

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: P644147

Luminaire Tested: ML5615LSWW9FS1E - 692SC WW - 1500LM - 3000K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P644147  
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 - 3000K  
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH SPECULAR CLEAR TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 3000K CCT  
Ballast/Driver: -

**Summary**

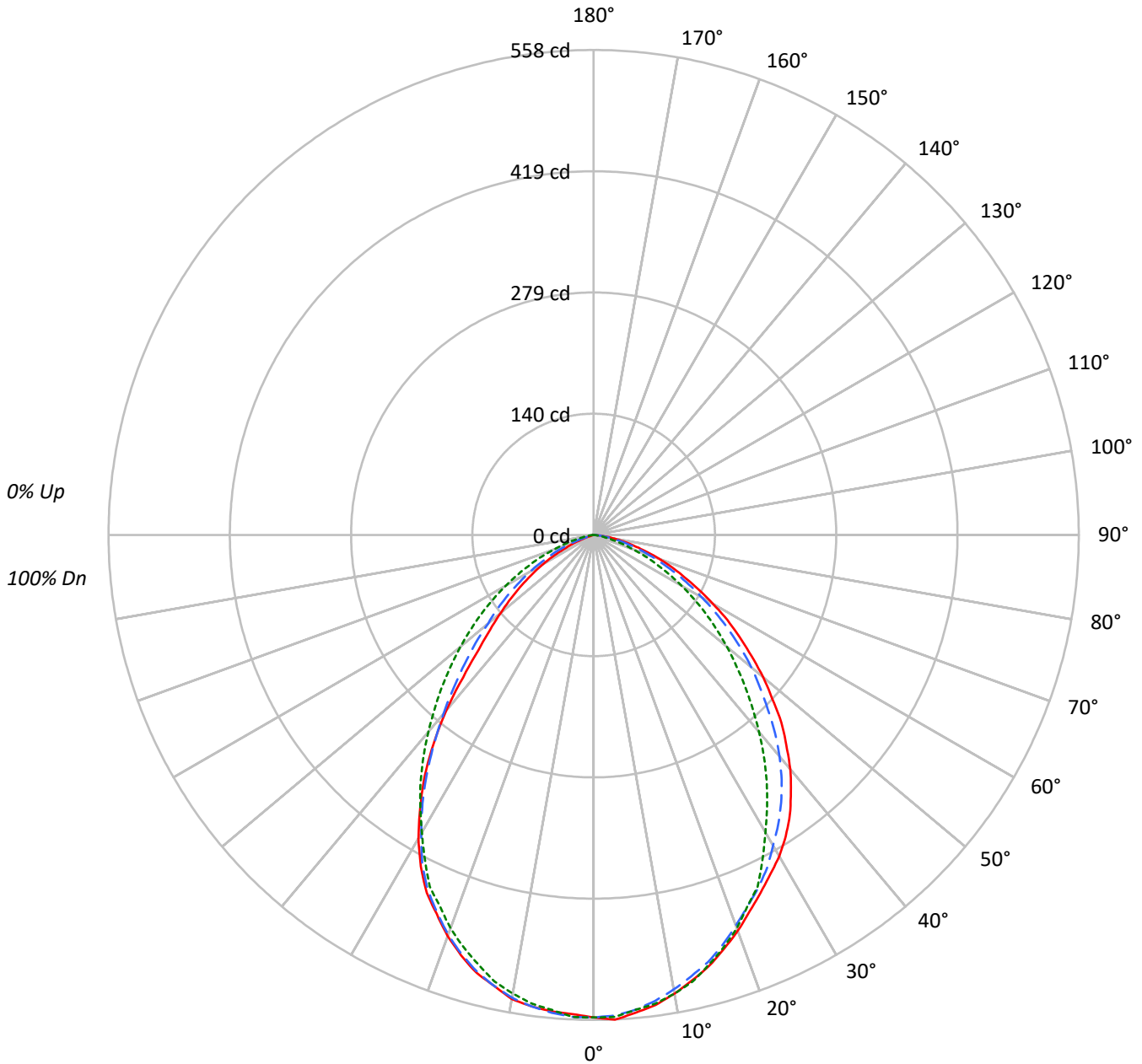
Lumens per Lamp: N/A  
Luminaire Lumens: 1060.6 lumens  
Efficiency: N/A  
Efficacy: 62.0 lumens/watt  
Spacing Criteria (0/90/45): 1.13 / 1.09 / 1.17  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

Input Watts (W): 17.1  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): 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					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	50	30	10	0		
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100					100			
1	111	107	104	100	108	105	102	99	101	98	96	97	95	93	93	92	90	88					88			
2	103	96	90	85	100	94	89	84	90	86	82	87	84	80	84	81	79	77					77			
3	95	86	79	73	92	84	78	72	81	76	71	79	74	70	76	72	69	67					67			
4	88	77	69	64	85	76	69	63	73	67	62	71	66	62	69	65	61	59					59			
5	81	70	62	56	79	69	61	56	67	60	55	65	59	55	63	58	54	52					52			
6	76	64	56	50	74	63	55	50	61	54	49	59	53	49	58	53	48	46					46			
7	70	58	50	45	69	57	50	44	56	49	44	55	48	44	53	48	44	42					42			
8	66	53	46	40	64	53	45	40	52	45	40	50	44	40	49	44	40	38					38			
9	62	49	42	37	60	49	42	37	48	41	36	47	41	36	46	40	36	34					34			
10	58	46	39	34	57	45	38	34	44	38	33	44	38	33	43	37	33	32					32			

**AVERAGE LUMINANCE (cd/sqm):**

	0°	45°	90°	135°	180°
0°	30431	30431	30431	30431	30431
5°	30371	30195	30195	30371	30283
10°	29831	29564	29831	30099	30188
15°	29143	28871	29052	29506	29597
20°	28277	27903	28090	28557	28650
25°	27479	27092	26996	27286	27479
30°	27036	26124	25010	25111	25517
35°	26334	25156	23229	22372	22694
40°	25183	23809	21175	19229	18885
45°	23685	21948	19095	16242	14513
50°	21688	20187	17048	13509	11872
55°	19564	18045	14986	11469	9634
60°	17367	15788	12806	9298	7368
65°	14943	13490	10377	6849	4566
70°	12823	11028	7694	3847	1795
75°	10167	8472	5083	1017	0
80°	7577	6061	2526	0	0
85°	4026	3019	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 23685 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	52.0	4.9
10°-20°	144.5	13.6
20°-30°	205.8	19.4
30°-40°	221.3	20.9
40°-50°	190.8	18.0
50°-60°	138.2	13.0
60°-70°	78.0	7.4
70°-80°	26.5	2.5
80°-90°	3.4	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°	402.3	37.9
0°-40°	623.7	58.8
0°-60°	952.7	89.8
0°-90°	1060.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1060.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	555	555	555	555	555	
5°	552	549	549	552	550	52
15°	514	509	512	520	522	144
25°	454	448	446	451	454	210
35°	394	376	347	334	339	245
45°	306	283	246	210	187	234
55°	205	189	157	120	101	184
65°	115	104	80	53	35	116
75°	48	40	24	5	0	52
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°	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1
2.5°	558.3	553.5	551.9	553.5	553.5	553.5	553.5	553.5	553.5	551.9	553.5
5°	551.9	547.1	547.1	547.1	547.1	547.1	545.5	547.1	547.1	547.1	548.7
7.5°	545.5	539.1	540.7	539.1	540.7	539.1	539.1	540.7	539.1	540.7	540.7
10°	535.9	531.1	531.1	531.1	531.1	531.1	531.1	531.1	531.1	531.1	531.1
12.5°	524.7	519.9	519.9	519.9	519.9	519.9	519.9	519.9	521.5	519.9	519.9
15°	513.5	507.1	508.7	507.1	507.1	507.1	507.1	507.1	507.1	507.1	508.7
17.5°	499.1	494.3	494.3	494.3	494.3	494.3	494.3	492.7	494.3	494.3	494.3
20°	484.7	479.9	479.9	478.3	479.9	478.3	478.3	478.3	479.9	478.3	478.3
22.5°	468.7	463.9	465.5	463.9	463.9	463.9	463.9	463.9	462.3	463.9	462.3
25°	454.3	452.7	451.1	452.7	451.1	451.1	451.1	449.5	449.5	449.5	447.9
27.5°	439.9	436.7	436.7	436.7	436.7	435.1	435.1	435.1	433.5	431.9	431.9
30°	427.1	422.3	422.3	422.3	420.7	420.7	419.1	419.1	415.9	414.3	412.7
32.5°	411.1	407.9	406.3	406.3	404.7	404.7	403.1	403.1	399.9	398.3	395.1
35°	393.5	391.9	391.9	390.3	388.7	387.1	385.5	383.9	382.3	379.1	375.9
37.5°	372.7	371.1	369.5	369.5	367.9	366.3	366.3	363.1	361.5	358.3	355.1
40°	351.9	348.7	348.7	347.1	345.5	343.9	343.9	340.7	339.1	335.9	332.7
42.5°	327.9	324.7	324.7	323.1	323.1	323.1	321.5	318.3	315.1	311.9	308.7
45°	305.5	302.3	302.3	299.1	299.1	297.5	295.9	294.3	291.1	287.9	283.1
47.5°	278.3	276.7	276.7	275.1	273.5	271.9	271.9	270.3	267.1	262.3	259.1
50°	254.3	252.7	252.7	251.1	249.5	247.9	246.3	244.7	243.1	239.9	236.7
52.5°	228.7	228.7	227.1	225.5	225.5	223.9	222.3	220.7	217.5	214.3	212.7
55°	204.7	203.1	203.1	201.5	201.5	199.9	198.3	196.7	195.1	192.0	188.8
57.5°	182.4	179.2	179.2	177.6	177.6	177.6	176.0	172.8	171.2	168.0	166.4
60°	158.4	156.8	156.8	156.8	155.2	153.6	153.6	150.4	148.8	147.2	144.0
62.5°	136.0	134.4	134.4	134.4	132.8	132.8	131.2	129.6	128.0	126.4	123.2
65°	115.2	115.2	115.2	113.6	113.6	112.0	110.4	110.4	108.8	107.2	104.0
67.5°	97.6	96.0	96.0	96.0	94.4	94.4	92.8	91.2	89.6	88.0	84.8
70°	80.0	78.4	78.4	76.8	76.8	76.8	76.8	75.2	72.0	72.0	68.8
72.5°	62.4	62.4	62.4	60.8	60.8	60.8	59.2	59.2	57.6	56.0	54.4
75°	48.0	48.0	48.0	46.4	46.4	46.4	44.8	44.8	43.2	41.6	40.0
77.5°	35.2	35.2	35.2	33.6	33.6	33.6	32.0	32.0	30.4	30.4	28.8
80°	24.0	24.0	24.0	22.4	22.4	22.4	22.4	20.8	20.8	19.2	19.2
82.5°	14.4	14.4	14.4	14.4	12.8	12.8	12.8	12.8	12.8	11.2	11.2
85°	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4	4.8	4.8
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°	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1
2.5°	553.5	553.5	553.5	553.5	553.5	553.5	553.5	553.5	553.5	555.1	553.5
5°	548.7	548.7	548.7	548.7	548.7	548.7	550.3	548.7	550.3	548.7	550.3
7.5°	540.7	540.7	542.3	542.3	540.7	542.3	542.3	542.3	542.3	543.9	543.9
10°	531.1	532.7	532.7	534.3	534.3	534.3	534.3	535.9	535.9	535.9	535.9
12.5°	521.5	521.5	521.5	521.5	523.1	521.5	523.1	523.1	524.7	526.3	524.7
15°	507.1	508.7	508.7	508.7	508.7	508.7	510.3	511.9	511.9	511.9	513.5
17.5°	494.3	494.3	494.3	495.9	494.3	495.9	495.9	495.9	497.5	497.5	499.1
20°	478.3	476.7	479.9	478.3	478.3	479.9	479.9	479.9	481.5	481.5	481.5
22.5°	460.7	462.3	460.7	460.7	462.3	462.3	462.3	460.7	462.3	462.3	463.9
25°	446.3	446.3	446.3	446.3	446.3	446.3	446.3	444.7	446.3	446.3	446.3
27.5°	430.3	427.1	427.1	425.5	425.5	423.9	422.3	422.3	422.3	420.7	422.3
30°	411.1	407.9	406.3	404.7	403.1	403.1	399.9	398.3	396.7	395.1	393.5
32.5°	391.9	388.7	387.1	385.5	382.3	380.7	377.5	375.9	374.3	371.1	367.9
35°	374.3	369.5	366.3	363.1	361.5	359.9	356.7	353.5	350.3	347.1	343.9
37.5°	350.3	347.1	343.9	340.7	339.1	337.5	334.3	327.9	324.7	321.5	318.3
40°	329.5	324.7	321.5	316.7	315.1	311.9	308.7	303.9	299.1	295.9	292.7
42.5°	303.9	300.7	297.5	292.7	291.1	287.9	283.1	279.9	276.7	270.3	267.1
45°	279.9	276.7	273.5	268.7	265.5	263.9	260.7	255.9	251.1	246.3	243.1
47.5°	255.9	252.7	247.9	244.7	241.5	239.9	236.7	231.9	227.1	222.3	219.1
50°	231.9	228.7	225.5	219.1	219.1	215.9	212.7	207.9	204.7	199.9	195.1
52.5°	209.5	204.7	201.5	196.7	196.7	195.1	190.4	185.6	182.4	177.6	174.4
55°	185.6	182.4	179.2	176.0	172.8	171.2	169.6	164.8	160.0	156.8	152.0
57.5°	163.2	158.4	156.8	153.6	152.0	150.4	147.2	142.4	139.2	136.0	132.8
60°	142.4	139.2	134.4	132.8	131.2	129.6	126.4	123.2	120.0	116.8	113.6
62.5°	121.6	118.4	115.2	112.0	110.4	108.8	107.2	104.0	100.8	97.6	94.4
65°	100.8	99.2	96.0	94.4	92.8	91.2	88.0	84.8	83.2	80.0	76.8
67.5°	83.2	81.6	78.4	76.8	75.2	75.2	70.4	68.8	65.6	64.0	60.8
70°	67.2	65.6	62.4	60.8	59.2	57.6	56.0	54.4	51.2	48.0	46.4
72.5°	52.8	49.6	48.0	46.4	44.8	44.8	41.6	40.0	36.8	35.2	32.0
75°	38.4	36.8	35.2	33.6	33.6	32.0	30.4	28.8	25.6	24.0	22.4
77.5°	27.2	25.6	24.0	22.4	22.4	20.8	19.2	17.6	16.0	14.4	12.8
80°	17.6	16.0	16.0	14.4	12.8	12.8	11.2	9.6	8.0	8.0	6.4
82.5°	9.6	9.6	8.0	8.0	6.4	6.4	4.8	4.8	3.2	3.2	1.6
85°	4.8	3.2	3.2	3.2	3.2	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°	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1
2.5°	553.5	553.5	553.5	553.5	553.5	553.5	553.5	553.5	555.1	553.5	553.5
5°	550.3	550.3	551.9	550.3	551.9	551.9	550.3	550.3	551.9	553.5	551.9
7.5°	543.9	543.9	545.5	545.5	545.5	545.5	545.5	547.1	547.1	548.7	548.7
10°	537.5	537.5	537.5	537.5	539.1	539.1	540.7	540.7	540.7	540.7	540.7
12.5°	526.3	527.9	527.9	527.9	527.9	529.5	529.5	531.1	531.1	531.1	532.7
15°	513.5	515.1	516.7	516.7	515.1	516.7	518.3	518.3	519.9	519.9	519.9
17.5°	499.1	500.7	500.7	502.3	500.7	503.9	503.9	505.5	505.5	507.1	507.1
20°	483.1	484.7	484.7	484.7	486.3	486.3	487.9	487.9	489.5	489.5	489.5
22.5°	463.9	465.5	465.5	465.5	465.5	467.1	467.1	468.7	470.3	471.9	470.3
25°	446.3	447.9	449.5	447.9	449.5	449.5	449.5	451.1	451.1	452.7	451.1
27.5°	422.3	422.3	422.3	423.9	425.5	425.5	425.5	427.1	427.1	427.1	428.7
30°	393.5	391.9	393.5	393.5	393.5	393.5	396.7	396.7	396.7	398.3	399.9
32.5°	366.3	366.3	366.3	364.7	364.7	364.7	364.7	366.3	366.3	367.9	369.5
35°	340.7	339.1	335.9	335.9	335.9	334.3	332.7	332.7	334.3	334.3	334.3
37.5°	313.5	311.9	310.3	307.1	307.1	303.9	302.3	300.7	300.7	299.1	299.1
40°	287.9	284.7	281.5	281.5	278.3	276.7	273.5	271.9	268.7	265.5	265.5
42.5°	262.3	259.1	255.9	254.3	251.1	249.5	244.7	241.5	238.3	236.7	233.5
45°	238.3	235.1	230.3	228.7	225.5	222.3	219.1	214.3	209.5	206.3	204.7
47.5°	214.3	211.1	206.3	203.1	201.5	196.7	193.6	188.8	184.0	179.2	174.4
50°	192.0	187.2	182.4	179.2	177.6	172.8	169.6	164.8	158.4	156.8	152.0
52.5°	169.6	164.8	160.0	158.4	156.8	152.0	147.2	142.4	139.2	134.4	131.2
55°	147.2	144.0	139.2	137.6	136.0	131.2	126.4	123.2	120.0	115.2	112.0
57.5°	128.0	124.8	120.0	118.4	116.8	112.0	108.8	104.0	100.8	97.6	94.4
60°	110.4	105.6	102.4	100.8	99.2	94.4	91.2	88.0	84.8	81.6	76.8
62.5°	91.2	88.0	84.8	83.2	80.0	78.4	73.6	72.0	67.2	65.6	62.4
65°	73.6	70.4	67.2	67.2	65.6	60.8	59.2	56.0	52.8	49.6	48.0
67.5°	59.2	56.0	52.8	51.2	49.6	46.4	44.8	41.6	38.4	36.8	33.6
70°	44.8	41.6	38.4	36.8	35.2	33.6	30.4	27.2	24.0	22.4	19.2
72.5°	30.4	27.2	25.6	25.6	24.0	20.8	17.6	16.0	12.8	11.2	9.6
75°	19.2	16.0	14.4	12.8	12.8	11.2	8.0	6.4	4.8	3.2	1.6
77.5°	11.2	9.6	8.0	6.4	6.4	4.8	3.2	1.6	1.6	0.0	0.0
80°	4.8	3.2	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





TEST NUMBER: P644147

CATALOG NUMBER: ML5615LSWW9FS1E - 692SC WW - 1500LM - 3000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	555.1	555.1	555.1	555.1	555.1	555.1	555.1	555.1
2.5°	553.5	553.5	553.5	553.5	551.9	551.9	551.9	551.9
5°	551.9	551.9	551.9	551.9	550.3	550.3	551.9	550.3
7.5°	548.7	548.7	547.1	547.1	547.1	547.1	547.1	547.1
10°	542.3	542.3	542.3	540.7	542.3	542.3	540.7	542.3
12.5°	532.7	532.7	532.7	532.7	531.1	531.1	532.7	531.1
15°	521.5	521.5	521.5	521.5	521.5	519.9	521.5	521.5
17.5°	508.7	508.7	507.1	507.1	507.1	508.7	508.7	507.1
20°	491.1	491.1	491.1	491.1	491.1	491.1	491.1	491.1
22.5°	471.9	471.9	471.9	471.9	471.9	471.9	471.9	471.9
25°	452.7	452.7	452.7	452.7	452.7	452.7	452.7	454.3
27.5°	428.7	428.7	428.7	428.7	428.7	427.1	427.1	430.3
30°	399.9	401.5	401.5	401.5	401.5	401.5	401.5	403.1
32.5°	371.1	371.1	371.1	372.7	371.1	372.7	371.1	371.1
35°	337.5	337.5	337.5	337.5	337.5	339.1	339.1	339.1
37.5°	299.1	300.7	300.7	302.3	302.3	302.3	303.9	302.3
40°	263.9	263.9	263.9	262.3	263.9	262.3	263.9	263.9
42.5°	230.3	227.1	227.1	225.5	225.5	223.9	222.3	222.3
45°	199.9	195.1	195.1	193.6	192.0	188.8	187.2	187.2
47.5°	171.2	169.6	168.0	166.4	164.8	161.6	160.0	161.6
50°	147.2	145.6	144.0	144.0	142.4	140.8	139.2	139.2
52.5°	128.0	124.8	123.2	123.2	121.6	120.0	120.0	120.0
55°	108.8	105.6	105.6	105.6	104.0	102.4	102.4	100.8
57.5°	91.2	88.0	88.0	86.4	84.8	84.8	84.8	83.2
60°	75.2	72.0	70.4	70.4	68.8	67.2	67.2	67.2
62.5°	59.2	57.6	54.4	54.4	52.8	51.2	49.6	51.2
65°	44.8	41.6	40.0	40.0	38.4	36.8	35.2	35.2
67.5°	30.4	28.8	27.2	27.2	24.0	24.0	22.4	22.4
70°	17.6	16.0	16.0	14.4	12.8	12.8	11.2	11.2
72.5°	8.0	6.4	6.4	4.8	4.8	3.2	3.2	3.2
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

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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(END OF REPORT)