

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: P644165

Luminaire Tested: ML5615LSWW9FS1E - 692W WW - 1500LM - 5000K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P644165  
TEST IS SCALED FROM IESNA LM-79-08 TEST DATA (G1-2212-866-117)  
Test Lab: COOPER LIGHTING SOLUTIONS  
Issue Date: 2/17/2023  
Manufacturer: COOPER LIGHTING SOLUTIONS  
Product Line: HALO  
Catalog Number: ML5615LSWW9FS1E - 692W WW - 1500LM - 5000K  
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH WHITE TRIM  
Light Source: (1) STANDARD SELECTABLE LUMEN LED 90CRI / 5000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 1159.3 lumens  
Efficiency: N/A  
Efficacy: 67.8 lumens/watt  
Spacing Criteria (0/90/45): 1.16 / 1.13 / 1.25  
Luminous Opening: Circular (Dia: 0.5' x H: 0')  
CIE Type: Direct

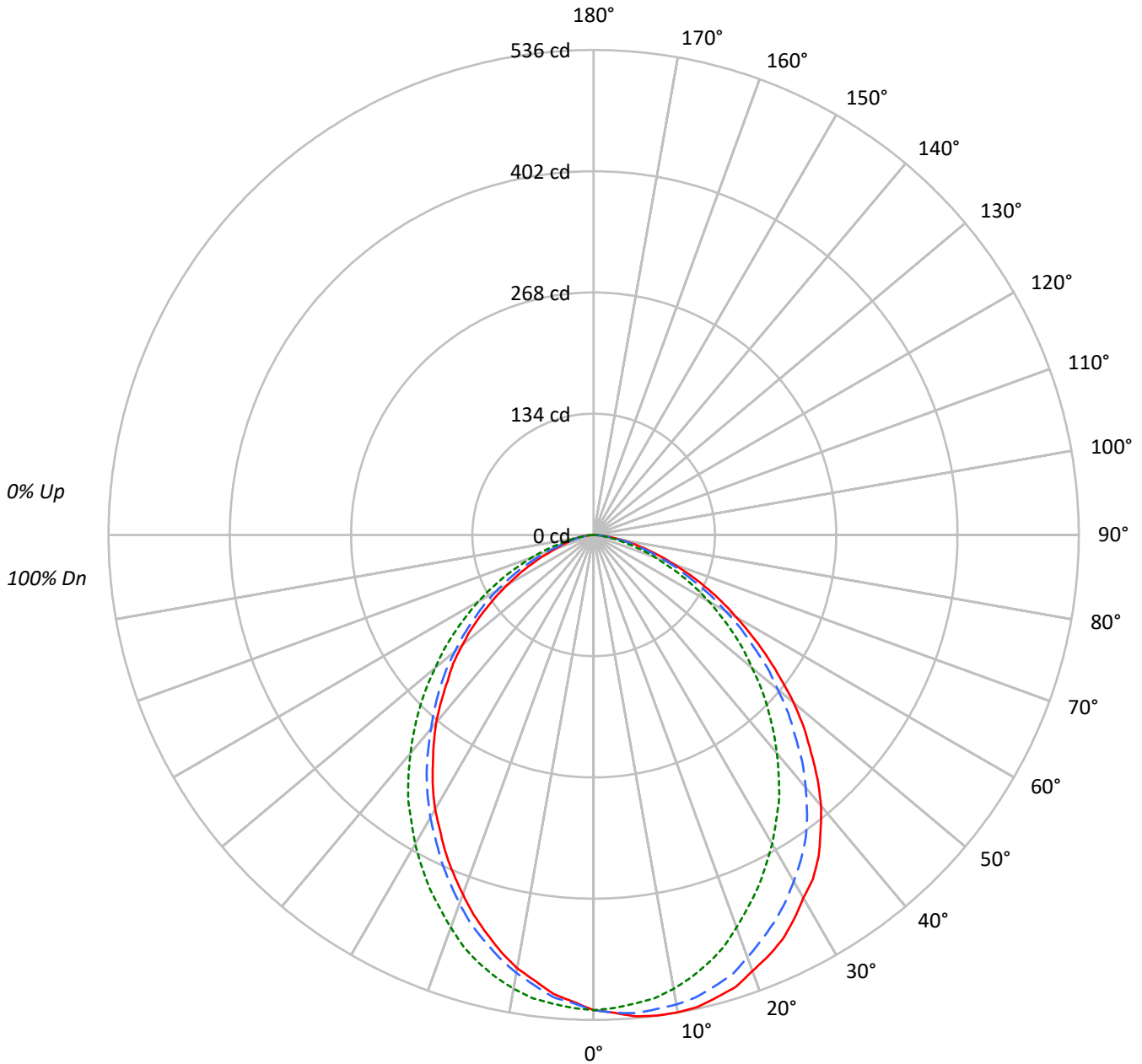
Input Watts (W): 17.1  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



TEST NUMBER: P644165

CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 1500LM - 5000K

### Luminous Intensity Polar Plot





TEST NUMBER: P644165

CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 1500LM - 5000K

**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	0					
RCR																										
0	119	119	119	119	116	116	116	116	111	111	111	106	106	106	102	102	102	100								
1	110	106	102	99	107	104	100	97	99	97	94	96	93	91	92	90	89	87								
2	101	94	88	82	99	92	86	81	88	84	80	85	81	78	82	79	76	74								
3	93	83	76	70	91	82	75	69	79	73	68	76	71	67	74	69	66	64								
4	86	75	66	60	83	73	66	60	71	64	59	69	63	58	66	62	57	55								
5	79	67	59	53	77	66	58	52	64	57	52	62	56	51	60	55	51	49								
6	73	61	52	46	72	60	52	46	58	51	46	56	50	45	55	49	45	43								
7	68	55	47	41	67	55	47	41	53	46	41	52	45	41	50	45	40	38								
8	64	51	43	37	62	50	42	37	49	42	37	48	41	37	46	41	36	35								
9	60	47	39	34	58	46	39	34	45	38	33	44	38	33	43	37	33	31								
10	56	43	36	31	55	43	36	31	42	35	30	41	35	30	40	34	30	29								

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

	0°	45°	90°	135°	180°
0°	28792	28792	28792	28792	28792
5°	29391	29193	28610	28219	28027
10°	29826	29336	28351	27365	27070
15°	30006	29308	27798	26396	25891
20°	29916	28988	26929	25278	24654
25°	29844	28562	25991	24068	23427
30°	29327	27985	24966	22839	22162
35°	28998	27338	23905	21536	20713
40°	27967	26070	22528	19995	19365
45°	26321	24406	21111	18645	17684
50°	24579	22626	19454	17040	16136
55°	22307	20616	17911	15378	14193
60°	19966	18420	16095	13573	12017
65°	17667	16059	13996	11467	9638
70°	15019	13897	11621	8784	7085
75°	12370	11247	8621	5994	5994
80°	9502	8366	6156	5020	5588
85°	6667	5535	4466	4466	4466

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 26321 cd/sqm



TEST NUMBER: P644165

CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 1500LM - 5000K

**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	49.4	4.3
10°-20°	138.2	11.9
20°-30°	200.0	17.3
30°-40°	227.2	19.6
40°-50°	214.4	18.5
50°-60°	169.1	14.6
60°-70°	105.8	9.1
70°-80°	45.8	3.9
80°-90°	9.4	0.8
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°	387.5	33.4
0°-40°	614.7	53.0
0°-60°	998.3	86.1
0°-90°	1159.3	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	1159.3	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	525	525	525	525	525	
5°	534	530	520	513	509	51
15°	529	516	490	465	456	149
25°	493	472	430	398	387	227
35°	433	408	357	322	310	270
45°	340	315	272	240	228	262
55°	233	216	187	161	148	209
65°	136	124	108	88	74	135
75°	58	53	41	28	28	63
85°	11	9	7	7	7	13
90°	0	0	0	0	0	



TEST NUMBER: P644165

CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 1500LM - 5000K

**CANDELA DISTRIBUTION (FULL):**

	0°	5°	10°	15°	20°	22.5°	25°	30°	35°	40°	45°
0°	525.2	525.2	525.2	525.2	525.2	525.2	525.2	525.2	525.2	525.2	525.2
2.5°	528.7	528.7	530.5	530.5	528.7	528.7	528.7	528.7	528.7	528.7	528.7
5°	534.1	534.1	534.1	534.1	532.3	532.3	532.3	532.3	532.3	530.5	530.5
7.5°	535.8	535.8	535.8	535.8	534.1	534.1	532.3	532.3	532.3	530.5	528.7
10°	535.8	535.8	535.8	534.1	534.1	532.3	534.1	532.3	530.5	528.7	527.0
12.5°	534.1	532.3	532.3	532.3	530.5	530.5	530.5	528.7	527.0	525.2	523.4
15°	528.7	528.7	528.7	527.0	527.0	525.2	525.2	523.4	521.7	518.1	516.4
17.5°	523.4	523.4	521.7	521.7	519.9	518.1	518.1	516.4	514.6	511.1	509.3
20°	512.8	512.8	512.8	511.1	509.3	509.3	507.5	505.8	502.2	498.7	496.9
22.5°	504.0	502.2	502.2	500.5	498.7	498.7	496.9	493.4	491.6	488.1	484.5
25°	493.4	491.6	491.6	489.8	488.1	486.3	486.3	482.8	479.2	475.7	472.2
27.5°	479.2	479.2	477.5	475.7	473.9	473.9	472.2	470.4	465.1	461.6	458.0
30°	463.3	465.1	463.3	461.6	459.8	459.8	458.0	454.5	450.9	445.6	442.1
32.5°	450.9	450.9	449.2	447.4	443.9	443.9	443.9	438.6	435.0	431.5	426.2
35°	433.3	433.3	433.3	429.7	428.0	426.2	424.4	420.9	417.3	413.8	408.5
37.5°	412.0	413.8	412.0	410.3	408.5	406.7	405.0	401.4	396.1	392.6	387.3
40°	390.8	390.8	389.0	387.3	385.5	383.7	382.0	378.4	374.9	369.6	364.3
42.5°	366.1	366.1	364.3	362.5	360.8	359.0	359.0	355.4	350.1	346.6	341.3
45°	339.5	339.5	339.5	337.8	336.0	334.2	332.5	330.7	327.2	321.8	314.8
47.5°	314.8	314.8	314.8	311.2	311.2	307.7	305.9	302.4	300.6	295.3	291.8
50°	288.2	286.5	286.5	284.7	282.9	281.2	281.2	275.9	274.1	270.6	265.3
52.5°	260.0	260.0	260.0	258.2	256.4	254.6	254.6	251.1	247.6	244.0	242.3
55°	233.4	233.4	233.4	231.7	229.9	229.9	228.1	224.6	222.8	219.3	215.7
57.5°	206.9	208.7	206.9	205.1	205.1	203.4	203.4	201.6	198.1	194.5	192.8
60°	182.1	182.1	182.1	180.4	178.6	178.6	178.6	176.8	173.3	171.5	168.0
62.5°	159.2	159.2	157.4	157.4	155.6	155.6	153.9	152.1	150.3	148.5	146.8
65°	136.2	134.4	134.4	134.4	132.6	132.6	132.6	130.9	127.3	125.6	123.8
67.5°	114.9	114.9	113.2	113.2	111.4	111.4	111.4	109.6	107.9	106.1	104.3
70°	93.7	93.7	93.7	93.7	92.0	92.0	92.0	90.2	88.4	88.4	86.7
72.5°	76.0	76.0	76.0	76.0	74.3	74.3	74.3	72.5	70.7	69.0	69.0
75°	58.4	60.1	58.4	58.4	58.4	58.4	56.6	56.6	54.8	53.1	53.1
77.5°	44.2	44.2	44.2	44.2	42.4	42.4	42.4	42.4	40.7	38.9	38.9
80°	30.1	30.1	30.1	30.1	30.1	30.1	30.1	30.1	28.3	28.3	26.5
82.5°	17.7	19.5	19.5	19.5	17.7	17.7	17.7	17.7	17.7	17.7	15.9
85°	10.6	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8	8.8
87.5°	3.5	3.5	3.5	3.5	3.5	1.8	1.8	1.8	1.8	1.8	1.8
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: P644165

CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 1500LM - 5000K

**CANDELA DISTRIBUTION (continued):**

	50°	55°	60°	65°	67.5°	70°	75°	80°	85°	90°	95°
0°	525.2	525.2	525.2	525.2	525.2	525.2	525.2	525.2	525.2	525.2	525.2
2.5°	527.0	527.0	527.0	527.0	525.2	525.2	525.2	523.4	523.4	523.4	523.4
5°	528.7	527.0	527.0	525.2	525.2	525.2	523.4	523.4	521.7	519.9	519.9
7.5°	527.0	527.0	525.2	523.4	523.4	521.7	519.9	518.1	516.4	516.4	512.8
10°	525.2	523.4	521.7	519.9	518.1	518.1	514.6	512.8	511.1	509.3	507.5
12.5°	519.9	518.1	516.4	512.8	512.8	511.1	507.5	505.8	502.2	500.5	496.9
15°	512.8	511.1	509.3	505.8	504.0	502.2	498.7	495.1	491.6	489.8	486.3
17.5°	505.8	502.2	498.7	495.1	493.4	491.6	488.1	484.5	481.0	477.5	473.9
20°	493.4	489.8	486.3	481.0	479.2	477.5	472.2	468.6	465.1	461.6	458.0
22.5°	481.0	477.5	472.2	468.6	466.9	463.3	459.8	454.5	450.9	445.6	442.1
25°	468.6	463.3	458.0	454.5	450.9	449.2	443.9	440.3	433.3	429.7	426.2
27.5°	452.7	449.2	443.9	438.6	435.0	431.5	428.0	422.6	417.3	412.0	408.5
30°	436.8	431.5	426.2	422.6	417.3	415.6	410.3	405.0	399.7	394.4	390.8
32.5°	420.9	415.6	410.3	405.0	401.4	397.9	392.6	387.3	380.2	374.9	371.4
35°	403.2	397.9	390.8	385.5	382.0	378.4	373.1	367.8	362.5	357.2	351.9
37.5°	382.0	374.9	371.4	366.1	360.8	357.2	351.9	344.8	341.3	336.0	330.7
40°	359.0	353.7	348.4	343.1	337.8	336.0	328.9	323.6	320.1	314.8	309.5
42.5°	336.0	330.7	323.6	318.3	314.8	313.0	307.7	302.4	297.1	293.6	288.2
45°	311.2	305.9	300.6	295.3	291.8	290.0	284.7	281.2	275.9	272.3	267.0
47.5°	286.5	281.2	277.6	272.3	268.8	267.0	263.5	258.2	252.9	251.1	247.6
50°	261.7	256.4	252.9	247.6	245.8	244.0	240.5	237.0	233.4	228.1	226.4
52.5°	237.0	231.7	228.1	224.6	224.6	221.0	217.5	215.7	212.2	208.7	205.1
55°	212.2	210.4	206.9	201.6	201.6	199.8	196.3	192.8	189.2	187.4	183.9
57.5°	187.4	185.7	182.1	180.4	178.6	176.8	175.1	171.5	169.8	166.2	164.5
60°	166.2	164.5	160.9	159.2	157.4	155.6	153.9	150.3	148.5	146.8	145.0
62.5°	143.2	141.5	139.7	137.9	136.2	134.4	134.4	130.9	129.1	127.3	125.6
65°	123.8	120.3	118.5	116.7	116.7	114.9	113.2	111.4	109.6	107.9	106.1
67.5°	102.6	100.8	100.8	97.3	97.3	95.5	93.7	93.7	90.2	88.4	86.7
70°	84.9	83.1	81.3	79.6	79.6	77.8	76.0	74.3	72.5	72.5	70.7
72.5°	67.2	65.4	65.4	63.7	61.9	61.9	60.1	58.4	56.6	56.6	54.8
75°	51.3	49.5	49.5	47.7	47.7	46.0	44.2	44.2	42.4	40.7	38.9
77.5°	37.1	37.1	35.4	35.4	33.6	33.6	31.8	31.8	30.1	28.3	28.3
80°	26.5	24.8	24.8	23.0	23.0	23.0	21.2	21.2	19.5	19.5	17.7
82.5°	15.9	15.9	14.1	14.1	14.1	14.1	12.4	12.4	12.4	10.6	10.6
85°	8.8	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	5.3
87.5°	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8
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: P644165

CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 1500LM - 5000K

**CANDELA DISTRIBUTION (continued):**

	100°	105°	110°	112.5°	115°	120°	125°	130°	135°	140°	145°
0°	525.2	525.2	525.2	525.2	525.2	525.2	525.2	525.2	525.2	525.2	525.2
2.5°	521.7	521.7	519.9	521.7	519.9	519.9	519.9	519.9	518.1	518.1	518.1
5°	518.1	516.4	516.4	514.6	516.4	514.6	512.8	512.8	512.8	512.8	511.1
7.5°	511.1	511.1	509.3	507.5	507.5	505.8	504.0	504.0	502.2	502.2	500.5
10°	505.8	502.2	500.5	498.7	498.7	496.9	495.1	493.4	491.6	489.8	489.8
12.5°	493.4	491.6	489.8	488.1	488.1	484.5	482.8	481.0	479.2	477.5	475.7
15°	484.5	481.0	477.5	475.7	475.7	472.2	470.4	468.6	465.1	465.1	461.6
17.5°	470.4	466.9	463.3	461.6	459.8	458.0	456.2	452.7	450.9	447.4	447.4
20°	452.7	450.9	445.6	443.9	442.1	440.3	436.8	435.0	433.3	429.7	428.0
22.5°	438.6	433.3	429.7	428.0	428.0	422.6	420.9	417.3	415.6	413.8	410.3
25°	420.9	417.3	413.8	410.3	410.3	406.7	405.0	401.4	397.9	396.1	394.4
27.5°	403.2	399.7	394.4	392.6	390.8	389.0	385.5	382.0	378.4	376.7	374.9
30°	383.7	380.2	376.7	374.9	371.4	367.8	364.3	362.5	360.8	357.2	355.4
32.5°	366.1	360.8	357.2	353.7	353.7	348.4	346.6	343.1	341.3	339.5	336.0
35°	346.6	341.3	337.8	336.0	334.2	328.9	325.4	321.8	321.8	318.3	316.5
37.5°	325.4	320.1	318.3	314.8	313.0	309.5	305.9	304.2	300.6	297.1	297.1
40°	305.9	300.6	295.3	295.3	291.8	290.0	284.7	282.9	279.4	277.6	275.9
42.5°	284.7	279.4	275.9	274.1	272.3	268.8	265.3	261.7	260.0	258.2	256.4
45°	261.7	258.2	256.4	252.9	251.1	247.6	245.8	242.3	240.5	237.0	235.2
47.5°	242.3	238.7	235.2	233.4	231.7	228.1	226.4	222.8	221.0	217.5	215.7
50°	222.8	219.3	215.7	214.0	212.2	208.7	205.1	203.4	199.8	198.1	194.5
52.5°	201.6	198.1	194.5	194.5	192.8	189.2	187.4	183.9	180.4	176.8	175.1
55°	182.1	178.6	175.1	173.3	173.3	169.8	166.2	164.5	160.9	159.2	155.6
57.5°	160.9	157.4	155.6	153.9	153.9	150.3	148.5	145.0	143.2	139.7	137.9
60°	141.5	139.7	136.2	136.2	134.4	130.9	129.1	125.6	123.8	122.0	120.3
62.5°	122.0	120.3	116.7	116.7	114.9	113.2	111.4	107.9	106.1	102.6	100.8
65°	102.6	100.8	99.0	97.3	97.3	93.7	92.0	90.2	88.4	86.7	84.9
67.5°	84.9	83.1	81.3	81.3	79.6	77.8	74.3	72.5	70.7	69.0	67.2
70°	69.0	65.4	63.7	63.7	61.9	60.1	58.4	56.6	54.8	53.1	51.3
72.5°	53.1	49.5	49.5	47.7	46.0	44.2	44.2	42.4	40.7	40.7	37.1
75°	38.9	37.1	35.4	35.4	33.6	31.8	30.1	30.1	28.3	28.3	28.3
77.5°	26.5	24.8	24.8	23.0	23.0	23.0	21.2	21.2	21.2	21.2	23.0
80°	17.7	17.7	15.9	15.9	15.9	15.9	15.9	15.9	15.9	17.7	17.7
82.5°	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	10.6	12.4
85°	5.3	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
87.5°	1.8	1.8	3.5	1.8	3.5	1.8	3.5	3.5	3.5	3.5	3.5
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: P644165

CATALOG NUMBER: ML5615LSWW9FS1E - 692W WW - 1500LM - 5000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	525.2	525.2	525.2	525.2	525.2	525.2	525.2	525.2
2.5°	516.4	518.1	518.1	516.4	518.1	516.4	516.4	516.4
5°	511.1	509.3	509.3	509.3	507.5	509.3	509.3	509.3
7.5°	500.5	500.5	498.7	498.7	496.9	496.9	498.7	496.9
10°	488.1	486.3	488.1	486.3	486.3	486.3	484.5	486.3
12.5°	475.7	473.9	473.9	472.2	472.2	472.2	472.2	472.2
15°	461.6	459.8	459.8	458.0	458.0	456.2	458.0	456.2
17.5°	445.6	445.6	442.1	442.1	442.1	442.1	442.1	440.3
20°	426.2	426.2	424.4	426.2	422.6	422.6	422.6	422.6
22.5°	410.3	408.5	406.7	406.7	406.7	405.0	405.0	405.0
25°	390.8	390.8	389.0	389.0	387.3	387.3	387.3	387.3
27.5°	373.1	371.4	371.4	371.4	369.6	367.8	367.8	367.8
30°	353.7	353.7	351.9	351.9	350.1	350.1	350.1	350.1
32.5°	334.2	334.2	332.5	330.7	330.7	330.7	328.9	330.7
35°	314.8	313.0	313.0	311.2	311.2	311.2	309.5	309.5
37.5°	295.3	293.6	291.8	293.6	291.8	290.0	290.0	290.0
40°	274.1	272.3	272.3	270.6	270.6	270.6	268.8	270.6
42.5°	254.6	254.6	252.9	251.1	251.1	251.1	249.3	249.3
45°	235.2	231.7	233.4	231.7	231.7	229.9	229.9	228.1
47.5°	214.0	212.2	212.2	212.2	210.4	210.4	210.4	210.4
50°	192.8	191.0	192.8	191.0	191.0	189.2	189.2	189.2
52.5°	173.3	171.5	171.5	171.5	171.5	169.8	169.8	169.8
55°	153.9	152.1	152.1	152.1	150.3	150.3	148.5	148.5
57.5°	136.2	134.4	132.6	130.9	130.9	130.9	129.1	129.1
60°	116.7	114.9	113.2	113.2	111.4	111.4	111.4	109.6
62.5°	99.0	97.3	95.5	95.5	93.7	92.0	92.0	92.0
65°	81.3	79.6	79.6	77.8	76.0	76.0	74.3	74.3
67.5°	65.4	63.7	63.7	61.9	60.1	58.4	58.4	58.4
70°	51.3	49.5	47.7	47.7	47.7	46.0	44.2	44.2
72.5°	37.1	35.4	35.4	35.4	35.4	35.4	35.4	35.4
75°	28.3	28.3	28.3	28.3	28.3	28.3	28.3	28.3
77.5°	23.0	23.0	23.0	23.0	23.0	23.0	23.0	23.0
80°	17.7	17.7	17.7	17.7	17.7	17.7	17.7	17.7
82.5°	12.4	12.4	12.4	12.4	12.4	12.4	12.4	12.4
85°	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
87.5°	3.5	3.5	3.5	3.5	3.5	3.5	3.5	1.8
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



Report Generated By 670245859 / DESKTOP-T8S5UU9

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

Scaled Data Report





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

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

Scaled Data Report



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

Scaled Data Report



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

Scaled Data Report



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

Scaled Data Report





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

Scaled Data Report



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

Scaled Data Report



(END OF REPORT)