

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: P642329

Luminaire Tested: ML5612LSWW97FS1E - 692SC WW - 1200LM - 4000K

Issue Date: 2/17/2023

**Test Information**

Test Method: LM-79-2019  
Report Number: P642329  
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: ML5612LSWW97FS1E - 692SC WW - 1200LM - 4000K  
Description: ML56 RR, WW OPTIC, 6" WW INSERT WITH SPECULAR CLEAR TRIM  
Light Source: (1) HCL SELECTABLE LUMEN LED 90CRI / 4000K CCT  
Ballast/Driver: -

**Summary**

Lumens per Lamp: N/A  
Luminaire Lumens: 995.6 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

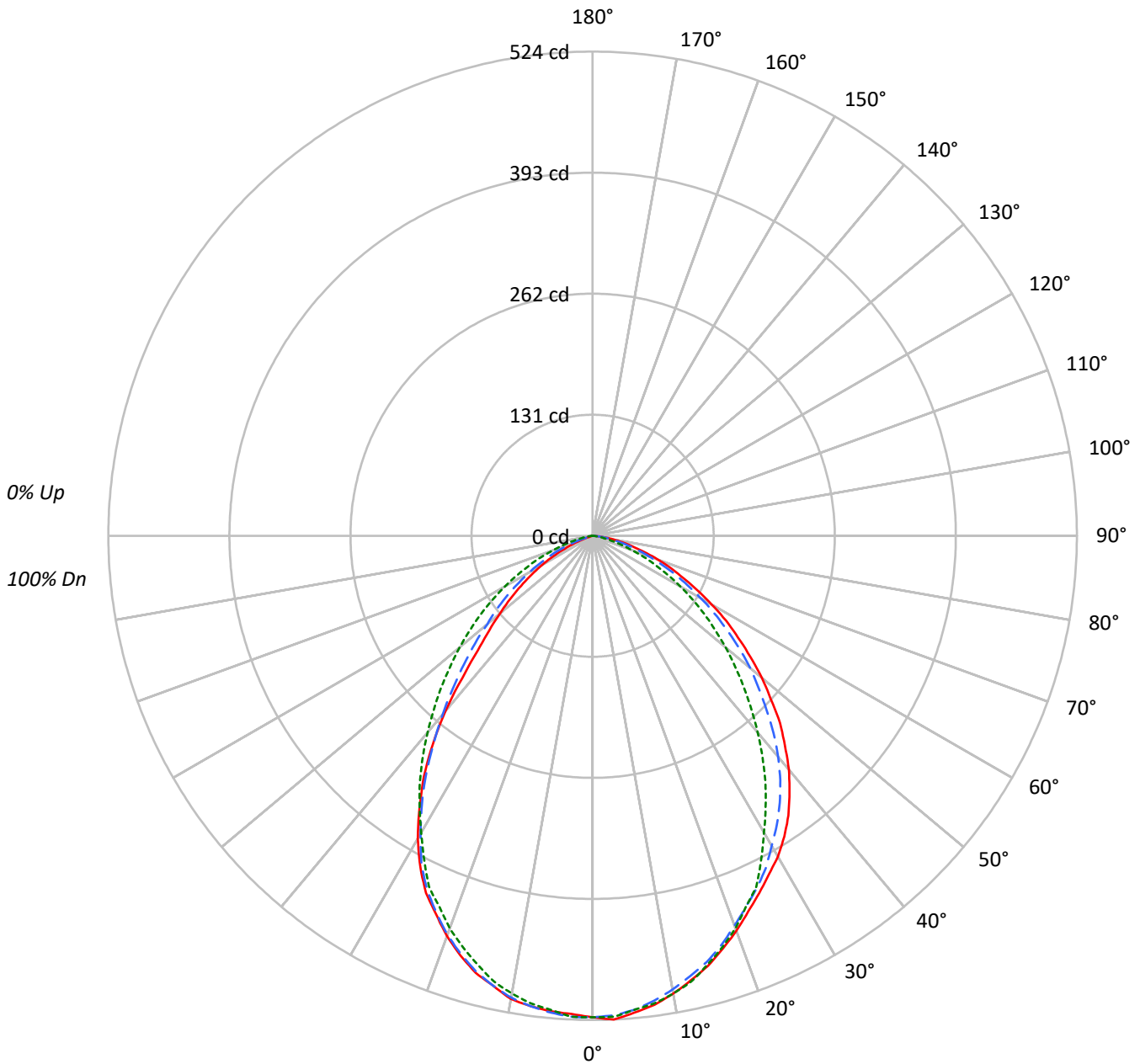
Input Watts (W): 16.5  
Input Voltage (V): NR  
Input Current (A<sub>in</sub>): NR  
Voltage Rise (V): NR  
Power Factor: NR  
Total Harmonic Distortion (THDi): NR  
Frequency (hertz): 60  
Stabilization Time: NR  
Operation Time: NR  
Ambient Temperature (°C): NR  
Test Distance: 24 FT



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### Luminous Intensity Polar Plot





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**COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:**

RF	20					20					20					20				
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	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°	28567	28567	28567	28567	28567
5°	28511	28346	28346	28511	28428
10°	28005	27755	28005	28256	28339
15°	27355	27100	27270	27696	27787
20°	26544	26194	26369	26806	26894
25°	25798	25435	25344	25616	25798
30°	25384	24523	23478	23573	23953
35°	24721	23617	21810	21007	21308
40°	23644	22356	19880	18055	17733
45°	22235	20607	17932	15250	13622
50°	20366	18959	16008	12682	11138
55°	18370	16936	14069	10762	9041
60°	16304	14823	12017	8727	6918
65°	14022	12660	9742	6434	4281
70°	12037	10354	7229	3606	1683
75°	9553	7943	4766	953	0
80°	7103	5683	2368	0	0
85°	3774	2830	0	0	0

**MAXIMUM LUMINANCE 45°-90°:**

Horizontal Angle: 0°  
 Vertical Angle: 45°  
 Luminance: 22235 cd/sqm



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**ZONAL LUMENS:**

Zone	Lumens	% Fixture
0°-10°	48.9	4.9
10°-20°	135.6	13.6
20°-30°	193.2	19.4
30°-40°	207.8	20.9
40°-50°	179.1	18.0
50°-60°	129.8	13.0
60°-70°	73.2	7.4
70°-80°	24.9	2.5
80°-90°	3.2	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°	377.7	37.9
0°-40°	585.5	58.8
0°-60°	894.3	89.8
0°-90°	995.6	100.0
90°-120°	0.0	0.0
90°-150°	0.0	0.0
90°-180°	0.0	0.0
0°-180°	995.6	100.0

**CANDELA DISTRIBUTION:**

	0°	45°	90°	135°	180°	Flux
0°	521	521	521	521	521	
5°	518	515	515	518	517	49
15°	482	478	480	488	490	136
25°	426	420	419	424	426	197
35°	369	353	326	314	318	230
45°	287	266	231	197	176	220
55°	192	177	147	113	95	172
65°	108	98	75	50	33	109
75°	45	38	22	4	0	49
85°	6	4	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°	521.1	521.1	521.1	521.1	521.1	521.1	521.1	521.1	521.1	521.1	521.1
2.5°	524.1	519.6	518.1	519.6	519.6	519.6	519.6	519.6	519.6	518.1	519.6
5°	518.1	513.6	513.6	513.6	513.6	513.6	512.1	513.6	513.6	513.6	515.1
7.5°	512.1	506.1	507.6	506.1	507.6	506.1	506.1	507.6	506.1	507.6	507.6
10°	503.1	498.6	498.6	498.6	498.6	498.6	498.6	498.6	498.6	498.6	498.6
12.5°	492.6	488.0	488.0	488.0	488.0	488.0	488.0	488.0	489.6	488.0	488.0
15°	482.0	476.0	477.5	476.0	476.0	476.0	476.0	476.0	476.0	476.0	477.5
17.5°	468.5	464.0	464.0	464.0	464.0	464.0	464.0	462.5	464.0	464.0	464.0
20°	455.0	450.5	450.5	449.0	450.5	449.0	449.0	449.0	450.5	449.0	449.0
22.5°	440.0	435.5	437.0	435.5	435.5	435.5	435.5	435.5	434.0	435.5	434.0
25°	426.5	425.0	423.5	425.0	423.5	423.5	423.5	422.0	422.0	422.0	420.5
27.5°	413.0	410.0	410.0	410.0	410.0	408.5	408.5	408.5	407.0	405.5	405.5
30°	401.0	396.4	396.4	396.4	394.9	394.9	393.4	393.4	390.4	388.9	387.4
32.5°	385.9	382.9	381.4	381.4	379.9	379.9	378.4	378.4	375.4	373.9	370.9
35°	369.4	367.9	367.9	366.4	364.9	363.4	361.9	360.4	358.9	355.9	352.9
37.5°	349.9	348.4	346.9	346.9	345.4	343.9	343.9	340.9	339.4	336.4	333.4
40°	330.4	327.4	327.4	325.9	324.4	322.9	322.9	319.9	318.4	315.4	312.4
42.5°	307.8	304.8	304.8	303.3	303.3	303.3	301.8	298.8	295.8	292.8	289.8
45°	286.8	283.8	283.8	280.8	280.8	279.3	277.8	276.3	273.3	270.3	265.8
47.5°	261.3	259.8	259.8	258.3	256.8	255.3	255.3	253.8	250.8	246.3	243.3
50°	238.8	237.3	237.3	235.8	234.3	232.8	231.3	229.8	228.3	225.3	222.3
52.5°	214.7	214.7	213.2	211.7	211.7	210.2	208.7	207.2	204.2	201.2	199.7
55°	192.2	190.7	190.7	189.2	189.2	187.7	186.2	184.7	183.2	180.2	177.2
57.5°	171.2	168.2	168.2	166.7	166.7	166.7	165.2	162.2	160.7	157.7	156.2
60°	148.7	147.2	147.2	147.2	145.7	144.2	144.2	141.2	139.7	138.2	135.2
62.5°	127.6	126.1	126.1	126.1	124.6	124.6	123.1	121.6	120.1	118.6	115.6
65°	108.1	108.1	108.1	106.6	106.6	105.1	103.6	103.6	102.1	100.6	97.6
67.5°	91.6	90.1	90.1	90.1	88.6	88.6	87.1	85.6	84.1	82.6	79.6
70°	75.1	73.6	73.6	72.1	72.1	72.1	72.1	70.6	67.6	67.6	64.6
72.5°	58.6	58.6	58.6	57.1	57.1	57.1	55.6	55.6	54.1	52.6	51.1
75°	45.1	45.1	45.1	43.5	43.5	43.5	42.0	42.0	40.5	39.0	37.5
77.5°	33.0	33.0	33.0	31.5	31.5	31.5	30.0	30.0	28.5	28.5	27.0
80°	22.5	22.5	22.5	21.0	21.0	21.0	21.0	19.5	19.5	18.0	18.0
82.5°	13.5	13.5	13.5	13.5	12.0	12.0	12.0	12.0	12.0	10.5	10.5
85°	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	4.5	4.5
87.5°	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
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°	521.1	521.1	521.1	521.1	521.1	521.1	521.1	521.1	521.1	521.1	521.1
2.5°	519.6	519.6	519.6	519.6	519.6	519.6	519.6	519.6	519.6	521.1	519.6
5°	515.1	515.1	515.1	515.1	515.1	515.1	516.6	515.1	516.6	515.1	516.6
7.5°	507.6	507.6	509.1	509.1	507.6	509.1	509.1	509.1	509.1	510.6	510.6
10°	498.6	500.1	500.1	501.6	501.6	501.6	501.6	503.1	503.1	503.1	503.1
12.5°	489.6	489.6	489.6	489.6	491.1	489.6	491.1	491.1	492.6	494.1	492.6
15°	476.0	477.5	477.5	477.5	477.5	477.5	479.0	480.5	480.5	480.5	482.0
17.5°	464.0	464.0	464.0	465.5	464.0	465.5	465.5	465.5	467.0	467.0	468.5
20°	449.0	447.5	450.5	449.0	449.0	450.5	450.5	450.5	452.0	452.0	452.0
22.5°	432.5	434.0	432.5	432.5	434.0	434.0	434.0	432.5	434.0	434.0	435.5
25°	419.0	419.0	419.0	419.0	419.0	419.0	419.0	417.5	419.0	419.0	419.0
27.5°	404.0	401.0	401.0	399.4	399.4	397.9	396.4	396.4	396.4	394.9	396.4
30°	385.9	382.9	381.4	379.9	378.4	378.4	375.4	373.9	372.4	370.9	369.4
32.5°	367.9	364.9	363.4	361.9	358.9	357.4	354.4	352.9	351.4	348.4	345.4
35°	351.4	346.9	343.9	340.9	339.4	337.9	334.9	331.9	328.9	325.9	322.9
37.5°	328.9	325.9	322.9	319.9	318.4	316.9	313.9	307.8	304.8	301.8	298.8
40°	309.3	304.8	301.8	297.3	295.8	292.8	289.8	285.3	280.8	277.8	274.8
42.5°	285.3	282.3	279.3	274.8	273.3	270.3	265.8	262.8	259.8	253.8	250.8
45°	262.8	259.8	256.8	252.3	249.3	247.8	244.8	240.3	235.8	231.3	228.3
47.5°	240.3	237.3	232.8	229.8	226.8	225.3	222.3	217.7	213.2	208.7	205.7
50°	217.7	214.7	211.7	205.7	205.7	202.7	199.7	195.2	192.2	187.7	183.2
52.5°	196.7	192.2	189.2	184.7	184.7	183.2	178.7	174.2	171.2	166.7	163.7
55°	174.2	171.2	168.2	165.2	162.2	160.7	159.2	154.7	150.2	147.2	142.7
57.5°	153.2	148.7	147.2	144.2	142.7	141.2	138.2	133.7	130.6	127.6	124.6
60°	133.7	130.6	126.1	124.6	123.1	121.6	118.6	115.6	112.6	109.6	106.6
62.5°	114.1	111.1	108.1	105.1	103.6	102.1	100.6	97.6	94.6	91.6	88.6
65°	94.6	93.1	90.1	88.6	87.1	85.6	82.6	79.6	78.1	75.1	72.1
67.5°	78.1	76.6	73.6	72.1	70.6	70.6	66.1	64.6	61.6	60.1	57.1
70°	63.1	61.6	58.6	57.1	55.6	54.1	52.6	51.1	48.1	45.1	43.5
72.5°	49.6	46.6	45.1	43.5	42.0	42.0	39.0	37.5	34.5	33.0	30.0
75°	36.0	34.5	33.0	31.5	31.5	30.0	28.5	27.0	24.0	22.5	21.0
77.5°	25.5	24.0	22.5	21.0	21.0	19.5	18.0	16.5	15.0	13.5	12.0
80°	16.5	15.0	15.0	13.5	12.0	12.0	10.5	9.0	7.5	7.5	6.0
82.5°	9.0	9.0	7.5	7.5	6.0	6.0	4.5	4.5	3.0	3.0	1.5
85°	4.5	3.0	3.0	3.0	3.0	1.5	1.5	1.5	0.0	0.0	0.0
87.5°	1.5	1.5	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°	521.1	521.1	521.1	521.1	521.1	521.1	521.1	521.1	521.1	521.1	521.1
2.5°	519.6	519.6	519.6	519.6	519.6	519.6	519.6	519.6	521.1	519.6	519.6
5°	516.6	516.6	518.1	516.6	518.1	518.1	516.6	516.6	518.1	519.6	518.1
7.5°	510.6	510.6	512.1	512.1	512.1	512.1	512.1	513.6	513.6	515.1	515.1
10°	504.6	504.6	504.6	504.6	506.1	506.1	507.6	507.6	507.6	507.6	507.6
12.5°	494.1	495.6	495.6	495.6	495.6	497.1	497.1	498.6	498.6	498.6	500.1
15°	482.0	483.5	485.0	485.0	483.5	485.0	486.5	486.5	488.0	488.0	488.0
17.5°	468.5	470.0	470.0	471.5	470.0	473.0	473.0	474.5	474.5	476.0	476.0
20°	453.5	455.0	455.0	455.0	456.5	456.5	458.0	458.0	459.5	459.5	459.5
22.5°	435.5	437.0	437.0	437.0	437.0	438.5	438.5	440.0	441.5	443.0	441.5
25°	419.0	420.5	422.0	420.5	422.0	422.0	422.0	423.5	423.5	425.0	423.5
27.5°	396.4	396.4	396.4	397.9	399.4	399.4	399.4	401.0	401.0	401.0	402.5
30°	369.4	367.9	369.4	369.4	369.4	369.4	372.4	372.4	372.4	373.9	375.4
32.5°	343.9	343.9	343.9	342.4	342.4	342.4	342.4	343.9	343.9	345.4	346.9
35°	319.9	318.4	315.4	315.4	315.4	313.9	312.4	312.4	313.9	313.9	313.9
37.5°	294.3	292.8	291.3	288.3	288.3	285.3	283.8	282.3	282.3	280.8	280.8
40°	270.3	267.3	264.3	264.3	261.3	259.8	256.8	255.3	252.3	249.3	249.3
42.5°	246.3	243.3	240.3	238.8	235.8	234.3	229.8	226.8	223.8	222.3	219.2
45°	223.8	220.7	216.2	214.7	211.7	208.7	205.7	201.2	196.7	193.7	192.2
47.5°	201.2	198.2	193.7	190.7	189.2	184.7	181.7	177.2	172.7	168.2	163.7
50°	180.2	175.7	171.2	168.2	166.7	162.2	159.2	154.7	148.7	147.2	142.7
52.5°	159.2	154.7	150.2	148.7	147.2	142.7	138.2	133.7	130.6	126.1	123.1
55°	138.2	135.2	130.6	129.1	127.6	123.1	118.6	115.6	112.6	108.1	105.1
57.5°	120.1	117.1	112.6	111.1	109.6	105.1	102.1	97.6	94.6	91.6	88.6
60°	103.6	99.1	96.1	94.6	93.1	88.6	85.6	82.6	79.6	76.6	72.1
62.5°	85.6	82.6	79.6	78.1	75.1	73.6	69.1	67.6	63.1	61.6	58.6
65°	69.1	66.1	63.1	63.1	61.6	57.1	55.6	52.6	49.6	46.6	45.1
67.5°	55.6	52.6	49.6	48.1	46.6	43.5	42.0	39.0	36.0	34.5	31.5
70°	42.0	39.0	36.0	34.5	33.0	31.5	28.5	25.5	22.5	21.0	18.0
72.5°	28.5	25.5	24.0	24.0	22.5	19.5	16.5	15.0	12.0	10.5	9.0
75°	18.0	15.0	13.5	12.0	12.0	10.5	7.5	6.0	4.5	3.0	1.5
77.5°	10.5	9.0	7.5	6.0	6.0	4.5	3.0	1.5	1.5	0.0	0.0
80°	4.5	3.0	1.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
82.5°	1.5	1.5	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: P642329

CATALOG NUMBER: ML5612LSWW97FS1E - 692SC WW - 1200LM - 4000K

**CANDELA DISTRIBUTION (continued):**

	150°	155°	157.5°	160°	165°	170°	175°	180°
0°	521.1	521.1	521.1	521.1	521.1	521.1	521.1	521.1
2.5°	519.6	519.6	519.6	519.6	518.1	518.1	518.1	518.1
5°	518.1	518.1	518.1	518.1	516.6	516.6	518.1	516.6
7.5°	515.1	515.1	513.6	513.6	513.6	513.6	513.6	513.6
10°	509.1	509.1	509.1	507.6	509.1	509.1	507.6	509.1
12.5°	500.1	500.1	500.1	500.1	498.6	498.6	500.1	498.6
15°	489.6	489.6	489.6	489.6	489.6	488.0	489.6	489.6
17.5°	477.5	477.5	476.0	476.0	476.0	477.5	477.5	476.0
20°	461.0	461.0	461.0	461.0	461.0	461.0	461.0	461.0
22.5°	443.0	443.0	443.0	443.0	443.0	443.0	443.0	443.0
25°	425.0	425.0	425.0	425.0	425.0	425.0	425.0	426.5
27.5°	402.5	402.5	402.5	402.5	402.5	401.0	401.0	404.0
30°	375.4	376.9	376.9	376.9	376.9	376.9	376.9	378.4
32.5°	348.4	348.4	348.4	349.9	348.4	349.9	348.4	348.4
35°	316.9	316.9	316.9	316.9	316.9	318.4	318.4	318.4
37.5°	280.8	282.3	282.3	283.8	283.8	283.8	285.3	283.8
40°	247.8	247.8	247.8	246.3	247.8	246.3	247.8	247.8
42.5°	216.2	213.2	213.2	211.7	211.7	210.2	208.7	208.7
45°	187.7	183.2	183.2	181.7	180.2	177.2	175.7	175.7
47.5°	160.7	159.2	157.7	156.2	154.7	151.7	150.2	151.7
50°	138.2	136.7	135.2	135.2	133.7	132.1	130.6	130.6
52.5°	120.1	117.1	115.6	115.6	114.1	112.6	112.6	112.6
55°	102.1	99.1	99.1	99.1	97.6	96.1	96.1	94.6
57.5°	85.6	82.6	82.6	81.1	79.6	79.6	79.6	78.1
60°	70.6	67.6	66.1	66.1	64.6	63.1	63.1	63.1
62.5°	55.6	54.1	51.1	51.1	49.6	48.1	46.6	48.1
65°	42.0	39.0	37.5	37.5	36.0	34.5	33.0	33.0
67.5°	28.5	27.0	25.5	25.5	22.5	22.5	21.0	21.0
70°	16.5	15.0	15.0	13.5	12.0	12.0	10.5	10.5
72.5°	7.5	6.0	6.0	4.5	4.5	3.0	3.0	3.0
75°	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
77.5°	0.0	0.0	0.0	0.0	1.5	1.5	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)