	40	49	44	40	38								
9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34								
10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	32								

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°	135°	180°
0°	29581	29581	29581	29581	29581
5°	29523	29353	29353	29523	29441
10°	29002	28740	29002	29258	29347
15°	28332	28065	28241	28683	28774
20°	27489	27127	27308	27763	27851
25°	26717	26336	26245	26530	26717
30°	26283	25396	24314	24415	24808
35°	25605	24460	22587	21750	22065
40°	24482	23151	20589	18699	18363
45°	23026	21343	18568	15792	14110
50°	21091	19633	16579	13134	11539
55°	19029	17538	14566	11144	9366
60°	16885	15350	12444	9034	7160
65°	14528	13114	10092	6654	4436
70°	12470	10723	7485	3735	1747
75°	9891	8239	4935	996	0
80°	7356	5904	2462	0	0
85°	3900	2956	0	0	0

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°
 Vertical Angle: 45°
 Luminance: 23026 cd/sqm



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ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	50.6	4.9
10°-20°	140.4	13.6
20°-30°	200.1	19.4
30°-40°	215.2	20.9
40°-50°	185.5	18.0
50°-60°	134.4	13.0
60°-70°	75.8	7.4
70°-80°	25.8	2.5
80°-90°	3.3	0.3
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°	391.1	37.9
0°-40°	606.3	58.8
0°-60°	926.2	89.8
0°-90°	1031.1	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1031.1	100.0

CANDELA DISTRIBUTION:

	0°	45°	90°	135°	180°	Flux
0°	540	540	540	540	540	
5°	536	533	533	536	535	51
15°	499	494	498	505	507	140
25°	442	435	434	439	442	204
35°	383	366	338	325	330	238
45°	297	275	240	204	182	228
55°	199	184	152	117	98	179
65°	112	101	78	51	34	112
75°	47	39	23	5	0	51
85°	6	5	0	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°	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6
2.5°	542.7	538.1	536.5	538.1	538.1	538.1	538.1	538.1	538.1	536.5	538.1
5°	536.5	531.9	531.9	531.9	531.9	531.9	530.3	531.9	531.9	531.9	533.4
7.5°	530.3	524.1	525.6	524.1	525.6	524.1	524.1	525.6	524.1	525.6	525.6
10°	521.0	516.3	516.3	516.3	516.3	516.3	516.3	516.3	516.3	516.3	516.3
12.5°	510.1	505.4	505.4	505.4	505.4	505.4	505.4	505.4	507.0	505.4	505.4
15°	499.2	493.0	494.5	493.0	493.0	493.0	493.0	493.0	493.0	493.0	494.5
17.5°	485.2	480.5	480.5	480.5	480.5	480.5	480.5	479.0	480.5	480.5	480.5
20°	471.2	466.5	466.5	465.0	466.5	465.0	465.0	465.0	466.5	465.0	465.0
22.5°	455.7	451.0	452.6	451.0	451.0	451.0	451.0	451.0	449.4	451.0	449.4
25°	441.7	440.1	438.6	440.1	438.6	438.6	438.6	437.0	437.0	437.0	435.4
27.5°	427.7	424.6	424.6	424.6	424.6	423.0	423.0	423.0	421.4	419.9	419.9
30°	415.2	410.6	410.6	410.6	409.0	409.0	407.5	407.5	404.3	402.8	401.2
32.5°	399.7	396.6	395.0	395.0	393.5	393.5	391.9	391.9	388.8	387.2	384.1
35°	382.6	381.0	381.0	379.5	377.9	376.3	374.8	373.2	371.7	368.6	365.5
37.5°	362.4	360.8	359.2	359.2	357.7	356.1	356.1	353.0	351.5	348.4	345.2
40°	342.1	339.0	339.0	337.5	335.9	334.4	334.4	331.2	329.7	326.6	323.5
42.5°	318.8	315.7	315.7	314.1	314.1	314.1	312.6	309.5	306.4	303.3	300.1
45°	297.0	293.9	293.9	290.8	290.8	289.3	287.7	286.1	283.0	279.9	275.3
47.5°	270.6	269.0	269.0	267.5	265.9	264.4	264.4	262.8	259.7	255.0	251.9
50°	247.3	245.7	245.7	244.2	242.6	241.0	239.5	237.9	236.4	233.3	230.2
52.5°	222.4	222.4	220.8	219.3	219.3	217.7	216.2	214.6	211.5	208.4	206.8
55°	199.1	197.5	197.5	195.9	195.9	194.4	192.8	191.3	189.7	186.6	183.5
57.5°	177.3	174.2	174.2	172.6	172.6	172.6	171.1	168.0	166.4	163.3	161.7
60°	154.0	152.4	152.4	152.4	150.9	149.3	149.3	146.2	144.6	143.1	140.0
62.5°	132.2	130.6	130.6	130.6	129.1	129.1	127.5	126.0	124.4	122.9	119.7
65°	112.0	112.0	112.0	110.4	110.4	108.9	107.3	107.3	105.8	104.2	101.1
67.5°	94.9	93.3	93.3	93.3	91.8	91.8	90.2	88.6	87.1	85.5	82.4
70°	77.8	76.2	76.2	74.6	74.6	74.6	74.6	73.1	70.0	70.0	66.9
72.5°	60.7	60.7	60.7	59.1	59.1	59.1	57.5	57.5	56.0	54.4	52.9
75°	46.7	46.7	46.7	45.1	45.1	45.1	43.5	43.5	42.0	40.4	38.9
77.5°	34.2	34.2	34.2	32.7	32.7	32.7	31.1	31.1	29.5	29.5	28.0
80°	23.3	23.3	23.3	21.8	21.8	21.8	21.8	20.2	20.2	18.7	18.7
82.5°	14.0	14.0	14.0	14.0	12.4	12.4	12.4	12.4	12.4	10.9	10.9
85°	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	6.2	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°	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6
2.5°	538.1	538.1	538.1	538.1	538.1	538.1	538.1	538.1	538.1	539.6	538.1
5°	533.4	533.4	533.4	533.4	533.4	533.4	535.0	533.4	535.0	533.4	535.0
7.5°	525.6	525.6	527.2	527.2	525.6	527.2	527.2	527.2	527.2	528.8	528.8
10°	516.3	517.9	517.9	519.4	519.4	519.4	519.4	521.0	521.0	521.0	521.0
12.5°	507.0	507.0	507.0	507.0	508.5	507.0	508.5	508.5	510.1	511.6	510.1
15°	493.0	494.5	494.5	494.5	494.5	494.5	496.1	497.6	497.6	497.6	499.2
17.5°	480.5	480.5	480.5	482.1	480.5	482.1	482.1	482.1	483.7	483.7	485.2
20°	465.0	463.4	466.5	465.0	465.0	466.5	466.5	466.5	468.1	468.1	468.1
22.5°	447.9	449.4	447.9	447.9	449.4	449.4	449.4	447.9	449.4	449.4	451.0
25°	433.9	433.9	433.9	433.9	433.9	433.9	433.9	432.3	433.9	433.9	433.9
27.5°	418.3	415.2	415.2	413.7	413.7	412.1	410.6	410.6	410.6	409.0	410.6
30°	399.7	396.6	395.0	393.5	391.9	391.9	388.8	387.2	385.7	384.1	382.6
32.5°	381.0	377.9	376.3	374.8	371.7	370.1	367.0	365.5	363.9	360.8	357.7
35°	363.9	359.2	356.1	353.0	351.5	349.9	346.8	343.7	340.6	337.5	334.4
37.5°	340.6	337.5	334.4	331.2	329.7	328.1	325.0	318.8	315.7	312.6	309.5
40°	320.4	315.7	312.6	307.9	306.4	303.3	300.1	295.5	290.8	287.7	284.6
42.5°	295.5	292.4	289.3	284.6	283.0	279.9	275.3	272.2	269.0	262.8	259.7
45°	272.2	269.0	265.9	261.3	258.2	256.6	253.5	248.8	244.2	239.5	236.4
47.5°	248.8	245.7	241.0	237.9	234.8	233.3	230.2	225.5	220.8	216.2	213.1
50°	225.5	222.4	219.3	213.1	213.1	209.9	206.8	202.2	199.1	194.4	189.7
52.5°	203.7	199.1	195.9	191.3	191.3	189.7	185.1	180.4	177.3	172.6	169.5
55°	180.4	177.3	174.2	171.1	168.0	166.4	164.8	160.2	155.5	152.4	147.7
57.5°	158.6	154.0	152.4	149.3	147.7	146.2	143.1	138.4	135.3	132.2	129.1
60°	138.4	135.3	130.6	129.1	127.5	126.0	122.9	119.7	116.6	113.5	110.4
62.5°	118.2	115.1	112.0	108.9	107.3	105.8	104.2	101.1	98.0	94.9	91.8
65°	98.0	96.4	93.3	91.8	90.2	88.6	85.5	82.4	80.9	77.8	74.6
67.5°	80.9	79.3	76.2	74.6	73.1	73.1	68.4	66.9	63.8	62.2	59.1
70°	65.3	63.8	60.7	59.1	57.5	56.0	54.4	52.9	49.8	46.7	45.1
72.5°	51.3	48.2	46.7	45.1	43.5	43.5	40.4	38.9	35.8	34.2	31.1
75°	37.3	35.8	34.2	32.7	32.7	31.1	29.5	28.0	24.9	23.3	21.8
77.5°	26.4	24.9	23.3	21.8	21.8	20.2	18.7	17.1	15.6	14.0	12.4
80°	17.1	15.6	15.6	14.0	12.4	12.4	10.9	9.3	7.8	7.8	6.2
82.5°	9.3	9.3	7.8	7.8	6.2	6.2	4.7	4.7	3.1	3.1	1.6
85°	4.7	3.1	3.1	3.1	3.1	1.6	1.6	1.6	0.0	0.0	0.0
87.5°	1.6	1.6	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°	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6
2.5°	538.1	538.1	538.1	538.1	538.1	538.1	538.1	538.1	539.6	538.1	538.1
5°	535.0	535.0	536.5	535.0	536.5	536.5	535.0	535.0	536.5	538.1	536.5
7.5°	528.8	528.8	530.3	530.3	530.3	530.3	530.3	531.9	531.9	533.4	533.4
10°	522.5	522.5	522.5	522.5	524.1	524.1	525.6	525.6	525.6	525.6	525.6
12.5°	511.6	513.2	513.2	513.2	513.2	514.8	514.8	516.3	516.3	516.3	517.9
15°	499.2	500.8	502.3	502.3	500.8	502.3	503.9	503.9	505.4	505.4	505.4
17.5°	485.2	486.8	486.8	488.3	486.8	489.9	489.9	491.4	491.4	493.0	493.0
20°	469.7	471.2	471.2	471.2	472.8	472.8	474.3	474.3	475.9	475.9	475.9
22.5°	451.0	452.6	452.6	452.6	452.6	454.1	454.1	455.7	457.2	458.8	457.2
25°	433.9	435.4	437.0	435.4	437.0	437.0	437.0	438.6	438.6	440.1	438.6
27.5°	410.6	410.6	410.6	412.1	413.7	413.7	413.7	415.2	415.2	415.2	416.8
30°	382.6	381.0	382.6	382.6	382.6	382.6	385.7	385.7	385.7	387.2	388.8
32.5°	356.1	356.1	356.1	354.6	354.6	354.6	354.6	356.1	356.1	357.7	359.2
35°	331.2	329.7	326.6	326.6	326.6	325.0	323.5	323.5	325.0	325.0	325.0
37.5°	304.8	303.3	301.7	298.6	298.6	295.5	293.9	292.4	292.4	290.8	290.8
40°	279.9	276.8	273.7	273.7	270.6	269.0	265.9	264.4	261.3	258.2	258.2
42.5°	255.0	251.9	248.8	247.3	244.2	242.6	237.9	234.8	231.7	230.2	227.1
45°	231.7	228.6	223.9	222.4	219.3	216.2	213.1	208.4	203.7	200.6	199.1
47.5°	208.4	205.3	200.6	197.5	195.9	191.3	188.2	183.5	178.8	174.2	169.5
50°	186.6	182.0	177.3	174.2	172.6	168.0	164.8	160.2	154.0	152.4	147.7
52.5°	164.8	160.2	155.5	154.0	152.4	147.7	143.1	138.4	135.3	130.6	127.5
55°	143.1	140.0	135.3	133.7	132.2	127.5	122.9	119.7	116.6	112.0	108.9
57.5°	124.4	121.3	116.6	115.1	113.5	108.9	105.8	101.1	98.0	94.9	91.8
60°	107.3	102.6	99.5	98.0	96.4	91.8	88.6	85.5	82.4	79.3	74.6
62.5°	88.6	85.5	82.4	80.9	77.8	76.2	71.5	70.0	65.3	63.8	60.7
65°	71.5	68.4	65.3	65.3	63.8	59.1	57.5	54.4	51.3	48.2	46.7
67.5°	57.5	54.4	51.3	49.8	48.2	45.1	43.5	40.4	37.3	35.8	32.7
70°	43.5	40.4	37.3	35.8	34.2	32.7	29.5	26.4	23.3	21.8	18.7
72.5°	29.5	26.4	24.9	24.9	23.3	20.2	17.1	15.6	12.4	10.9	9.3
75°	18.7	15.6	14.0	12.4	12.4	10.9	7.8	6.2	4.7	3.1	1.6
77.5°	10.9	9.3	7.8	6.2	6.2	4.7	3.1	1.6	1.6	0.0	0.0
80°	4.7	3.1	1.6	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
85°	0.0	0.0	0.0	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	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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CATALOG NUMBER: ML5615LSWW9FS1E - 692SC WW - 1500LM - 2700K

CANDELA DISTRIBUTION (continued):

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	539.6	539.6	539.6	539.6	539.6	539.6	539.6	539.6
2.5°	538.1	538.1	538.1	538.1	536.5	536.5	536.5	536.5
5°	536.5	536.5	536.5	536.5	535.0	535.0	536.5	535.0
7.5°	533.4	533.4	531.9	531.9	531.9	531.9	531.9	531.9
10°	527.2	527.2	527.2	525.6	527.2	527.2	525.6	527.2
12.5°	517.9	517.9	517.9	517.9	516.3	516.3	517.9	516.3
15°	507.0	507.0	507.0	507.0	507.0	505.4	507.0	507.0
17.5°	494.5	494.5	493.0	493.0	493.0	494.5	494.5	493.0
20°	477.4	477.4	477.4	477.4	477.4	477.4	477.4	477.4
22.5°	458.8	458.8	458.8	458.8	458.8	458.8	458.8	458.8
25°	440.1	440.1	440.1	440.1	440.1	440.1	440.1	441.7
27.5°	416.8	416.8	416.8	416.8	416.8	415.2	415.2	418.3
30°	388.8	390.3	390.3	390.3	390.3	390.3	390.3	391.9
32.5°	360.8	360.8	360.8	362.4	360.8	362.4	360.8	360.8
35°	328.1	328.1	328.1	328.1	328.1	329.7	329.7	329.7
37.5°	290.8	292.4	292.4	293.9	293.9	293.9	295.5	293.9
40°	256.6	256.6	256.6	255.0	256.6	255.0	256.6	256.6
42.5°	223.9	220.8	220.8	219.3	219.3	217.7	216.2	216.2
45°	194.4	189.7	189.7	188.2	186.6	183.5	182.0	182.0
47.5°	166.4	164.8	163.3	161.7	160.2	157.1	155.5	157.1
50°	143.1	141.5	140.0	140.0	138.4	136.9	135.3	135.3
52.5°	124.4	121.3	119.7	119.7	118.2	116.6	116.6	116.6
55°	105.8	102.6	102.6	102.6	101.1	99.5	99.5	98.0
57.5°	88.6	85.5	85.5	84.0	82.4	82.4	82.4	80.9
60°	73.1	70.0	68.4	68.4	66.9	65.3	65.3	65.3
62.5°	57.5	56.0	52.9	52.9	51.3	49.8	48.2	49.8
65°	43.5	40.4	38.9	38.9	37.3	35.8	34.2	34.2
67.5°	29.5	28.0	26.4	26.4	23.3	23.3	21.8	21.8
70°	17.1	15.6	15.6	14.0	12.4	12.4	10.9	10.9
72.5°	7.8	6.2	6.2	4.7	4.7	3.1	3.1	3.1
75°	1.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	1.6	1.6	0.0	0.0
80°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
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

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Peachtree City, GA 30269

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— 0°-180° - - 45°-225° - - - 90°-270°

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